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### Communication in times of crisis: The interplay between the organization, news media, and the public

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# COMMUNICATION IN TIMES OF CRISIS

THE INTERPLAY BETWEEN THE ORGANIZATION, NEWS MEDIA, AND THE PUBLIC

Societies are frequently confronted with disruptive organizational crisis situations, which can have drastic societal consequences. As communication increasingly plays a role in the escalation and impact of these crises, it is important to explore the communication between several key actors. Therefore, this dissertation explores the communicative interplay among the organization, news media, and the public in times of organizational crisis. The studies presented in this dissertation provide insights into (1) how the crisis frames of the three actors align over time, (2) how stakeholder-organization relationships are affected by the crisis, (3) how news media and journalists determine who gets a voice in the news during a crisis, and (4) the selection of news sources by the public during a crisis and the consequences of selection for public framing.

COMMUNICATION IN TIMES OF CRISIS

TONI VAN DER MEER



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THE INTERPLAY BETWEEN  
THE ORGANIZATION, NEWS  
MEDIA, AND THE PUBLIC

TONI VAN DER MEER

Communication in times of crisis  
The interplay between the organization, news media, and the public

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# DISSERTATION OVERVIEW

## INTRODUCTION

Pick any day of the week and you will find breaking news or top headlines on crisis situations (Coombs, 2015). Stories about plane crashes, explosions of chemical plants, product recalls, bankruptcy of large organizations, or oil spills have become part of today's news agenda. These business-related crises have become more significant with the increasing media visibility and societal impact of today's organizations (Boggs, 2000; Ihlen & Pallas, 2014). These so-called organizational crises can drastically affect and disrupt all segments of society (e.g., Gilpin & Murphy, 2008).

An organizational crisis can be defined as the perception of an unpredictable organization-related event that threatens the central expectancies of actors related to the organization and can seriously impact an organization's reputation or performance and generate negative outcomes (Coombs, 2007, 2015; Jin, Liu, & Austin, 2014). Crises generally strike suddenly, giving them an element of surprise. Therefore, these critical situations and their harmful consequences are difficult for an organization to anticipate. The potential negative outcomes extend beyond financial loss for the organization (Coombs, 2015). Crises can, for example, cause injuries or deaths, harm the environment, or result in general economic downturn. As this dissertation focuses exclusively on organizational crises, the term crisis refers to an organizational crisis. Furthermore, this dissertation focuses specifically on three key actors, namely the organization undergoing the crisis, news media, and the public. As the aim of this dissertation is to explore the communicative interplay among key actors in times of crisis, the overarching research question is formulated as follows: *How does the communication of the organization, news media, and the public evolve in times of organizational crises?*

As different as organizational crises can be, they do share some important fundamentals. Within a matter of hours or days, each type of crisis can radically redefine the organizational reputation (Coombs, 2007), disrupt ongoing practices (Patriotta, Gond, & Schultz, 2011), result in high media attention (Schultz, Kleinnijenhuis, Oegema, Utz, & van Atteveldt, 2012), and significantly damage society (Gilpin & Murphy, 2008). A well-studied example of an organizational crisis is the BP oil spill of April 2010 in the Gulf of Mexico (Kleinnijenhuis, Schultz, Utz, & Oegema, 2013). The explosion of Transocean's Deepwater Horizon drilling rig, that was drilling for oil on behalf of BP, killed 11 workers and injured 16 and caused the Deep Horizon to burn and sink. The international news media covered this crisis as an environmental disaster. The price of BP's shares dropped drastically, the CEO Tony Hayward was replaced, and the explosion caused one of the largest accidental marine oil spills. Another more recent example is the Volkswagen emission scandal. It began on 18 September 2015 when the Environmental Protection Agency (EPA) found out that multiple Volkswagen's models had devices in diesel engines that could detect when they were being tested, lowering the nitrogen oxides emissions during laboratory tests to improve the results. The scandal that came with negative media attention had far-reaching consequences for Volkswagen. Volkswagen's stock price plunged significantly in value, consumer trust was significantly damaged, CEO Martin Winterkorn had to resign, and billions of dollars were needed to rectify the fraud. On top of that, the higher levels of pollution resulted in substantial health and environmental hazards.

Because of their potential for catastrophic damage, crises have become an extensively covered phenomenon in the fields of public relations research and communication science. At large, scholars acknowledge the importance of communication at times of crisis. The dissemination of information and communication are generally crucial in the degree of crisis escalation and its potential impact (Thelwall & Stuart, 2007). Due to the low-probability and complex character of organizational-crisis situations, these situations defy interpretations and impose demands on sense making (Schultz & Raupp, 2010; Weick, 1988). Sense making, as a central organizational construct, describes how actors come to make sense of events or issues related to an organization that need to be made intelligible to themselves as well as to others (Weick, 1995). In these crisis situations, actors engage in sense making activities in order to provide an account that functions as an interpretation (Cornelissen, Carroll, & Elving, 2009; Quinn & Dutton, 2005). These accounts can include discursive narrations or framing of an event, issue, or decision. The definite understanding and sense making of the crisis is formed in the communication and negotiation among the involved actors. Incomplete understanding and communication of emotionally charged crisis events may result in (unnecessary) confusion or even panic and will complicate the solving of the crisis (Liu & Kim, 2011). Hence, when communicative actions fail, minor problems can spiral into major crisis situations, intensifying small and unexpected organizational events (Weick, 1988). In sum, the communicative process is crucial during a crisis in order to make sense of the situation at play, limit negative outcomes, and in the end solve the crisis.

To acknowledge the importance of communication in organizational practices, a multi-actor perspective is needed. Coming from a narrow focus on the organizational perspective in the field of public relations, researchers started only recently to explore, on a more elaborated level, the interplay of organizational communications with other domains as news coverage and public perception (Schultz et al., 2012). Concepts from related fields as mass communication and political communication, such as agenda setting (Kiousis, Popescu, & Mitrook, 2007; McCombs, 1997) and framing (Scheufele, 1999; Scheufele & Tewksbury, 2007; Vliegenthart, Schuck, Boomgaarden, & De Vreese, 2008), that focus more strongly on the understanding of events or issues and therewith acknowledge the role of multiple actors, have not been fully conceptualized and empirically analyzed for the field of public relations and corporate communication so far. However, an emerging research avenue is approaching organizations as to be part of a multi-actor network (e.g., Van Woerkum, Aarts, & Van Herzele, 2011), acknowledging today's so-called network society (Castells, 2007). This network of involved or interested actors can define or redefine the organization's reputation and performance. Organizations are no longer given a central place (Fassin, 2008). The control over communication no longer lies with the organization, and the new communicative role of key actors deserves closer investigation (e.g., Luoma-aho & Vos, 2010).

Especially at times of crisis, the interplay of multiple actors and the organization is at the center of communication (Kleinnijenhuis et al., 2013). The complex and rapidly evolving nature of a crisis creates an intense communication need to provide coherence to the issue (Hellsten, Dawson, & Leydesdorff, 2010; Snow, Rochford,

Worden, & Benford, 1986) and reduce uncertainty (Leydesdorff & Ivanova, 2014). Since sense making is by definition a social process (Van Ruler & Verčič, 2005), how a crisis evolves is not merely based on the occurrence of events but also involves the communicative interaction between significant actors. Both traditional and new media provide numerous actors with platforms to communicate about how the crisis should be interpreted, which elements should be emphasized, and what steps should be taken. These interactions reach into a wide range of research interests, echoing calls for a multiple-actor perspective in crisis research and more complex analyses on the interactive negotiation during crisis situations (Kleinnijenhuis et al., 2013; Liu, stino, & Jin, 2015; Schultz et al., 2012).

The previously addressed crisis examples also illustrate the presence of multiple actors during an organizational crisis. First, local, national, and international news media played a huge role in the BP oil spill crisis. The media framed the explosion as one of the largest environmental disasters and frequently showed images of for example heavily oiled pelicans and dolphins swimming in emulsified oil. Moreover, the public advocated a boycott of BP, local fishing and tourism industries were extensively damaged, and even president Obama of the United States demanded that BP took full responsibility for the crisis. Second, the Volkswagen emission scandal was discovered by a group of scientists at West Virginia University and after announcement the scandal received widespread negative media attention. German Chancellor Merkel urged for complete transparency while public trust in Volkswagen drastically decreased and duped consumers demanded compensation.

Although the communication among multiple actors is of particular importance in crisis research, academic research has so far mainly approached crisis communication from an organization centric perspective, applying recipient-focused approaches and using management-related theories (Coombs, 2007; Jin et al., 2014; Kim & Cameron, 2011). The central aim of this dissertation is to overcome these shortcomings in the field of public relations and crisis research. Therefore, the focus is on the interplay between the key actors – the organization, news media, and the public – to provide a starting point in understanding the role of multiple actors within the communication and development of organizational crises.

In the remaining part of this chapter, the dissertation will be introduced in more detail. First, the focus of the dissertation is addressed by providing some additional insights into the current state of the literature regarding crisis communication and the need for new theoretical approaches and perspectives. The next section outlines the individual chapters of the dissertation. Finally, the overall conclusions and discussions of the findings of this dissertation, theoretical, methodological, and practical implications, and suggestions for future research will round out this chapter.

#### FOCUS OF THIS DISSERTATION

Public relations and organizational crisis research has to this point provided insightful knowledge on the role of communication at times of organizational crisis. Up to now, relevant studies have predominantly addressed crisis communication by exploring the effectiveness of organizational communication in the midst of a crisis (Coombs, 2006; Schultz et al., 2012). The dominant theory in crisis research, defined as Situ-

ational Crisis Communication Theory, focuses on the crisis-response strategies an organization can adopt to inform the public and limit post-crisis reputational damage (Coombs, 2007). Based on Benoit's (1997) speculative image restoration strategies, Coombs (2007) categorized several response strategies as denial, diminish, and rebuild. First, the denial strategies attempt to remove any connections between the crisis and the organization in order to avoid damage from the crisis. Examples of this strategy are attacking the accuser, denying that there is a crisis, and blaming someone else (scapegoating). Second, diminish strategies are aimed at downplaying the crisis and the organization's role in the crisis. An organization might try to accomplish this by denying intent to do harm or minimizing the perceived damage as a result of the crisis. Third, rebuild strategies aim at avoiding reputational damage by offering symbolic or material aid to those affected by the crisis (Coombs, 2006, 2007). Examples are offering compensation in the form of money or gifts, taking full responsibility, and asking for forgiveness. Empirical research has demonstrated how these strategies, for various crisis situations, differently affect several outcome variables such as the organization's post-crisis reputation (Coombs & Holladay, 2008) and secondary crisis communication (Schultz, Utz, & Göritz, 2011). The rebuild strategy is generally found to be the most effective strategy to limit negative crisis outcomes. These empirical results demonstrate the importance of communication at times of crisis. However, the majority of these studies did not succeed in overcoming the underlying organization-centered perspective and strong focus on unidirectional communication. Therefore, this dissertation aims to expand on prior public relations literature and crisis research by investigating how crisis communication evolves in the dynamic interplay between several key actors at times of organizational crisis.

#### Interplay between the organization, news media, and the public

In a world of greater interdependency and change the significance of (mediated) communication to understand the evolvement of issues is apparent to scholars (Neuwirth, 2010). Research on the communication of agendas or discussion of major news events generally addresses the multidirectional interplay between the media, public, and organizational agendas (e.g., Kleinnijenhuis et al., 2013; Riegert & Olsson, 2007; Schultz et al., 2012). First, the organization experiencing the crisis is naturally an important player in crisis communication. The organization's public relations department and communication professionals are by definition responsible for the communication with external actors and maintaining good relationships with them, also in the event of a crisis (Ulmer, 2001; Veil, 2012). Accordingly, some researchers focus on communicative preparatory plans for when a crisis strikes, monitoring to recognize issues that might turn into crises, and how the communication department of an organization should respond in times of crisis (Coombs, 2015).

Second, in today's media-saturated society, the role of news media and how crises are covered should not be overlooked (e.g., Cornelissen et al., 2009). At large, mass media studies provide strong evidence that news media are capable of determining what is on the public agenda and how the public evaluates specific

issues (Carroll & McCombs, 2003; Scheufele, 1999). Also in the context of organization-related events and crisis situations, the media play a large role in how issues are interpreted and understood (Kleinnijenhuis et al., 2013).

Third, the advent of social media has enhanced the public's capacity to influence which elements of an issue are emphasized and why some features of reality are highlighted within communication (Saxton & Anker, 2013). Social media provide the public with a channel to quickly communicate their respective interpretation of the crisis, reaching millions of people without the intervening presence of journalists (Neuman, Guggenheim, Jang, & Bae, 2014). This development made the public part of the network society and increased their capacity to influence others' perspectives (Castells, 2007). Since the dissemination of information and communication plays a crucial role in the evolution of a crisis, social media have increased the public's potential to influence aggregate levels of crisis understanding and the development of a crisis (Saxton & Anker, 2013).

In sum, in order to understand the communication processes at times of crisis this dissertation emphasizes the interplay between the organization, news media, and the public. These key actors could also be considered as a high level of aggregated actors, where multiple lower-level (ultimately individual) actors combined are actually part of the same aggregated actor. Nevertheless, these aggregated actors are often considered in research as a relevant unit of analysis, with each of them their own logic. The dynamics at this meso or macro-level are particularly relevant for this dissertation's emphasis on the evolution of communication. Therefore, the focus on these three key actors will provide important new insights into the communication at times of crisis within and among the most significant actors.

#### **Theoretical approach to investigate the communicative interplay**

As crisis communication has so far been mainly explored from an organizational and unidirectional perspective, the exploration of the interplay with news media and the public asks for a new theoretical approach. In general, traditional communication theories provide useful approaches that are potentially relevant to explore the flow of communication and the role of several actors at times of crisis. For example, studies of news diffusion examine the flow of information and the awareness of critical events through a social system (Rogers & Kincaid, 1981). These studies observe how patterns of media coverage direct the public's reaction and stimulate the rapid flow of information throughout the population. Typically, media alter their routine operations and increase their coverage when reporting on critical events such as wars or major disasters. Moreover, media system dependency theory tied together the relationship of mass media, as a broad social system, and the public, on the individual level, into a comprehensive model of media effects (Ball-Rokeach & DeFleur, 1976). The interdependent relationship among media and the public as different systems is the key focus in this theory to understand media effects. This theory basically states that the effect of the media depends on how important media are in a person's life. This dependency is heightened when the number of media and centrality of media functions is high in society and when society is undergoing social change or conflict – e.g., in times of war or crisis (Neuwirth, 2010).

Furthermore, the two-step flow theory posits an indirect effect of news media (Katz, 1957; Lazarsfeld, Berelson, & Gaudet, 1944). Mass media influence the opinions or agendas of opinion leaders who in turn affect the broader public or audience. In this flow of communication, explaining media effects, different actors could fulfill the role as transmitting or diffusing media agendas but also as filters or as amplifiers of media effects. Communications theories like these classical theories provide useful perspectives to understand the evolution of crises as a result of communication. However, these theories mainly hold on to the idea of static patterns of effects in terms of a unidirectional causality through fixed channels and a static relationship among the domains and actors involved. Accordingly, these major approaches in communication science, despite their widespread influence, have been criticized on several grounds, including a view of a passive audience, the assumption of a linear communication flow, and a sender-based definition of communication success (Kepplinger, 2007; Neuwirth, 2010). Hence, to gain a complete understanding of the dynamic and complex interactions among prominent actors at times of crisis, theories that emphasize multiple perspectives at the same time need to be selected.

In order to address the multidirectional interplay and highlight the role of the organization, news media, and the public in the process of crisis communication, this dissertation draws from similar, yet separate, lines of research. By looking at the concept of a crisis from three approaches, and therewith combining the perspectives of three different scientific theoretical disciplines, this dissertation aims to obtain a more complete understanding of crisis communication. First, the theory of framing, rooted in thoughts of media effects, has only partly been applied to public relations and crisis research (Hallahan, 1999; Schultz et al., 2012). Frames can be understood as schemata of interpretation that help individuals to understand events or issues in a constructed reality (Benford & Snow, 2000; Entman, 1993). Framing theory helps to highlight the role of multiple actors and how they make sense of relevant issues that are at stake (Gamson & Modigliani, 1989). In general, framing research offers strong support for how frames provided by news media, or other institutions, can influence audiences' evaluation of an issue (e.g., Davis, 1995). Additionally, the public is gaining a more prominent role in the framing of issues with the advent of social media (Karlsson, Bergström, Clerwall, & Fast, 2015; Neuman et al., 2014). In the context of organizational crises, framing processes can play a fundamental role in the evolution of a crisis (Coombs, 2007; Liu & Kim, 2011; Seeger, 2002; Van der Meer & Verhoeven, 2013). As issues can be viewed from multiple perspectives, the question is how the organization, news media, and the public differently frame aspects of the crisis.

Second, stakeholder theory is a helpful approach to understand how an organization relates to multiple actors during a crisis and to explore the dynamic environment that an organization operates in (Stephens, 2005). Stakeholder theory basically states that in order to be successful, an organization should acknowledge the importance of their relationships with different key actors. The terms stakeholder and (involved) actor refer in the context of this dissertation to the same thing and will therefore be used interchangeably. At times of crisis, good stakeholder relationships and pro-active crisis communication can advance collective sense making and

prevent crisis escalation (Alpaslan, Green, & Mitroff, 2009). This emphasis on the influence of numerous actors helps to understand how an organization communicates with different actors and how relationships develop or change during a crisis.

Third, theories regarding gatekeeping and source selection are helpful to understand how journalists and the active public use information provided by others during a crisis. Gatekeeping theory offers a powerful approach to explore how news media and their journalists report on a crisis and how the quantity of information received is reduced to fit available time and space. Gatekeeping refers to practices regarding how journalists select news items but also relates to the decision as to which sources are selected to cover a story (Shoemaker & Reese, 1996; Shoemaker & Vos, 2009). Journalists' sources are found to play an indispensable role in the production of news and therefore matter in determining which frames manifest in the news (Gans, 1979; Hanitzsch, 2004). This approach can be applied to understand which actors are more likely to obtain a voice in the news and in turn affect news framing of the crisis. Information sources are not only crucial for journalists but also for the public to obtain crisis information. Most members of the public will not directly experience the crisis and might therefore turn to information sources that are easily obtained and shared online (Chung, Nam, & Stefanone, 2012). Consequently, it can be assumed that actors, by serving as a source for information, play a significant role in how journalists and the public understand the crisis and formulate frames.

#### OUTLINE CHAPTERS

This dissertation comprises four self-containing studies of empirical research, which are presented in the subsequent chapters. The interplay between the organization undergoing the crisis, news media, and the public is central to the dissertation and combines the chapters. Each chapter focuses on this dynamic interplay from a different perspective and theoretical approach. As a starting point, the first chapter applies a framing perspective to explore the interplay among all three actors during a crisis. The second chapter relies on stakeholder theory to address the relationship with involved actors during a crisis from the perspective of the organization and its public relations (PR) professionals. The third chapter uses gatekeeping theory to elaborate on how organizational crises are covered by news media and journalists. Finally, by relying on a framing and source selection approach, the fourth chapter focuses on the public and how they select and use information sources in their online framing of a crisis. To address these matters, the project draws on research triangulation. With the focus on different perspectives in combination with different methodological approaches, this dissertation aims to gain substantial and detailed insights into the dynamic communicative interplay among actors in times of crisis. Figure 1 schematically summarizes the triadic interplay among the organization, news media, and the public and details the focus of each chapter.

The following section provides a brief summary of the four chapters. Each chapter presents an independent article, which is either published or submitted for publication, that contains its own abstract, introduction, theoretical framework, method, results, and conclusion and discussion.

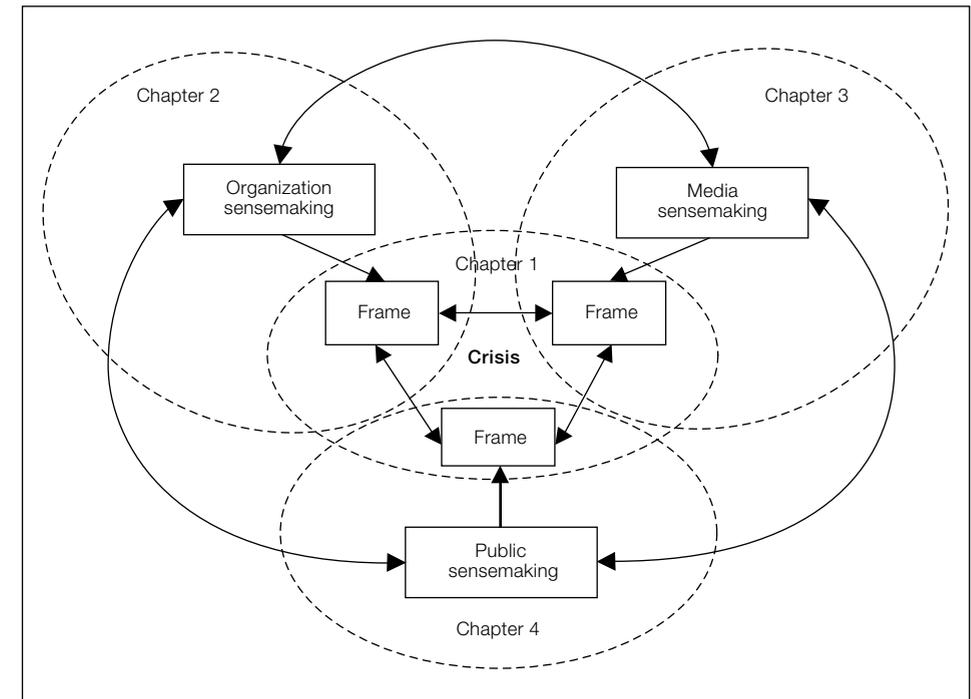


Figure 1. Outline dissertation: The interplay of the organization, news media, and the public during a crisis.

#### Chapter 1. Crisis framing by the organization, news media, and the public

The first chapter applies a framing perspective to explore the interplay of the organization, news media, and the public during a crisis. Although it has been widely established that the framing of an issue can have an effect on how it is perceived and understood, the framing of a crisis has gotten little attention in public relations and crisis research (Schultz et al., 2012). The objective of the study reported in this chapter is therefore to gain more insight into how the different actors frame an organizational crisis. Building on prior framing research extrapolated from political communication and mass communication literature, this research explores to what extent the crisis frames of the organization, news media, and the public align over time. Frame alignment generally implies that the frames of different actors become more linked, congruent, and complementary (Snow et al., 1986). This study argues that, when time passes during a crisis, the frames of the three actors will temporally align to provide coherence, reduce uncertainty, and ultimately solve the crisis situation (Hellsten et al., 2010; Schultz & Raupp, 2010). Therefore, the central research question of this empirical study is as follows: *Does the crisis framing of the organization, news media, and the public align over time?*

To empirically explore the process of frame alignment at times of crisis, the study applies a semantic-network analysis to compare implicit framing between the actors. This methodological approach facilitates the identification of implicit

frames in texts and statistically determines the level of frame alignment among different actors based on word (co)occurrence. This empirical investigation aims to answer the research question by comparing crisis-related press releases of the organization experiencing the crisis, newspaper articles, and social-media manifestations of the public (N = 51.170 messages). Four Dutch crisis cases were selected and analyzed on the level of frame alignment among the three actors for several research periods.

The findings detected a crisis-specific pattern of frame alignment over time among the organization, news media, and the public. Overall, the results for all four crisis cases documented that after the absence of frame alignment in the initial crisis phase, the frames of the three actors aligned over time. However, this frame alignment was only a temporary phenomenon as the frames de-aligned in the final phase of the crisis. As frame variation across actors is generally the norm, the findings imply that the alignment was a temporal necessity to make sense of the situation forced by external circumstances, namely the emergence of an organizational crisis. Moreover, when comparing the four crisis cases, the results document an overall rise in the level of frame alignment over the years.

## Chapter 2. The perspective of the organization

The second chapter emphasizes the perspective of the organization and how they deal with other involved actors at times of crisis. In accordance with stakeholder theory, organizations can be influenced and shaped by their relationship with a variety of actors related to the organization (Fassin, 2008). Especially during an organizational crisis, the relationship with stakeholders can be of crucial importance as it can shape outcome factors as crisis understanding, organizational reputation, and crisis escalation (David, 2011). This paper investigates the development of stakeholder-organization relationships in the initial phase of an organizational crisis. At these critical times, various actors are likely to increase their pressure on the stricken organization and its PR professionals through numerous online and offline media channels (Jin et al., 2014). These various forms of pressure during a crisis might significantly alter the organization's relationships with its stakeholders. The study explores this effect by looking at the organization's relationship with external stakeholders – i.e., news media and the public – and internal stakeholders – i.e., management and other employees. The research question addressed in this chapter reads as follows: *How do organization's communicative stakeholder relationships differ when the organization undergoes a crisis, compared to routine circumstances?*

In order to analyze the pressure from and the relationship with stakeholders, 444 experienced European PR professionals were surveyed as they represent the organization and organizational communication in times of organizational crisis. PR professionals were asked about the extent to which they experience pressure from the different external and internal stakeholders, their perceived time pressure and uncertainty, and as dependent variable the relationship between the organization and the stakeholders. All questions were asked for both normal times and crisis times. For the purpose of answering the research question, several structural equation models were constructed. The models tested for the direct effect

of stakeholder pressure on stakeholder-organization relationship and the indirect effect through time pressure and uncertainty, controlling for normal circumstances.

The findings showed how PR professionals' experienced pressure from stakeholders increased and how the relationship with stakeholders decreased during a crisis compared to normal times. Moreover, as expected, the findings show that, in times of crisis, pressure from news media, the public, and other employees had a significant negative effect on the communicative relationships with these specific actors. Additionally, as hypothesized, the findings expose a significant positive effect of management pressure at times of crisis on the relationship between PR professionals and management. This positive association implies the close working relationship between PR professionals and the top management in the initial phase of a crisis, implying organizational isolation on the managerial level. Furthermore, the analyses exposed, for most stakeholders, the mediating effect of time pressure in the effect of stakeholder pressure on relationship. Thus, stakeholder pressure can increase perceived time pressure, which in turn can negatively affect the relationship. No significant mediation effect was found for perceived uncertainty. Finally, stakeholder-organization relationships under normal times strongly predicted the relationships at times of crisis, indicating that well-nurtured pre-crisis stakeholder relationships will pay off in times of crisis.

## Chapter 3. The perspective of news media

The aim of the study presented in chapter three is to explore the role of news media and journalists at times of an organizational crisis. News media coverage is known to be able to shape or alter the evolution and magnitude of an organizational crisis (e.g., Triandafyllidou 2009; Kleinnijenhuis et al., 2013). Public understanding and acting regarding a crisis situation often depends on the information provided by news media (Sorribes & Rovira, 2011). To understand how an organizational crisis is covered in the media, this study explores journalists' gatekeeping function and focuses on which sources are selected (Shoemaker & Reese, 1996; Shoemaker & Vos, 2009). The study investigates how journalists determine whether news agencies, the organization experiencing the crisis, and the public should get a voice in the news during a crisis. In order to explore the mechanism underlying these gatekeeping practices several fundamental selection determinants that can influence source selection are addressed. More specifically, it is explored how source selection is affected by journalists' judgment of the source – i.e., source credibility and knowledge –, sources' activities – i.e., sources' willingness to share information and timely communication –, and the relationship between source and journalists. The central research question for this chapter is: *How do journalists select sources during a crisis situation?*

To investigate journalists' gatekeeping practices during a crisis a survey among 214 Dutch practicing journalists was conducted. Journalists were asked to respond to several items for the three potential sources: news agencies, the organization, and the general public. The dependent variable was sources' likelihood to be selected as a source in the initial phase of a crisis. Journalists responded to questions about sources' credibility, knowledge, willingness, timeliness, and their relationship with

the source. Using structural equation modeling, the direct and indirect effects of these variables on sources' likelihood to be selected were tested. Additionally, the level of importance of the different determinants is compared among source types.

The findings show that sources' likelihood of being included in the news could be predicted based on the five source characteristics credibility, knowledge, willingness, timeliness, and relationship. The effect of these factors depended on source type. For example, only in the case of the organization, willingness had a negative effect on being included in the news, imply journalists' skepticism towards organizations that are too eager to get their story across during a crisis. The results show how journalists assess different sources based on different criteria they consider relevant for that specific source. Ergo, as comparable to non-crisis times, it can be assumed that journalists remain critical gatekeepers when covering an organizational crisis. However, journalists clearly showed to favor news agencies as a source in times of crisis. The reliance on this familiar source might result in unbalanced representation of sources in crisis coverage in the initial phase of a crisis.

#### Chapter 4. The perspective of the public

The final study presented in chapter four explores organizational crisis communication from the perspective of the public. The role of the public in crisis communication has changed with the diffusion of online communication technologies and the advent of social media (Westerman, Spence, & Van der Heide, 2014). Social media have gained prominence as a tool for quick crisis communication offering the public a many-to-many platform to disseminate and create unique crisis information (Jin, Fraustino, & Liu, 2015). This development has enhanced the public's capacity to affect crisis understanding and the framing of the crisis (Saxton & Anker, 2013). Traditional frame-building research acknowledges the crucial role of information sources in framing processes (Dimitrova & Stromback, 2011; Tuchman, 1978). Especially in an online environment, the public can easily obtain and share information sources (Chung et al., 2012). Hence, it is likely that sources – i.e., national and local news media, the organization central to the crisis, or other members of the public – play a significant role in the public's online framing.

The aim of this study is to model the comprehensive process of public frame building by exploring two fundamental steps in frame building, related to the role of sources. A dual study approach is applied to obtain a more complete understanding of public framing processes. First, study 1 explores how the public uses sources to address certain frame functions – i.e., problem definition, causal interpretation, moral evaluation, and treatment recommendation (Entman, 1993). Second, Study 2 aims to explore the underlying mechanism of the public's source selection. The central research question reads as follows: *How does source usage affect the public framing of a crisis and when does the public uses information provided by sources?*

Study 1 applies four datasets of tweets (N = 252,711) send by the public about Dutch crises that set in motion a significant chain of messages. Using manual-content analysis, it was coded how frequently the public used national and local news media, the organization central to the crisis, or other members of the public as a source. A combination of automated content analysis, Latent Dirichlet Allo-

cation and K-means clustering, was applied to identify which frame functions the public addressed in their online crisis communication. Time-series analyses – i.e., partial adjustment autoregressive distributed lag models – are conducted to assess whether the use of sources affects frame functions.

Because the findings of Study 1 exclusively provide understanding of the association between source usage and addressed frame functions, Study 2 complements this by addressing the preceding step of how the public selects source information. Study 2 presents a vignette study where respondents (N = 772) were presented five short online messages (i.e., vignettes) of fictional crises based on the analyzed material and findings of Study 1. The crisis messages were manipulated on the following external factors: Source of the message (website national news, website regional news, website central organization, or social media message of a member of the public), crisis magnitude (accidents or fatal accidents), and crisis origin (organization responsible for the crisis or not). To test the effect of these manipulated elements, respondents were asked, after exposure to each message, about the dependent variable how likely they would use this information. After the experimental stimuli had been judged, measures for general crisis involvement and habitual source use were obtained.

The findings of Study 1 show that sources play a significant role in whether the public addresses frame functions. A frequent reliance on sources for crisis information was observed and the selection of these sources was found to affect which frame functions were addressed online. The public mainly relied on other members of the public as a source, but the use of news media was most significant in explaining whether certain functions were addressed. Moreover, the public was found to use sources more often to address certain frame functions. Functions related to initial problem definition were frequently not correlated with source usage whereas causal interpretation and treatment recommendation functions, related to later phases of a crisis, were frequently initiated by source usage. Study 2 observes that external and internal factors determine which sources the public uses. Depending on source type, the factors crisis origin, crisis magnitude, crisis involvement, and habitual source use can affect the likelihood that the public selects source information at times of crisis.

#### OVERALL CONCLUSIONS & DISCUSSIONS

Crisis situations, as external circumstances, bring forward new mechanisms of communication and interaction among key actors. Despite differences in size and shape, crises seem to share certain fundamental characteristics if it comes to the interplay of an organization, news media, and the public. The studies presented in this dissertation shed light on several crisis-specific communication patterns and other findings that contribute to the understanding of how organizational crises evolve. The subsequent section summarizes the overarching conclusions and discussions of the four chapters.

### Separation of worlds

An organizational crisis never occurs in isolation neither does it start off in extensive interaction. At times of crisis, multiple actors and domains are involved and become part of the same issue forced by the occurrence of the crisis. Despite the importance of communication in times of crisis, this dissertation came to the understanding that extensive communication among actors is at first lacking or absent. The findings of all four studies combined indicate the separation of worlds, in the initial phase of the crisis, on the subject of understanding the crisis and communicating about it. Communication mainly flows within the separate domains. Despite the increased need for communication (Thelwall & Stuart, 2007) and necessity of clarification (Weick, 1988) no active communication among the organization, news media, and the public is detected. This form of isolation holds that actors separately make sense of the crisis, potentially resulting in different crisis understanding and frame formation.

The separation of worlds became especially evident in the study presented in chapter one. This study empirically showed that, for several crisis cases, the frames of the organization undergoing the crisis, news media, and the public were not aligned at the initial phase of a crisis. This frame variation demonstrates how the actors differently made sense of the crises in their first communication, indicating the separation of worlds. Correspondingly, the other three studies also showed a lack of communication in the initial phase of the crisis. Chapter two showed that when an organization undergoes a crisis it mainly values the relationship with its management. In the initial crisis phase, the organization isolates itself on a managerial level and tries to keep news media and the general public at a distance. The third chapter observed comparable patterns. During the initial phase of an organizational crisis, journalists mainly rely on sources that are part of the same journalistic domain (i.e., news agencies). Journalists were more likely to include information provided by other news outlets in their crisis reports, compared to information from the public or the organization in crisis. The final study showed that the public's online reliance on sources for crisis information depends on the frame functions they aimed to address. The functions that related to problem definition, functions that can be associated with the initial phase of a crisis, were frequently not initiated by sources. Apparently the public separately made sense of what is going on in the beginning of the crisis without the usage of external information provided by news media and the organization.

Separate sense making might complicate the solving of the crisis and potentially cause panic or result in the escalation of the situation. Collective understanding and consensus might be a necessity to solve the crisis (Heath, 2006; Seeger, 2002; Weick, 1988). For example, study one observed how the difference between the frames of the public and news media, regarding an explosion of a chemical plant, could have worsened the crisis. While the frames of news media initially emphasized safety measures, the public frames related to speculations of a terrorist attack and the lack of information. If the frames among the actors had aligned in the initial crisis phase, the public potentially would have known that the explosion was not connected with terrorism and that there was no need for panic. Whereas

close-working relations with involved stakeholders might help to deescalate the crisis, the findings of the four studies imply that the actors move or stay away from each other to individually make sense of the situation at play. Hence, organizations' initial focus on their management (chapter two), journalists' preference for news agencies as a news source within the first 24 hours of a crisis (chapter three), and the public's lack of using external sources for crisis understanding (chapter four) might delay the solving of a crisis. Looking at figure 1, presented on page 15, one could argue that, if the sense making of the individual actors relates to the initial phase of the crisis, the unidirectional lines drawn between the sense making of the three actors are in reality not that strong or not even present. There might be, to a certain extent, a form of communication, however, the actors mainly focus on themselves to understand and define the crisis in the initial phase.

### Alignment of worlds

Despite the initial separation of worlds, the occurrence of an organizational crisis creates a need of meaning coherence. The confusion and uncertainty caused by the often complex crisis situation complicates the solving of the crisis (Seeger, 2002; Weick, 1988). The high level of uncertainty, as a key characteristic of a crisis, needs to be reduced to obtain a level of understanding that enables communication among the actors. As long as the uncertainty and multiple interpretations of the same issue remain, the crisis persists and the actors remain separated. Ergo, the communicative alignment of the frames of multiple actors becomes an inevitable necessity, as it would help to limit uncertainty, avoid crisis magnification, and help the actors to decide how to act appropriately without intensifying the crisis. When collective understanding evolves more fully and more quickly, it will decrease the chance of errors and crisis escalation (Weick, 1988). In order to reach this coherence, the study presented in chapter one observed the temporary rapprochement of actors, after the initial crisis phase. Over time, the crisis frames of the organization, news media, and the public aligned to some extent, meaning that their frames became more similar. Furthermore, the findings of the other chapters also provide some indications of intentional rapprochement of the actors. For example, in chapter four, the public was found to mainly use sources as news media and the organization to address frame functions that relate to a later phase of the crisis – i.e., functions related to causal interpretation and treatment recommendation. These findings show how, after some time, crisis speculations and interpretations are exchanged and discussed between actors in an attempt to reach a collectively accepted meaning (Gilpin & Murphy, 2008). In a rapidly changing and ongoing stream of crisis communication and activities, the actors might settle for “circumscribed accuracy” (Weick, 1995). Circumscribed accuracy refers to the construction of shared understanding where perfect accuracy of sense making is not fully possible. Due to the complex context that is consistently changing, the final aim is plausibility, an understanding that makes sense and allows the continuation of communication, not implying the absence of differences or friction among actors (Wei Choo, 2001; Weick, 1995).

The alignment of frames seems to be a phenomenon that is specific for crisis situations or something that is accelerated by the occurrence of a crisis. General

framing literature shows how, in a competitive framing environment, frames are normally dissimilar among different actors (Snow et al., 1986). Nevertheless, there are some exceptional cases where societal issues are not discussed in the same way as years ago and a largely shared consensus is reached on them, making some interpretations and frames more rare. Despite that there are examples of forms of frame alignment in the long run, or at least some frames become uncommon, under normal circumstances frame variation generally is the norm (e.g., McCammon, 2012). However, in the context of crisis research, previous studies show comparable patterns of accelerated alignment as observed in this dissertation. Similar evidence of consensus in framing over time among separate actors was found in the context of the French riots in 2005 (Snow, Vliegenthart, & Corrigan-Brown, 2007), H1N1 flu-pandemic crisis in 2009 (Liu & Kim, 2011), the financial crisis in 2008-2009 (Schultz & Raupp, 2010), BP oil spill crisis in 2010 (Schultz et al., 2012), the explosion of a chemical plant in 2011 (Van der Meer & Verhoeven, 2013), and Max Havelaar's reputational crisis in 2012 (Van der Meer, 2014). Therefore, it can be argued that the alignment of separate frames is an extraordinary occurrence that can be advanced or accelerated by external circumstances with a low-probability of occurrence and potentially negative consequences, namely the emergence of an organizational crisis.

#### News media as central actor

In the communicative interplay in times of crisis, news media seem to obtain a central role. Especially the findings from the studies presented in chapter two and four point toward this direction. In the study presented in chapter two, PR professionals were found to experience the most pressure from news media and their journalists after their own management when their organization undergoes a crisis. Additionally, pressure from news media was found to have the strongest negative effect on the organization's relationship with this specific stakeholder compared to other internal and external stakeholders. The study presented in chapter four showed the importance of news media as a source for the public's online crisis communication and framing. Although the public mainly used other members of the public as a source for crisis information, the content analysis reported that the usage of news media as an information source was most significant and powerful in explaining the frame functions addressed by the public. The vignette study of this chapter also showed the public's preference for crisis information provided by the national news media. In sum, the organization and the public perceive the media to be leading or central in the communicative dynamics of a crisis.

The central role of news media during a crisis offers opportunities and comes with certain responsibilities. First, news media, as a directive actor, can have a soothing effect during such hectic situations. Early and exhaustive communication of validated information can reduce or limit confusion or panic amongst the public (Van der Meer & Verhoeven, 2013). In this vein, the public and other involved or duped actors might assess the information presented in the media as conclusive and directional. This decisive information can in turn guide people's understanding and how they should act upon the situation. Actors' reliance on news media at

crisis times might optimistically imply that news media operate as an objective and balanced information provider, fulfilling its democratic function during critical situations. Second, the central position of the media in times of crisis amplifies the gate-keeping role. As the coverage of a crisis has potentially far-reaching consequences, the validation of information becomes crucial. If media coverage is accurate it can potentially reduce things such as public panic or organization's undoing as caused by the crisis. However, when information is incorrect, panic may break out and the crisis can escalate uncontrollably (Weick, 1988). Especially in today's digital and social media age the role of the media is crucial. The public has multiple information sources at its disposal that provide unfiltered and unverified information that can easily be obtained and shared online (Chung et al., 2012). Hence, false information and rumors can easily determine how the crisis is understood. The role of the media is to intervene and rectify the inaccurate information and provide comprehensive understanding of what is going on and how to act. In doing so, news media can help to stimulate the collective understanding of a crisis as a step towards solving the crisis.

Based on the observed media centrality one could argue for the mediatization of communication at times of organizational crisis. The outcomes of mediatization as an aspect of modernization hold that, news media, as an independent institution, shape and frame the communicative processes within societies (Lilleker, 2006). The development and growth of media have made institutions at least partly dependent on mass media. Society has become saturated by the media, institutions can no longer be thought of separated from the media (Hjarvard, 2008). So far, mediatization is a theory predominantly applied for understanding the processes and discourses within the realm of political communication. Arguably, an organizational crisis can also be described as a mediatized situation. The evolution of a crisis and how involved actors communicate about the crisis is possibly to a high degree influenced by and adjusted to the demands of news media in their crisis coverage (Ihlen & Pallas, 2014; Strömbäck, 2008). People are more dependent on events as well as processes beyond their reach, and therefore dependent on the media for information about events such as a crisis (Strömbäck, 2008). Mediatization is especially suited as a theory to understand crisis communication compared to mediation theory. Mediation is a more static and descriptive concept that describes news media as the most important information source for people and approaches media as a vehicle of communication. Mediatization, however, recognizes the interdependency and interaction of media systems with other institutions and actors as well as reciprocity in media effects beyond unidirectional or asymmetric content-based effects on the level of the individual (Kepplinger, 2007; Strömbäck, 2008). Due to the recognition of interdependencies, mediatization theory might theoretically capture the dynamics of modern crisis communication processes. Therefore, this theory can be considered an applicable conceptual approach to further explore organizational communication while acknowledging the reciprocal relationship with news media. Moreover, (critical) organizational events such as crisis situations can be approached as being mediatized situations due to the centrality of news media in the communicative interplay at these times.

### What makes crises different?

The sudden and unpredictable nature of a crisis situation can disrupt continuity and daily practice (e.g., Fleischer, 2013; Sorribes & Rovira, 2011). This dissertation adds to the understanding of how crises are disruptive by means of showing how the communicative dynamics and processes are altered by the occurrence of a crisis. The studies in this dissertation observe how crises accelerate, scale up, and amplify communication processes. Already in the first couple of hours, the occurrence of a pressing and acute crisis situation results in extensive communication, visible both online and offline. The content analyses, presented in chapter one and four, report extensive media coverage of and public online attention for organizations that are normally not considered newsworthy. Part of this increased interest comes from the fact that a crisis and its impact are considered dramatic and therefore newsworthy (Galtung & Ruge, 1965). Additionally, as both news media as well as social media enhance and facilitate actors' involvement in events beyond their reach, crises have evolved from a direct crisis for those actors directly involved to a concept of perceived crisis by a larger network of actors.

Besides that the occurrence of a crisis can accelerate the flow of communication, it can also affect the communicative interaction or interplay among actors. The pressing and critical external circumstances force involved actors to interact and work towards a solution. Actors are 'thrown into' a situation and are required to somehow work together to make sense of it (Gilpin & Murphy, 2008; Weick, 1995). However, as previously discussed in this chapter, the four studies presented in this dissertation show how the actors are dispersed from the beginning. In the initial phase of the crisis, communication is accelerated and enlarged only within the domains and not between the domains. Apart from the increase in communication, the communicative isolation of different actors is not necessarily different from what can be expected under normal circumstances. However, over time, the occurrence of a crisis breaks this pattern. The crisis triggers and accelerates collective sense making activities as it is characterized by high information load, complexity, and turbulence – i.e., instability and randomness (Weick, 1995). Weick (1995) describes these particular characteristics as the three triggers for the need of shared sense making.

Some additional differences caused by the crisis were observed on the individual level of the actors. In chapter two, PR professionals were asked to respond to several concepts for both normal times and for when their organization would experience a crisis. On average, in times of organizational crisis the pressure from external and internal stakeholders – i.e., news media, the public, the management, and other employees – as perceived by PR professionals is significantly higher than under normal circumstances. Moreover, the organization's relationship with the four key actors is significantly weaker at times of crisis. Finally, PR professionals perceive a strong increase in time pressure and uncertainty during a crisis. Chapter two addresses the role of the journalists at times of organizational crisis but does not directly compare crisis times with routine times. However, when comparing the findings with journalistic literature regarding routine circumstances several assumptions about situational differences can be made. In short, the findings imply that the

disruption of the crisis results in journalists' predispositions towards familiar sources. During a crisis, journalists have the tendency to rely mainly on news agencies as a source for information and disregard certain other sources like the organization and the public. The findings presented in chapter four also provide some insights into how the public's information gathering is altered by the occurrence of crisis. The public's habitual use of other members of the public as a source of information did not predict the selection of this source during a crisis. This behavioral habit might be altered by a change in the public's daily routine and increase of information need occasioned by the crisis. The public might look for any information available. As the public is often readily available as a news source via platforms as social media, the tendency to use this source might increase during a crisis.

### Theoretical implications

The findings of this dissertation have important theoretical implications and contribute to the development of theory with regard to communication at times of crisis. First, the contribution lies in the investigation of crisis communication from the perspectives of different theoretical fields, recognizing the communicative role of multiple actors. In this way, the chapters propose a new theoretical framework that makes the first step to empirically evaluate crisis communication from multiple angles. The studies presented in the dissertation show that theories extrapolated from the fields of mass media, political communication, and journalism can be applied to further understand how crises develop over time. Using theories as framing and gatekeeping helps to enrich scholarly knowledge of the role of key actors at times of crisis and acknowledges the complexity of crisis communication (Schultz et al., 2012).

Second, the research presented in this dissertation extends the results of previous studies by relying on units of analysis that provide additional insights. Both the studies presented in chapter two and three directly questioned professionals with personal experience and substantial responsibilities in crisis communication. By questioning PR professionals (chapter two) and journalists (chapter three) the survey findings are based on real-life experience and the perception of professionals or experts. In doing so, these studies add to crisis literature that mainly relies on findings from experimental studies applying artificial setups. Furthermore, crisis research is often criticized for focusing only on one specific crisis type, limiting the generalizability of findings especially as no organizational crisis is the same (Coombes, 2007). In order to overcome this limitation, the content analyses presented in chapter one and four and the vignette study in chapter four focus on multiple crisis cases. Subsequently, fundamental patterns and processes of accelerated communication and changing interactions that might transcend crisis type were identified. The exposed results are therefore not too context specific or issue sensitive to draw conclusion on the general level of crisis communication. These observed patterns are considered specific for crisis situations and potentially hold for other crises. Further research should of course validate this expectation.

### Methodological implications

This dissertation also has important methodological implications. First, a strong need for new methods exists in today's information society to analyze huge collections of texts and understand the complex dynamics of the contemporary media landscape (Neuman et al., 2014). Especially in times of crisis a need occurs for larger scale of analyses to explore the increase in communication. This dissertation (chapter one and four) introduces and applies automated content analyses to quantitatively assess crisis communication. The studies successfully apply different types of automated cluster techniques to identify frames or frame functions and assess the level of frame alignment. These tools are known as Fully Automated Clustering analysis that statistically rely on interpreting word (co-)occurrences to inductively classify texts. With the application of computer-assisted methods the classification of texts becomes more replicable and is more likely to be without bias due to subjective interference of the researcher (Riff, Lacy, & Fico, 2014). This novel methodological approach may stimulate empirical investigation of large-scale data from multiple actors with reduced costs and time (Flaounas et al., 2013). Furthermore, these automated content analyses can help to provide supplementary evidence for what crisis scholars so far have suspected based on qualitative or small-scale quantitative research.

Second, the vignette design as applied in chapter four provides a useful approach to overcome shortcomings in crisis research related to studying single crisis cases. Such a factorial survey is a quasi-experimental design where respondents are asked to judge descriptions of varying situations (vignettes) presented to them (Dümler, 2007). The vignettes represent different combinations of various dimensions that are simultaneously manipulated (Alexander & Becker, 1978; Helfer & Van Aelst, 2015). A vignette study allows the analysis of judgment behavior under concrete conditions that are considered much closer to real-life judgment situation compared to opinion surveys (Wallander, 2009). Judging several comparable, but not identical, situations allows decomposing the structure of judgment-making or evaluation behavior and helps to systematically uncover the impact of different manipulated factors (Dümler, 2007). This procedure gives the research the option to show and compare multiple crisis cases and crisis elements as was done in the second part of the study presented in chapter four. Despite the advantages associated with using vignette design, this approach has only occasionally been used in social science field such as political science (Helfer & Van Aelst, 2015; Hopkins & King, 2010) and journalism (Kepplinger, Brosius, & Staab, 1991).

Third, the triangulation as applied in this dissertation shows how the combination of multiple methods can advance the understating of one specific subject. By relying on survey, content analysis, and experimental methods this dissertation provides rich findings and obtains more convincing insights as the methods lead to comparable results and because no contradicting findings were observed. The cross verification from different methods and analyses helps to validate the findings regarding the evolvement of communication at times of crisis and provides complimentary and partly overlapping insights. Moreover, the complementary multi-method design can help to overcome shortcomings and weaknesses that come from single methods.

### Practical implications

Along with the theoretical contributions, the studies presented in this dissertation provide several practical implications. The findings of this dissertation might help to improve the communication during these critical times, which in turn might help to reduce the negative consequences.

First, all actors involved in an organizational crisis should acknowledge the importance of communication and therewith the role of multiple actors. The availability and willingness of actors to communicate can determine the development of a crisis. Timely communication becomes important due to the fast-moving nature of a crisis and in order to avoid that the actors move too far away from each other. By means of early communication, actors may advance the collective understanding of the crisis and provide an adoptable crisis frame or discourse. This might accelerate frame alignment among the actors as an important step towards solving the crisis. The notion of timely communication relates to the concept of stealing thunder. This notion suggests that when an organization experiences a crisis it should break the news about the crisis before it is discovered by other interested parties like news media (Arpan & Pompper, 2003; Arpan & Roskos-Ewoldsen, 2005). This proactive approach to crisis communication might enhance credibility ratings for the organization and can potentially set the tone of the rest of the communication. However, it should be recognized that early communication does not mean directly affecting the framing and understanding of other actors. Understanding the crisis is a collective process of sense making and is not characterized by sense giving practices, a sense making variant undertaken to create meanings for a target audience (Weick et al., 2005). Actors cannot force others to understand the crisis in the same way but should look for interaction to come to a collective understanding.

The findings of this dissertation furthermore provide actor-specific implications. First, the organization and the PR professionals can learn from the findings in terms of improving and targeting their communicative efforts. Study three shows how organizations can improve their chances of getting a voice in the news. Elements as timely communication, knowledge, and credibility are emphasized. However, an organization should not overdo it. When an organization is too pushy to get their story across, it decreases its chances of being included in the news. Being too willing might trigger journalists' skepticism towards the organizations' motives and agenda. Instead of getting their frames and content as intended in the news and on the public agenda, the organization should focus more on the relationship with its key stakeholders to facilitate two-way communication.

Moreover, this dissertation emphasizes the role of social media at times of crisis. This observation argues that organizations no longer have a choice about whether to integrate social media into their crisis communication. In times of crisis, when stakes are often high, it is especially important for organizations to interactively and proactively communicate in order to meet the public's communicative expectations online (Jin et al., 2014). Therefore, it is highly surprising that only a small percentage of organizations have formal social media policies and most PR professionals do not see social media as an effective channel (Jin et al., 2014). Despite a plethora of attention to social media in the context of public relations,

researchers should provide more evidence-based guidelines to understand how organizations should integrate social media. It is important to realize that these new communication technologies are dominated by user-generated content. This phenomenon means that the organization is not in control of communication, other actors active online are controlling the flow of communication (Coombs, 2015). Therefore, basic ideas from traditional media relations do not apply in the dynamic environment of social media. These channels are more about interaction, listening, and transparency rather than feeding information.

Furthermore, the dissertation also provides practical implication for news media and the public. First, news media and their journalists should be aware of their responsibility as gatekeepers in times of crisis. News media become a central actor in defining a crisis. The public has a preference to rely on information provided by news media to understand what is going on. News media's influence increases during a crisis and the content they spread has potentially more impact than under normal circumstances. Additionally, journalists should recognize their tendency to rely on other news media (i.e., news agencies) as a source of information and realize how this can potentially result in unbalanced crisis coverage. Second, also the public should understand their role in crisis communication and how they can affect the development of such a critical situation. During a crisis, rumors or false information can spread in no time via platforms as social media. As these online messages are often the first information available they can form or alter the initial crisis understanding of thousands of individuals. The public is subsequently advised not to blindly trust all crisis information they find online. The public should recognize how easily widespread panic or crisis escalation can be caused by the diffusion of unverified information.

#### Future research and limitations

This dissertation is considered an important step for crisis research into understanding the more complex dynamics of communication during critical crisis times. However, the results and set-up of this dissertation lead to a call for additional research. First, this dissertation focuses exclusively on the interplay among the organization, news media, and the public. As all four studies are limited to the inclusion of these three aggregated actors, the perspectives of other more specific actors are for now disregarded. Therefore, future research should delve into the role of other significant actors such as political actors, experts, governmental actors, shareholders of the organization, financiers, stockbrokers, NGO's, environmentalists, and online and offline communities. Nevertheless, the three actors studied in this dissertation are considered the key actors in communication when a crisis occurs (Kleinnijenhuis et al., 2013; Riegert & Olsson, 2007). The findings in chapter two and four supported this assumption. PR professionals indicated that these three actors are the most essential during a crisis (chapter two) and the public was found to most prominently use these actors as information sources to online frame the crisis (chapter four).

Second, because this dissertation finds its origin in the field of corporate communication and public relations, the empirical studies focus on the occur-

rence of organizational crisis situations as a specific type of crisis. In each crisis situation discussed in the four studies, an organization was central to the crisis or responsible for its occurrence. Because different types of organizational crises are analyzed, the findings and observed patterns might hold among most types of organizational crises. However, the remaining question is if these findings can also be generalized to crises in other fields. For example, when a political party or figure undergoes a crisis, the question is if the same phases of frame deviation and frame alignment will hold in the communication among involved actors. Furthermore, future research should show if more long-term crises show different or comparable communicative patterns over time. The crises as analyzed in this dissertation often hold for a couple of days or weeks. However, other crises develop over a longer time period and remain a pressing item on the agenda of news media and other crisis-related actors. As an illustration, the ongoing economic and financial crisis in Europe is characterized by a long period of continuous uncertainty and threats for different levels of society. Future research should examine if the same patterns as observed in this dissertation might be applicable for these long lasting crises spread out over a longer time period.

Despite these limitations, this study provides a solid starting point for understanding the complexity of communication at times of crisis. By analyzing the interplay among the organization, news media, and the public for multiple organizational crises, initial insights are provided into how a crisis, as an external circumstance, changes the flow of communication and the interplay among key actors.

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# CHAPTER 1

# CRISIS FRAMING BY THE ORGANIZATION, NEWS MEDIA, AND THE PUBLIC

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## ABSTRACT

This study focuses on the frame-building process of organizational-crisis situations in the interplay between the domains organizational public relations (PR), news media, and the public. The purpose of the study is to investigate whether the crisis frames of the domains align over time. To empirically analyze frame alignment, an automated semantic-network analysis is introduced to compare implicit framing among the domains. By examining press releases, news articles, and social-media manifestations of four Dutch crisis cases, the dynamic character of crisis framing became apparent. The study documents the rise of crisis-frame alignment among PR, news media, and the public over time. After frame alignment the domains' discourses move away from one another resulting in more variation between frames. This pattern of alignment is considered to be crisis specific as a necessity to collectively make sense of a complex crisis situation. The collective sensemaking might be crucial to solve organizational crises and to avoid uncontrollable crisis magnification.

## INTRODUCTION

Societies are frequently confronted with disruptive organizational crises that have a significant impact. Because organizational crises are characterized by a rapid succession of emotional and stressful events in combination with high media attention, they are often complex (Weick, 1988). Moreover, it is hard to decide how to act without intensifying the crisis, because small incremental organizational changes can easily magnify in an uncontrollable way (Weick, 2001; Seeger, 2002).

In organizational-crisis situations, communication is generally acknowledged to play a crucial role (e.g., Coombs, 2007; Schultz, Kleinnijenhuis, Oegema, Utz, & Van Atteveldt, 2012). Crisis research is primarily approached from an organization-centric perspective (Coombs, 2006). However, in a media-saturated society, media coverage of crises should not be overlooked (e.g., Cornelissen, Carroll, & Elving, 2009). Additionally, the public can be considered of vital importance in crisis communication due to their social-media empowerment (Castells, 2007). The key objective of this study is to investigate communication about organizational crises within three domains: Organizational public relations (PR), news media, and the public – and the mutual relations, or interplay, between these domains.

In order to analyze communication about organizational-crisis situations, this study uses the well-established concept of framing, extrapolated from political communication (e.g., Vliegenthart, Schuck, Boomgaarden, & De Vreese, 2008) and mass communication (e.g., Scheufele, 1999). In the context of a crisis, when time passes, the interplay between the domains PR, news media, and the public might result in what can be labeled ‘crisis-frame alignment’. This alignment implies an increase in frame linkage, congruency, and complementarity between the domains (Snow, Rochford, Worden, & Benford, 1986). The overall research question reads as follows: *Does the crisis framing of the organizational PR, news media, and the public align over time?*

To answer this question, the study introduces and applies a method innovation of semantic-network analysis (Hellsten, Dawson, & Leydesdorff, 2010) on three types of communication about several organizational crises: Organizational press releases, media coverage, and public’s social-media messages.

## THEORETICAL FRAMEWORK

### Framing approach

The dynamic process of meaning construction is commonly investigated through the key theoretical concept of framing. During organizational crises, the frame-building processes are of fundamental importance for the formation of an organizational reputation (Coombs, 2007), the prevention of crisis escalation (e.g., Seeger, 2002), and the avoidance of public confusion or panic (Liu & Kim, 2011; Van der Meer & Verhoeven, 2013). Because issues can be viewed from different perspectives, frames of an organizational crisis are likely to differ between the domains of organizational PR, news media, and the public.

Considering the ambiguous and complex interrelations and communications between domains (Luhmann, 1995; Holmström, 2005; 2010), framing can be approached as a set of discourses that interact in complex ways within and

among domains. This perspective to communication and framing can be labeled as a ‘semantic-network approach’. This approach emphasizes the changing distributions of words, their co-occurrence, and the variance in meanings and relations (Leydesdorff & Hellsten, 2006). The meanings of the words, that form the basis of a frame, are found in the word network they are part of. In this context, a distinction is made between sets of words (vocabularies) and repertoires, or underlying contexts, which provide meanings to the words (Hellsten et al., 2010). This approach builds upon the analytical distinction in which a frame can either be explicit or implicit (Hellsten et al., 2010). Explicit frames are observable in the words that are chosen in communication utterances, whereas implicit frames refer to latent patterns of words that co-occur in communication about, in this case, organizational crises. The majority of frames are not explicit (Hellsten, 2002). Additionally, the analytical approach to frames as implicit carriers of specific meanings enables to highlight frame development over time and indicates the contextualization of communication (Leydesdorff & Hellsten, 2005; Jonkman & Verhoeven, 2013). The current study tracks how implicit frames change in the communication about organizational crises in the domains of organizational PR, news media, and the public.

### Frame alignment over time

In organizational-crisis situations, sensemaking activities rapidly emerge, resulting in frames that help to understand what is going on (Weick, 1988; Cornelissen et al., 2009; Schultz & Raupp, 2010). Various interested parties or domains are likely to differ in their initial production of frames of a crisis situation. Therefore, initially, meaning and frame variation is the norm (Leydesdorff & Hellsten, 2005; McCammon, 2012) and frame alignment is not to be expected (Snow et al., 1986). The initial frame-building processes of PR professionals and journalists will be based on their respective professional identities and beliefs about the issue based on external cues (Scheufele, 1999; Cornelissen et al., 2009), whereas the public will make sense of a crisis situation based on their personal identities and interpretations of the crisis. In other words, each domain may use the same information or codes, but they differ in terms of their criteria that underpin the selection of relevant information and meaning provision to words (Leydesdorff & Hellsten, 2005).

After the domain-specific frame-building processes, the frames will meet on platforms provided by the media. In order to solve organizational crises and to avoid uncontrollable crisis magnification, it is crucial to arrive at collective sensemaking of the complex situation (Weick, 1988; Seeger, 2002). Therefore, in a complex nexus of competing frames, inherent to organizational crises, there will be a need to provide coherence to the issue (Snow et al., 1986; Hellsten et al., 2010) and reduce ambiguity and uncertainty (Leydesdorff & Ivanova, 2014), resulting in mutual borrowings and frame alignment among the domains. The need for meaning coherence may urge domain-specific discourses to open up, move toward one another, and eventually overlap, instead of remaining isolated. This domain rapprochement does not imply total fusion of the domains’ perspectives. However, the interplay between the various domains’ meaning provision and framing may lead to frame alignment regarding the meaning of the crisis among the domains of PR, news media, and the public.

The notion of frame alignment in organizational crises relates to several empirical findings. First, some evidence of frame crystallization (i.e., consensus in framing), among several newspapers in different countries, was found over time with regard to the French riots in 2005 (Snow, Vliegenthart, & Corrigan-Brown, 2007). Second, similarities were observed in the general framing of the 2009 H1N1 flu-pandemic crisis among several organizations of different industry types (Liu & Kim, 2011). Third, corporate and economic domains were found to develop a common narrative regarding the financial crisis, whereas their initial sensemaking differed (Schultz & Raupp, 2010). Fourth, PR and news media were found to differ in associative framing in the initial phase of the BP oil spill crisis, whereas, afterward, their frames became more alike (Schultz et al., 2012). Fifth, after the public expressed skepticism through their framing regarding the fair-trade policy of Max Havelaar, they adopted the frame provided by the stricken organization (Van der Meer, 2014). Finally, a case study, related to the question of crisis-frame alignment, revealed the dynamic characteristics of initial crisis framing (Van der Meer & Verhoeven, 2013). By analyzing the media coverage and social-media messages regarding the explosion of a Dutch chemical plant in Moerdijk, this study documented the implicit framing by news media and the public. The public was found to frame the situation based on personal speculation prior to detailed news-media coverage of the crisis. The public social-media messages linked the explosion of the chemical plant to a terrorist attack. However, during the extended media coverage the public framing was no longer based on personal assumptions. The public frame aligned with the frame provided by news media, in terms of information-sharing frames.

There is a wide variety of empirical cases available to support the theoretical assumptions of initial frame differentiation and frame alignment over time: The cases of the French riots (Snow et al., 2007), H1N1 flu-pandemic (Liu & Kim, 2011), financial crisis (Schultz & Raupp 2010), the BP oil spill crisis (Schultz et al., 2012), Max Havelaar skepticism (Van der Meer, 2014), and the explosion of a chemical plant (Van der Meer & Verhoeven, 2013). Despite their differences, these cases point clearly in the same direction, namely that framing among domains aligns over time after initial differences in sensemaking and framing. Based on these coherent findings regarding crisis-specific frame alignment, the following hypothesis is formulated:

*H1: The implicit frames regarding specific organizational crises that can be found in the domains organizational PR, news media, and the public will align over time.*

#### **The phase after frame alignment**

Framing is partly interest and goal driven (Entman, 1993; Liu & Kim, 2011). The selected interests and goals differ per domain, and so will the framing, as is normally the case (Snow et al., 1986; Hellsten et al., 2010; Leydesdorff & Ivanova, 2014). The framing of the domains PR, news media, and the public has aligned due to external circumstances with a low-probability of occurrence; the emergence of an organizational crisis. The routine narratives and frames of domains are disrupted by

a crisis situation (Schultz et al., 2012), producing crisis-specific frames and frame alignment. When those circumstances become less pressing, in terms of a decrease of crisis emergency and a mutual understanding of the crisis, domains have again space to select specific aspects of the crisis situation for their framing. Crisis literature acknowledges the time dimension in crises and that crises evolve in several phases (Coombs, 2010). In this sense, the domains move into a next crisis phase where mutual sensemaking of the crisis is completed and frame alignment is no longer a necessity. Thus, frame alignment is a temporal state that, once achieved, cannot be taken for granted as it is subject to reassessment. The alignment is periodically necessary for ameliorating the prospect of misframing or interpretative errors (Snow et al., 1986).

In the above mentioned case study regarding the explosion of a Dutch chemical plant in Moerdijk, the implicit frames of news media and the public were found to differ not only in the initial crisis phase but also in the last phase of the crisis (Van der Meer & Verhoeven, 2013). After the mutual sensemaking of the crisis, which resulted in frame alignment, the crisis framing varied across news media and public domain. In the third phase, the public personalized their crisis framing by focusing on criticism toward governmental crisis-related actions, rather than using their framing as an information-sharing resource as in the alignment phase. As opposed to the public, news media professionally framed the crisis in terms of safety.

The impermanence of frame alignment emphasizes that frame development is characterized by a dynamic process (Scheufele, 1999) and that frames are inherently unstable (Steinberg, 1998). In this regard, a crisis-specific pattern in the framing among the domains is assumed. The complex interaction of communications in the domains PR, media, and the public produces temporary alignment in the frames. After frame alignment and meaning coherence, the domain-specific discourses will shift away from one another, adopt new communicative aspects, and eventually become isolated again. This distancing in the final crisis phase results in variation across the domains' crisis framing, instead of frame-alignment persistence over time. Therefore, hypothesis two reads as follows:

*H2: After the alignment of the implicit frames regarding specific organizational crises among the domains organizational PR, news media, and the public, the frames will de-align.*

Figure 1 visualizes the hypothesized dynamic character of the frames of PR, news media, and the public and how they relate to one another over time. In the first period of the crisis the discourses of the domains are isolated (visualized at the top half of the figure). However, over time the discourses will move toward one another (visualized at the bottom half of the figure), resulting in frame alignment (H1). Finally, after the phase of alignment, the discourses move again away from one another and become isolated again, implying de-alignment in the framing of the three domains (H2).

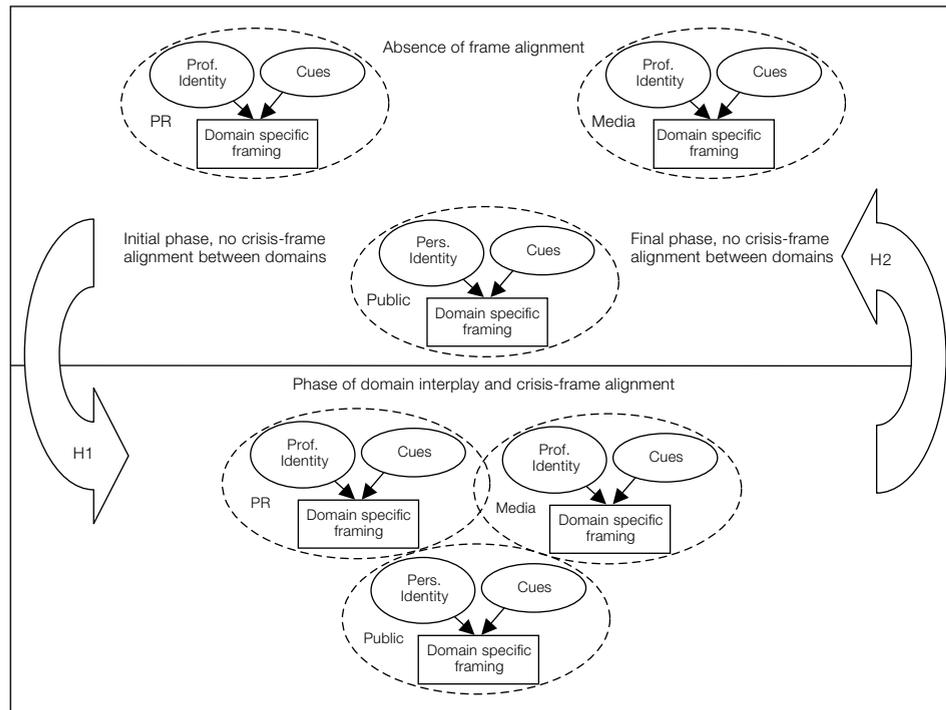


Figure 1. Crisis-specific frame dynamic and movement of the domain-specific discourse of PR, news media, and the public (H1, H2).

### Increase in the level of frame alignment over the years

The level of frame alignment is likely to differ from crisis to crisis. However, in general a pattern of increasing alignment over the years can be expected for several reasons. First, the media landscape has changed over time, resulting in a rising prominence of public discourses and in more public power to get their frames across. The public-framing power was often regarded as limited due to unequal distributed resources in a competitive environment. However, the Internet has empowered the public with a platform to engage in mass-to-mass communication (Castells, 2007), thereby considerably leveling the playing field. Besides, the advent of social media not only facilitates the increasing communication between PR, news media, and the public (Goolsby, 2010), it also requests for more communication in terms of the public's increasing demand for responsiveness by organizations and news media (Liu, 2010). Along the line of Castells' (2007) mass self-communication theory, citizen journalism reflects the public empowerment. The public is not constrained by costs, time, and editorial processes, compared to journalists, allowing for faster, more frequent, and extensive mass distribution of (new) content (Lowrey, 2006). Additionally, the online crisis coverage by the public is assigned a higher level of credibility compared to the coverage by traditional mass media (Sweester & Metzgar, 2007). This empowerment enhances the public's collaboration

in framing events, especially in crisis situations as a means of quick communication (Wigley & Fontenot, 2011).

Second, journalists increasingly reflect on social-media manifestations as sources for news generation (Waters, Tindall, & Morton, 2010) and organizational PR practitioners recognize that social media have changed the way organizations communicate with their publics (Wright & Hinson, 2009). In this regard, the rise of the reflective paradigm is relevant (Holmström, 2005; 2010), referring to an enhancing organizational-interdependent societal context. The reflective approach views an organization from the outside or public perspective (Van Ruler & Vercic, 2005) and sees the environment as something that needs to be respected instead of managed (Holmström, 2010). Rather than trying to control the flow of information, PR and news media are encouraged to use the Internet as a public-dialog tool (Schultz, Utz, & Göritz, 2011). With the advent of the reflective paradigm, PR professionals and journalist become more concerned with other domains like the public (Holmström, 2010).

Both the empowerment of the public domain and the rise of the reflective paradigm imply, for crisis framing, that the communication and interplay between PR, news media, and the public increases. With this increase it is argued that the level of frame alignment has progressed over the years, resulting in the following hypothesis:

**H3:** *Over the years, the level of frame alignment regarding specific organizational crises among the domains organizational PR, news media, and the public has increased.*

## METHOD

### Data collection

By means of Dutch organizational-crisis cases, the implicit framing of the domains PR, news media, and the public will be explored. This empirical investigation tests the theoretical framework through automated semantic-network analyses of crisis-related organizational press releases (PR), newspaper articles (news media), and social-media manifestations (public). The cases were systematically obtained by complying with five criteria; it should concern a (1) Dutch (2) organization-centered crisis, which (3) set in motion a significant chain of messages that are (4) practically accessible, and (5) it should concern one crisis in the past and one crisis each year starting from 2009 to grasp development over time.

First, to determine which Dutch crises obtained high (media) attention national newspapers were systematically explored. Second, each selected case was assessed based on the availability of data. For press releases the websites of relevant organizations were consulted. To obtain newspaper articles, the academic online database LexisNexis was accessed using the name of the organization as search string while selecting all national Dutch newspapers. Public manifestations were sourced from Twitter or the largest Dutch forum 'Fok! Forum' using the name of the organization as search string. Twitter data were preferred to cover the rapid public reactions and exceeding characteristics of a crisis. Since only real time

Table 1. Selected Dutch organizational crisis cases.

Centered organization	Date	N press release	N newspaper	N social media*	Description crisis
SE Fireworks	13/05/2000 – 20/05/2000	37	863	343 (F)	SE Fireworks, a fireworks depot located in the city Enschede, exploded, killing 23 people and injuring 947.
Dirk Scheringa Bank (DSB Bank)	01/10/2009 – 23/10/2009	24	1.345	6.021 (F)	The Dutch court declared the DSB Bank bankrupt, resulting in 400.000 deceived customers and 1.400 fired employees.
Koninklijke Luchtvaart Maatschappij (KLM)	14/04/2010 – 23/04/2010	12	297	4.019 (F)	The eruptions of volcano Eyjafjallajökull in Iceland caused enormous disruption to KLM air travel due to the ash cloud.
Chemie-Pack	05/01/2011 – 08/01/2011	18	117	38.074 (T)**	Chemie-Pack, a chemical plant located in the city Moerdijk, exploded, injuring 170 people.

\*F = data sourced from forum, T = data sourced from Twitter,  
\*\*The tweets were downloaded from the open source website [www.twetrics.com](http://www.twetrics.com)

Twitter data is publicly stored, Twitter messages were searched for via external open-source websites. All texts were briefly scanned to ascertain the articles' topic.

### Research units

The selection procedure resulted in four crisis cases: (1) explosion SE Fireworks, (2) bankruptcy DSB Bank, (3) limited KLM air travel, and (4) explosion Chemie-Pack. Table 1 schematically shows the duration of the crisis, the amount of collected data, and provides a crisis description.

The data were analyzed separately for several research periods to explore the development of implicit framing over time. To test the hypotheses, three consecutive periods per case were identified based on crisis theory. The first period is defined as the day(s) when a domain communicated about the crisis for the first time, to grasp the initial crisis phase. Hence, the selected dates may deviate between domains. The second period covers several days after the initial phase of the crisis to comprehend the congregation of the domain-specific frames (H1). These days cover the period of extensive crisis communication by all three domains. The final period represents the moment after the extended crisis coverage (H2).

### Automated semantic-network analysis

Meaning construction of a situation is given by words and by the relative position these words get in word networks and repertoires (Hellsten et al., 2010). To reveal crisis meaning, automated content analyses were applied to determine the implicit crisis framing as word networks in the separate domains. This so-called automated

semantic-network analysis maps a model of related words and distinguishes meaningful components in the communication spatially by applying an algorithmic and systems perspective. This analytical approach is a special form of social-network analysis, where connections are formed by the use of overlapping concepts (Podnar, Tuskej, & Golob, 2012). It looks to provide a structure to a network based on shared meaning. More specifically, this method builds upon the similarity in occurrence patterns of words (Hellsten et al., 2010). The word (co-)occurrences mapped in semantic fields of related words specify the construction of crisis meaning and represent a higher-order structure of texts (Leydesdorff & Hellsten, 2006). Co-word analysis maps the strength of associations between key words in texts, which enables to compare implicit frames. Similar automated semantic-network approaches have been suggested by different scholars. For example, other studies have focused on the associations on the level of actors and the level of concepts or objects (e.g., Van Atteveldt, Kleinnijenhuis, & Ruigrok, 2008; Schultz et al., 2012). These objects and actors are based on a deductive or taxonomy-based coding strategy (i.e., a priori conducted wordlists which relate to e.g., certain objects or frames) which might result in overlooking meaningful concepts in the meaning construction and framing of a situation (Van Atteveldt et al., 2008). By means of identifying frames based on word clusters, the current method avoids beforehand defining semantic structures and (implicit) frames. The current method has previously been successfully applied to analyses of discourse comparison on one topic (Leydesdorff & Hellsten, 2005), tracing the development of debates over time (Leydesdorff & Hellsten, 2006), tracing emerging implicit media frames (Hellsten et al., 2010; Jonkman & Verhoeven, 2013), and crisis framing (Van der Meer & Verhoeven, 2013; Van der Meer, 2014). Following the conceptualization of implicit framing as latent patterns of words that co-occur throughout text, the press releases, news articles, and social-media manifestations are analyzed.

In practice, the automated semantic-network analysis is divided in several steps based on the scientific publication, which contains a manual for the construction of semantic maps using a set of computer-supported programs (Vlieger & Leydesdorff, 2011). First, a list of the 255 most frequently used words in the messages of each domain and each research period are constructed, using the software program *FrequencyList*. Stopwords were automatically filtered out with a standard stopwordlist. The remaining irrelevant words are manually removed. Second, these words, together with the units of analysis, constitute the input for the software programs *FullText* (press release, news articles, and forum messages) and *Ti* (tweets), which generate word/document matrices for each domain and research period. These matrices are based on the co-occurrences of words between sentences and paragraphs in one text and between texts. Third, the matrices are used to conduct principal-component factor analyses with varimax rotation, with a maximum of twelve components, to identify statistical correlations between words within components. The components represent the implicit frames of the analyzed texts. The component scoring highest on the portion of explained variance ( $R^2$ ) and eigenvalue ( $EV$ ) is usually considered the dominant frame, the remaining frames represent sub-frames.

Unlike traditional content analysis and other automated content analyses, the current semantic-network analysis inductively identifies implicit frames as word clusters, rather than provided on the basis of an *a priori* scheme, which reduces indexer effects. Not relying on pre-defined frames leaves more room for identifying new or unexpected frames. Commonly, the generated frames are interpretively and subjectively labeled based on factor loadings and word clusters, to facilitate the communication of results. This personal interpretation of factor patterns comes with the danger of the fallacy of misplaced concreteness. In the final step of this analysis, frames are usually visualized as semantic fields using Pajek software program (De Nooy, Mrvar, & Batagelj, 2011). This results in a (two-dimensional) word network where nodes represent words, lines the correlations between words, and the colors of the nodes represent the partitions (i.e., latent frames). In this sense, framing among domains can only be interpretatively compared based on the personal labeling of the frames and the word-network visualizations. Moreover, the automated part of the analysis allows for large amounts of text to be processed. In utilizing this potential advantage the use of word-network visualizations becomes problematic in terms of a high number of complex figures, possibly resulting in an incomprehensible and cluttered presentation of the findings. Therefore, the present study seeks to develop and apply a novel analytical approach that allows for statistical comparison of implicit framing among domains.

This study explores how implicit frames can be compared in a statistical manner. Hellsten et al. (2010) already related semantic-network analysis to factor analysis to identify the latent frames. To offer a new instrument of implicit-frame comparison, the application of factor analysis is further elaborated. Since by means of factor analyses latent constructs are inductively explored (Field, 2009), this approach is regarded applicable to grasp the latent character of implicit frames in terms of reducing complex ( unsuspected) interrelationships, by inspecting the configuration, to measurable units of analysis. Factor analysis discerns the regularity and order in phenomena that co-occur in space or in time and empirically illuminates different concepts. These phenomena are independent patterns (of variation) or clusters which are identified by factor analysis based on numerous of measurements or observations (Rummel, 1967). The notion of pattern of variation relates to the operationalization of implicit frames by Hellsten et al. (2010) as repertoires or underlying contexts. Factor analyses resulted in several components (the implicit frames) in combination with unique factor loadings for the relevant variables (the words) per domain and research period.

The inductively identified implicit frames are never entirely identical among the different domains or time periods – i.e., the same words normally do not form exactly the same word clusters. Hence, the comparison of implicit frames and frame alignment cannot be done on component level but can only be done on the level of the words that form the components. Thus, for the purpose of statistical comparison (of the frames among the domains), the factor loadings of the individual words on the frames are selected as units of analysis. Factor loadings are indicators of the substantive importance of a given variable (word) to a given component (Field, 2009); it defines the degree and direction of the relationships of the word

with the pattern (Rummel, 1967). The words involved in an independent pattern are defined based on the factor loading. Since this loading measures the degree of importance in implicit frames for separate words, it can be stated that the factor loading defines the extent to which a specific word represents a component, indicating its importance in meaning provision and framing. In this way, it is considered that the framing between domains and time can be compared on word level. Therefore, the factor loadings of mutual-used words (Hellsten et al., 2010) by the separate domains are compared to enable statistical comparison of implicit framing. When the factor loading between separate domains of the same words highly correlate, they are considered to use these words, which represent certain (but possibly different) frames to a specific degree, in a comparable way, indicating frame alignment. Rather than focusing merely on the dominant frame, all the 255 words are included with their factor loadings on the factor they load the highest. In this way, the analysis obtains a more nuanced data set and avoids elimination of important words and word clusters. This newly developed analytical process results in a Spearman's Rho correlation,  $r_s$ , between each two domains (pairs: PR-media, PR-public, and media-public) for each time period. These correlation coefficients can be compared between periods or domain pairs. By focusing on correlations, instead of on asymmetrical relations, the analysis emphasizes reciprocal and complex relations.

Because this paper is the first to introduce this method innovation, it is necessary to validate the research process and findings and obtain detailed knowledge about what the findings actually represent. For this purpose, additional analyses were conducted. In short, the general research findings are validated based on confirmatory finding by comparing the results of factor-loading correlations with alternative analytical approaches; (1) correlation in word-frequency count, (2) word-betweenness correlations, and (3) Cronbach's alpha correlations (see Appendix 1). All these analyses showed highly similar patterns which adds to validity. These validation analyses imply that the method innovation can be employed to automatically analyze the alignment in frames among domains and draw valid inferences from it.

## RESULTS

### Example of generated results

In order to show how the descriptive results from such an analysis look, a more thorough result description of one case of frame alignment is provided as an example. This example addresses the comparison of the obtained word clusters as the implicit framing among the domains. This qualitative step is an important element and the foundation for findings based on semantic-network analysis. Moreover, in this way, this example strives to provide insights in what the statistical correlation of frame alignment actually represents.

As an example the framing by news media and the public in the first and second crisis phase of the Chemie-Pack crisis (one of the four cases) will be discussed. The analyzed texts resulted in 12 frames per domain. However, for a comprehensive and not too lengthy discussion, this example will focus on the most dominant frame (i.e., the first frame with the highest eigenvalue and explained variance). The

dominant frame of news media and the public are labeled in order to compare them between the domains and time periods.

The media frames were labeled as 'resident frame' ( $R^2 = 15.63$ ) in the first period and 'information frame' ( $R^2 = 12.65$ ) in the second period, and the public frames were labeled 'confusion frame' ( $R^2 = 5.36$ ) in the first period and 'information frame' ( $R^2 = 3.55$ ) in the second period. The labeling shows that the frames in news media and the public are more comparable in the second period than in the first period, indicating frame alignment over time. In the first period the labels provided to the frames differ between these domains. The crisis frame in the media domain was formed by prominent words as 'residents' (.98), 'safety region' (.98), 'information-telephone number' (.98), 'city access' (.95), 'South of Holland' (.76), and 'drinking water' (.98), indicating that news media initially focused on the safety and potential dangers for the residents of the crisis area. On the contrary, the initial framing of the public emphasized aspects of the crisis related to the lack of available information, and speculations of a terrorist attack. Words like 'inform' (.91), 'information gathering' (.98), 'press conference' (.84), 'danger' (.79), 'terrorist' (.87), and 'press agency' (.96) formed the dominant frame in the public domain. These differences in dominant frame indicate the absence of frame alignment among news media and the public in the initial phase. However, in the second period, the dominant frame of both news media and the public can be labeled as an 'information frame' related to the impact and consequence of the explosion of the chemical plant. In the media domain, words as 'investigation' (.73), 'fire-water' (.60), 'danger' (.75), 'sample' (.66), 'air' (.86), 'mayor' (.48), 'toxic' (.66), and 'soot' (.94) form the dominant word cluster. These words suggest a frame that emphasizes the consequence of the crisis in terms of investigating the toxic fire-water and substance that came free during the explosion and when trying to control the fire. Similarly, the public used similar words like 'investigation' (.62), 'fire-water' (.56), 'update' (.23), 'water authority' (.74), and 'calculation' (.77) to frame the crisis in an informative way. In sum, when comparing the first and second crisis period, the results indicate that the dominant frames of the domains align over time.

The documented absence (first period) and presence (second period) of frame alignment based on the analysis of the dominant frames is in line with the level of frame alignment based on the statistical approach, discussed below. In both analytical approaches it can be concluded that the framing of the domains is not aligned in the first period of the Chemie-Pack crisis, but aligns in the second period. Emphasizing the factor loadings of the words used in the dominant frames is an option to connect and compare the findings of the more descriptive approach (based on the analysis of the dominant frames) with the statistical approach. The statistical approach compares frames on word level based on the corresponding factor loadings and assumes that words with high factor loadings are representative for the frame. The discussed findings provide a clear example of frame alignment in the second period. Namely, the prominent words 'investigation' and 'fire-water' can be found in the dominant frames of both news media and the public. Moreover, the factor loadings of these words are high in both domains. These words can be considered to represent the dominant 'information frame'. The importance of the

words indicates that information regarding the investigation of the crisis and the pollution of water is an important element in the framing. In this sense, the high factor loadings indicate that these words are of comparable importance and have a prominent place in the framing across the domains.

The descriptive and qualitative step is an essential part of the analyses in order to better understand the direct content and make sense of the nature of the frame. However, this study strives to statistically analyze frame alignment without interpretative bias. For that reason, it is not the main focus to understand the nature of the frames. Hence, this study employs the semantic-network method in a more generic manner that is independent from the direct content of the frames. In this way, it is possible to statistically compare the level of frame alignment over time based on an extensive dataset, which is needed to test the hypotheses.

### Statistical analysis of frame alignment

In total 51.170 messages were analyzed. The obtained results, as worked out via the enhanced semantic-network analysis, are presented in Table 2 and Figure 2, documenting the Spearman's Rho correlation among the domain pairs for each time period in each crisis case. The statistical indicators represent the correlation between the factor loadings of the two domains, reflecting the level of frame alignment. The periodization is included in the results by distinguishing alignment among domains in the three periods. For hypotheses discussion the level and the pattern of frame alignment is emphasized. Additionally, the data will be qualitatively enriched by illustrating mutual-used words to provide some insights of crisis-meaning construction.

**Table 2.** *Factor-loading correlations between domains for each case, indicating level of frame alignment.*

Crisis	Frame alignment among domains	Period 1	Period 2	Period 3
SE Fireworks 2000	PR - Media	-.40	-.06	-.55
	Media - Public	-.06	.09	-.14
	Public - PR	.13	.10	-.19
	Mean	-.11	.04	-.29
DSB Bank 2009	PR - Media	-.50	.15	.01
	Media - Public	-.10	.23	-.55
	Public - PR	-.03	.19	.13
	Mean	-.21	.19	-.14
KLM 2010	PR - Media	.00	-.25	-.38
	Media - Public	.16	.21	.00
	Public - PR	-.03	.23	-.38
	Mean	.04	.06	-.25
Chemie Pack 2011	PR - Media	.15	.01	.18
	Media - Public	-.30	.23	-.04
	Public - PR	-.14	.22	-.17
	Mean	-.10	.15	-.01
Total	PR - Media	-.19	-.04	-.19
	Media - Public	-.08	.19	-.18
	Public - PR	-.02	.18	-.15
	Mean	-.10	.11	-.17

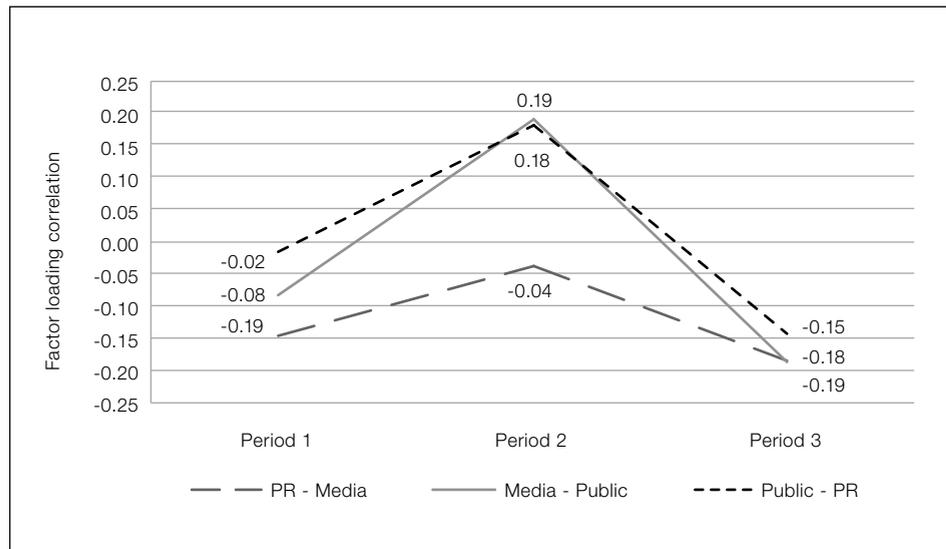


Figure 2. Total mean of all crises, level of frame alignment among the three domains.

### Frame alignment over time

To address hypothesis 1 the factor-loading correlations in the first period and second period between the three domains are compared to grasp the development of implicit-frame alignment over time. Looking at Table 2 and Figure 2, focusing on the mean correlations of all the crises, the negative correlation ( $r_s$  -.08) in the first period indicates fundamental deviation in word importance (demonstrated by the factor loading). In the crisis-specific cases also a general course of low or negative correlations can be observed in the first period; SE Fireworks ( $r_s$  -.11), DSB Bank ( $r_s$  -.21), KLM ( $r_s$  .04), and Chemie-Pack ( $r_s$  -.10).

The low factor correlations among the domains indicate that the mutual-used words differ in their importance for meaning provision and framing of the crisis situation in the first period. Illustratively, in the SE Fireworks crisis the factor loading for the words 'person', 'asbestos', 'fireman', 'Twente' (crisis site), and 'victim' were for PR: .89; .87; .82; .22; .10, and for media: .30; .19; .40; .86; .52. Hence, the role of the first three words, were clearly prominent and determinative for the implicit framing in the PR domain and not in the media domain. On the other hand, the last two words were more focal for the media framing than for PR. Thus, no crisis-frame alignment was documented in the initial phase among the domains.

Contrary to the first period, for the second period, Table 2 documents positive and relatively high average factor-loading correlations. The mean correlation ( $r_s$  .11) demonstrates comparable word importance among the domains, implying signs of crisis-frame alignment. Thus, a clear pattern of increment in frame alignment evolves by comparing the level of frame alignment between the first and second period (P1:  $r_s$  -.10; P2:  $r_s$  .11).

Emphasizing domain-pair level, this pattern can be observed for all pairs; PR-media (P1:  $r_s$  -.19; P2:  $r_s$  -.04), media-public (P1:  $r_s$  -.08; P2:  $r_s$  .19), and public-PR (P1:  $r_s$  -.02; P2:  $r_s$  .18). However, focusing on the correlation indicators, the results show a low correlation ( $r_s$  -.04) between PR and media, reflecting little frame alignment despite the increasing pattern over time. Also, the latter crises show a decreasing alignment for the PR-media pair: KLM (P1:  $r_s$  .00; P2:  $r_s$  -.25) and Chemie-Pack (P1:  $r_s$  .15; P2:  $r_s$  .01).

The general pattern of increasing factor-loading correlations among the domains demonstrates that the word importance, representing the frames, aligns over time. For example, in the second period for the DSB Bank crisis the factor loading for the words 'money', 'Scheringa', and 'people', were highly similar among media: .52; .60; .53, and the public: .54; .64; .53. Also, in the KLM crisis the factor loading of the public: .75; .63; .42, and PR: .71; .56; .58, for the words 'website', 'part', and 'flying' showed signs of frame alignment. Overall, hypothesis 1, predicting that implicit frames of PR, news media, and the public regarding specific organizational crises will align over time, could therefore be supported.

### The phase after frame alignment

The absence of frame alignment in the last crisis period (H2) was tested by means of analyzing the third period. Table 2 documents an average negative factor-loading correlation ( $r_s$  -.17) among the domains in the third period. This negative correlation, together with the decreasing pattern of frame alignment noticeable between the second ( $r_s$  .11), and third ( $r_s$  -.17) period, indicates fundamental contradictory in word importance, and hence in implicit framing. Additionally, when focusing on the domain-pair level, a strong pattern of decreasing correlations among all pairs evolves: PR-media (P2:  $r_s$  -.04; P3:  $r_s$  -.19), media-public (P2:  $r_s$  .19; P3:  $r_s$  -.18), and public-PR (P2:  $r_s$  .18; P3:  $r_s$  -.15). The pattern of decreasing frame alignment and relatively low factor correlations among the domains can also be observed for the specific crisis cases; SE Fireworks ( $r_s$  -.29), DSB Bank ( $r_s$  -.14), KLM ( $r_s$  -.25), and Chemie-Pack ( $r_s$  -.01). Moreover, the correlations in the third period, for all the crisis cases and domain pairs, are lower than in the second period, except for the pair PR-media in the Chemie-Pack crisis (P2:  $r_s$  .01; P3:  $r_s$  .18).

The findings show a decrease in alignment in the third period, denoting a phase of reframing and de-alignment, where words and meanings no longer have comparable functions for framing among domains. For example, in the Chemie-Pack crisis the factor loading for the words 'chemical', 'measurement', and 'environment', poorly correlated among PR: .98; .93; .74, and the public: .05; .10; .11. Hypothesis 2, stating that after crisis-frame alignment, PR, news media, and the public framing will no longer align, could therefore be supported.

### Increase in the level of frame alignment over the years

For testing hypothesis 3, the level of alignment over the years is compared. The magnitude of frame alignment, expressed in factor-loading correlations, in the second periods of the crises is compared, taking in account the years of crisis occurrence. The first noticeable observation, in line with H3, is that the factor-loading

correlation ( $r_s$  .04) for the crisis in the past, 2000, is substantially lower compared to the more recent years; 2009 ( $r_s$  .19), 2010 ( $r_s$  .06), and 2011 ( $r_s$  .15). However, no further increase between 2009 and 2011 is noticeable.

Along the lines of reflective management, it is especially interesting to compare the alignment of the public with PR and news media. Regarding the media-public alignment, an increasing trend in factor-loading correlations is observable over the years: 2000 ( $r_s$  .09), 2009 ( $r_s$  .23), 2010 ( $r_s$  .21), 2011 ( $r_s$  .23). Especially, the fundamental increase in alignment between 2000 and 2009 implies a substantial rise of frame alignment between media and the public over the years. Moreover, from 2009 to 2011 the level of alignment stays rather consistent. Analyzing the PR-public alignment a clear increasing picture evolves: 2000 ( $r_s$  .10), 2009 ( $r_s$  .19), 2010 ( $r_s$  .22), 2011 ( $r_s$  .18). Alignment among PR and news media can also be considered a form of reflective management. From 2000 ( $r_s$  -.06) to 2009 ( $r_s$  .15) an increase is noticeable in the alignment. However, in 2010 a decline was found down to  $r_s$  -.25. Afterwards, in 2011 ( $r_s$  .01) an increase in alignment is again noticeable. However, the level of alignment remains relatively low. Hence, hypothesis 3, stating that over the years the magnitude of crisis-frame alignment between PR, news media, and the public has risen, is partly supported.

## CONCLUSION & DISCUSSION

The current study has been conducted to analyze the alignment in organizational-crisis framing of the domains PR, news media, and the public. Using an analytical innovation of semantic-network analysis, press releases, news articles, and social-media manifestations were analyzed, concerning four Dutch crisis cases.

This study detected a crisis-specific pattern of frame alignment over time among the domains PR, media, and the public. In general, the findings documented alignment in the implicit crisis frames of these domains. To acknowledge the time dimension of crisis situations, three crisis phases were identified. First, in the initial phase of the crisis, the framing varied across the domains. This variation demonstrates the absence of frame alignment and indicates that PR, news media, and the public differently made sense of the crisis situations in their first communication. The rapidly emerging sensemaking, to understand what is going on, and initial production of frames might therefore be based on the domain-specific identities and beliefs about the issue (Scheufele, 1999; Cornelissen et al., 2009), as is normally the case (Leydesdorff & Hellsten, 2005; McCammon, 2012). Second, in the next crisis phase, after initial communication, the domains' initially produced frames interacted. In the domains' encounter and interaction, frame alignment or frame crystallization was observed among the three domains. In their interplay, the domains collectively made sense of the complex crisis situations, possibly to reduce ambiguity and uncertainty and to provide coherence to the issue by aligning in their frame communication (Weick, 1988; Hellsten et al., 2010; Van der Meer & Verhoeven, 2013). Third, in the final phase of the crisis, after mutual sensemaking of the crisis situation, the crisis framing by the PR, news media, and the public was no longer aligned. A process of reframing was found, resulting in de-alignment among the domain-specific frames. The impermanence of frame alignment among

the domains, and the general norm of frame variation across domains (Snow et al., 1986; Hellsten et al., 2010; Leydesdorff & Ivanova, 2014), implies that the alignment was a temporal necessity forced by external circumstances, namely the emergence of an organizational crisis. With the meaning coherence to the situation and the decrease in crisis emergency, the domains had again space to base their framing on their specific interests and goals.

The temporal alignment advances the sensemaking of the complex crisis situation and potentially avoids uncontrollable crisis magnification and ameliorates the solving of the crisis. Especially the collective character of the process of frame alignment, in terms of the interplay and communicative input of all three domains, may avoid misframing by certain domains and helps the domains to decide how to communicate and act appropriately without intensifying the crisis (Weick, 1988). Along this line, the results generally document a rise in the level of frame alignment over the years. This increase can possibly be explained by the online empowerment of the public (Castells, 2007) and the rise of PR professionals' and journalists' reflective approach (Holmström, 2010) to crisis communication. However, between 2009 and 2011 no further increase has been found, denoting stagnation.

The current study enriches the PR literature in the context of crisis communication and framing. This study theoretically extends the field by proposing a framework that describes the complex dynamics of crisis-meaning construction and framing by the domains PR, news media, and the public. By applying a semantic-network approach, this study builds on a more advanced and complex understanding of communication and framing processes in the interplay of several dominant domains. The empirical contribution enlarges the body of crisis communication literature by analyzing the well-established concept of framing with the use of automated semantic-network analyses. A novel analytical expansion is developed to advance semantic-network analyses. This innovation enables to quantitatively assess the alignment of implicit frames among domains or research periods. This theoretical approach and novel method may stimulate empirical investigation of framing and frame alignment by applying a semantic-network approach in related fields, such as mass and political communication.

Despite the methodological contribution to research into frame alignment in crisis communication, this extension of the semantic-network analysis faces certain limitations. Instead of presenting the results in the form of word-network visualizations or frame labeling, the emphasis in this study lies on the aggregated level of statistical correlation. First, specific words and their individual correlations remain invisible in the results presentation. Second, and foremost, the qualitative description and interpretation of the frames (as discussed in the example in the result section) remains invisible as well. The statistical extension presented here approaches frame comparison in a generic manner that is independent from the direct content of the frames. Hence, the content basis on which frames are aligned or de-aligned remains unaddressed in the reported findings. In this sense, a qualitative analysis is necessary to determine if the lack of alignment concerns conflicting frames (Chong & Druckman, 2007) or frames that are simply different but can co-exist with one another. Hence, in this paper frame alignment means that similar frames are being

used and no conclusions are drawn about whether frames are conflicting or not. However, by focusing on the statistical comparison based on factor loadings this approach is in line with the paper's theoretical aim, namely to statistically compare the level of frame alignment over time among domains for multiple crisis cases.

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## APPENDIX 1: METHOD-INNOVATION VALIDATION

### INTRODUCTION

Appendix 1 is conducted to demonstrate the potency of the extension to the automated semantic-network analysis. The respective method is an automated tool that identifies latent frames embedded in texts. More specific, it concerns a semantic-network analysis with factor analysis to identify word patterns or repertoires that form latent constructs.<sup>1</sup> The semantic-network analysis inquires the frequency of words in text and constructs the correlation between these words. It focuses on the distribution of words, their co-occurrence and the variance in meaning construction. The method identifies word clusters (i.e., patterns or repertoires of words) that are not directly observable throughout text (in one text or between different texts or periods). The word (co-)occurrences are mapped in a semantic field of related words or a communication network, which map the strength of associations between words in texts. The factor analysis of the semantic map (i.e., based on word/document matrix) identifies latent construct of words, the components, in a factor analysis. The latent constructs are interpreted as implicit frames that are embedded in the analyzed texts. Practically, the latent construct is a combination of words that together form a cluster. The automated semantic-network analysis was selected to analyze large amounts of content data collect from the domains PR, news media, and the public. In short, the overall purpose of the paper was to determine whether the organizational-crisis framing of the domains PR, news media, and the public aligns over time.

So far, this method has been applied to identify implicit frames and to qualitatively label and visualize them. This interpretative approach makes quantitative frame comparison between different time periods or different domains problematic. In this manner, frame similarities or differences can only be analyzed in an interpretative way by comparing the personal labeling of the latent constructs or the word-network visualizations. To advance this method, the study introduces and applies an analytical expansion to the automated semantic-network analysis. This method innovation enables implicit frame comparison and the assessment of frame alignment based on statistical indicators. In short, by focusing on the individual factor loadings of words on their frames a correlation between frames of different periods or domains has been calculated. This method innovation allows for objectively assessing the (dis)similarities in different frames in a quantitative manner, without interpretatively comparing frames based on subjectively naming factor labels and comparing word networks. Moreover, with the inductive identification of implicit frames, this method innovation avoids overlooking meaningful words or

<sup>1</sup> Several terms exist to denote an implicit frame or the identification of an implicit frame. The appropriate terminology depends on which method or which theoretical focus is in play. The following terms all refer (to a certain extent) to a frame and can be used interchangeable: construct or latent construct (factor analysis), factor (factor analysis), pattern of variation (factor analysis), cluster or word cluster (semantic-network analysis), repertoire (semantic network analysis), classification or clustering of vertices (semantic-network analysis), and partition (Pajek semantic-network analysis).

concepts in the meaning construction and framing of a situation. Other studies, which apply similar semantic-network approaches, do cope with the limitation that their analyses may overlook meaningful concepts due to their use of a taxonomy-based coding strategy to identify the concepts that are included in the analyses.

The final statistical results of the method innovation were functional to answer the hypotheses regarding frame alignment among the domains PR, news media, and the public. Since this is a novel approach to frame comparison further examination of research finding and method validation is required. Hence, this appendix serves the purpose of validating the described method innovation and accesses its performance for extracting the alignment of frames between the texts of different domains.

For manual-content analyses, the most important indicator of measurement quality is the intercoder reliability. For computer-automated analyses the reliability is always 100% as the output is fixed deterministically by the input (van Atteveldt, Kleinnijenhuis, & Ruigrok, 2008). However, the computer-based analyses can produce invalid results. Hence, it needs to be determined whether the method innovation measures what it intends to measure. The measurement validity will be investigated by determining the correspondence of the findings with alternative analytical approaches. These insights might confirm that the method innovation has sufficient performance to be utilized to investigate frame alignment in a valid way.

The appendix will be structured as follow. First, several steps made in the process of the method will be tested for their impact and implications by addressing alternative options. Second, several alternative approaches to text and meaning comparison will be introduced to assess whether the results are in line with those found with the method innovation. For comparison, the main question is whether the patterns of frame alignment over time are confirmed.

### Verification of steps

To verify the selection of several steps in the process of the method to statistically determine frame alignment, alternative options will be investigated. The steps that need verification are based on rational or practical reasoning and could be considered arbitrary. Analyzing alternative approach to these steps provides insights in how the selection of these steps might have affected the final outcomes. In general, three fundamental steps that arguably affect the final outcomes are identified and addressed below; (1) selected number of words, (2) selected number of frames, and (3) selected correlation coefficient.

#### *Selected number of words*

At the start of the method procedure a list of the most frequently used words in the research units (text or messages by PR, news media, and the public) is generated, using the software program FrequencyList. These words, together with the units of analysis, constitute the input for the software program FullText, which generates word/document matrices. In this phase of the method the number of words that will be used for analyses needs to be selected. Generally, a maximum of 75 words is selected to avoid later difficulties in Pajek interpretation and visualization (Vlieger &

Leydesdorff, 2011). Since Pajek visualization is not included in the data analysis of the statistical frame-alignment method a larger number of words can be selected. For the method innovation the study applied a maximum of 255 words. Arguably, selecting a larger amount of words may provide richer and more nuanced findings. It might provide a more robust and throughout overview of the words used for meaning construction of the situation. Moreover, since frame comparison is based on mutual-used words, the selection of more words provides more variables for calculating the correlation between frames.

However, the selection of 255 words instead of 75 words may have altered the research findings. It is important to investigate the differences and similarities between the selections of number of words to understand the consequences of this step. To validate to what extent word amount alters the research findings the final results (i.e., factor-loading correlation between domains) using 255 words are compared to the findings when 75 words were selected. In practice, the same analyses were conducted only at the starting point of the method the amount of words that were included differed. The Chemie-Pack crisis case was selected to serve as an illustration. For both the media and the public the analyses were done for the first, second, and third crisis period. Afterwards, the correlations between the factor loadings of the mutual-used words were calculated. Compared to using a maximum of 255 words, when selecting a maximum of 75 words, the number of factors identified by factor analyses is limited. Hence, the comparison was employed with a maximum of six factors. Table 1 provides an overview of these findings.

First, Table 1 indicates that the factor-loading correlations between media and the public are based on more common-used words when selecting 255 words compared to 75 words. Second, in general no fundamental differences were found in the correlation between factor loadings regardless of the maximum of words used in the analyses. In both cases the correlations rise between the first and second period and declined between the second and third period (as hypothesized). Thus, the pattern of frame alignment is the same between both analyses. This general pattern of factor-loading variance between the periods might indicate that the selection of a maximum of 255 words does not significantly alter the research findings and does not harm the general validity of the method. However, the maximum of 75 words generally showed higher correlations among the domains in both periods. This may

**Table 1.** *Validation word maximum, Chemie-Pack factor-loading correlation media and the public.*

	With 75 words and 6 factors		With 255 words and 6 factors	
	Mutual-used words, media and public	Correlation factor loadings (Spearman)	Mutual-used words, media and public	Correlation factor loadings (Spearman)
Period 1	19	$r_s$ -0.13	48	$r_s$ -0.30
Period 2	20	$r_s$ 0.35	83	$r_s$ 0.22
Period 3	28	$r_s$ -0.01	70	$r_s$ -0.04

imply that the selection of 255 words is more nuanced in terms of including more information and variables to assess the frame alignment.

#### *Selected number of factors*

After the word/document matrices are generated, using automated software for word frequency (FrequencyList) and co-occurrence correlations between words (FullText), word clusters are identified with principal-component factor analyses. These components serve as the implicit frames that are embedded in the text. To identify the implicit frames a maximum of twelve components is applied. Just like the maximum of words, the selection of a maximum of components is arbitrary; there are no clear or default criteria available for selecting the number of factors within social science. It is possible to only select factors with an Eigen Value above 1.0; however, in most cases there are more than twelve components with an Eigen Value exceeding 1.0 and the number of components is preferably kept to a certain minimum so the data remains comprehensible. Additionally, the mathematically estimated number of clusters is strongly model dependent and does not say anything about the interpretability of the produced categories (Grimmer & Stewart, 2013). Commonly, a maximum of six factors is selected in this phase to avoid later difficulties in Pajek interpretation and visualization (Vlieger & Leydesdorff, 2011). Since visualization is not part of the data analysis, and 255 words are selected instead of 75, a higher number of frames are selected to obtain more nuanced results. This study selects multiple frames in an attempt to avoid that important sub-frames are excluded from the analyses. Despite that the sub-frames are less pronounced (i.e., Eigen Value and factor loadings), these frames might still be of significant importance in the meaning construction and framing of a situation or emphasize certain elements of the framing that are otherwise overlooked. Furthermore, by applying a higher frame maximum the component formation becomes less restricted, enabling more inductive exploration of how the domains frame the situation.

Again, the Chemie-Pack crisis case was used as an illustration to test whether the selection of amount of frames altered the research findings. The difference in final results (factor-loading correlation among domains) was explored between selecting six and twelve frames. For both media and the public, the analyses were done for the three crisis periods. Afterwards, the correlations between the factor loadings of the common-used words were calculated. Table 2 provides an overview of these findings.

**Table 2.** *Validation frame maximum, Chemie-Pack factorloading correlation media and the public.*

	Six factors	Twelve factors
	Correlation factor loadings (Spearman), media and public	Correlation factor loadings (Spearman), media and public
Period 1	$r_s$ -0.56	$r_s$ -0.30
Period 2	$r_s$ 0.16	$r_s$ 0.22
Period 3	$r_s$ -0.04	$r_s$ -0.04

No fundamental differences were observed; the general pattern of frame alignment was the same for both analyses. In both cases, the correlation between media and the public was higher in the second period than in the first period and lower in the third period compared to the second period (as hypothesized). This might imply that the selection of frame-number maximum does not significantly alter the findings and does not harm the general validity of the method.

#### *Selected correlation coefficient*

The novel analytical approach results in a Spearman's Rho correlation,  $r_s$ , between each two domains (pairs: PR-media, PR-public, and media-public) for each time period. Pearson product-moment correlation was also an option since the data are on interval level. However, a non-parametric statistic was preferred since Pearson correlation might be too strongly biased towards linear trends. Moreover, since the values used as input for the analysis are factor loadings of different components they are not considered to be normally distributed by definition. Arguably, the majority of scores may not lie around the center of the distribution (i.e., data might lack in symmetry (skewness) or kurtosis might be too high). Thus, a linear relation might not arise naturally and a correlation coefficient that assesses the relation between variables using a monotonic function might be preferable. When applying a monotonic coefficient the function is defined on a subset of the real numbers. These values represent a quantity along a continuous line rather than forced in a linear relation. Moreover, the Spearman correlation is less sensitive to statistical outliers than the Pearson correlation.

**Table 3.** *Validation correlation coefficient, Spearman versus Pearson correlation.*

		Period 1		Period 2		Period 3	
		Pearson	Spearman	Pearson	Spearman	Pearson	Spearman
SE	PR - Media	$r$ -0.225	$r_s$ -0.404	$r$ -0.059	$r_s$ -0.06	$r$ -0.694	$r_s$ -0.548
	Media - Public	$r$ -0.089	$r_s$ -0.063	$r$ 0.091	$r_s$ 0.092	$r$ -0.154	$r_s$ -0.135
Fireworks	Public - PR	$r$ 0.139	$r_s$ 0.125	$r$ 0.096	$r_s$ 0.097	$r$ -0.157	$r_s$ -0.189
	PR - Media	$r$ -0.994	$r_s$ -0.5	$r$ 0.246	$r_s$ 0.152	$r$ 0.014	$r_s$ 0.014
DSB	Media - Public	$r$ 0.104	$r_s$ -0.1	$r$ 0.179	$r_s$ 0.232	$r$ 0.178	$r_s$ -0.553
	Public - PR	$r$ 0.399	$r_s$ -0.033	$r$ 0.136	$r_s$ 0.187	$r$ -0.358	$r_s$ 0.132
Bank	PR - Media	$r$ -0.149	$r_s$ 0.001	$r$ -0.264	$r_s$ -0.254	$r$ -0.379	$r_s$ -0.379
	Media - Public	$r$ 0.199	$r_s$ 0.162	$r$ 0.196	$r_s$ 0.214	$r$ -0.2	$r_s$ 0.003
	Public - PR	$r$ -0.063	$r_s$ -0.025	$r$ 0.06	$r_s$ 0.225	$r$ 0.003	$r_s$ -0.379
KLM	PR - Media	$r$ 0.157	$r_s$ 0.15	$r$ 0.101	$r_s$ 0.012	$r$ 0.161	$r_s$ 0.175
	Media - Public	$r$ -0.285	$r_s$ -0.301	$r$ 0.297	$r_s$ 0.227	$r$ -0.041	$r_s$ -0.042
Pack	Public - PR	$r$ -0.095	$r_s$ -0.138	$r$ -0.004	$r_s$ 0.219	$r$ -0.085	$r_s$ -0.166
	PR - Media	$r$ -0.303	$r_s$ -0.188	$r$ 0.06	$r_s$ -0.038	$r$ -0.225	$r_s$ -0.185
Total	Media - Public	$r$ -0.018	$r_s$ -0.076	$r$ 0.191	$r_s$ 0.191	$r$ -0.054	$r_s$ -0.182
	Public - PR	$r$ -0.073	$r_s$ -0.019	$r$ 0.072	$r_s$ 0.182	$r$ -0.149	$r_s$ -0.151

Comparison analyses were employed to ensure that the arbitrary step of selecting Spearman correlation (as final statistic to assess frame alignment) does not significantly bias or affect data interpretation. The final results of Spearman correlations are compared with the Pearson correlations. This is done for the entire set of data; among all the crises and domains (see Table 3).

Table 3 shows no clear difference in the pattern of frame alignment when comparing the Pearson correlation and Spearman correlation of the factor loadings. The pattern of either increase or decrease in frame alignment is similar for the two analyses with different correlation coefficients. The values of both statistical indicators are not entirely similar; they differ in terms of magnitude. However, these dissimilarities are not substantial and not unexpected since it concerns different statistical formula. These corresponding findings might indicate that the utilization of Spearman correlation in this phase of the research did not alter the research findings and interpretations. Moreover, the similar values of the Pearson correlation and Spearman correlation might also point to the absence of prominent outliers in the data and that the data are roughly elliptically or normal distributed. In general, the comparison analyses might confirm the selection of Spearman correlation coefficient as valid statistical indicator for final correlation calculation.

#### Verification of research findings

This part of the appendix addresses several alternative empirical analyses. These alternative analyses might not fully grasp the framing of the situation; however, they are considered useful to gain a more detailed perspective regarding the current findings. The alternative methods are useful to further validate the method innovation and provide a broader perspective and more details in terms of what the findings in fact embody. To verify the final research findings of the method, three alternative options are investigated; (1) word-frequency correlations, (2) betweenness correlations, and (3) Cronbach's alpha correlations. The three validation analyses are employed with comparable analytical techniques. Rather than using the factor loadings of individual words (that were common among domains) to analyze similarities in the text among PR, news media, and the public, the correlations between word frequency, betweenness and Cronbach's Alpha were applied. The three approaches are introduced below. The framing of news media and the public in the Chemie-Pack crisis case are selected to illustrate how the alternative analytical approaches relate to findings of the factor-loading correlations. The results of the analyses will be documented in one final table.

#### *Word-frequency count*

First, there are some standard protocols available offered in content analysis that facilitate the identification of relationships among constructs. A basic approach is word frequency counts, where each word is assigned the number of times it occurs in a document. Word-frequency count is often used to measure the attention paid to a given issue in a text (e.g., Tuggle, Sirmon, Reutzel & Bierman, 2010). Frequency count is the simplest and most straightforward protocol to understand relative attention given to a particular issue or event (Krippendorff, 2004). Certain

studies even assume that the frequency of words is the most important indicator of meaning (Illia, Sonpar & Bauer, 2012). Moreover, frequency count is considered useful to determine whether phenomena vary across time, organizations, or actors (Sonpar & Golden-Biddle, 2008). In conclusion, the protocols of word-frequency counts might be helpful to quantify data and perform subsequent statistical tests to compare with the research findings based on factor loadings.

For each of the 255 words selected for analyses the frequency of occurrences was documented, using the software program *FrequencyList*. Afterwards, the correlation was calculated in frequency counts of those words used in both domains. It was analyzed to what degree the frequency count was comparable among domains in terms of Spearman correlation. The results of this analysis are documented in Table 4.

#### *Betweenness*

For the second validation analysis Pajek semantic-networks analyses were performed. More specific, Pajek software was applied to calculate betweenness of individual words and the betweenness centrality. Betweenness is a centrality measure, emphasizing the word networks and the links and spread of words in these networks in terms of the lines (i.e., visualization of word correlations) between the words (De Nooy, Mrvar & Batagelj, 2011). The centrality of a word depends on the extent to which it is needed as a link in the chain of communication. The underlying assumption is that the chain facilitates the construction of meaning within the network. If a word is more 'go-between', it implies that a word is more centrally located in the network. In this regard, the geodesics (i.e., the shortest line/path between two vertices/words), might represent the most likely channel for transporting meaning between words. Therefore, a word that is situated on the geodesics between many pairs of vertices is important and central in the network. In general, the betweenness of a word/vertex is the proportion of all geodesics between other vertices in the network that include this vertex. Thus, betweenness centrality of a word refers to the positions of the individual vertices within the network, whereas the betweenness centralization is used to characterize an entire network; "betweenness centralization is the variation in the betweenness centrality of vertices divided by the maximum variation in betweenness centrality scores possible in a network of the same size" (De Nooy et al., p. 131). In conclusion, betweenness centrality may provide an indication to what extent a word is important and central in the communication network that provides meaning to a situation. In this regard, the findings may be useful to validate the results. Moreover, since the betweenness centralization refers to the entire network this measure might indicate to what extent a meaning is established in a network. In this sense, higher betweenness centralization is assumed to indicate a more established meaning in a communication network of PR, news media, or the public.

To obtain the betweenness values the Pajek software is utilized. Pajek creates a betweenness centrality scores for all the vertices (i.e., words) in the network. So for each individual word a betweenness centrality indicator is created ranging from 0 to 1. Additionally, the betweenness centralization is generated, which indicate the

Table 4. Validation research findings; frequency count, betweenness centrality, and Cronbach's alpha.

		Period 1	Period 2	Period 3
Media-Public	Factor loading	$r_s$ -0.301	$r_s$ 0.227	$r_s$ -0.05
	Word frequency	$r_s$ 0.269	$r_s$ 0.279	$r_s$ 0.417*
	Betweenness	$r_s$ 0.027	$r_s$ 0.389	$r_s$ 0.349
	Cronbach's alpha	$r_s$ -0.011	$r_s$ 0.197	$r_s$ -0.023
Media-PR	Factor loading	$r_s$ 0.15	$r_s$ 0.011	$r_s$ 0.175
	Word frequency	$r_s$ 0.343	$r_s$ 0.482*	$r_s$ 0.354
	Betweenness	$r_s$ 0.087	$r_s$ 0.067	$r_s$ 0.229
	Cronbach's alpha	$r_s$ 0.076	$r_s$ 0.051	$r_s$ 0.146
Public-PR	Factor loading	$r_s$ -0.096	$r_s$ 0.219	$r_s$ -0.166
	Word frequency	$r_s$ 0.164	$r_s$ 0.592	$r_s$ 0.455
	Betweenness	$r_s$ 0.156	$r_s$ 0.066	$r_s$ 0.181
	Cronbach's alpha	$r_s$ -0.184	$r_s$ 0.206	$r_s$ 0.58*
Betweenness centralization	Media	0.00045452	0.00156167	0.01029732
	Public	0.00968953	0.14190262	0.15377238
	PR	0.00952559	0.05216960	0.17609963

\* Deviating research finding compared to pattern of frame alignment based on factor-loading correlations.

betweenness of the entire word network with an indicator between 0 and 1. For comparison among domains, the Spearman correlation between the betweenness centrality of those words used in both domains was calculated. The results of this analysis are documented in Table 4.

#### Cronbach's alpha

The third analytical approach emphasizes the Cronbach's alpha measurement. Besides factor loadings, individual reliability coefficients of the factors can be calculated to determine whether certain words form a reliable part of the component. For the reliability analysis the words are selected that are assumed to form a component. To determine which words belong to which frame, the output of the factor analyses is used. The general score of the Cronbach's alpha controls whether the frames form a reliable scale. In addition, individual reliability values for each word are generated in this reliability analysis. This item-total correlation refers to the correspondence of each word to the total score of the words; the higher the total reliability score of an item, the higher the correlation of this item with the total score of words, and the more reliable the position of the word in the factor. These individual scores are compared among the domains. Again, the Spearman correlation between the Cronbach's alpha of those words used in both domains was calculated. These finding may provide an indication to what extent the results based on the factor loadings are a sophisticated measurement. The results of this analysis are shown in Table 4.

The validation analyses with (1) the word-frequency count correlations, (2) word-betweenness correlations, and (3) Cronbach's Alpha correlations resulted in highly similar findings in the frame-alignment pattern. In general, the findings in Table 4 indicate that with the increase in factor-loading correlation also (1) the word usage (word-frequency count) between the domains PR, news media, and the public becomes more similar, (2) the positions of the individual words within the network (betweenness) of different domains become more alike, and (3) frame-related reliability score of the words (Cronbach's Alpha) becomes more comparable among the domains. Concluding, the frame-alignment pattern (of decrease and increase) found by factor-loading correlations was confirmed by the three validation analyses, showing highly similar findings and specifying the results of frame alignment. In other words, the validation analyses indicate that when frame alignment was detected between domains (determined by factor-loading correlations), these domains also used words in comparable frequency, that their used words are similar in terms of their centrality in providing meaning to the situation, and that words are a more equally reliable part of their framing. However, not all correlation increased or decreased accordingly to the pattern of the factor-loading correlations. Table 3 documents three cases of deviating research findings (indicated with asterisk). However, these deviations are spread among different periods and domain pairs, arguably indicating that there is no structural deviation in the validation of the findings. Furthermore, the deviation in the final period might imply that the domains use the same words and terminology to discuss an issue, however; they focus on different attributes of this issue. In other words, the domains may give attention to the same topic, using the same words, but frame the situation in another way. This is possibly in line with the findings of the betweenness centralization. The betweenness centralization values for the separate domains show a general increase (Table 4). This might direct to an increase in establishment of a more stable crisis meaning in each domain over time. This is in line with the notion that in the initial crisis phase domains struggle with making sense of the complex crisis situation. Over time this struggle reduces and meaning becomes more fixed, arguably, as a result of the communicative interplay between the domains.

#### Conclusion validation analyses

This study is the first to introduce the statistical calculation of frame alignment with the use of semantic-network analyses. Therefore, it is necessary to validate the methodological steps and findings and obtain detailed knowledge about what the findings actually represent. For this purpose additional analyses were conducted.

In conclusion, investigating alternative options validated several steps in the process of the method. These alternatives showed confirmatory results and verified the steps of (1) number of words selection, (2) number of frames selection, and (3) correlation-coefficient selection. Moreover, the general research findings are validated based on confirmatory finding by comparing the results of factor-loading correlations with (1) word-frequency counts, (2) word-betweenness correlations, and (3) Cronbach's alpha correlations. All these analyses showed highly similar patterns, possibly indicating measurement validity of the method innovation. These

additional analytical approaches provide more detailed insights in the final findings. In the end, factor-loading comparison is preferred to assess frame alignment. Unlike frequency count, betweenness and Cronbach's alpha, the factor-loading emphasizes how the words relate to the detected implicit frames.

The validity analyses suggest that this method innovation has sufficient performance to analyze framing among different domains over time in an operational valid way. Hence, these results imply that the method innovation can be employed to automatically analyze the alignment in frames among domains and draw valid inferences from it.

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# CHAPTER 2

# THE PERSPECTIVE OF THE ORGANIZATION

This chapter has been submitted as: Van der Meer, T.G.L.A., Verhoeven, P., Beentjes, J.W.J., & Vliegthart, R. (2015). Communication in times of crisis: The stakeholder-organization relationship under Pressure.

## ABSTRACT

This paper studies the interplay between organizations and their stakeholders during organizational crises. During crises, the stakeholder-organization relationships are under pressure, and therewith the organization's reputation and the crisis intensity. This paper's purpose is to investigate how, during a crisis, pressure from both internal stakeholders (i.e., management and employees) and external stakeholders (i.e., news media and general public) influences communicative relationships between organizations and these stakeholders. 444 European public-relations professionals, who experienced crises, were surveyed about crisis and routine times. Special focus was on the mediation role of time pressure and uncertainty. Structural-equation models revealed that, in crisis, the increased pressure from news media, the public, and employees negatively affects the organizations' communicative relationship with these stakeholders, whereas management pressure was found to have a positive effect. This observation might point to organizational isolation on a managerial level in the initial crisis phase, partly as a result of stakeholder pressure.

## INTRODUCTION

No organization is immune to the occurrence of a crisis. Indeed, public relations (PR) professionals report to frequently encounter a crisis, defined as an unpredictable organizational event that potentially generates negative outcomes for the stakeholders of the organization and its performance (Ulmer, 2012; Verhoeven, Tench, Zerfass, Moreno, & Verčič, 2014). Well-known examples are BP's Deepwater Horizon oil spill in the Gulf of Mexico in 2010 (Kleinnijenhuis, Schultz, Utz, & Oegema, 2013) and the controversy around the disposal of Shell's Brent Spar between Shell, Greenpeace, the media, international politics, and the public in 1995 (Heath, 1998). During such crisis situations the reputation of the organization is at stake (Coombs, 2007; Coombs & Holladay, 2002). Stakeholder-organization relationships are considered crucial for the formation of the organization's reputation, in normal times as well as during and after a crisis. Therefore, organizations should work and communicate closely with their stakeholders in order to prevent or decrease the emergence of negative consequences of a crisis (Ulmer, 2001; Ulmer, Sellnow, & Seeger, 2007; Veil & Ojeda, 2010; Porter, 2012). Scholars have argued that an organization's ability to prevent or effectively respond to a crisis depends on its relationships with stakeholders and the accuracy of understanding how stakeholders might behave in the context of crises (Ulmer, 2001; Alpaslan, Green, Mitroff, 2009). This paper investigates how stakeholder-organization relationships develop in the midst of an organizational crisis to gain further understanding of what precedes or forms the basis of crisis consequences and the crisis evolution.

A research deficit remains regarding the understanding of the *interplay* between the organization and its stakeholders during an organizational crisis, especially considering news media and the public (Schultz, Kleinnijenhuis, Oegema, Utz, & Van Atteveldt, 2012; Kleinnijenhuis et al., 2013; Van der Meer, Verhoeven, Beentjes, & Vliegenthart, 2014). So far, crisis-communication research is mainly approached from an organization-centered perspective and experimental studies have predominantly focused on the effect of organizations' crisis-communication strategies on reputation with limited consideration of stakeholders' role in the communication process (Coombs, 2006; Kim & Cameron, 2011). A stakeholder focus would provide valuable insights into the process of how the organization and its stakeholders relate to each other, and how they make sense and react to an organizational crisis (Lee, 2004; Yang, Kang, & Johnson, 2010). Also, understanding of this process, and the attendance and consequence of crises, may be advanced by a comparison between normal circumstances and crisis times (Avery, 2010). Therefore, a survey study is designed among organizations addressing the communicative relationship with and influence of news media, the general public, and internal stakeholders during an organizational crisis compared to normal circumstances.

During a crisis, stakeholders are likely to increase the pressure on the stricken organization and its PR professionals through various media. Due to the high news value of crisis situations (Galtung & Ruge, 1965; Seeger, Sellnow, & Ulmer, 2003; Kleinnijenhuis et al., 2013) organizations might be pushed by journalists and mass media (Neuwirth, 2010; Veil & Ojeda, 2010) to provide information quickly. Moreover, since social media have become an integral aspect of organizational crisis commu-

nication (Hallahan, 2010; Freberg, Palenchar, & Veil, 2013), the general public also is able to put more and direct (online) pressure on the organization (Perry, Taylor, & Doerfel, 2003; Avery, 2010; Jin, Liu, & Austin, 2014). Additionally, PR professionals might also be pushed by the management and other employees (David, 2011; Frandsen & Johansen, 2011) to act or communicate in a certain way. These various forms of pressure might alter the stakeholder-organization relationships in a crisis. The question is how the organization deals with the various forms of pressure and if this results in the organization isolating itself from its stakeholder or if the pressure improves the collaboration between the organization and its stakeholders. Furthermore, other characteristics of an organizational crisis-situation, being time pressure and uncertainty, might affect the communication between PR professionals and stakeholders (Stephens, Malone, & Bailey, 2005; Fleischer, 2013).

The current study incorporates the interplay of the organization and its internal and external stakeholders as a starting point to study the effect of stakeholder pressure on stakeholder relationship in times of crisis and in normal situations. The research question reads as follows: *How do organization's communicative stakeholder relationships differ when the organization undergoes a crisis, compared to routine circumstances?*

## THEORETICAL FRAMEWORK

### Stakeholder relationships

Organizations operate in unstable environments where they must constantly evaluate how to interact with stakeholders (Stephens et al., 2005). To be successful, organizations need to acknowledge the importance of their relationships with stakeholders (Lewis, Hamel, & Richardson, 2001; Tampere, 2007; Ulmer, 2001) and recognize stakeholders' ability to negatively impact the organization's performance (Lerbinger, 1997). This is in accordance with the well-established stakeholder theory (Freeman, 1984; Fassin, 2009). The fundament of Freeman's original stakeholder theory has been conceptualized into a stakeholder model, which focuses on the legitimate interests of any group or individual who can affect or is affected by the organization. This stakeholder model shows the relationships among various groups of actors in and around the organization (Freeman, 1984), emphasizing the influence of numerous internal (e.g., employees, management, and financiers) as well as external stakeholders (e.g., mass media, the general public, and governments) (Fassin, 2009).

Stakeholder theory has been criticized because it fails to cover specific situations such as crisis events (Alpaslan et al., 2009). Nevertheless, this stakeholder-relation approach has frequently been recommended as a useful perspective to study crisis communication (Patterson & Allen, 1997; Ulmer, 2001). It is argued that in the context of crises, adopting the principles of stakeholder theory will lead organizations to engage more frequently in proactive and/or accommodating crisis management behavior, explaining why stakeholder relationships can help organizations prevent crisis escalation and recover more successful from them (Alpaslan et al., 2009). The relationship with stakeholders shapes the perceptions of the crisis and the reputation of the organization and therefore affects the crisis situ-

ation (Coombs & Holladay, 2001). Good stakeholder relationships can advance a collective sense-making process among an organization and its stakeholders when faced with a crisis. Such a collective process might enhance the organization's and stakeholders' understanding of the crisis situation (Lee, 2004). This collective understanding will help to minimize confusion, panic, reputational damage for the organization, and crisis escalation (David, 2011). Thus, strong relationships with stakeholders, constructed and nourished by communication, are a condition to limit negative crisis consequences.

To understand the evolution of stakeholder relationships in crisis times, they can be compared to normal circumstances. First, the stakeholder model acknowledges that stakeholders are identified by their interest in the organization (Donaldson & Preston, 1995). Compared to normal times, crises change the salience of certain (affected) stakeholders and increase urgency and the degree to which stakeholders call for immediate attention (Alpaslan et al., 2009). Internal and external stakeholders cross over boundaries as they become involved in the crisis. Their involvement increases stakeholders' ability to negatively affect organizational performance (Lerbinger, 1997). Accordingly, many organizations make positive assumptions about their stakeholders only to find they were mistaken when hit by a crisis (Stephens et al., 2005). For example, key stakeholders might abandon the stricken organization in order to protect their personal reputation or avoid poor depiction by news media (Pearson & Mitroff, 1993). Second, compared to ongoing and non-emergency routine situations, crisis situations are more critical, with greater immediacy and possible negative outcomes (Avery, 2010). This urgency, especially during the so-called acute phase in the beginning of the crisis (Gilpin & Murphy, 2010; Heath & O'Hair, 2010; Ulmer, Sellnow, & Seeger, 2010), might confound the organization's ability to maintain intensive forms of stakeholder communication and therewith puts pressure on the relationship (Sellnow & Sellnow, 2010; Verhoeven et al., 2014).

### Pressure from stakeholders

Both the relationships with internal and external stakeholders are of significant importance to an organizations' reputation (e.g., Fassin, 2009). Therefore, pressure from the outside as well as from the inside of the organization needs to be addressed in crisis communication. To gain a comprehensive overview of stakeholder pressure this study focuses on different stakeholder types, namely diffused publics, functional publics, and enabling publics (Dougherty, 1992; Ray, 1999). Diffused publics emerge when organizational activities, such as a crisis, result in external consequences – e.g., news media, environmentalists, and public at large. Functional publics are responsible for the organizations' input and output – e.g., employees, unions, customers, and crisis victims. Enabling publics provide the organizations' resources to exist – e.g., shareholders or management. As a starting point, this study looks at the external stakeholder news media and the general public and the internal stakeholders the management and employees.

Since the PR function of the organization includes the communication with both external and internal stakeholders, this function becomes central in organizational-crisis communication (Guth, 1995). Therefore, organizational PR takes on a medi-

ating role between the organization's internal and external stakeholders (Grunig, 1975), bridging different stakeholders with often contradicting aims and interests (Grunig, Grunig, & Dozier, 2002; Van Ruler, Verčič, Bütschi, & Flodin, 2009). As this function holds responsibility for stakeholder management, a key task is to meet internal and external stakeholders' needs and resolve problems in the stakeholder-organization relationships during a crisis to help prevent escalation and damage to the reputation (Ulmer, 2001; Coombs, 2015). Thus, during a crisis situation, organizations' PR function represents organizational communication and might be pressured from both ends – i.e., internal and external stakeholders.

### External pressure

First, organizational crises are likely to be covered by news media because they fit so well with news factors (Coombs, 2010; Neuwirth, 2010). In their coverage of organizational crises, media are known to be most influential in creating initial awareness and framing the situation (Neuwirth, 2010; Seeger, Sellnow, & Ulmer, 2010; Schultz et al., 2012). By failing to be aware of and respond to the power and speed of (online) news media, the organization allows the crisis situation to escalate with all its consequences (Weick, 2001; Gilpin & Murphy, 2010; Neuwirth, 2010; Veil & Ojeda, 2010).

Journalists demand detailed information from the organization that is undergoing a crisis (Sellnow & Seeger, 2001; Schwartz, 2010; Heath & O'Hair, 2012). Especially in the initial crisis phase the demand for timely and accurate facts is high (Seeger, 2006; Veil & Ojeda, 2010). A good communicative relationship with the media might be crucial for the organization to limit reputational damage, as news outlets will generally report negatively about organizational crises (Kleinnijenhuis et al., 2013). Hence, as crises render organizations newsworthy, the media can act as a pressure group in times of crisis (Heath, 1998).

Second, in this study the general public refers to the public at large; people such as consumers, crisis victims, and individuals or communities communicating (online) about the organization. The general public should not be confused with multiple 'publics', which is often used interchangeably with the term 'stakeholder' in PR literature (e.g., Grunig, 1997). The general public's online communication has become crucial to organizations due to the growing role of social media and its impact on organizations. Especially during crises, organization-related social-media usage rapidly increases (Goode, 2009; Heath & O'Hair, 2010; Liu, Austin & Jin, 2011). This increase implies that integrating the public and social media into crisis management is no longer a choice for organizations (Austin, Liu, & Jin, 2012; Jin et al., 2014). As social media have become mainstream venues for crisis communication (Freberg et al., 2013), the role and influence of the public in crisis communication and framing is enlarged (Hallahan, 2010; Freberg et al., 2013). The news of a crisis, as well as inaccurate or unverified information, can be easily shared online, reaching millions of people without the intervening presence of the organization or journalists (Grunig, 2009; Hallahan, 2010; Veil, Buehner, & Palenchar, 2011; Gilpin & Murphy, 2010; Neuwirth, 2010; Freberg et al., 2013). Thus minor organizational problems or crisis threats might set the public agenda about the organization and can easily spiral into major crisis situations (Weick, 2001; Gilpin, Murphy, 2010).

The general public expects quick and accurate crisis information, which is often not readily available to the organization at the onset of the crisis (Avery, 2010; Hallahan, 2010). The absence of crisis information provided by the organization may result in people relying purely on rumors to make sense of the situation, increasing uncertainty and possibly exacerbating the situation (Veil & Ojeda, 2010). The public's enlarged role in combination with their demand for information in crisis times put pressure on the organization. The literature regarding the external stakeholder pressure results in the following hypothesis:

*H1: When an organization undergoes a crisis, there will be more pressure on the organization from (a) news media and (b) the general public than under routine circumstances.*

#### *Internal pressure*

To address the organization's relationship with and pressure from its own members (internal stakeholders) the role of PR professionals in organizational-crisis communication needs to be considered. In the communication with internal stakeholders, the PR professionals assert the organization's PR function and responsibility for stakeholder management. As such, the PR professionals are considered representative for the organization and the organizational communication during a crisis (Alpaslan et al., 2009).

To effectively cope with a crisis, internal communication becomes even more crucial to the organization (Johansen, Aggerholm, & Frandsen, 2012; Frandsen & Johansen, 2011). Internal stakeholders can act as external stakeholders to organizations during a crisis (Montague, 2006). To emphasize the different hierarchical levels in an organization two internal stakeholders can be distinguished: (1) the management as the most influential group within an organization and (2) the other employees besides PR professionals. Just like external stakeholders, these internal stakeholders also have high expectations of organizational communication during a crisis (David, 2011). Additionally, internal stakeholders are not only receivers of information, but also senders, enlarging their level of influence (Frandsen & Johansen, 2011). Therefore, just like external stakeholders, internal stakeholders can create additional pressure on organizational communication during a crisis. The literature regarding the internal stakeholder pressure results in the following hypothesis:

*H2: When an organization undergoes a crisis, there will be more pressure on the organization from (a) the management and (b) other employees than under routine circumstances.*

#### *Pressure on stakeholder-organization relationship*

Stakeholder-organization relationships are closely associated to how an organization reacts to stakeholder pressure in a crisis (e.g., Stephens et al., 2005). Organizations often have limited resources to communicate and react to pressure from the outside environment (Stephens et al., 2005). Especially in response to a crisis, when stakeholder salience and relationships can shift, the organization must decide which

stakeholder to attend to and which to ignore (Pfeffer & Salanci, 1978). Previous research found that various stakeholders separately make sense of and frame a crisis situation at the beginning of a crisis (Snow, Rochford, Worden, & Benford, 1986; Leydesdorff & Hellsten, 2005; McCammon, 2012; Van der Meer et al., 2014). Subsequently, studies revealed that organizations differ in their initial understanding and frame production of a crisis situation compared to stakeholders such as news media (Schultz et al., 2012), and the public (Van der Meer, 2014). These different frames could indicate a weakened relationship between the organization and its stakeholders in the initial phase of the crisis. News media, the general public, and employees might pressure the organization by providing different frames than the organizational ones or claim that the organization takes responsibility for the crisis. As the stakeholders are either victimized or become more salient as a result of the crisis (Alpaslan et al., 2009), they can influence the general perception of the crisis responsibility or even boycott or take legal action against the organization. Therefore, the pressure from news media, the general public, and employees is likely to negatively affect the organization's relationship with these stakeholders.

The relationship with the management however is likely to be positively affected by the pressure from the management during a crisis. Especially when PR professionals are part of the dominant coalition of managers in the organization (Grunig, 1992, Dozier, Grunig, & Grunig, 2002) and therefore will have close working relationships with the top management of the organization. The distinct processes of understanding and framing the crisis by the organization and stakeholders might imply that the organization partly isolates itself from its environment prior to understanding the situation at play. Therefore, it is hypothesized that the organization first strives to internally make sense of the complex crisis situation at the highest organizational hierarchical level – i.e., the managerial level. This holds that the pressure the management puts on PR professionals will, in the initial phase of a crisis, advance the quality of the relationship between management and PR professionals, contrary to the relationships with the other stakeholders. Therefore, hypotheses 3 and 4 read as follows:

*H3: The pressure from (a) news media and (b) the general public on the organization has a negative effect on the communicative relationship with these specific stakeholders in crisis times.*

*H4: The pressure from (a) the employees on organization has a negative effect on the communicative relationship with this specific stakeholder in crisis times, while the pressure from (b) the management has a positive effect.*

#### **The mediating role of time pressure and uncertainty**

The available crisis literature identifies two main crisis components, time pressure and uncertainty, that are inherently related to the occurrence of an organizational crisis. These crisis characteristics may help to further explain the changes in stakeholder-organization relationships during a crisis.

First, a crisis is fundamentally related to the idea of time as an external condition. The surprising and threatening nature of a crisis demands something to be done quickly before the situation will continue to worsen (Sellnow & Sellnow, 2010; Fleischer, 2013). Already in the initial phase of a crisis, an intense and immediate need for information by stakeholders is created (Sellnow & Seeger, 2001; Veil & Ojeda, 2010). The accelerating conflict between the time rationally necessary to cope with the crisis and the appropriate time to do so (Fleischer, 2013) might result in increasing time pressure for the organization (Hale, Dulek, & Hale, 2005). Not only might the occurrence of the organizational crisis already put stakeholder relationships at stake, also the urgency of the crisis might challenge an organization's practice to maintain favorable relationships with their stakeholders (Hale et al., 2005; Gilpin & Murphy, 2010; Heath & O'Hair, 2010; Claeys, Cauberghe, & Leysen, 2013). Hence, during a crisis, time pressure will be higher for the organization, which might weaken the communicative stakeholder-organization relationships.

Second, crisis situations are by definition complex events that create high levels of uncertainty (Lerbinger, 1997). Crises occur by surprise and their threatening nature demands for something to be done (Sellnow & Sellnow, 2010). In this sense, uncertainty and chaos are embedded within the crisis event (Seeger, Sellnow, & Ulmer, 2003; Seeger, Ulmer, Novak, & Sellnow, 2005), resulting in feelings of uncertainty for the organization (Frandsen & Johansen, 2011), defined as absence of information and lack of predictability in work task and requirements (Leach et al., 2013). Therefore, the purpose of organizational-crisis communication is to reduce uncertainty (Stephens et al., 2005) and properly make sense of the crisis situation (Weick, 1988). The organization's uncertainty might increase its intentions to advance the communicative stakeholder relationships in order to come to an (mutual) understanding of the situation at play. Hence, the increased uncertainty for the organization in a crisis might positively affect the stakeholder-organization relationships as the need for (collective) uncertainty reduction might improve the organization's need for good relationships. Therefore, the following is assumed:

*H5: Organizations perceive more time pressure and uncertainty when they undergo a crisis than under routine circumstances.*

*H6: Organizations' communicative stakeholder relationships in crisis times are negatively affected by (a) time pressure and positively affected by their (b) uncertainty.*

To better explain the effect of stakeholder pressure on stakeholder relationship, time pressure and uncertainty can be seen as mediating variables. As argued above, these crisis characteristics are likely to affect stakeholder-organization relationships during a crisis. Additionally, the level of time pressure and uncertainty might again be affected by stakeholder pressure. First, high stakeholder pressure might further push organizations to timely respond to the crisis and to disseminate extensive and accurate information early on (Veil & Ojeda, 2010; Fleischer, 2013). For this reason, time pressure does not only rise due to the occurrence of a crisis, but it can

also be enlarged by stakeholder pressure. Secondly, stakeholder pressure might push the organization to understand and make sense of the crisis situation to be able to respond to the rising need and pressure of the stakeholders (Stephens et al., 2005; Frandsen & Johansen, 2011). The pressure to understand the situation might only increase the organizations level of stress to gain a solid explanation of and response to the crisis, enlarging their level of uncertainty. Not only does the organization have to make sense of the situation for itself, it has to be able to explain and communicate to others about how they understand the situation. The related mediation hypothesis is as follows:

*H7: The effect of stakeholder pressure on communicative stakeholder-organization relationship is mediated by (a) time pressure and (b) uncertainty.*

## METHOD

### Data collection and research design

To examine the pressure from and the relationship with stakeholders, PR professionals are surveyed because they represent the organization and organizational communication in times of organizational crisis (Alpaslan et al., 2009). An English language survey was administered among experienced European PR professionals. A screening question was applied at the beginning of the survey to only select PR professionals who had, at least once, undergone an organizational crisis. To recruit respondents, several professional associations of PR professionals spread the survey amongst their members. Since most organizations have a specific crisis-related working group it was possible to select PR professionals with affinity to organizational-crisis communication. Additional prospective respondents were recruited through the professional-networking site LinkedIn. This website provides users with the option to become part of professional groups of experienced PR professionals with specific interest or experience in organizational crises. Of these groups, randomly selected members received a personal invitation to complete the survey.

### Respondents

In the end, 444 PR professionals volunteered to participate in the survey. The average age of the respondents was 44.67 ( $SD = 10.17$ ) and on average they had 17.23 ( $SD = 8.98$ ) years of experience in communication management or PR and they mainly operated on an international level (64.8%). Most had an education level of a master's degree (57.4%) or bachelor's degree (28.5%). In addition, 41.5% of the PR professionals had a position as head of corporate/organizational communication or CEO and 29.3% as team/unit leader. Furthermore, most respondents worked at communication departments of a joint stock company (26.2%) or government owned organization (21.2%). Finally, 94.14% of the PR professionals self reported that they dealt with an organizational crisis more than once. As there is no knowledge available about the population of PR professionals who experienced an organizational crisis in Europe, the findings cannot claim representa-

tiveness. However, the current sample is mainly in line with the social demographic of PR professionals found in a macro online survey targeting PR professionals in Europe: Predominantly male, about forty years old, and most of them have over ten years experience (Moreno, Zeffass, Tench, Vercic, & Verhoeven, 2015). Additionally, based on the sample of professionals with a thorough level of experience and education this study is considered to lay a solid ground for understanding the nature of stakeholder relationships during organizational crises.

### Measurement

For each of the following concepts, PR professionals were asked to respond to each individual item twice, for normal times and crisis times (initial crisis phase). All items were assessed on 7-point Likert type scales anchored by 1 = 'never' and 7 = 'always'. Appendix 1 provides an overview of all included items.

#### Independent variables

*Media pressure.* Media pressure was assessed by three items measuring several forms of media pressure on an organization. The selected statements were partly based on the study by Helmig, Spraul, and Ingenhoff (2013), e.g., "Our organization's activities are closely monitored by the media." Exploratory principal-component analysis with orthogonal rotation (varimax) and Cronbach's alpha reliability test shows that in both normal ( $EV = 1.79$ ,  $R^2 = 59.67$ , Cronbach's  $\alpha = .65$ ,  $M = 3.99$ ,  $SD = 1.29$ ) and crisis times ( $EV = 1.84$ ,  $R^2 = 61.22$ , Cronbach's  $\alpha = .68$ ,  $M = 5.18$ ,  $SD = 1.26$ ) the three items formed one reliable concept for the measurement of perceived media pressure.

*Public pressure.* To measure public pressure, four items were included in the questionnaire (Park-Poaps, 2010) e.g., "There is a threat that our products/services will be boycotted." The reliability analyses in both normal ( $EV = 2.16$ ,  $R^2 = 54.01$ , Cronbach's  $\alpha = .71$ ,  $M = 3.81$ ,  $SD = 1.27$ ) and crisis times ( $EV = 2.34$ ,  $R^2 = 58.60$ , Cronbach's  $\alpha = .75$ ,  $M = 4.98$ ,  $SD = 1.33$ ) showed reliable measurement.

*Management pressure.* In order to measure management pressure four items were used (Helmig et al., 2013) for internal pressure. The measurement included items like: "Management interferes in our public relations and stakeholder communication." The reliability of the measurement of management pressure was confirmed for both normal ( $EV = 2.28$ ,  $R^2 = 56.94$ , Cronbach's  $\alpha = .80$ ,  $M = 4.83$ ,  $SD = 1.41$ ) and crisis times ( $EV = 2.22$ ,  $R^2 = 55.54$ , Cronbach's  $\alpha = .87$ ,  $M = 5.58$ ,  $SD = 1.30$ ).

*Employee pressure.* Employee pressure was assessed on a four-item scale (Helmig et al., 2013), included statements as: "Other employees monitor whether the promises concerning our public relations are fulfilled." The reliability of the measurement of employee pressure was confirmed for both in normal ( $EV = 2.45$ ,  $R^2 = 61.32$ , Cronbach's  $\alpha = .81$ ,  $M = 4.03$ ,  $SD = 1.45$ ) and crisis times ( $EV = 2.59$ ,  $R^2 = 64.75$ , Cronbach's  $\alpha = .84$ ,  $M = 4.97$ ,  $SD = 1.49$ ).

#### Mediating variables

*Time pressure.* The time pressure component was assessed with a four-item scale (Zika-Viktorsson, Sundström, & Engwall, 2006; DeVoe & Pfeffer, 2010). Among the

items were statements as: "I have so much to do in my function as PR professional that this affects my work performance negatively." The reliability analyses in both normal ( $EV = 2.19$ ,  $R^2 = 72.98$ , Cronbach's  $\alpha = .81$ ,  $M = 3.71$ ,  $SD = 1.37$ ) and crisis times ( $EV = 2.67$ ,  $R^2 = 56.70$ , Cronbach's  $\alpha = .74$ ,  $M = 5.27$ ,  $SD = 1.24$ ) showed reliable measurement.

*Uncertainty.* To measure the PR professionals' uncertainty, four items were included in the questionnaire (Leach et al., 2013), e.g., "The supply of information I need to do my job well is reliable." The reliability analyses in both normal ( $EV = 2.57$ ,  $R^2 = 64.24$ , Cronbach's  $\alpha = .81$ ,  $M = 4.61$ ,  $SD = 1.25$ ) and crisis times ( $EV = 2.51$ ,  $R^2 = 62.68$ , Cronbach's  $\alpha = .80$ ,  $M = 5.72$ ,  $SD = 1.17$ ) showed reliable measurement.

#### Dependent variable

*Communicative relationship with stakeholders.* For each stakeholder, communicative relationship is individually measured using a three-item scale (Neijens & Smit, 2006). Items included for example: "The organization's relationships with journalists/news media are good." The reliability analyses showed reliable measurement for the analyses in both normal and crisis times for news media (normal times:  $EV = 1.67$ ,  $R^2 = 55.63$ , Cronbach's  $\alpha = .57$ ,  $M = 5.32$ ,  $SD = 1.02$ ; crisis times:  $EV = 1.71$ ,  $R^2 = 57.13$ , Cronbach's  $\alpha = .61$ ,  $M = 4.57$ ,  $SD = 1.14$ ), the public (normal times:  $EV = 1.75$ ,  $R^2 = 58.30$ , Cronbach's  $\alpha = .60$ ,  $M = 4.90$ ,  $SD = .98$ ; crisis times:  $EV = 1.84$ ,  $R^2 = 61.17$ , Cronbach's  $\alpha = .66$ ,  $M = 4.15$ ,  $SD = 1.18$ ), management (normal times:  $EV = 2.07$ ,  $R^2 = 68.95$ , Cronbach's  $\alpha = .77$ ,  $M = 5.31$ ,  $SD = 1.18$ ; crisis times:  $EV = 2.15$ ,  $R^2 = 71.81$ , Cronbach's  $\alpha = .80$ ,  $M = 4.87$ ,  $SD = 1.30$ ), and employees (normal times:  $EV = 1.97$ ,  $R^2 = 65.57$ , Cronbach's  $\alpha = .72$ ,  $M = 5.20$ ,  $SD = 1.06$ ; crisis times:  $EV = 1.97$ ,  $R^2 = 65.80$ , Cronbach's  $\alpha = .72$ ,  $M = 4.75$ ,  $SD = 1.14$ ).

#### Analysis

For the purpose of testing several hypotheses, path models were constructed using structural equation modeling (SEM) in EQS software. SEM is a confirmatory approach to data analysis highly appropriate for testing structural models with multiple mediations (Kline, 2011). Moreover, SEM provides fit statistics that allows drawing conclusions about how well the model fits the data – i.e., how well the model explains the data. For the assessment of model fit scholars have relied on a variety of fit indices. Most commonly, the following statistics should be used (Kline, 2011); Bentler Comparative Fit Index (CFI)  $> .90$  (Hu & Bentler, 1999), the Root Mean Square Error of Approximation (RMSEA) lower bound  $< .05$ ; upper bound  $< .10$  (Browne & Cudeck, 1993), and ultimately Chi-square ( $\chi^2$ ) goodness-of-fit statistic being insignificant. However, several scholars put the  $\chi^2$  as a fit indicator up to discussion and emphasize its limitations (e.g., Steiger, 2007). Therefore, the main focus for assessing the hypothesized models will be on the fit indices CFI and RMSEA combined with the effect sizes and explained variances in which parsimony and theoretical plausibility of the models are crucial.

In advance to testing the structural models, the distribution of the data was analyzed. Since the multivariate kurtosis test Mardia's coefficient ( $> 3$ ) suggested

multivariate non-normality, Satorra-Bentler statistic as a corrected model-test fit statistics was applied (Satorra & Bentler, 1994). Moreover, the missing values are replaced by the estimations using probability models for missing values with the use of model-based multiple imputation (EM imputation).

## RESULTS

### Mean difference normal times versus crisis times

On average, in times of organizational crisis the pressure from stakeholders as perceived by PR professionals from (H1a) news media, (H1b) the general public, (H2a) the management of the organization and (H2b) employees is significantly higher than under normal circumstance. Table 1 provides an overview of the results based on ANOVA tested with stacked data. Hypothesis 1 states that when an organization undergoes a crisis, there will be more pressure on the organization from the external stakeholders than under routine circumstances. Additionally, hypothesis 2 stated that also the pressure from internal stakeholders would rise during an organizational crisis compared to normal circumstance. Hypotheses 1 and 2 can therefore be supported.

Additionally, the Table 1 shows the difference in relationship with the stakeholders between normal times and crisis times. The results indicate that for all four stakeholders the relationship is significantly weaker in times of crisis and that the relationship with the management is the strongest in crisis times.

Furthermore, PR professionals indicated that during a crisis, time pressure and uncertainty are significantly higher than under normal circumstance, as was predicted in hypothesis 5. Hypotheses 1, 2 and 5 were supported, therefore structural equation modeling is employed to further analyze the relationships between the communicative stakeholder relationships and stakeholder pressure in combination with time pressure and uncertainty.

**Table 1.** ANOVA test group mean difference normal times versus crisis times.

Concept	Normal times ( <i>M</i> , <i>SD</i> , <i>SE</i> )	Crisis times ( <i>M</i> , <i>SD</i> , <i>SE</i> )	<i>F</i> -test (df, <i>F</i> -value)
Media pressure	<i>M</i> = 4.00 <i>SD</i> = 1.28 <i>SE</i> = .06	<i>M</i> = 5.20 <i>SD</i> = 1.26 <i>SE</i> = .06	<i>F</i> (1, 886) = 191.85*
Public pressure	<i>M</i> = 3.82 <i>SD</i> = 1.26 <i>SE</i> = .05	<i>M</i> = 4.98 <i>SD</i> = 1.33 <i>SE</i> = .06	<i>F</i> (1, 886) = 177.66*
Management pressure	<i>M</i> = 4.83 <i>SD</i> = 1.41 <i>SE</i> = .06	<i>M</i> = 5.58 <i>SD</i> = 1.30 <i>SE</i> = .06	<i>F</i> (1, 886) = 66.91*
Employee pressure	<i>M</i> = 4.03 <i>SD</i> = 1.45 <i>SE</i> = .07	<i>M</i> = 4.97 <i>SD</i> = 1.49 <i>SE</i> = .07	<i>F</i> (1, 886) = 87.73*
Media relation	<i>M</i> = 5.32 <i>SD</i> = 1.02 <i>SE</i> = .05	<i>M</i> = 4.57 <i>SD</i> = 1.14 <i>SE</i> = .58	<i>F</i> (1, 786) = 94.84*
Public relation	<i>M</i> = 4.90 <i>SD</i> = 0.98 <i>SE</i> = .05	<i>M</i> = 4.15 <i>SD</i> = 1.18 <i>SE</i> = .06	<i>F</i> (1, 780) = 93.8*
Management relation	<i>M</i> = 5.31 <i>SD</i> = 1.18 <i>SE</i> = 1.2	<i>M</i> = 4.87 <i>SD</i> = 1.30 <i>SE</i> = .06	<i>F</i> (1, 778) = 24.35*
Employee relation	<i>M</i> = 5.20 <i>SD</i> = 1.06 <i>SE</i> = .05	<i>M</i> = 4.75 <i>SD</i> = 1.14 <i>SE</i> = .06	<i>F</i> (1, 776) = 32.39*
Time pressure	<i>M</i> = 3.71 <i>SD</i> = 1.37 <i>SE</i> = .06	<i>M</i> = 5.27 <i>SD</i> = 1.24 <i>SE</i> = .06	<i>F</i> (1, 844) = 299.6*
Uncertainty	<i>M</i> = 4.61 <i>SD</i> = 1.25 <i>SE</i> = .06	<i>M</i> = 5.72 <i>SD</i> = 1.17 <i>SE</i> = .06	<i>F</i> (1, 828) = 174.32*

\*  $p < .0001$

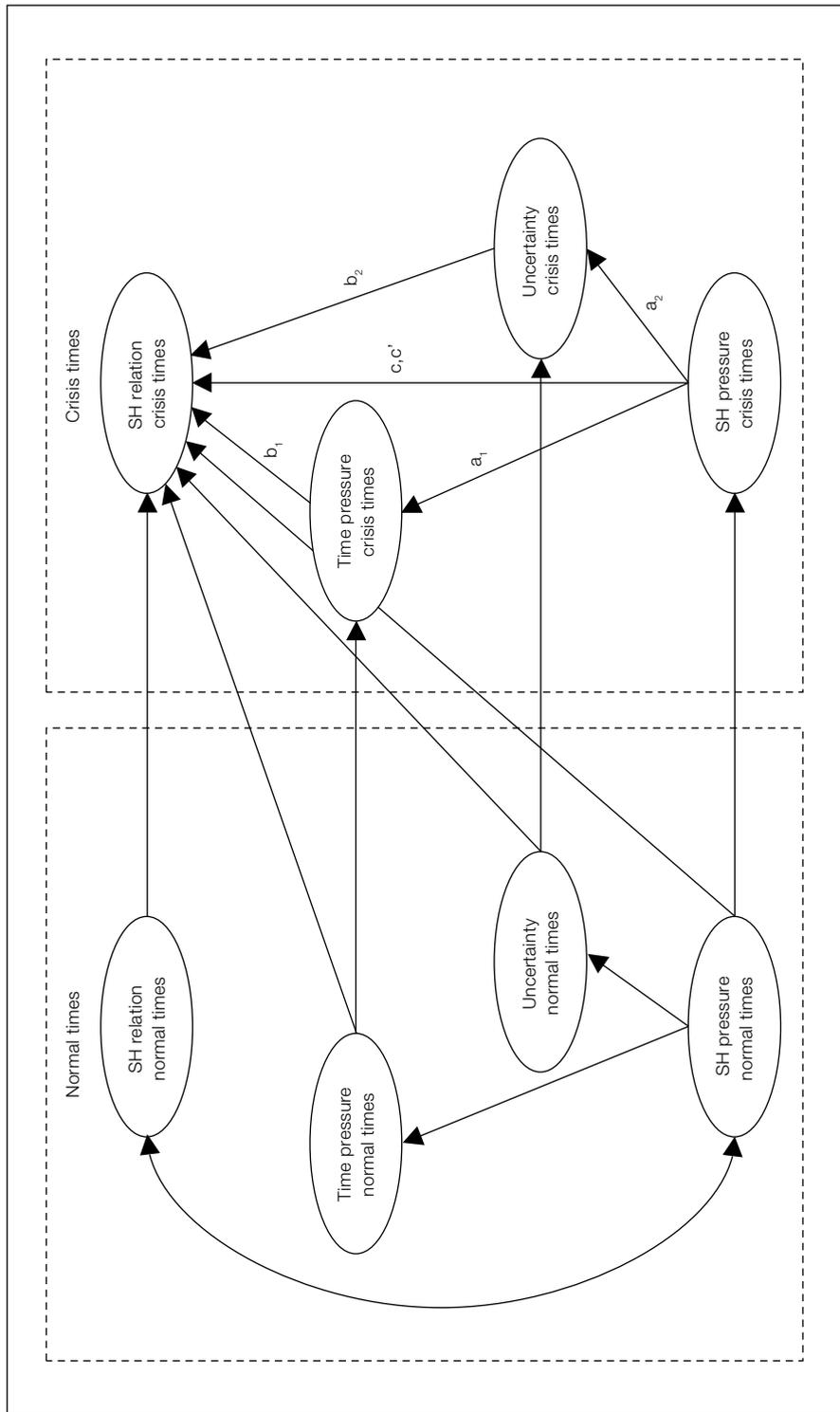


Figure 1. Relationship between organization and stakeholders as perceived by PR professionals: General structural path model stakeholder-organization relationship.

Table 2. Standardized path estimates of structural path models regarding media, public, management, and employees.

Stakeholder	a1	a2	b1	b2	c (total)	c' (direct)	Indirect effect 1	Indirect effect 2
News media	.24*** (.03)	.03 (.03)	-.19*** (.05)	.12*** (.05)	-.54*** (.01)	-.49*** (.00)	Sobel = -3.91***	Sobel = -.86
Public	.18*** (.03)	.04 (.03)	-.16*** (.05)	.13*** (.05)	-.36* (.67)	-.33* (.67)	Sobel = -2.96**	Sobel = 1.17
Management	.09*** (.03)	.08*** (.03)	-.17*** (.05)	.13*** (.05)	.09*** (.01)	.08*** (.00)	Sobel = -2.25*	Sobel = .43
Employees	.09*** (.03)	.06** (.03)	-.10** (.05)	.11** (.05)	-.13*** (.04)	-.12*** (.04)	Sobel = .50	Sobel = .40

\* =  $p < .05$ , \*\* =  $p < .01$ , \*\*\* =  $p < .001$

Structural models

For the purpose of testing the hypotheses about stakeholder pressure, time pressure, and uncertainty for each specific stakeholder a separate path model was estimated since stakeholders' pressure and relationship were measured individually among the four stakeholders. In order to acknowledge the element of time, in terms of comparison between normal times and crisis times, the models controlled for the relationship and pressure of the stakeholders under normal circumstance. In this way, the models also control for the importance of pre-crisis stakeholder relationships (Coombs & Holladay, 2001; Sohn & Lariscy, 2012) and document the pure and nuanced differences and effects in times of crisis. The structural design is inspired on meditational models with longitudinal data. Routine times and normal times can be treated as two different waves where X, M, and Y are measured at both times (e.g., Cole & Maxwell, 2003). The final structural model is presented in Figure 1 and Table 2. In Appendix 2 the complete individual models for the four stakeholders are shown along with the standardized total pathway estimates, explained variance in the endogenous variables, error terms, and error term correlations.

Pressure on stakeholder relationship

The retained models indicate acceptable model fit as reflected by the fit statistics presented in Table 3, allowing interpreting the pathway estimates for testing the expectations.

Hypothesis 3 predicted that, in times of crisis, pressure from the external stakeholder, (H3a) news media and (H3b) the public, has a negative effect on the communicative stakeholder relationships with these specific groups. As shown in Table 2 (c and c'), the effect of stakeholder pressure is significantly negative for the communicative stakeholder relationship for these two external stakeholders as indicated by the PR professionals. These findings support H3a-b.

Hypothesis 4 concerns the pressure from internal stakeholders. First, the hypothesis predicted that, in times of crisis, pressure from the (H4a) employees has a negative effect on the communicative stakeholder relationships with this

**Table 3.** Fit statistics for structural path models regarding media, public, management, and employees.

Stakeholder	Chi-square goodness-of-fit statistic	Bentler CFI	Root Mean Square Error of Approximation
News media	$\chi^2 (10) = 23.03$	CFI = .99	RMSEA = .05 (CI: .025; .084)
Public	$\chi^2 (10) = 29.53$	CFI = .98	RMSEA = .05 (CI: .039; .095)
Management	$\chi^2 (9) = 16.57$	CFI = .99	RMSEA = .04 (CI: .000; .077)
Employees	$\chi^2 (10) = 17.45$	CFI = .99	RMSEA = .04 (CI: .000; .074)

specific group. As shown in Table 2 (c and c'), the effect of stakeholder pressure is significantly negative for the communicative stakeholder relationship for this internal stakeholder as indicated by the PR professionals. Second, the hypothesis assumed a positive effect of (H4b) management pressure on PR professionals during a crisis. The findings indeed indicate a significant positive effect of management pressure on the relationship between PR professionals and management in times of crisis. Hence, also H4a-b are supported.

Regarding hypotheses 3-4, a difference in effect size among the four stakeholders is observed. It was found that the pressure from news media had the most pronounced negative effect on the relationship, followed by the negative effect of the general public and the employees. The positive effect of the management on relationship is found to be the smallest in terms of effect size.

Hypothesis 6 assumed a negative effect of (H6a) time pressure on communicative stakeholder relationships and a positive effect of (H6b) uncertainty. The findings document a significant negative effect of time pressure on the communicative stakeholder relationship for all four actors and a positive effect of uncertainty, supporting H6a-b. See Table 2 (b1 and b2) for an overview. For all four stakeholders, the negative effect of time pressure and the positive effect of uncertainty are not equal in terms of effect size, indicating the absence of a null effect.

The final hypothesis stated that the effect of stakeholder pressure on stakeholder-organization relationship is mediated by (H7a) time pressure and (H7b) uncertainty. As predicted, a significant mediation effect of time pressure was found in the cases of news media, the public, and the management. However, no significant mediation effect was found in the model regarding the employees (see Table 2 indirect effect 1). Therefore, H7a can only be supported for news media, the public, and management and needs to be rejected for the employees. Moreover, no significant mediation effect was found for uncertainty among all four stakeholders (see Table 2 indirect effect 2), rejecting H7b completely.

## CONCLUSION & DISCUSSION

The key purpose of this study was to explore how an organization's communicative stakeholder relationships are different when the organization undergoes a crisis, compared to routine circumstances. The findings are in line with stakeholder theory (e.g., Freeman, 1984; Fassin, 2009) as the importance of stakeholder relationships

for an organization is observed. In crisis times, external stakeholders (i.e., news media and the general public) and internal stakeholders (i.e., management and employees) are able to put substantial pressure on the organization. Stakeholder-organization relationships, as a crucial element in crisis development (Coombs & Holladay, 2001), can be significantly altered by stakeholder pressure. Attempting to capture the mechanism behind this relation, this study revealed the mediating role of time pressure during an organizational crisis.

Using survey data from 444 European PR professionals who underwent organizational crises, organizations' situational differences between crisis times and normal circumstances were tested. To explore the formation of stakeholder-organization relationship during a crisis, several structural-equation models were constructed. This study expected a negative effect of stakeholder pressure from news media, the general public, and the organization's employees on the organization's relationship with these specific stakeholders. However, the relationship with the management was expected to be positively affected due to PR professionals' close working relationship with the top management, and organizational isolation on the managerial level to separately make sense of the crisis situation. The results indeed showed that the increased pressure from media, the public, and employees negatively affected the organization's relationship with these specific stakeholders, while a positive effect was found for management. This is in line with the notion that, during a crisis, stakeholders' ability to negatively affect organizational performance increases while the organization's ability to maintain intensive forms of stakeholder communication decreases (Lerbinger, 1997; Sellnow & Sellnow, 2010).

The findings regarding organization-stakeholder relationships contribute to the understanding of how an organization communicates and relates to their stakeholders during hectic crisis times. The results imply that the organization tries to keep news media, the general public, and employees at a distance in the initial phase of the crisis, despite that the stakeholders pressure the organization for communication. The employees might be seen as acting as external stakeholders to the organization (Montague, 2006). Whereas close-working relations with the stakeholders would help to deescalate the crisis, it is still found that organizations generally isolate themselves from their environment and assess their relationship with its management as most important. Thinkable, the organization might prefer to individually make sense of the crisis situation on a managerial level before they will intensively communicate about it. This managerial isolation might subsequently result in the separated production of crisis frames by the organization and its stakeholders in the initial crisis communication as was found in previous framing studies (Snow et al., 1986; Scheufele, 1999; Leydesdorff & Hellsten, 2005; McCammon, 2012; Van der Meer et al., 2014). This frame differentiation among the organization and its stakeholders endangers the escalation of the crisis situation since mutual understanding is essential for resolving a crisis (Weick, 1988; Seeger, 2002; Heath, 2006). In sum, the managerial isolation of the organization during a crisis might have its negative implication for solving the crisis.

Additionally, normal circumstances were found to have a substantial controlling effect on stakeholder relationships, indicating that well-nurtured pre-crisis rela-

tionships with internal and external stakeholders will pay off in terms of a buffer in times of crisis. In other words, prior stakeholder relationships are found to have substantial explanatory power for the relationship in crisis times next to the stakeholder pressure. Regarding the stakeholders' influence on the stakeholder-organization relationship, news media were found to have the strongest negative effect on organization-stakeholder relationships, followed by the public and employees.

To unravel the process of the effect of stakeholder pressure on stakeholder-organization relationship the mediating effects of time pressure and uncertainty were tested. Only a significant mediation effect of time pressure was found in the cases of news media, the public, and the management, whereas no significant mediation effects were found for uncertainty. Therefore, it can be stated that only time pressure helps to explain the effect of stakeholder pressure on stakeholder relationship during a crisis for certain stakeholders.

The absence of the mediating role of uncertainty is caused by the lack of a strong association between stakeholder pressure and uncertainty. Uncertainty might be more of a general consequence of the crisis occurrence rather than an effect of stakeholder pressure. In this phase, stakeholder pressure mainly increases time pressure and the organization might be primarily forced to act out of concern of time. The mediation effect of time pressure might overshadow the need for uncertainty reduction in the initial phase of the crisis. As the time pressure reduces, uncertainty may gain a more central role in the effect of stakeholder pressure on stakeholder-organization relationships in order to reduce uncertainty and come to a mutual understand of the crisis. This expectation should be further validated using for example observational studies.

Certainly more questions await future investigations. This study was limited to the inclusion of stakeholder pressure, time pressure, and uncertainty, there are however doubtless numerous other crisis characteristics not mentioned in this study, which will yield significant differences in the results. For example, the inclusion of variables such as crisis responsibility, crisis type, crisis-response strategy, or organizational features would provide a more detailed and nuanced overview of the formation of stakeholder-organization relationships in times of crisis. Additionally, the current study might have been limited as the units of analysis were individual PR professionals. If certain respondents have worked for multiple organizations, it might be hard for them to determine what should be the reference organization that they could base their answers on. These data characteristics could have hurt the empirical quality as the conclusions are made on the organizational level. Moreover, other methodological approaches such as observational studies are needed to gain a complete understanding of the process of organizational crises and the role stakeholders play in it. Furthermore, this study only includes four stakeholders whereas numerous others can be distinguished. Nevertheless, the PR professionals in this study did indicate that, amongst many stakeholders, news media, the public, and internal stakeholders are the most essential and dominant stakeholders in times of crisis. Future research can further delve into the role of other significant stakeholders such as the government, shareholders, financiers, NGOs, environmentalists, suppliers, and online and offline communities. However,

by including the most important stakeholders and crisis features, this study fulfilled its task and provides a solid foundation for understanding organizational crises and the role stakeholders play in it.

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APPENDIX 1: ITEMS INCLUDED IN SURVEY

Concept	Items
Media pressure	1. Our organization's activities are closely monitored by news media. 2. Information about our organization that appears in news media is biased. 3. If we do not provide the media with a story they come up with an inaccurate story.
Public pressure	1. There is a threat that our products/services will be boycotted. 2. The public demands responsibility from our organization. 3. The public reacts emotionally toward information about our organization. 4. Rumors about our organization exist.
Management pressure	1. Management interferes in our public relations and stakeholder communication. 2. Management is concerned about the role of our organization in society. 3. Management demands responsibility from our organization. 4. Management monitors whether the promises concerning our public relationships are fulfilled.
Employee pressure	1. Other employees interfere in our public relations and stakeholder communication. 2. Other employees are concerned about the role of our organization in society. 3. Other employees demand responsibility from our organization. 4. Other employees monitor whether the promises concerning our public relationships are fulfilled.
Time pressure	1. I have so much to do in my function as PR professional that this affects my work performance negatively. 2. I feel rushed or pressed for time. 3. My work as a PR professional is characterized by lack of time. 4. I work under short deadlines.
Uncertainty	1. The supply of information I need to do my job well is reliable. 2. I can rely on my suppliers (i.e., the people on whom I depend to do my job well) to deliver on time. 3. I can rely on my suppliers (i.e., the people on whom I depend to do my job well) to deliver exactly what I asked for. 4. The requirements of my internal customers (i.e., the people within my organization to whom I supply, for instance, information, products, materials, or services) are clear.
Media relationship	1. The organization's relationships with journalists/news media are good. 2. Good arrangements can be made with journalists/news media. 3. I experience a tension in the relationship with journalists/news media.
Public relationship	1. The organization's relationships with the public are good. 2. We frequently have pleasant contact with public groups. 3. I experience a tension in the relationship with the public.
Management relationship	1. The organization's relationships with the management are good. 2. Good arrangements can be made with the management. 3. I experience a tension in the relationship with the management.
Employee relationship	1. The organization's relationships with other employees are good. 2. Good arrangements can be made with other employees. 3. I experience a tension in the relationship with other employees.

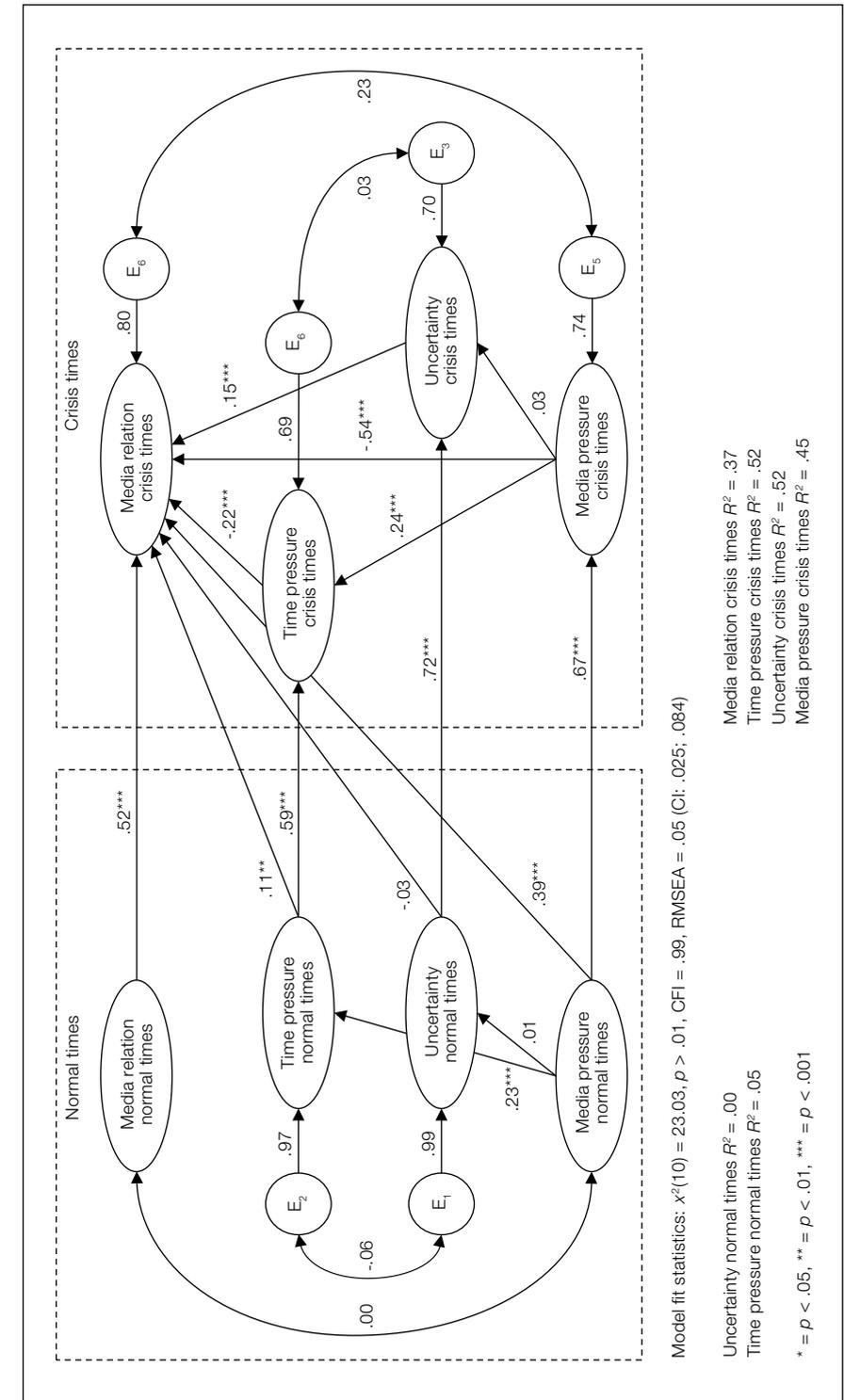


Figure 1. Relationship between organization and media as perceived by PR professionals.

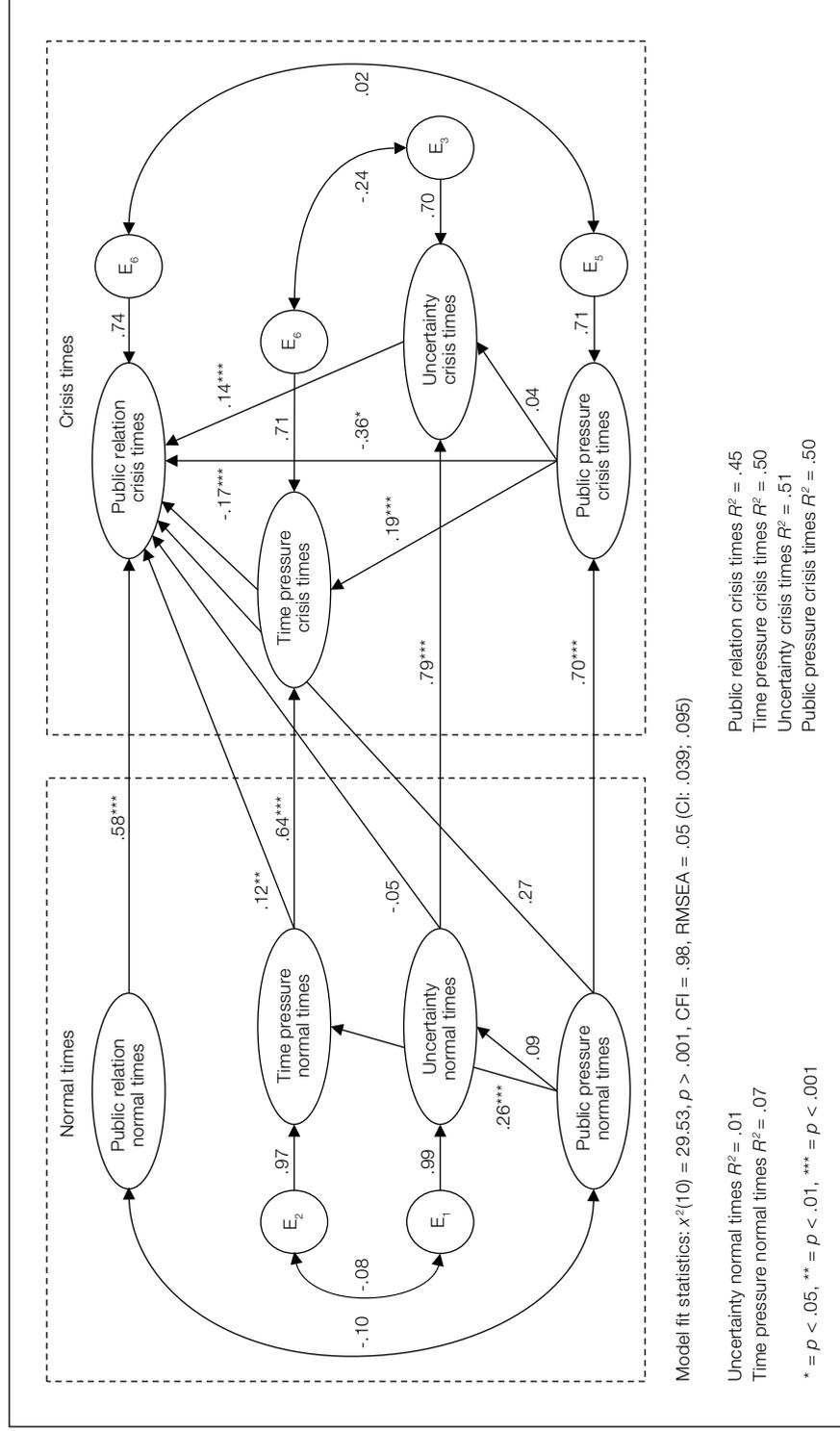


Figure 2. Relationship between organization and public as perceived by PR professionals.

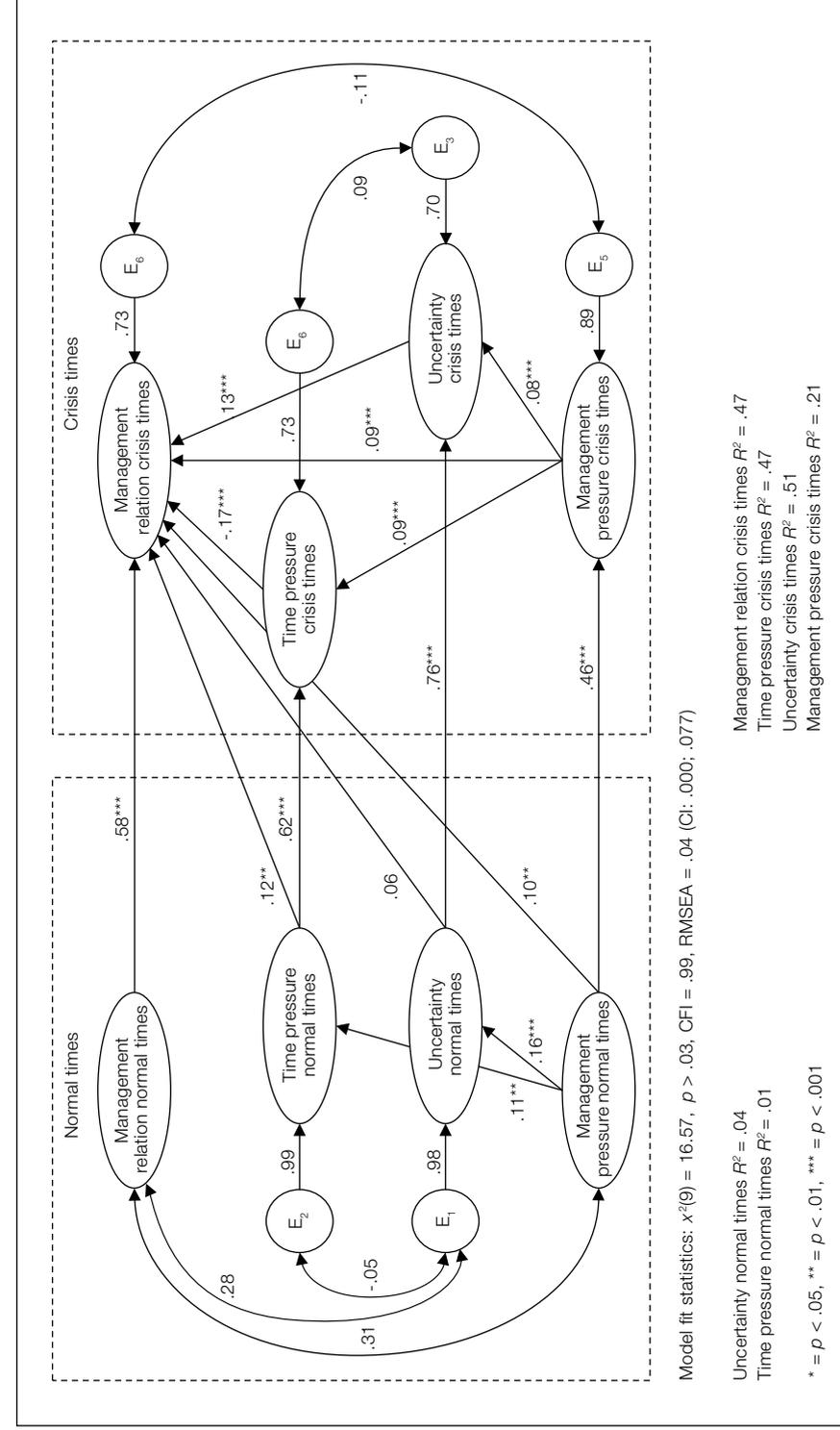


Figure 3. Relationship between organization and management as perceived by PR professionals.



# CHAPTER 3

# THE PERSPECTIVE OF NEWS MEDIA

This chapter has been accepted for publication as: Van der Meer, T.G.L.A., Verhoeven, P., Beentjes, J.W.J., & Vliegthart, R. (in press). Disrupting gatekeeping practices: Journalists' source selection in times of crisis. *Journalism*.

## ABSTRACT

As gatekeepers, journalists have the power to select the sources that get a voice in crisis coverage. The aim of this study is to find out how journalists select sources during a crisis. In a survey, journalists were asked how they assess the following sources during an organizational crisis: News agencies, an organization undergoing the crisis, and the general public. The sample consisted of 214 Dutch experienced journalists who at least once covered a crisis. Using structural equation modeling, sources' likelihood of being included in the news was predicted using five source characteristics: Credibility, knowledge, willingness, timeliness, and the relationship with the journalist. Findings indicated that during a crisis, news agencies are most likely to be included in the news, followed by the public, and finally the organization. The significance of the five source characteristics is dependent on the source type. For example, to be used in the news, news agencies and organizations should be mainly evaluated as knowledgeable, whereas information from the public should be both credible and timely. In addition, organizations should not be seen as too willing to communicate. The findings imply that, during a crisis, journalists remain critical gatekeepers however they rely mainly on familiar sources.

## INTRODUCTION

News media, in their gatekeeper function, are expected to play a pivotal social role in providing relevant and accurate information during crisis situations (Kim & Lee, 2008). In their coverage, news media and journalists are acknowledged being capable of shaping the evolution and magnitude of a crisis and its consequences (e.g., Triandafyllidou 2009; Kleinnijenhuis et al., 2013). News media make information public and so add to collective knowledge of what is going on (Sorribes & Rovira, 2011). The audience uses the information and frames provided by journalists to interpret the crisis and act upon it. Therefore, news media and journalists can create or avoid public panic and hence play an important role in the prevention of crisis escalation (Van der Meer, Verhoeven, Beentjes, & Vliegthart, 2014).

The very nature of a crisis situation makes it difficult for journalists to properly report on such events. Crisis situations are by definition sudden and unpredictable events that may pose danger to society and create high levels of uncertainty, confusion, and time pressure (e.g., Fleischer 2013). As crises disrupt continuity, journalistic practices and standards might be challenged (Sorribes & Rovira, 2011). It becomes difficult to obtain and relay information for journalists and find the time to validate stories (Veil 2012). Nevertheless, journalists have a responsibility to report on newsworthy crisis events. Even in the absence of crucial information, the story still needs to be run to address the audience's immediate desire for information when being (indirectly) confronted with significant risks and crisis situations. Thus, the disruptive nature of a crisis poses substantial problems for journalists in covering the event and potentially alters their journalistic practices. Yet, so far little is known about journalistic practices during a crisis situation.

Gatekeeping theory offers a powerful body of research for investigating journalists' crisis coverage. Besides the selection of news items, the decision as to which sources should be selected in stories is a crucial aspect of gatekeeping practices (Shoemaker & Reese, 1996; Shoemaker & Vos, 2009). As journalists' sources are an indispensable part of the news production process, they matter in determining which information and frames become manifest in the press (Archetti, 2010; Gans, 1979; Hanitzsch, 2004). Therefore, during a crisis, sources are considered to have substantial framing power in news reporting and portraying of the crisis or shaping the context under which a journalist evaluates the issue (Holland, Sweet, Blood, & Fogarty, 2013). Since the way a crisis is covered can affect how the audience defines the crisis (Shoemaker & Vos 2009), the selection of news sources may have substantial consequences for the magnitude of the crisis and its effects on society (Cloudman & Hallahan, 2006).

Although journalism is a source-driven practice, the amount of research on sourcing is relatively limited, especially regarding crisis situations (Broersma, den Herder, & Schohaus, 2013; Dimitrova & Strömbäck, 2009; Manning, 2001). At this point, research has mainly explored how well news media perform during crises (Riegert & Olsson, 2007), addressed how organizations are framed during a crisis (e.g., Schultz, Kleinnijenhuis, Oegema, Utz, & van Atteveldt 2012), and revealed source-quotation frequency regarding specific crisis cases, using predominantly content analysis (Kim & Lee, 2008). Less attention has been given to the general

mechanism of the actual gatekeeping practices and how journalists select their sources in these hectic crisis situations.

The aim of this study is to understand how journalists select their sources when they report about a crisis. Therefore, this study focuses on journalists' gatekeeping practices during an organizational-crisis situation. To see which determinants are important for sources to make it into the news in times of crisis, a survey was administered amongst journalists. To understand how crisis situations disrupt journalists' selection practices, respondents were asked how they assess the following information sources: News agencies, the organization that is undergoing the crisis, and the public. The central research question is: *How do journalists select sources during a crisis situation?*

## THEORETICAL FRAMEWORK

Source selection mechanisms and pluralism in news coverage are influenced by multiple (external) factors at the level of the news issue (e.g., Bennett 1990; Manning 2001) and can thus vary among different situation (De Swert et al., 2013). It is especially important to understand how sources are represented and selected in crisis situations. Under the pressing and ambiguous circumstances of a crisis, reporters rarely use their own direct experience in covering the event (Veil, 2012). Thus, even more than in normal circumstances, during a crisis, news is mainly constructed from information provided by sources. A thorough understanding of source selection is therefore crucial to explore how news coverage is constructed during a crisis and if the audience can make informed decisions using news media reportage.

### News agencies, organization, and general public

There are three types of sources that are commonly used in news reporting about crisis situations and organizational events (Kleinnijenhuis et al., 2013; Riegert & Olsson, 2007; Van der Meer et al., 2014). First, journalists often rely routinely on news agencies (Lewis, Williams, & Franklin, 2008). Second, communication by organizations (e.g., press releases, organizational spokesperson's statements, or public-relations reports) is acknowledged to play an increasing role in the construction of news content (Lewis et al., 2008; O'Neill & O'Connor, 2008). Third, the general public can be used as a news source to provide eyewitness accounts, a grassroots perspective or a vox-pop, or to put a human face on the issue or event (Anden-Papadopoulos & Pantti, 2013; Dimitrova & Strömbäck, 2009). Therefore, this study focuses on the following individual news sources during a crisis: (1) News agencies, (2) the organization that is undergoing the crisis, and (3) the general public in terms of citizens, eyewitnesses, and online and offline communities that represent certain public groups. It is acknowledged that multiple other sources can play a crucial role in the coverage of a crisis, such as governments, independent experts, political actors, or commentators. However, by emphasizing the role of these three sources, this paper provides an important starting point in understanding general gatekeeping patterns during a crisis.

*Reliance on different sources*

The three types of sources differ considerably on several characteristics – for example perceived standing, reliability, and accessibility. It is therefore likely that also the journalists' considerations differ on whether or not to include them in media coverage as news sources during a crisis. Under non-crisis circumstances, gate-keeping studies found that media organizations and their journalists are often far from equitable in the degree to which sources are allocated news access (Gans, 1979; White, 1950). Arguably, due to the disruptive and time pressuring nature of a crisis, journalists might struggle even more with selecting different sources during a crisis (Hanitzsch, 2004; Veil, 2012). These differences between individual sources will have important bearing upon the diversity of the perspectives and interpretative frameworks regarding a crisis situation that is presented through news media (Reich, 2011). Certain sources may indeed be significantly disadvantaged in the scramble to secure access to news media (Manning, 2001). Source inclination or bias towards certain sources decreases pluralistic information and distorts the representation of actors in the news about a crisis.

It can be expected that in times of crisis journalists depend more heavily on a specific type of source. Journalists might over use specific source types or fail to give voice to other important ones (Dimitrova & Strömbäck, 2009; Sorribes & Rovira, 2011). Certain sources can offer more assurance for journalists during the hectic times of a crisis situation. Journalists might look for information that is provided in a convenient form by sources that have proved to be reliable in the past. Therefore, journalists may rely most heavily on news agencies in times of crisis, as this familiar source generally provides accurate up-to-date information in a convenient and accessible form (Lewis et al., 2008). Quite the reverse, the specific organization that is experiencing the crisis is likely to be a less commonly used news source. Organizational press releases and spokespersons are often perceived as being less trustworthy (Park & Cameron, 2014). Journalists might be hesitant to rely on information from the organization without validation, something they have little time for in the initial phase of a crisis situation. Moreover, when other sources are not available and information is scarce during a crisis, it can be convenient for journalists to rely on readily available (online) information from the public. Journalists can easily find members of the public who will provide a critical or skeptical perspective towards the crisis or offer basic information in terms of citizen journalism (e.g., eyewitness). The first research question is:

**RQ1:** *What are the differences in the likelihood of being included in the news between the sources news agencies, organization, and the public during a crisis?*

**Source selection criteria**

As the very nature of a crisis makes source selection more difficult, the question is whether practices that prevail in normal times hold during a crisis. Under normal circumstances, journalists rely heavily on their routine procedures in the construction of news and selection of sources (Shoemaker & Vos, 2009). These routine forces

might partly hold in times of crisis. Furthermore, some aspects of the selection mechanisms that usually play a role might be amplified in times of crises. For example, the accuracy of information from sources might become more critical because the news content provided by journalists can have a large impact on the evolution of the crisis and the response of the audience.

In order to examine crisis journalism and see if non-crisis mechanisms remain partly applicable, this study will investigate whether the most important selection determinants, extrapolated from literature regarding normal circumstances, can be used to predict sources' likelihood of being included in the news during a crisis. Below the following selection criteria are addressed: (1) Journalists' own judgment of the key source qualities, (2) the sources' activities, and (3) the source-journalist relationship.

*Journalists' judgment of sources*

The first determinant related to journalists' source judgment is source credibility. Credibility is a key concern in communication efforts and message acceptance, but perhaps nowhere is it such an important concern as in risk and crisis communication (McComas & Trumbo, 2001). Given the professional journalistic norm of objectivity, journalists need to confirm the credibility of sources used in their coverage. Thus, source credibility is a decisive component for journalists in assessing whether to include a source in the news (e.g., Powers & Fico, 1994; Reich, 2011; Seo & Lim, 2010). Accordingly, journalists tend to stick with sources they perceive as more credible (Reich, 2011). Especially during a crisis when time is pressing, the proven credibility of a source might be an important heuristic for journalists' gatekeeping practice.

The second determinant related to journalists' judgment is being knowledgeable. Besides credibility, journalists tend to select sources that they identify as knowledgeable and well-resourced (Gans, 1979; Messner & Distaso, 2008). While being knowledgeable and credible are often interrelated, being knowledgeable does not necessarily factor into credibility (McComas & Trumbo, 2001). In some cases, sources that are perceived as most knowledgeable may also be considered least trustworthy. For example, certain organizational spokespersons might hold the most relevant and detailed information but might also have a hidden agenda, limiting their credibility. Therefore, a source that is knowledgeable is considered a qualified and experienced source with a high level of information regarding the issue – i.e., crisis situation (Ohanian, 1990). When correct knowledge is displayed, journalists might perceive a source to be an expert source, a source type they normally heavily rely on (Albaek, 2011; Dimitrova & Strömbäck, 2009; Kalyango & Eckler, 2010; Kim & Lee, 2008; Manning, 2001). So when represented in the role as expert, sources are more likely to obtain news access. Especially during a crisis, these sources might be rendered more newsworthy as they are considered to be in positions of access to information about the complex situation at play (Powers & Fico, 1994). As information is often scarce in times of crisis, the extent to which a source is considered knowledgeable can substantially increase the probability that the source gets included in the news. The first hypothesis therefore reads as follows:

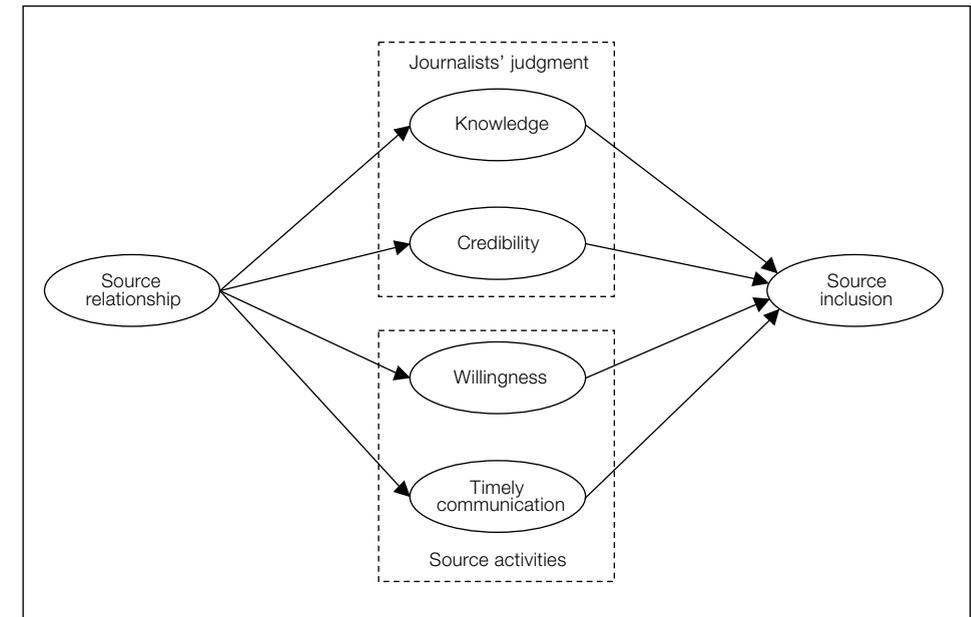
**H1:** *Journalists' judgments of a news source in terms of (a) credibility and (b) being knowledgeable have a positive effect on the likelihood of being included as a source in the news during a crisis.*

#### Sources' activities

Journalists' own orientations are considered a major determinant in choice of sources, but sources' communicative activities during a crisis can also be of substantial influence (Powers & Fico, 1994). First, a fundamental criterion that constitutes a news source is their willingness to communicate and serve as a source (Powers & Fico, 1994). The willingness to communicate and serve as a source is fundamental to obtain a voice in the news. Willingness of a source refers to a source's availability, accessibility, and willingness to share information (Seo & Lim, 2010). Previous studies report that the selection of sources in news media indeed depends on availability and willingness to talk (Broersma et al., 2013; Gans, 1979; Seo & Lim, 2010). Therefore, potential sources will have a greater likelihood of being represented in the news if they take professional journalistic practices into account by being easy to reach and willing to comment (Allgaier, 2011). Being accessible can even lead to becoming a regular or dominant news source (Seo & Lim, 2010). Therefore it is assumed that, during an organizational crisis, the limited potential sources might benefit from offering their information to news media in order to increase their likelihood of being included in the news.

In addition to willingness, timeliness is an important criterion for the selection of sources as it is an essential ingredient of novelty and relevance, both of which are highly prized in news. Crisis situations are fundamentally related to the idea of time (e.g., Fleischer 2013). The audience, including victims, will demand quick and accurate crisis information, resulting in high levels of time pressure for journalists (Avery, 2010). Additionally, journalists are not only trained to gather information, but also to compete. Daily deadlines must be met in order to report the information first. In order to rapidly deliver crisis information, journalists will look for those sources that can provide information in a timely manner. Therefore, for sources to make it into the news, it is important to be available in the first 24 hours of a crisis, quickly respond to journalists, and provide extensive information as soon as possible (Sailot, Steinfatt, & Saliven, 1998). So, it can be expected that during a crisis, when time and resources are at a premium, journalists will turn to those sources most eager to provide timely information as their immediate concern is to obtain basic information for the audience (Broersma et al., 2013; Gans, 1979; O'Neill & O'Connor, 2008). Thus, 'good sources' are not only credible and knowledgeable, but they should also be willing to communicate in a timely fashion. Therefore, the second hypothesis is:

**H2:** *The activities of a news source in terms of (a) willingness to share information and (b) timely communication have a positive effect on the likelihood of being included as a source in the news during a crisis.*



**Figure 1.** *The conceptual mediation model explaining sources' likelihood of being included in the news.*

#### Source-journalist relationship

Source selection partly depends on the nature of the exchange relationships that exist between source and journalist (Manning, 2012). Journalists rely more frequently on contacts and sources that they have built up over their time as news reporters (e.g., Lewis et al. 2008; Manning, 2012). Therefore, the relationship journalists have with a source is considered to play a substantial role in the selection of sources. In the context of a crisis situation, it is found that the development of a stronger interpersonal relationship has its benefits for both the journalist and source. When the relationship improves, the quality and timeliness of information provided to the public improves (Veil, 2012), implying that a good relationship will improve a source's timely communication and willingness to talk. Additionally, journalists are found to acculturate experienced sources that they know and deal with frequently in their circle of 'expert' contacts and trusted sources (Macnamara, 2014). Thus, sources that journalists have good relationships with might automatically be seen as experts and are perceived as more credible and knowledgeable. Hence, it can be argued that the source-journalist relationship has an indirect effect on source inclusion in times of crisis. When the relationship is stronger, a journalist will evaluate a source more positively in terms of credibility and knowledge and a source will be more willing to comment and communicate more timely, in turn, increasing the likelihood of becoming a news source (see Figure 1).

**H3:** *Source-journalist relationship has an indirect effect on the likelihood of being included as a source in the news during a crisis through (a) credibility, (b) knowledge, (c) willingness, and (d) timely communication.*

#### *Preferred criteria to evaluate a specific source*

It is likely that journalists are inclined to use different criteria to evaluate a specific source. In other words, the selection criteria (a) credibility, (b) knowledge, (c) willingness, and (d) timely communication might play a different role in the selection of the source types news agencies, the organization, and the public. For example, as the public is mainly empowered by social media as a means of quick communication (Pantti & Bakker, 2009), timely communication might play a dominant role in the determination of whether the public gets a voice in the news. In the case of the organization, other criteria may be more important. The organization might be mainly selected as a knowledgeable source as it is close to the crisis situation and information. Additionally, the organization might be dependent on its good relationships with journalists as literature documents the importance for firms to make sure they obtain good relationships with journalists to get a (equal) chance to get a voice in the media (Shin & Cameron, 2005). The second research question is:

**RQ2:** *What are the differences in the effect of journalists' selection criteria on the likelihood of being included in the news between the sources news agencies, organization, and the public during a crisis?*

## METHOD

### Data collection and research design

To explore the gatekeeping practices of journalists during crisis times a survey of Dutch practicing and experienced journalists was conducted. To recruit respondents, email invitations were sent out via the Dutch associations for journalists (Nederlandse Vereniging van Journalisten) and an organization that links organizations with journalists (perslijst.nl). Additional prospective respondents were recruited through the professional network of the researchers. As a selection criterion, only journalists who had, at least once, reported about a crisis situation were included for analyses.

### Respondents

In the end, a total of 214 questionnaires were fully completed by journalists who had some experience in reporting about a crisis situation. The average age of the respondents was 48.05 ( $SD = 11.83$ ), 28% of the respondents were female, and on average they had 20.74 ( $SD = 11.62$ ) years of experience. Most had an education level of a professional bachelor degree (41.1%) or master's degree (27.2%). This sample is mainly in line with the general social demographic of Dutch journalists, predominantly male, in their forties, and highly educated (Deuze, 2002). Based on the sample of journalists with a thorough level of experience and education this

study is considered to lay a solid ground for understanding the nature of source selection during organizational crises.

### Measurement

For each of the following concepts, journalists were asked to respond to each individual item three times, once for each of the three news sources: News agencies, organization, and the general public. See Appendix 1 for an overview of all included items. All items were assessed on 7-point Likert type scales anchored by 1 = 'never' and 7 = 'always'. Additionally, respondents were asked to answer the question for the first 24 hours of an organizational crisis.

*Source-journalist relationship.* To measure source-journalist relationship, two items were included in the questionnaire for each news source individually (Neijens & Smit, 2006). Respondents were asked about their relationship with the different sources and the contact frequency with sources.

*Journalists' judgment.* Respondents were requested to evaluate the three news sources based on two concepts; credibility and knowledgeable. First, the evaluation of the credibility of the news sources was measured with three items as: "I think information from this sources is accurate during a crisis" (Cassidy, 2007). Second, in order to measure the judgment of how knowledgeable the news sources are three items were included as: "I think the news source is well informed during a crisis" (Ohanian, 1990).

*Source activities.* The respondents were asked to indicate how news sources act during an organizational crisis based on two concepts; willingness and timely communication. First, the willingness of news sources to communicate was assessed with a three-items scale, e.g., "I think this news source is willing to provide information during a crisis" (Seo & Lim, 2010). Second, respondents were asked about the timeliness of communication of news sources with three items such as: "I think this news source responds quickly during a crisis" (Sailot et al., 1998).

*Source inclusion.* The likelihood of being included as a source in the news during a crisis was measured with four items, e.g., "I think the information of this news source is relevant for news consumers during a crisis" (Lee & Chyi, 2013).

### Analysis

In order to test the hypotheses regarding how the different source selection criteria directly and indirectly affect sources' likelihood to be included in the news and test assumptions about differences among multiple groups, the analyses were conducted using structural equation modeling (SEM) in AMOS 20 using maximum likelihood estimation. SEM is a confirmatory approach to data analysis appropriate for the analysis of fully latent structural models with multiple mediations (Kline, 2011).

A fully latent moderated-mediation structural-regression model was tested with as dependent variable news inclusion of the source. The latent mediating variables were source credibility, source knowledge, timely communication, and willingness and the latent independent variable was source-journalist relationship. In order to compare the full model amongst the three sources incorporated in the survey (i.e., news agency, organization, and the public) a multi-group moderation

was conducted. In other words, to explore the effect differences in the path model among the sources, this study treated source type as a moderator in the model (Byrne, 2004). This discrete moderating variable can be seen as dividing the data into three groups of subsamples, enabling the comparison of path coefficients in the model between groups.

SEM provides fit indices to measure how well the model fits or explains the data. In order to evaluate model fit, this study relies on both incremental and absolute fit indices (e.g., Kline, 2011; Schweizer, 2010): Tucker-Lewis Index (TLI)  $\geq .95$ , the Comparative Fit Index (CFI)  $> .90$ , the standardized version of the root mean squared residual (SRMR)  $\leq .10$ , and the root mean square of approximation (RMSEA)  $\leq .05$ . The  $\chi^2$  statistic is reported primarily as a relative measure to assess differences with alternative or nested models based on the  $\Delta\chi^2$  test. Appendix 2 describes the confirmatory-factor analysis for testing measurement reliability.

**RESULTS**

The discussion of the results starts with answering RQ1. Afterwards, the findings for the structural-regression model are discussed in the order of the hypotheses and conclude with answering RQ2 by comparing the effects among the different sources. The discussion of the differences among the three sources observed will be treated under RQ2.

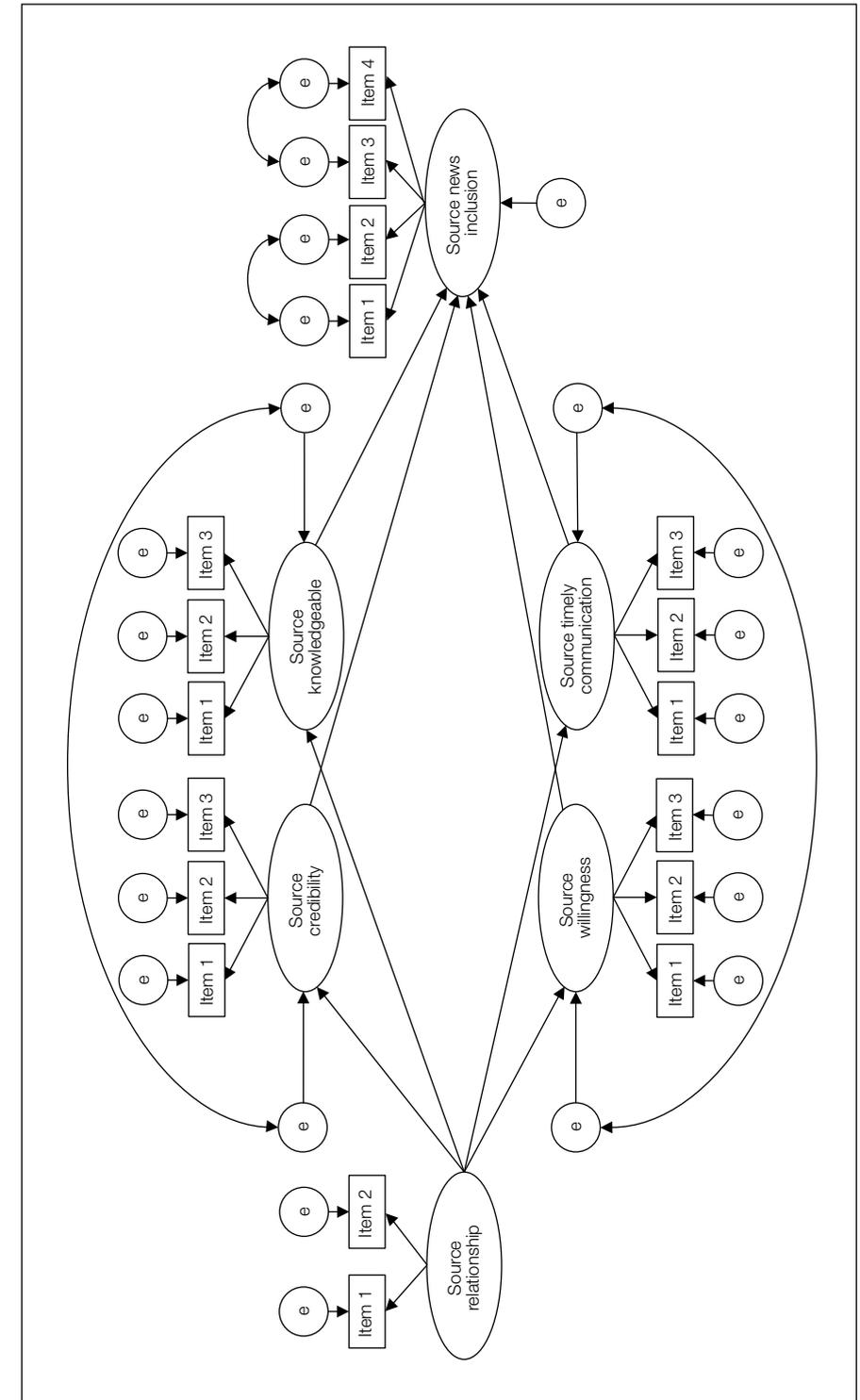
*RQ1: Differences between sources*

To answer RQ1, the differences between news agencies, organization, and public as news sources are explored. MANOVA analyses with Scheffe post-hoc test were run with the stacked data to explore the mean differences between the sources. Table 1 presents the results. The table shows that the journalists in the sample

**Table 1.** *F-values of MANOVA analyses per variable and mean scores and standard deviations per source and variable.*

Dependent variable DF(2, 639)	Org	News agencies	Public	Org vs News agencies	Org vs Public	News agencies vs public
Source relation F = 2.56*	4.59(1.26)	4.41(1.52)	4.71(1.37)	.19	.12	.30*
Credibility F = 83.59***	3.41(1.30)	4.92(1.20)	3.95(1.16)	1.51***	.55***	.96***
Knowledge F = 179.34***	4.36(1.33)	5.19(1.22)	2.98(1.11)	.83***	1.39***	2.21***
Willingness F = 63.49***	4.05(1.33)	5.42(1.25)	5.11(1.44)	1.37***	1.06***	.31**
Timeliness F = 69.85***	3.72(1.39)	5.19(1.25)	4.93(1.48)	1.47***	1.21***	.26
Inclusion F = 18.88***	4.56(1.40)	5.34(1.30)	4.70(1.50)	.77***	.14	.64***

Note. \*p-value  $< .05$ ; \*\*p-value  $< .01$ ; \*\*\*p-value  $< .001$ , based on Scheffe post-hoc test to explore mean difference among the source types.



**Figure 2.** *The general fully latent multi-group moderation mediation structural regression model (multi-group-moderation: this model is tested for the three groups news agencies, organization, and the public).*

**Table 2.** Parameter estimates for the general fully latent moderation mediation structural regression model, predicting inclusion in the news of the three sources.

Hyp.	Independent variable	Dependent variable	Organization	News agencies	Public
			<i>B</i> *(SE)	<i>B</i> *(SE)	<i>B</i> *(SE)
1a	Credibility	Source inclusion	.28(.10)**	.02(.10)	.47(.11)***
1b	Knowledge	Source inclusion	.48(.12)***	.54(.12)***	.07(.10)
2a	Willingness	Source inclusion	-.23(.10)*	.20(.10)*	.06(.08)
2b	Timeliness	Source inclusion	.09(.10)	.13(.09) †	.27(.08)***
3a	Source relationship	Credibility	.75(.23)***	.77(.17)***	.75(.10)***
3b	Source relationship	Knowledge	.69(.27)***	.73(.17)***	.67(.08)***
3c	Source relationship	Willingness	.64(.25)***	.68(.16)***	.61(.10)***
3d	Source relationship	Timeliness	.66(.24)***	.64(.16)***	.58(.10)***
3a	Relationship → Credibility	Source inclusion	.26(.10)**	.10(.10)	.41(.10)***
3b	Relationship → Knowledge	Source inclusion	.36(.21)***	.48(.10)***	.09(.08)
3c	Relationship → Willingness	Source inclusion	.24(.12)	.21(.08)**	.10(.07)
3d	Relationship → timeliness	Source inclusion	.08(.06)	.12(.08) †	.19(.08)**
Variance accounted for		Source inclusion	<i>R</i> <sup>2</sup> = .38	<i>R</i> <sup>2</sup> = .71	<i>R</i> <sup>2</sup> = .52

Note. Cells contain standardized (*B*\*) and coefficients with standard errors (*SE*).  
†p-value < .10; \*p-value < .05; \*\*p-value < .01, \*\*\*p-value < .001.

indicated that they included news agencies ( $M = 5.34$ ) significantly ( $p < .001$ ) more often as a news source during a crisis compared to the organization ( $M = 4.56$ ) and the public ( $M = 4.70$ ). In general a clear picture evolves regarding the journalists' preferences for these agencies during a crisis. News agencies are found to score significantly higher on both their judgment as news source (i.e., credibility and knowledgeable) and their activities (i.e., timely communication and willingness). Additionally, journalists generally evaluate the public significantly more positive on these same variables than the organization.

### Structural regression model

For the purpose of testing the theory-based assumptions, parameters in accordance with the hypothesized expectations were added to the measurement model. Before testing the effects related to the hypotheses, it was tested to what extent the structural model fitted the data. Structural modeling results indicate that the model fits the data well for all three groups  $\chi^2(369) = 743.04$ ;  $\Delta\chi^2$  with CFA model (15) = 23.96,  $p = .07$ ; CFI = .96; TLI = .95; SRMR = .06 and RMSEA = .040 (CI: .036, .044). The final overall structural model is visualized in Figure 2. Table 2 shows the estimates of the effects yielded by the structural equation model based on 95%

bias-corrected 10,000 bootstraps interval. The table provides both the direct and indirect effects for the three groups: News agencies, organization, and the public. Additionally, the explained variance for the dependent variable is presented in the table. In sum, the retained model indicated acceptable model fit, allowing interpretation of the pathway estimates for testing the hypotheses.

### H1-2: Direct effects on source inclusion

Hypothesis 1 predicted that, in times of crisis, journalists' judgment of sources significantly affects the probability that the source gets included in the news. First, as shown in Table 2, credibility (H1a) was found to positively affect inclusion of the sources organization and public, but not of the news agency. Second, the extent to which sources are evaluated as knowledgeable (H1b) had a positive effect on inclusion of organization and news agency, but not of the public. These findings thus partly support H1a and H1b.

Hypothesis 2 expected also an effect of sources' activities during a crisis on the probability that the source gets included in the news. First, as shown in Table 2, the extent to which sources are willing to provide information regarding the crisis (H2a) had a positive and significant effect in the case of the news agency and a negative effect in the case of the organization. No effect of willingness was observed for the source public. Second, the timelier the sources communicate (H2b), the more likely they will be included in the news. However, no effect of timely communication on news inclusion was found for the organization. Hence, H2a and H2b were partially supported.

### H3: role of source-journalist relationship

Hypothesis 3 states that source-journalist relationship determines which sources will be included in times of crisis. First of all, regression analyses showed that the relationship had a significant effect on likelihood to be included in the news for news agencies ( $B^* = .58$ ,  $p < .001$ ), the organization ( $B^* = .54$ ,  $p < .001$ ), and the public ( $B^* = .62$ ,  $p < .001$ ). This finding indicates that a better relationship with journalists will increase sources' likelihood of being included in the news. Furthermore, it is argued that a good relationship will improve journalists' judgment and sources activities towards providing information. Accordingly, for all three sources, Table 2 shows that the relationship with journalists positively affects source judgment in terms of credibility and knowledge as well as sources' activities regarding timeliness and willingness.

Additionally, an indirect effect of relationship on news inclusion was assumed. When adding the mediating variables, the direct effect of relationship on inclusion disappeared for news agencies and the organization. So, for these two groups a full mediation was found, while for the public a partial mediation was established. First, the source-journalist relationship was found to significantly affect news inclusion through credibility (H3a), only for the groups organization and public (see Table 2). Second, the relationship was also found to significantly affect news inclusion through knowledge (H3b), only for the organization and news agency. Third, the relationship was also found to significantly affect news inclusion through willingness

(H3c), however only for news agencies. Finally, the relationship between source and journalist was found to significantly affect news inclusion through timely communication (H3b), only for the news agency and public.

*RQ2: Individual differences among the selection of sources*

When addressing H1 to H3, already some differences among the groups were revealed regarding the effect on source inclusion. In order to see how the three sources differ at the path level, pair-wise parameter comparison tests were applied. This test is used to determine which pairs of parameters are significantly different between the three groups in the model. For the pair-wise parameter comparison test, critical ratios for differences between two parameters in question are calculated by dividing the difference between the parameter estimates by an estimate of the standard error of the difference. The results are presented in Table 3.

First, the pathway of credibility to news inclusion is significantly highest for the public ( $B^* = .54, p < .001$ ), followed by organization ( $B^* = .29, p < .05$ ), indicating that variance in the level of credibility is less important for journalists in determining whether news agencies ( $B^* = .03, n.s.$ ) will be included in the news in times of crisis. Second, knowledge is found to be mainly an important factor for news agencies in order to make it into the news. The effect of being knowledgeable on news inclusion is significantly higher for both news agencies ( $B^* = .60, p < .001$ ) and organization ( $B^* = .48, p < .001$ ) versus public ( $B^* = .08, n.s.$ ). Third, in the case of willingness, a notable negative effect is found for organizations ( $B^* = -.23, p < .05$ )

**Table 3.** *Pair-wise parameter comparison tested to determine which pairs of parameters are significantly different between the groups news agencies, organization, and public.*

Independent variable	Dependent variable	Org	News agency	Public	Org vs News	Org vs Public	News vs public
		$B^*$	$B^*$	$B^*$	z-score	z-score	z-score
Credibility	Source inclusion	.28**	.02	.47***	-1.88*	1.70*	3.52***
Knowledge	Source inclusion	.48***	.54***	.07	.72	-2.54**	-3.38***
Willingness	Source inclusion	-.23**	.20**	.06	3.23***	2.32**	-1.28
Timeliness	Source inclusion	.09	.13*	.27***	.44	1.62	1.23
Source relationship	Knowledge	.75***	.77***	.75***	-1.47	-3.6***	-2.95***
Source relationship	Credibility	.69***	.73***	.67***	-.65	-1.94*	-1.56
Source relationship	Willingness	.64***	.68***	.61***	-.87	-2.75***	-2.49**
Source relationship	Timeliness	.66***	.64***	.58***	-1.06	-2.90***	-2.35**

Note. \*p-value < .10; \*\*p-value < .05; \*\*\*p-value < .01

on the likelihood of being included in the news. This effect is significantly different for the organization compared to the news agencies ( $B^* = .22, p < .05$ ) and public ( $B^* = .06, n.s.$ ). Substantially, it is the only source where an increase in willingness to communicate has a negative effect on being included in the news. Being too eager to share information might backfire for the organization, as it might be an indication for a journalist that the source is mainly interested in being in the news for PR reasons rather than providing relevant and unbiased information (Dimitrova & Strömbäck, 2009; Holland et al., 2013). Fourth, the effect of timely communication on source inclusion is found to be only significant in the case of the public ( $B^* = .39, p < .001$ ) and marginally significant for news agencies ( $B^* = .15, p < .10$ ). This indicates that timely communication mainly matters for the public's chance of obtaining a voice in the news. However, the differences between the sources are insignificant. Finally, it is found that especially the organization can benefit from a better relationship with the journalist.

In sum, the findings regarding RQ2 suggest that the most important factors for news inclusion for the organization are the extent to which it is evaluated as knowledgeable and credible and if it is not too willing or too pushy to share its information. For news agencies, their inclusion is mainly dependent on their knowledge of the situation but also on their willingness to provide information. In the case of the general public, especially their credibility can determine their inclusion as a source. Also, the findings imply an important role of timely communication for the public to be included in the news. In conclusion, it can be stated that both the judgment of news sources and their activities determine whether the news source will be included in the news during a crisis. However, inclusion in the news also depends on the type of source.

## CONCLUSION & DISCUSSION

Gatekeeping theory and practices still hold during a crisis, however, a more nuanced understanding is needed for crisis times. Just as in non-crisis times, the findings indicate that journalists remain critical gatekeepers during a crisis. Despite the hectic circumstances, journalists will still take the effort to personally assess the quality of the source rather than just selecting the sources that are available or present. Additionally, they judge the quality of different sources based on different criteria that they considered applicable for that specific source. However, the disruption of the crisis is found to result in journalists' predispositions towards certain sources. During a crisis, journalists have the tendency to rely mainly on familiar sources such as news agencies and disregard certain other less familiar news sources like the organization and the public. This journalistic inclination towards certain routine sources might result in a bias in terms of the framing of the event and an imbalanced representation of sources (Reich, 2011), which in turn can affect the evolution and consequences of the crisis situation.

The source selection criteria, as applied by journalists during a crisis, are mainly favorable toward news agencies compared to the public and the organization experiencing the crisis. The study shows that in times of crisis, news agencies are most likely to be included in the news, followed by the public, and lastly the orga-

nization (RQ1). Journalists do not adhere the story of the organization in crisis or the (online) public reporting about the crisis. Instead, they have a strong predisposition towards news agencies as a news source during a crisis. In this sense, crisis situations disrupt balanced and pluralistic reportage (Veil, 2012). Crisis coverage appears to be mainly constructed from information provided by news agencies.

To understand how sources are selected during a crisis, sources' likelihood of being included in the news was predicted using five source characteristics extrapolated from journalistic literature regarding normal or routine times. Using structural equation modeling, journalists' judgment of the sources (i.e., credibility and knowledge, H1) as well as sources' activities (i.e., willingness and timely communication, H2) were found to play an important role in the likelihood that sources obtain a voice in the news during a crisis. Additionally, the relationship between the journalist and its source was found to be important in journalists' judgment and sources' activities (H3). The better the relationship, the more positive journalists' judgment of the source and the more available the sources are during a crisis, which in turn increases sources' chances to be included in the news. The observation that these five source characteristics are important in source selection during a crisis is in line with previous research examining source selection under routine circumstance (e.g., McComas & Trumbo, 2001; Manning, 2012; Powers & Fico, 1994). Hence, this study contributes to gatekeeping theory by identifying several key factors that determine source selection during a crisis and revealing that, to a certain extent, the same selection criteria as under routine circumstance hold during a crisis.

Journalists reported to use different determinants for different source types in assessing the likelihood of including a source in the news (RQ2). First, the inclusion of news agencies mainly depends on the extent that they are seen as knowledgeable regarding the crisis but also on their willingness to provide information. News agencies are mainly selected when they have access to crisis-related information and when they make this available. Perhaps credibility is less important for news agencies as little variation is possible in their credibility according to journalists. Second, knowledge and credibility are the most important factors for the inclusion of an organization. As organizations and their spokespersons are often perceived as being less trustworthy (Park & Cameron, 2014), an increase in their credibility and knowledge is crucial for their chances of obtaining a voice. Additionally, being too willing or too pushy to share their information was found to decrease the probability of being included in the news. Being too eager to obtain a voice in the news backfires, because journalists might become skeptical regarding the organizations' motives and agenda for sharing crisis-related information (Dimitrova & Strömbäck, 2009; Holland et al., 2013). Thus, for the organization, it is highly important to be evaluated as a quality source in order to obtain news access during a crisis, while their activities either make no difference (timeliness) or have negative consequences (willingness). Third, especially the general public's credibility and timeliness can determine their news inclusion as a source. So, the public mainly benefits from social media as a means for quick communication during pressing crisis circumstances, yet their information should be evaluated as credible. Knowledge as a selection

criterion might be less important for the public as they are usually not considered to have any expertise on crisis. In sum, journalists critically use different selection criteria to select specific sources in their coverage of a crisis.

Certainly additional questions await future exploration. First, this study was limited to the inclusion of three source types. There are however several other event-specific sources (e.g., experts or political actors) that could be used by journalists during a crisis. Second, journalists are likely to differ with respect to source selection and gatekeeping practices depending on the organizational and cultural contexts in which they work, and on the type of crisis (e.g., magnitude of risk and nature of the crisis) they have to report on. Ergo, the structural model, as presented in this study, is an oversimplification of what are actually highly complex sets of interactions between sources and journalists (Manning, 2001). Third, regarding the measurement of the different selection criteria, further research should indicate to what extent criteria are part of comparable or second-order factors that relate to journalists' source selection as the measurement model showed high correlations among the factors. Finally, in the future the explicit difference between routine and crisis times should be examined using both survey and content analyses. Despite these limitations, this study provides a solid starting point for understanding gatekeeping practices during a crisis and which determinants generally play a role in selecting sources in these hectic times.

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## APPENDIX 1: ITEMS INCLUDED IN SURVEY

Concept*	Items
Credibility	<ol style="list-style-type: none"> <li>1. I think information of this source is trustworthy during a crisis.</li> <li>2. I think information of this source is fair during a crisis.</li> <li>3. I think information of this source is accurate during a crisis.</li> </ol>
Knowledge	<ol style="list-style-type: none"> <li>1. I think this source is qualified during a crisis.</li> <li>2. I think this source is well informed during a crisis.</li> <li>3. I think this source is knowledgeable during a crisis.</li> </ol>
Willingness	<ol style="list-style-type: none"> <li>1. I think this source is available during a crisis.</li> <li>2. I think this source is accessible during a crisis.</li> <li>3. I think this source is willing to provide information during a crisis.</li> </ol>
Timely communication	<ol style="list-style-type: none"> <li>1. I think this source is available in the first 24 hours during a crisis.</li> <li>2. I think this news source responds quickly during a crisis.</li> <li>3. I think this news source provides extensive information as soon as possible during a crisis.</li> </ol>
Relationship	<ol style="list-style-type: none"> <li>1. I have a good relationship with this source during a crisis.</li> <li>2. I have frequent contact with this source during a crisis.</li> </ol>
News inclusion	<ol style="list-style-type: none"> <li>1. I think the information of this news source is interesting for news consumers during a crisis.</li> <li>2. I think the information of this news source is relevant for news consumers during a crisis.</li> <li>3. I think the information of this news source is useful for news consumers during a crisis.</li> <li>4. I think this source is a source I would include in the news during a crisis.</li> </ol>
*Prior to each item it was stated in the questionnaire that the following items relate to the specific concept they are part of.	

## APPENDIX 2: CONFIRMATORY FACTOR ANALYSIS

Table 2. Factor loadings on the latent constructs.

	Organization			News agencies			Public		
	$R^2$	St. estimate	Unst. estimate (SE) <sup>a</sup>	$R^2$	St. estimate	Unst. estimate (SE) <sup>a</sup>	$R^2$	St. estimate	Unst. estimate (SE) <sup>a</sup>
<b>Source relation</b>									
Item 1	.60	.78	1.42 (.21)	.81	.90	1.22 (.15)	.54	.74	.81 (.08)
Item 2	.25	.50	1.00 <sup>b</sup>	.35	.60	1.00 <sup>b</sup>	.59	.77	1.00 <sup>b</sup>
<b>Credibility</b>									
Item 1	.77	.88	1.00 <sup>b</sup>	.83	.91	1.00 <sup>b</sup>	.81	.90	1.00 <sup>b</sup>
Item 2	.77	.88	1.01 (.06)	.71	.84	.92 (.05)	.46	.68	.84 (.08)
Item 3	.68	.82	.95 (.06)	.75	.87	.91 (.05)	.56	.75	.79 (.06)
<b>Knowledge</b>									
Item 1	.78	.88	1.00 <sup>b</sup>	.85	.92	1.00 <sup>b</sup>	.82	.99	1.00 <sup>b</sup>
Item 2	.76	.87	1.01 (.06)	.78	.88	.95 (.05)	.61	.78	.96 (.05)
Item 3	.54	.74	.84 (.07)	.79	.89	1.03 (.05)	.43	.66	1.04 (.05)
<b>Willingness</b>									
Item 1	.73	.86	1.04 (.07)	.85	.93	.93 (.04)	.68	.82	.94 (.07)
Item 2	.71	.85	1.00 <sup>b</sup>	.88	.94	1.00 <sup>b</sup>	.81	.90	1.00 <sup>b</sup>
Item 3	.40	.63	.74 (.08)	.66	.81	.88 (.05)	.67	.74	.89 (.06)
<b>Timeliness</b>									
Item 1	.80	.90	1.00 <sup>b</sup>	.77	.88	1.00 <sup>b</sup>	.77	.88	1.00 <sup>b</sup>
Item 2	.74	.86	1.03 (.06)	.84	.92	1.03 (.05)	.81	.90	1.11 (.06)
Item 3	.77	.87	1.09 (.06)	.81	.90	1.03 (.06)	.76	.87	1.10 (.06)
<b>News inclusion</b>									
Item 1	.70	.84	1.03 (.10)	.84	.92	.96 (.04)	.67	.82	.92 (.08)
Item 2	.73	.86	1.02 (.10)	.89	.94	.91 (.04)	.68	.82	.98 (.08)
Item 3	.75	.86	1.03 (.08)	.88	.94	.91 (.04)	.73	.85	.94 (.07)
Item 4	.61	.78	1.00 <sup>b</sup>	.86	.93	1.00 <sup>b</sup>	.72	.82	1.00 <sup>b</sup>

Note. Cells contain unstandardized and standardized factor loading estimates standard errors (SE), and explained variance ( $R^2$ ).

<sup>a</sup> All factor loadings are significant at  $p < .001$ .

<sup>b</sup> Unit loading indicator constrained to 1.

As the model is a full-latent structural-regression model, first a confirmatory-factor analysis (CFA) measurement models needed to be specified to assess the reliability of the measurement (see whether the items measure the latent factors they were conduct for) and test for discriminant and convergent validity with the data. The indicators (questionnaire items) as described formed the six latent factors within the model. The obtained measurement model, using unit-loading indicators to scale latent constructs, suggested satisfactory model fit among the three groups:  $\chi^2(354) = 719.08$ ; CFI = .97; TLI = .96; SRMR = .05 and RMSEA = .037 (CI: .032, .041). Two unanalyzed associated between error terms within the news inclusion construct were added to further improve model fit. The data showed no indications of poor discriminant validity as all cross-factor correlations were beneath the threshold value of .80 (Kline, 2011). However, high correlations between credibility and knowledgeable as well as between timely communication and willingness might be an indication of discriminant validity. This study allows for the high correlations as the variables are part of the same type of determinants – i.e., journalists' judgment and sources' activities. Additionally, in general no problems with convergent validity were observed as all factor loadings on the intended latent constructs were significant and sizable amongst the groups (see Table 2). Notably, the first item of the concept source-journalists relationship showed marginal factor loadings. However, this item was retained because of conceptual significance. Based on measurement invariance test most item regression weights were constrained among the groups.

# CHAPTER 4

# THE PERSPECTIVE OF THE PUBLIC

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## ABSTRACT

New media have markedly enhanced the public's capacity to influence the framing of an issue, especially within crisis situations. By relying on research triangulation, this study aims to map the comprehensive frame-building process of the public as an understudied domain within framing and crisis research. Study 1 uses advanced automated content analyses of crisis-related tweets (N = 252,711) to examine how the public built frames online with the use of information sources. Study 2 applies an innovative vignette study (N = 772) to investigate the conditions that influence the public's source selection during crises. The findings illustrate how the public uses sources to address certain frame functions and show that source usage is subject to crisis-contextual and individual-level factors.

## INTRODUCTION

The rapid development and diffusion of online communication technologies have changed the nature of mediated communication, and consequently the communication of risk and crisis (Westerman, Spence, & Van der Heide, 2014). In those crisis times, an immense and immediate communication need is created (Thelwall & Stuart, 2007). Social media provide an ideal public environment for the dissemination and creation of unique and unfiltered breaking-news and add the potential of a many-to-many communication channel during crises (Liu, Fraustino, & Jin, 2015). Thus, online users are no longer merely information consumers, but have become prominent producers of information (Macias, Hilyard, & Freimuth, 2009). Accordingly, numerous recent cases highlight the public's increasing usage of social media during crises and observe that computer-mediated communication plays a crucial role in socially significant events (Jin, Liu, & Austin, 2014; Porter & Hellsten, 2014).

The prominence that social-media has gained as a tool for crisis communication has enhanced the public's potential to influence the societal understanding and consequences of a crisis (Saxton & Anker, 2013). Within the first few days in particular, public communication can play a significant role in assigning meaning to crisis events (e.g., Claeys & Cauberghe, 2014). Ergo, to understand how crises evolve, more detailed knowledge is needed regarding how the public produces and uses crisis information.

Recently, an emerging research avenue has applied the concept of framing to understand crisis communication (Kleinnijenhuis, Schultz, Utz, & Oegema, 2013; Van der Meer, Verhoeven, Beentjes, & Vliegthart, 2014). At large, frame building has become one of the key theories to investigate the construction of media content (Scheufele, 1999). So far, framing is mainly studied from a news media perspective. Lately, framing research has started to acknowledge the increasing role that the public plays in framing an issue or event, partly as a result of the advent of social media (Karlsson, Bergström, Clerwall, & Fast, 2015; Neuman, Guggenheim, Jang, & Bae, 2014). These recent developments demonstrate that frame building is a useful concept to investigate the process of how the public produces potentially influential information, echoing calls for more public-centric crisis research (Liu et al., 2015).

Traditional frame-building research is interested in what influences how a given issue is framed (Shoemaker & Reese, 1996). Sources and the information they provide are listed among the most common building blocks in framing processes (Dimitrova & Stromback, 2011; Tuchman, 1978). As information sources are easily obtained and shared online (Chung, Nam, & Stefanone, 2012), it is likely that sources – i.e., national and local news media, the organization central to the crisis, or other members of the public – play a significant role in the public's online framing. To understand how the public builds frames during a crisis, it is crucial to identify how source selection patterns influence the construction of public frames.

This study aims to model the comprehensive process of public frame building. Therefore, two fundamental steps in frame building, related to the role of sources, are explored. In an effort to better understand the comprehensive process, this

study draws on a dual study approach and research triangulation. Study 1 applies a combination of manual and advanced automated content analyses for several crisis cases. The aim is to see how the public uses sources to address certain frame functions. Findings show how the public uses certain sources to ask questions, provide content, and discuss, diagnose, and evaluate the crisis. Study 1 exclusively provides information about the effect of source usage. To compliment this, Study 2 aims to explore the underlying mechanism of the public's source selection. By means of an innovative vignette design, Study 2 systemically explores the conditions under which the public uses crisis information provided by certain sources. The analyzed material and findings of Study 1 guided the creation of externally valid stimuli and direct the interpretation of results. This methodological combination goes beyond the isolated investigation of elements of the same process and provides a more complete overview of the comprehensive framing process of the public.

## THEORETICAL FRAMEWORK

The well-established concept of framing offers a powerful approach for understanding how individuals interpret and make sense of relevant events and understand what is at stake (Gamson & Modigliani, 1989). To frame is to make persistent selection or emphasis, or as Entman (1993) explicates, "to frame is to select some aspects of a perceived reality and make them more salient in the communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation and/or treatment recommendation for the item described" (p. 52). Thus, frames are defined by the omissions of four frame functions, frames define problems, diagnose causes and consequences, make moral judgments, and suggest remedies (Entman, 1993). The reason why certain elements of an issue are emphasized, the presence or absence of certain keywords and stock phrases, or the use of sources of information can be traced back to what function the frame serves. Studying frame functions provides an understanding of *how* individuals' processing of information is guided and *why* some features of reality are selected and highlighted while others are omitted (Scheufele, 1999). Hence, these functions highlight the process and purpose of the formation of frames.

In general, framing research focuses on how news stories are constructed by news media and the effect this has on society (Scheufele, 1999). Frame-setting researchers, concerning the correlation between media and audience framing, offer strong experimental support for how variations in news frames can create substantial differences in audiences' understanding and evaluation of issues (e.g., Davis, 1995). Additionally, frame-building research, about how frames emerge, has content analyzed media text to examine news frame presence and how journalists determine which parts of the story are to be emphasized (Borah, 2014). This study focuses on the comprehensive process of public frame building. This communicative process refers to what influences the formation or modification of frames applied by the public. Studies in which frames serve as independent variables have typically examined the role of various factors or sources in influencing the process of frame building (De Vreese, 2005; Scheufele, 1999).

### Public crisis framing

In a world of evolving digital media and online publics, the dynamics of issue framing and frame building are becoming more complex (Neuman et al., 2014). With the advent of the Internet, and social media in particular, the public has gained the opportunity to engage in effortless and costless mass-to-mass communication. Information produced online can add meaning and news value to certain events and turn it into an issue (Zhou & Moy, 2007). The framing power of the public is no longer regarded as limited since the resources are no longer unequally distributed in a competitive framing environment (McQuail, 2010). Indeed, empirical studies confirmed the effects of the public's online frames on, for example, how news media frame an issue (Neuman et al., 2014; Zhou & Moy, 2007).

Especially in times of risk and crisis, the frames built online by the public might have far-reaching consequences. The frame-building process is generally of fundamental importance for the avoidance of confusion or panic and the prevention of crisis escalation (e.g., Seeger, 2002). Communication researchers as well as disaster sociologists have posited that the public on social media can play a prominent role in how people learn about a crisis (Liu et al., 2015; Schultz, Utz, & Göritz, 2011) and how the crisis is actually framed (Van der Meer et al., 2014). People, and also news media, may turn to the online public as a timely and up-to-date source of crisis information. The broader audience might adopt the public frames presented online and use these interpretations to act upon the crisis and communicate about it. In sum, the frames built by the public can play a fundamental role in understanding and defining the crisis, which, in turn, can affect the crisis evolution and its impact.

### Origin of public frames

In acknowledging the importance of public framing during crises, it is essential to gain understanding of how frames originate. As most members of the online public will not directly experience or witness the crisis, the construction of public frames will be based on information sources. So far, the effect of news sources on frames has predominantly been addressed in the context of news making processes. Mass communication and media research recognize that sources and the information they provide are the primary building blocks for the formation of news content (Dimitrova & Stromback, 2011). Because sources can have an influence on the interpretations of the issue at hand, these sources play a decisive role in how frames are built (Bennett, 1990).

Hitherto, literature does not provide conclusive evidence on how public frames emerge in times of crisis and to what extent source usage forms the basis of these frames. In times of crisis, the online public has a wide variety of sources at their disposal. Especially in the online space, information and sources are easily obtained and shared, using for example hyperlinks or retweets (Chung et al., 2012). Therefore, it is likely that sources play a significant role in determining the online construction of crisis frames. For example, an empirical case study (Van der Meer & Verhoeven, 2013) demonstrated that the public initially framed a crisis based on their personal speculation to define the problem. When the public started to use news media as a source for information, panic declined and the public addressed different frame functions.

The public typically uses a combination of different source types to make sense of a crisis (Palen, Vieweg, Liu, & Hughes, 2009). For example, national news media and the organization central to the crisis are favored sources for the online public during a crisis (e.g., Liu et al., 2015; Schultz et al., 2011). Furthermore, local news sources, that are geographically closer to the crisis, become an appealing source of information in times of a crisis (e.g., Col, 2007). Finally, in some crisis situations, social media and other members of the public are perceived as the most credible source (Austin, Liu, & Jin, 2012).

In order to understand how public frames are built during a crisis it is essential to focus on the comprehensive framing process. To draw this bigger picture, this study will first need to explore to what extent source usage plays a role in public frame building. The question is how does source usage affect how the public diagnoses, evaluates, and prescribes an issue within the process of frame building. Therefore, this study emphasizes generic frame functions to reveal for what purposes the public uses sources in their online frame building. Arguably, the public uses some sources more often to address certain frame functions. For example, news media or the organization undergoing the crisis might be selected as sources to address frame functions as causal interpretation or treatment recommendation because these sources are often used for more detailed crisis information (Van der Meer et al., 2014). Other members of the public might be mainly used to guide the moral evaluation of crisis. In turn, these findings can be used as a starting point to gain new insights in the public's source selection mechanism. The first research question therefore reads:

*RQ1: How does source usage affect the frame functions addressed by the public during a crisis?*

### The public's usage of source information

For the second part of mapping the comprehensive framing process, the preceding step of how the public selects source information for constructing frames needs to be addressed. Traditional frame-building research is interested in the conditions that determine when information provided by a source becomes part of the frame-building process (Gamson & Modigliani, 1989; Tuchman, 1978). Findings show that multiple factors, both at the external level of the news issue and the internal level of the individual journalists, help to explain the variation in source selection across different situations (e.g., Bennett, 1990; Manning, 2001). Extrapolating this to public crisis framing, it can be assumed that several external and internal factors explain the selection of source information. Thus far, there is scarce research regarding the conditions that influence how the online public uses crisis information (Jin et al., 2014). To understand when sources are used to address frame functions, this study examines the effect of external and internal factors on the public's use of source information. The selection of sources and their information is considered a precursor to addressing the different functions of the frame building process.

*External factors*

Prior research observed that in the process of framing, external factors like working norms or cultural resonances can affect how sources are used by news media (e.g., Gamson & Modigliani, 1989). In a similar vein, the crisis context can play an important role in the public's selection of source information. Accordingly, the type of crisis is related to how people interpret and frame aspects of the crisis (Coombs, 2007). Crisis literature provides two fundamental crisis characteristics that relate to the frame functions *problem definition* and *causal interpretation* (Entman, 1993). First, crisis origin refers to the attribution of responsibility. Whether the crisis was initiated from internal organizational issues (e.g., mismanagement) or from issues external of the central organization (e.g., natural disaster) can alter public responses towards the organization and the crisis (Coombs, 2007; Lee, 2004). For example, Jin et al. (2014) found that the public's preferred information form and source were significantly affected by crisis origin. Second, the direct societal consequences can differ per crisis. The more severe the crisis, the more the public feels involved, which can alter the response to crisis information (Lee, 2004). Indeed, several studies on news values indicate the importance of 'magnitude' (Helfer & Van Aelst, 2015) or 'amplitude' (Galtung & Ruge, 1965). In sum, this study hypothesizes that crisis origin (H1) and crisis magnitude (H2) can affect the likelihood that the public uses source information during a crisis.

*Internal factors*

Besides contextual influences, internal factors can affect the selection of sources and their information. For example, the frames portrayed in news media, and the sources that form these frames, are influenced by factors such as journalists' individual ideology and professional values (Shoemaker & Reese, 1996; Tuchman, 1978). Also in times of crisis, some individuals might actively search for information from a certain type of source, while others prefer other types of crisis information (Macias et al., 2009). These differences raise questions on the influence of individual-level characteristics.

First, a key cognitive factor to further explore predictors of the public's information use is involvement. Personal involvement or relevance can determine how the public perceives and process an issue (e.g., Petty & Cacioppo, 1986). Within crisis research it was observed that involvement can influence the public's emotions, elaboration, attention, and crisis interpretation (McDonald & Hartel, 2000). Crisis involvement may depend upon the public's prior experience with crisis coverage. Accordingly, Jin, Fraustion, and Liu (2015) found that individuals' involvement with prior crisis coverage served as a strong motivator for crisis information seeking and sharing behavior. Second, the extremely varied environment that confronts the news consumer has resulted in habitual patterns of media and source usage to avoid repeatedly engaging in active selection (Diddi & LaRose, 2006). Once the public learns that they can get their news information from a certain source they fall into a pattern of behavior, which is strengthened with repetition. The automaticity of news consumption suggests that routine usage of sources might enhance the likelihood that these same sources are used for obtaining crisis information (Austin

et al., 2012). Hence, crisis involvement (H3) and habitual sources usage (H4) are expected to influence the public's use of source information during a crisis.

Two studies explore the comprehensive framing process of the public during crises. Using manual and automated content analyses, Study 1 will observe the frequency of source use and how source usage relates to addressing frame functions (RQ1). Study 2 will explore the underlying mechanism of the public's source selection. A vignette study shall test the effect of external (H1-2) and internal factors (H3-4) on source usage.

**STUDY 1: BUILDING PUBLIC FRAMES****Method**

Study 1 applies four datasets of public tweets (N = 252,711) about Dutch crises that set in motion a significant chain of tweets. In each crisis a specific actor or (governmental) organization is central to or responsible for the crisis. In this way, the potential source types that can actually be used by the public are more consistent among the cases. The following crises are selected: (1) an explosion at chemical plant Chemie-Pack, (2) the collapse of FC Twente's stadium, (3) a shooting at shopping mall Alphen aan den Rijn, and (4) an assumed airplane hijacking. The tweets are professionally collected and stored by twetics.com. Table 1 details the central actor, the number of tweets, the date, and a short description of the crisis.

*Source selection.* To find out what sources the public uses when communicating online about the crisis, coders manually coded all individual tweets for source use. Two interactive Twitter features are used to detect what source is used in a tweet. First, people can use (shortened) hyperlinks in tweets that link to the source they used for that specific tweet. Hyperlinking allows Twitter users to include a link that can be clicked on by others to jump to a website. All hyperlinks in the tweets were opened to see the webpages behind the link and were then coded for source type. Another frequently used feature is the retweet, referring to the reposting of tweets from another user. Retweets are often used to forward information. In case

**Table 1.** *Selected crisis cases.*

Centered organization	Date	N Tweets	Description crisis
Chemie-Pack	05/01/2011 14:27 08/01/2011 21:03	101,128	The chemical plant Chemie-Pack exploded, resulting in toxic smoke emission injuring 170 people.
FC Twente	07/07/2011 12:15 10/07/2011 12:00	58,939	The roof of the stadium Grolsch Veste, of football club FC Twente, collapsed, killing two workers and injuring 14.
Municipality of Alphen aan den Rijn	09/04/2011 12:11 11/04/2011 10:59	70,324	In a mall in Alphen aan den Rijn, a 24-year-old gunman killed six people and injured 17, and then killed himself.
Airport Schiphol	29/08/2012 13:45 29/08/2012 21:17	22,320	A plane had to land at Schiphol Airport, escorted by two F-16 fighters, due to an assumed hijacking.

of a retweet, the source type of the original message was coded. As this coding showed a clear distinction in frequency of source use, this study focuses on the most prominently used sources: (1) National news outlet, (2) local news outlet, (3) organization central to the crisis, and (4) member(s) of the public – e.g., ordinary citizens, eyewitnesses, public (online) groups.

*Automated frame analysis.* Study 1 applies inductive methods to automatically identify sets of frames in tweets. This statistical analysis identifies latent patterns embedded in text by relying on interpreting word (co-)occurrences. This approach is based on the idea that meaning of a situation or issue is formed by words and the relative position of words in a network. The automated analysis maps a group of correlated words or articles that form a distinctive meaningful classification to describe a large dataset of texts with fewer dimensions in a more replicable way with less subjective interference. These groups or clusters of words and word (co-)occurrences represent a higher-order structure within texts that can be interpreted as the frames used in the text of analysis (Hellsten, Dawson, & Leydesdorff, 2010).

Two broad classes of relevant Fully Automated Clustering approaches for identifying frames can be distinguished. First, probabilistic topic modeling refers to a suite of algorithms that can discover main topics of frames that pervade in large amounts of texts (Blei, 2012). The most widely used topic model is latent Dirichlet allocation (LDA). LDA assumes mixed membership, each document is a mixture of topics; one document exhibits multiple topics in different proportions (Grimmer & Stewart, 2013). Second, single membership models group and assign sets of documents or words in mutually exclusive and exhaustive groups so they become part of the same cluster (Kaufman & Rousseeuw, 2009). The most commonly used cluster analysis is K-means clustering (Grimmer & Stewart, 2013). For each document, the algorithm assigns the cluster for which its distance to the cluster center is the smallest.

To emphasize the process of public frame building, Study 1 aims to identify the frame functions in the public's online communication as originally defined by Entman (1993). By looking at frame functions this study strives to expose whether the public uses some sources to diagnose, evaluate, and prescribe a crisis. Identifying generic frame functions will provide insights regarding the general process of frame building and the systematic effect of source usage across different contexts and crisis cases. The relation between source usage and emphasis or issue-specific frames would expose correlations that are too context specific and issue sensitive to draw conclusion on the general level of public frame building (De Vreese, 2005). Therefore, Study 1 applies a combination of LDA and k-means cluster analysis to identify frame functions in tweets. In this approach, a cluster of multiple related topics or frames forms a frame function. Thus, combinations of multiple frames indicate which frame function the public is addressing. The identification of the frame functions addressed by the public provides valuable insights in how sources are used to guide information processing and why certain features of the issue are selected and highlighted.

In practice the analyses are divided in several steps. In the first preprocessing step, the vocabulary for the tweets was simplified with stemming. Punctuation

and capitalization are removed as well as very common words using a stop-word removal list, including the organization's names and search strings. Next, the data are transformed into a document-term matrix, indicating how often words occur in each tweet. In the second step the LDA is performed using Python script (Rehurek & Sojka, 2010) that indicates that the model should classify the words in the documents in a maximum of sixty topics. The output of the LDA provides sixty emphasis frames that are formed by a combination of words. Each tweet automatically gets a score assigned on each frame. In the third step, the generated frame scores are used as input for the k-means analysis. In turn, this analysis provides six clusters of related frames that can be interpreted as the generic frame functions the public addresses online. Then the cluster analysis assigns each tweet to one of the six clusters. Finally, each cluster is given a function label based on the related frames and words that form the frames.

*Analysis.* Time-series analyses are conducted to assess whether the use of sources affects frame functions. Given that the data represent an ordered sequence of values of the dependent variable at equally spaced time intervals, time-series analyses are particularly appropriate. As the data represent tweets for almost every minute, the data will be analyzed on a fifteen-minute level. The anticipated autoregressive character of frame building and how it is affected by source usage can be tested through estimation of partial adjustment (Koyck) autoregressive distributed lag (ADL) model. The series were tested for white noise.

## Results

*Frequency source selection.* The results of the manual coding of source selection can be found in Table 2. Overall, the public mainly used other members of the public as a source of information during these crises, followed by national media, local news media, and the organization central to the crisis. On average, sources were used in 46% of all tweets.

*Frame functions identification.* Table 3 provides an overview of the six identified public frame functions per crises. The table presents the function labels that are given to the clusters of related frames. These functions appear to be in line with the general frame functions as defined by Entman (1993). Recurring frame functions across the different crises, labeled as 'information' or 'clarification', fulfilled the function of *problem definition*. This function often clarified key facts related to the problem. For example, in the case of the hijacking the 'clarification function' was formed by related frames about the assumed hijack of an airplane (frame formed by words as hijack, hostages, airplane), clarification that the plane was actually not hijacked (e.g., non-hijack, assumption, media), and that the confusion started due to the absence of communication with the pilot (e.g., pilot, communication fail, control). Additionally, functions labeled as 'consequence' addressed underlying forces of the crisis, fulfilling the function of *causal and consequential interpretation*. For example, in the case of the collapse of the stadium this function identified causes and consequences of the crisis based on frames regarding the death of construction workers (e.g., collapsed, injured, dead), fault in the construction (e.g., fault, construction), and the need to repair the roof (e.g., roof, repair, section).

Table 2. Count of source use.

Crisis	Explosion chemical plant	Collapse stadium	Shooting	Assumed hijacking	Total
National news	9,183	9,057	8,956	3,541	30,737
Local news	1,947	1,135	719	488	4,289
Organization	187	1,152	1,831	76	3,246
Public	30,388	18,816	20,537	8,138	77,879
<b>Total</b>	<b>41,705</b>	<b>30,160</b>	<b>32,043</b>	<b>12,243</b>	<b>116,151</b>

Table 3. Identified frame functions in the four crisis cases.

Explosion chemical plant	Collapse stadium	Shooting	Assumed hijacking
1. Information/update function (N=72,949)	1. Response function (N=51,702)	1. Response function (N=61,180)	1. Alarming function (N=19,139)
2. Response/communication function (N=11,572)	2. Information/update function (N=3,502)	2. Bereaved function (N=3,256)	2. Clarification/definition function (N=1,890)
3. Skeptical/humor function (N=7,758)	3. Definition function (N=1,313)	3. Evaluation/aftermath function (N=3,193)	3. Detail function (N=648)
4. Health/environment function (N=7,288)	4. Consequence function (N=832)	4. Detail function (N=1,067)	4. Action function (N=296)
5. Consequence function (N=922)	5. Humor function (N=800)	5. Disorder function (N=1,035)	5. Information function (N=276)
6. Geographic function (N=569)	6. Respect function (N=790)	6. Notification function (N=593)	6. Aftermath function (N=71)

Moreover, also the *moral function* was fulfilled using ‘skeptical’ and ‘humor’ functions. For example, in the case of the explosion of the chemical plant the ‘skeptical/humor function’ was formed by frames of reference to a Dutch comedy (e.g., fireball, mate), failure of crisis communication (e.g., hahaha, crisis communication, management), and attempts to cover up the happening (e.g., conspiracy, cover up). Finally, the *treatment recommendation* function was fulfilled by functions labeled as ‘response’ that proposed solutions and discussed possible steps to be taken. For example, in the case of the shooting this function was formed by frames referring to a moment of silence (e.g., silence, family, terrible), legal steps to prevent another shooting (e.g., shoot range, gun law, suicidal), and the description of typical gunmen (e.g., gunman, emotions, problems). Overall, the most frequently used functions discussed the crisis definition. Also, the repeated presence of the response function indicates that the public uses online platforms to discuss next steps in a crisis.

*Effect of source usage on frame functions.* To explore the public frame building during a crisis, the effect of source usage on the relative presence of frame functions in tweets is analyzed. In Table 4 the ADL models are shown, predicting the use of frame functions as a function of a constant term, plus a fraction of its past values or autoregressive term (AR), relative use of the four sources, a trend variable, and a random shock.

The reported coefficients of the AR term indicate that frame functions are generally an autoregressive process meaning that past values are predictive of future values. This finding indicates a level of function stability in the dynamic setting of a crisis. Moreover, the results provide evidence for a significant effect of source usage on several functions addressed by the public. For the majority of functions, the effect of the use of one of the sources is significant. National news media as a source was the most prevalent significant predictor for functions, followed by the public. For example, for the collapse of the stadium, the usage of national news media as a source significantly affected the use of three functions, namely ‘consequence’ ( $B^* = -.12, p < .05$ ), ‘response’ ( $B^* = .27, p < .001$ ), and ‘respect’ ( $B^* = .18, p < .001$ ).

In some cases, a combination of different sources significantly affected the presence of a single function. Furthermore, the use of sources can positively as well as negatively affect the functions addressed by the public. For example, in the case of the explosion, the presence of ‘skeptical/humor function’ was positively affected by the use of the public as a source ( $B^* = .29, p < .001$ ) and negatively affected by the organization as a source ( $B^* = -.08, p < .05$ ). This finding suggests that the more the public (organization) is used as a source, the higher (lower) the probability that the ‘skeptical/humor function’ was addressed. Thus, the use of a certain source can correlate strongly with addressing a specific frame function.

The main finding of Study 1 is that source usage can play a crucial role in the frame functions that are addressed by the public in the construction of frames. The public can use certain sources online to define problems, diagnose consequences, suggest remedies, and morally evaluate the crisis. Because Study 1 only provides information about how frames are built with the use of sources, the question remains why certain source information is selected. Study 2 examines the conditions that might determine the public’s use of sources during a crisis.

Table 4. Autoregressive Distributed Lag model predicting addressed frame functions based on source usage.

Explosion plant	1. Information $R^2 = .21$	2. Response $R^2 = .27$	3. Humor/ skept $R^2 = .46$	4. Health $R^2 = .27$	5. Consequence $R^2 = .12$	6. Geographic $R^2 = .23$
AR	.37(.05)***	.40(.06)***	.34(.05)	.49(.05)***	.06(.06)	.17(.02)***
National news source	.11(.06)	-.07(.05)	.04(.05)	.10(.05)	.36(.06)***	.01(.02)
Local news source	.03(.05)	.07(.05)	-.04(.04)	.05(.05)	-.04(.06)	.00(.02)
Organization source	.06(.05)	-.01(.05)	-.08(.05)*	.00(.05)	.02(.06)	-.03(.02)
Public source	-.09(.06)	.22(.06)***	.29(.05)***	.08(.06)	.03(.06)	.00(.02)
Collapse stadium	1. Response $R^2 = .13$	2. Information $R^2 = .29$	3. Definition $R^2 = .13$	4. Consequence $R^2 = .33$	5. Humor $R^2 = .02$	6. Respect $R^2 = .19$
AR	-.06(.07)	.27(.06)*** <sup>a</sup>	.35(.08)***	.23(.06)*** <sup>a</sup>	-.04(.06)	.43(.07)***
National news source	.27(.06)***	.00(.06)	-.04(.06)	-.12(.06)*	-.01(.07)	.18(.06)***
Local news source	.07(.06)	.04(.06)	-.03(.05)	-.04(.06)	.08(.07)	-.05(.06)
Organization source	.18(.06)***	.01(.05)	-.04(.05)	.02(.05)	-.05(.06)	-.04(.06)
Public source	.16(.06)***	.08(.06)	-.02(.06)	.11(.06)	.07(.07)	-.05(.06)
Shooting	1. Response $R^2 = .26$	2. Bereaved $R^2 = .64$	3. Evaluation $R^2 = .17$	4. Detail $R^2 = .20$	5. Disorder $R^2 = .13$	6. Notification $R^2 = .14$
AR	.24(.07)*** <sup>a</sup>	.03(.08)	.26(.07)***	.25(.07)***	.32(.07)***	.30(.07)***
National news source	.12(.07)*	-.12(.08)	.20(.07)***	.02(.07)	-.11(.07)	.04(.07)
Local news source	.06(.07)	-.05(.08)	.00(.07)	.17(.07)*	-.03(.07)	.16(.07)*
Organization source	.09(.06)	-.02(.08)	.06(.07)	.15(.07)*	-.05(.07)	.00(.07)
Public source	.25(.07)***	.06(.08)	-.09(.07)	.16(.07)*	-.11(.08)	.06(.08)
Assumed hijacking	1. Alarming $R^2 = .23$	2. Clarification $R^2 = .47$	3. Detail $R^2 = .35$	4. Action $R^2 = .29$	5. Information $R^2 = .46$	6. Aftermath $R^2 = .44$
AR	.07(.22)	.29(.17)	-.22(.17)	.16(.18)	.66(.21)***	-.06(.17)
National news source	.03(.24)	-.29(.21)	.53(.24)*	.21(.25)	.24(.22)	.79(.23)***
Local news source	-.07(.21)	.22(.17)	-.16(.18)	-.10(.19)	.06(.18)	-.20(.17)
Organization source	-.27(.19)	.23(.16)	.32(.18)*	-.12(.20)	.12(.17)	.12(.17)
Public source	.40(.20)*	.15(.17)	-.29(.19)	-.18(.20)	-.28(.20)	-.21(.18)

Note. Cells contain standardized ( $B^*$ ) regression coefficients with standard errors (SE). The constant and the independent trend variable are omitted from this table.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ , <sup>a</sup> additional lagged value(s) added to obtain white noise.

## STUDY 2: THE PUBLIC'S USAGE OF SOURCE INFORMATION

### Method

To disentangle under what conditions source information is used by the public during a crisis, Study 2 presents a vignette study, testing H1-4. This quasi-experimental design uses short fictive descriptions of crisis situations to uncover the social and individual structures of human judgments (Alexander & Becker, 1978; Helfer & Van Aelst, 2015). The vignettes, which are judged by the respondents, represent different combinations of various dimensions that are simultaneously manipulated. The systematic variation of several different factors is well suited to study the contexts and conditions affecting judgment and is arguably less subjective to social desirability bias.

*Procedure.* In an online survey, respondents were presented five short online messages (i.e., vignettes) of fictional crises. To gain understanding of public responses across different crisis situations, the vignettes described different crisis types. Four crises were based upon the crises in Study 1: Chemical plant explosion, stadium collapse, shooting, and airplane hijacking. The content of the messages was based on the actual formulation of the textual material as analyzed in Study 1. The fifth message was about a product recall of cars that were involved in accidents with the airbags, as this crisis type is most-commonly used in experimental crisis research. Within these crisis messages, the following things were manipulated: Source of the message (website national news, website regional news, website central organization, or social media message of a member of the public), crisis magnitude (accidents or fatal accidents), and crisis origin (organization responsible for the crisis or not).

Each fictional message started with a mention of the source sending the message. Next, a general description of the crisis is presented that is kept constant among the different conditions. Afterwards, the manipulation of the crisis magnitude and origin are presented. Participants saw a random order of the messages and were randomly allocated to one of the 16 conditions for each crisis message.

*Measures.* The manipulated factors are expected to influence the likelihood that the public uses source information. Therefore, after exposure to each vignette, four indicators measured usage of source information ( $M = 2.49$ ,  $SD = 1.38$ ,  $EV = 2.09$ ,  $\alpha = .78$ ) as the dependent variable. Respondents were asked to rate on a 7-point Likert scale whether they would use this message as the basis for a (online) message for others, to share the message with other people, to tell their friends about the incident, and to leave a reaction (Liu et al., 2015). Measures for variables regarding internal factors and demographics were obtained after the experimental stimuli had been judged. Involvement with prior crisis coverage ( $M = 4.80$ ,  $SD = 1.31$ ,  $EV = 3.12$ ,  $\alpha = .91$ ) was measured by asking respondents on a 7-point scale how important, relevant, meaningful, and involving they considered crisis coverage (Jin et al., 2015). Regular source use was measured on a 7-point scale asking several items on how often respondents used certain sources for news consumption: National ( $M = 5.27$ ,  $SD = 1.54$ ) and regional ( $M = 3.52$ ,  $SD = 1.72$ ) newspapers, television, and radio, message from the public on Facebook, Twitter, LinkedIn, YouTube, and blogs ( $M = 1.85$ ,  $SD = .99$ ), and messages or press releases from organizations ( $M = 2.42$ ,  $SD = 1.56$ ).

*Sample.* The participants for Study 2 were online recruited from a Dutch representative and certified sample from I&O Research. This sampling resulted in 772 respondents who fully completed the questionnaire and answered an attention check question correctly. In total, 40% of the sample was female and the average age was 55.74.

*Analysis.* For the analysis, the data were stacked and a multilevel approach with random intercept is applied. Each judgment that a respondent has given on a single vignette is regarded as a single case. As each respondent rated multiple vignettes, the final observations in the stacked data set are not independent. The responses are clustered within respondents.

### Results

MANOVA test ( $F(3, 4591) = 3.18, p < .05$ ) revealed that, on average, crisis information from national news media is significantly more likely to be used ( $M = 2.70, SD = 1.40$ ) by the public compared to the sources local media ( $M = 2.45, SD = 1.37$ ), the organization ( $M = 2.44, SD = 1.38$ ), and the public ( $M = 2.48, SD = 1.38$ ).

Table 5 summarizes the results from the multilevel analyses attempting to explain the public's use of source information. To allow source comparison, the findings are separately presented for each source. The intra-class coefficients range between .492 and .644, indicating that a considerable portion of the variance was explained on the second level.

External factors were assumed to influence information use. First, crisis origin was found to only have a significant effect on the public's information use in the case of the organization as a source ( $B^* = .21, p < .001$ ). When the organization communicates that it is responsible for the crisis, the public will be more likely to use its information compared to when the organization communicates that it is not responsible. This finding only supports H1 for the organization as a source. Second, for all sources, information about crises with a higher magnitude has a significantly higher chance to be used by the public, supporting H2. When the crisis consequences are more severe, it is more likely that the public uses information provided by all four sources. This effect was the strongest for the organization as a source ( $B^* = .21, p < .01$ ), followed by the public ( $B^* = .19, p < .001$ ) and national news media ( $B^* = .18, p < .001$ ).

Internal factors were also expected to influence the public's information use. First, as H3 predicted, involvement with prior crisis coverage had a significant effect on the public's use of source information. The strength of the effect of crisis involvement is comparable among the four sources: National ( $B^* = .37, p < .001$ ) and regional ( $B^* = .34, p < .001$ ) news media, organization ( $B^* = .38, p < .001$ ), and public ( $B^* = .32, p < .001$ ). Second, regular source use for news consumption was found to predict the public's use of source information in times of crisis, except in the case of the public as source ( $B^* = .05, n.s.$ ). The effect of regular source use was most profound for local news media as a source ( $B^* = .14, p < .001$ ), followed by the organization ( $B^* = .10, p < .01$ ) and national news media ( $B^* = .08, p < .01$ ). Hence, H4 is supported for all source types except the public.

**Table 5.** Multilevel models explaining the public's use of sources' information.

Hyp.	Random effects	National news media as source	Local news media as source	Organization as source	Public as source
	Constant	-.21(.08)**	-.24(.08)**	-.28(.09)**	-.31(.07)**
H1	Crisis magnitude	.18(.05)***	.09(.05)†	.21(.07)**	.19(.04)***
H2	Crisis origin	.04(.05)	-.07(.05)	.15(.07)*	.08(.04)
	Crisis1: Explosion	.23(.07)***	.22(.07)**	.24(.09)**	.13(.06)*
	Crisis2: Collapse	.04(.07)	.10(.07)	-.04(.09)	-.01(.06)
	Crisis3: Shooting	.24(.07)***	.22(.07)**	.32(.09)***	.14(.06)*
	Crisis4: Hijacking	.25(.07)***	.31(.07)***	.21(.09)*	.06(.06)
H3	Crisis involvement	.37(.04)***	.34(.03)***	.38(.04)***	.32(.03)***
H4	Habitual source use	.08(.04)*	.14(.04)***	.10(.04)*	.05(.03)
	Age	.05(.04)	.08(.04)*	.11(.04)**	.17(.03)***
	Education	-.17(.04)***	-.14(.03)***	-.20(.04)***	-.13(.03)***
	Gender	.06(.07)	.08(.07)	-.02(.08)	.05(.07)
	Intercept	.52(.04)***	.43(.04)***	.38(.04)***	.47(.04)***
	ICC level	.644	.556	.492	.590
	LL null model	-4351.518	-4351.518	-4351.518	-4351.518
	LL full model	-1147.979	-1163.566	-863.251	-1463.78

Note. Cells contain standardized ( $B^*$ ) regression coefficients with standard errors (SE).

† =  $p < .10$ , \* =  $p < .05$ , \*\* =  $p < .01$ , \*\*\* =  $p < .001$

The analysis controlled for crisis type presented in the vignette stimuli. The results show that the use of sources' information differs among the different crisis types. Generally, the crisis messages involving an explosion, shooting, or hijacking were significantly more likely to be used by the public as crisis information compared to the product-recall message.

### GENERAL CONCLUSION & DISCUSSION

Study 1 provides some initial insights in how the public uses social media in crisis situations. The public most prominently addressed frame functions as 'information', 'consequence', and 'response' to frame the crisis cases. These findings indicate that the public predominantly uses online platforms to fulfill the problem definition and causal interpretation frame functions in order to mutually define aspects of a crisis. The fact that social media offer quick means of communication and easy sharing of information makes it a suitable channel to discuss the understanding and consequences of critical and fast-moving crisis situations.

The results of Study 1 illustrate that source usage can affect the frame functions that the public addresses online in order to frame a crisis. The use of sources can determine the likelihood that the public addresses and discusses functions as the definition of problems, causes and consequences, remedies, and morally evaluation of the crisis. These findings are consistent with prior research in other contexts. For instance, mass communication and media studies recognized that sources play a decisive role in the process of frame building (Bennett, 1990).

All four sources – i.e., national and local news, the organization central to the crisis, and other members of the public – were found to play a significant role in whether the public addressed certain frame functions. Hence, the public showed itself receptive to a variety of sources when it comes to making sense of a critical situation and online communicating about it (Palen et al., 2009). In line with previous research (Austin et al., 2012), the public primarily used other members of the public as a source. However, the use of news media as a source was most significant and powerful in explaining the frame functions addressed by the public. This finding is in line with other research that points to national news media as the most preferred source of crisis information (e.g., Schultz et al., 2011). Arguably, when posting online, the public favors national news media as a source but mainly uses other members of the public because they are more readily available or accessible at that time.

The public uses sources more often to address certain frame functions. Functions relating to problem definition, labeled as ‘information’, ‘definition’, or ‘clarification’, were frequently not initiated by source usage. Apparently the functions associated with the initial phases of a crisis, where the situation needs to be defined and understood, are independently addressed by the public without the usage of external information (Van der Meer et al., 2014). Frame functions linked to later phases of a crisis are more commonly related to source usage. For example, functions in line with causal interpretation and treatment recommendation, labeled as ‘response’, ‘consequence’, ‘evaluation’, ‘detail’, and ‘aftermath’, are strongly correlated with the public’s source usage, especially with national news media as a source. In contrast, the discussion of more specific frame functions such as ‘humor’, ‘geographic’, ‘bereaved’, ‘disorder’, and ‘action’ are not subject to source usage. These cases seem to illustrate the public’s autonomous processes of frame building in order to communicate about specific topics of public interest. Additionally, other members of the public are occasionally used as a source to address the moral evaluation function.

The results from Study 2 enrich the findings of Study 1. Study 2 illustrates the public’s dynamic source selection mechanisms that precede the actual use of sources to address frame functions. The crisis context and personal features affect the public’s use of source information. Furthermore, in line with Study 1, Study 2 observed the public’s preference for national news media as an information source.

External factors were found to affect what information the public selects. First, supporting previous research and news value theory (Galtung & Ruge, 1965; Lee, 2004), the magnitude of a crisis was found to increase the likelihood of source information to be used by the public. Second, the communication of responsibility

of the crisis only significantly increased the likelihood that the public use organizations’ information. Thus, only if the source is potentially responsible for the crisis, the communication of responsibility can increase the usage of this source. This positive effect of communicating guilt is in line with previous crisis research that demonstrates the effectiveness of crisis-response strategies where the organization takes full responsibility and apologizes (Coombs, 2007).

The findings of Study 1 help to explain the effects of external factors found in Study 2. Information about crisis origin can be linked to the frame function of problem definition. In order to understand the crisis the public needs to define the origination of the crisis. Study 1 found that these types of functions were frequently not associated with source usage. Similarly, Study 2 showed that crisis origin could only alter organizations’ likelihood of becoming a source for the public. Study 1 might not have observed the effect of using an organization as a source on definition functions as organizations are often not available for communication in the initial phase of a crisis when the public intends to define the situation and when the situation is unclear (Van der Meer et al., 2014). Furthermore, the magnitude of the crisis can be related to the causal interpretation function. Study 1 and 2 combined showed that the public mainly uses sources to address these causal and consequential interpretation functions and are indeed more likely to use information provided by sources when the crisis consequences are larger.

Internal factors were also found to play a significant role in the public’s information usage during a crisis (Shoemaker & Reese, 1996). First, personal involvement with crisis coverage increased the use of crisis information for all sources. Second, when selecting crisis information, the public was found to have the tendency to rely on sources they regularly use. However, in the case of the public as a source, habitual use of this source did not predict its selection during a crisis. This behavioral habit might be broken by a change in daily routine. A change in information need might occur, occasioned by a major news event such as a crisis (Diddi & LaRose, 2006). Due to the increased need for information, the public might look for any information available about the crisis. As information of the public is often readily available via platforms as social media, the public’s tendency to use this source might increase during a crisis despite it not forming part of their regular news diet.

In conclusion, the combination of Study 1 and 2 provide a more complete understanding of the comprehensive public framing process and the role of sources. Study 1 provides considerable insights into how the public uses some sources more often to address certain frame functions. The role sources play in public interpretation and frame building implies that the source itself can subsequently influence the formation of public frames. In addition, Study 2 exposes the preceding step of how the public actually selects source information during a crisis. External and internal factors determine which sources the public uses. Therefore, the formation and potential effects of public frames is partly dependent on source usage, which is in turn dependent on the situation and the characteristics of the individual.

A number of shortcomings in the two studies need to be acknowledged. First, Study 1 only incorporates frequency of source usages in order to understand the process of public frame building. Looking at the content offered by sources could

enrich the findings and provide insight into whether the public actually adopts frames provided by sources. Second, Study 2 only includes a selection of conditional factors influencing the public's information usage. Numerous other potentially influential variables can be thought of. However, the selection of these external and internal factors is considered to provide a valuable starting point in understanding the public's source usage. Third, both studies focus on a selection of four sources. Despite that the content analysis showed that the public most prominently used these sources, multiple other sources could affect how the public build their frames.

This research contributes to the general research field of framing. The findings illustrate how the public uses social media as a communicative platform to build frames in hectic situations. The emphasis on the as yet under-investigated role of the public in framing processes (Neuman et al., 2014) provides new insights in how public frames are built and how source information is used. Understanding of public frame building might help information providers to steer the public's (crisis) interpretation and framing to potentially avoid panic or escalation of an issue. In terms of the method, Study 1 contributes to automatically identifying frame functions in tweets by introducing the combined cluster analysis. This method can help analyzing large scale data required to understand the complicated dynamics of the contemporary public communication (Neuman et al., 2014). Second, the vignette design in Study 2, that has only been occasionally applied in social science (Helfer & Van Aelst, 2015), was useful in overcoming previous shortcomings of studies in crisis research that were limited to the investigation of a single crisis case.

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# SUMMARY

## Summary

In today's society, organization-related crisis situations frequently dominate the news and public agenda. Examples of these so-called organizational crises are plane crashes, explosions at chemical plants, recalls of harmful products, bankruptcies, or oil spills. The potential negative outcomes of organizational crises extend beyond financial loss for the organization as these crises can drastically affect and disrupt all segments of society. The omnipresence and potential profound impact of these crises lead to multiple questions regarding the communicative role of several key actors. The central aim of this dissertation is to unravel how the communication between the organization in crisis, news media, and the public evolves in times of organizational crisis.

This dissertation uses theories of communication science to study crisis evolution. In general, it is acknowledged that communication plays an essential role in the process and the consequences of an organizational crisis. The current body of crisis research mainly applies an organization-centred perspective to expose how organizations' reputational damage can be prevented or limited. The aim of this dissertation is to study crisis situations from different perspectives and emphasize the role of key actors to go beyond the one-sided organizational perspective. Communication theories such as framing, stakeholder theory, and gatekeeping are used to examine the communicative interaction between the organization, news media, and the public. The investigation into the triangular interplay between these key actors serves as a first step to form a complete picture of how communication evolves in times of crisis.

In the *first chapter* of this dissertation, crisis communication is examined from the perspectives of the organization, news media, and the public. This study examined how the three actors relate to each other when it comes to framing organizational crises. By applying automatic content analyses for four Dutch crisis cases (N = 51.170 messages), the crisis frames of the three actors are compared for the level of agreement. The findings showed that after a period of frame differentiation, the frames aligned and became more comparable across the three actors. However, this frame alignment was only a temporary phenomenon as the frames de-aligned in the final phase of the crisis. The alignment in frames seems to be a phenomenon specific to crisis situations. Over time, the frames come together, arguably as a temporal necessity to make sense of the complex crisis situation.

The *second chapter* emphasizes the perspective of the organization and how they deal with other involved actors at times of crisis. In accordance with stakeholder theory, it is assumed that the relationship with stakeholders is very important when an organization is in a crisis. This study investigates the development of stakeholder-organization relationships in the initial phase of an organizational crisis. At these critical times, external actors (i.e., news media and the public) and internal actors (i.e., management and employees) are likely to increase their pressure on the stricken organization and its PR professionals, affecting the relationship with these specific stakeholders. A survey among 444 experienced European PR professionals asked about crisis times and normal times. The PR professionals indicated that the management is the key stakeholder in times of crisis. Furthermore, the

findings demonstrate that the pressure from news media, the public, and other employees has a negative impact on the organizations' relationship with these stakeholders while a positive effect of pressure from management has been found. The findings seem to indicate that organizations have the tendency to individually, at management level, make sense of what is going on in the initial phase of a crisis and keep others stakeholders at a distance.

The *third chapter* addresses the perspective of news media. Because media coverage can affect how an organizational crisis evolves, this study explores how news coverage is built during a crisis. The central question is how journalists select news sources when reporting on the crisis. Based on gatekeeping theory several expectations were formulated to predict how journalists determine the news value of the organization in crisis, news agencies, and the public. Journalists' judgement (i.e., source credibility and knowledge), sources' activities (i.e., sources' willingness to share information and timely communication), and the source-journalists relationship are assumed to be decisive in the choice what sources obtain a voice in the news. A questionnaire was distributed to Dutch journalists (N = 214) that asked how they determine what sources are included in the news in the early phase of an organizational crisis. The results detail how the investigated factors can indeed determine the selection of news sources. The effect of these factors depended on source type. The selection of the organization, news agencies, and the public is therefore assessed on the basis of criteria that are specific to the various potential news sources. Furthermore, findings showed that journalists have a strong tendency to rely on news agencies as a source in times of crisis.

The *fourth chapter* explores organizational crisis communication from the perspective of the public. The advent of social media has changed the communicative role of the public. The public can now easily reach a mass audience and thus influence how a crisis is framed. Since most members of the public do not first-hand experience an organizational crisis, this study explores how news sources can influence public crisis framing and when sources are selected. A dual study approach is applied to obtain a more complete understanding of public framing processes. The first study combines manual and automated content analysis to explore four datasets of public tweets (N = 252.711) regarding organizational crises. The aim is to understand how source usage – i.e., national and local news media, the organization central to the crisis, or other members of the public – correlates with the frame functions addressed online by the public. To complement the findings of the first study, the second study experimentally tests how the public selects sources. A vignette study examined how external (i.e., source type, crisis magnitude, and crisis origin) and internal (i.e., crisis involvement and habitual source use) factors affect the use of crisis information. On the basis of the findings of the two studies, it can be concluded that sources play an important role in how the public frames a crisis. The public mainly used sources to address frame functions related to later phases of the crises, for example, functions such as causal interpretation and treatment recommendation. In doing so, the public prefers to rely on national news media as a source. Furthermore, the results show how external and internal factors determine which sources the public uses for crisis information.

Crisis situations, as external circumstances, bring forward new mechanisms of communication and interaction among the organization in crisis, news media, and the public. Despite differences in size and shape, this dissertation exposed certain fundamental characteristics in the communicative interplay that seem to hold across different crisis situations.

During a crisis, multiple actors are involved that can influence the evolution of the crisis. Despite the importance of communication and collective understanding in order to prevent crisis escalation, it appears that the communication between the central actors is absent or limited in the crucial initial phase of a crisis. The initial phase of the crisis seems to be characterized by actors' autonomous sense making of the complex situation. However, over time, the actors approach each other, possibly to collectively understand and define the crisis. Collective sense making and framing may help to reduce the uncertainty and confusion caused by the crisis. In other words, the communicative alignment of crisis frames between actors may be an unavoidable necessity in order to communicate about the crisis and ultimately to solve the crisis. However, this level of alignment is only a temporary phenomenon.

In times of crisis, news media appear to be the central actor in the interaction with the organization and the public. News media can significantly pressure the organization in crisis and serves as an important information source for the public. The central role of news media offers certain opportunities to, for example, reduce confusion or avoid public panic during a crisis. In their role of directive actor, news media can contribute to the acceleration of solving an organizational crisis. Additionally, the central position of news media in times of crisis comes with certain responsibilities as it amplifies the gatekeeping role. As the coverage of a crisis has potentially far-reaching consequences, the validation of information becomes even more crucial. When information is incorrect, panic may break out and the crisis can escalate uncontrollably. In conclusion, an organizational crisis can be approached as being a mediatized event, news media provide a platform for different actors to communicate about the crisis and play a central role in the communicative interplay among the actors.

The findings of this dissertation contribute to scientific knowledge concerning how the occurrence of a crisis can disrupt and change communicative dynamics and processes. The findings of the studies show how crisis accelerate and scale up communication processes. Already in the first hours of a crisis, the occurrence of a crisis results in extensive media coverage and public online attention for organizations that are normally not considered newsworthy. Besides that the occurrence of a crisis can accelerate the flow of communication, it also affects the communicative interplay among actors.

# DUTCH SUMMARY (NEDERLANDSE SAMENVATTING)

### Dutch Summary (Nederlandse samenvatting)

Tegenwoordig wordt het nieuws regelmatig gedomineerd door berichtgeving over crisissituaties bij organisaties. Voorbeelden van deze zogenoemde organisationele crisissituaties zijn vliegtuigongelukken, explosies bij chemische fabrieken, terugroepacties van producten, faillissementen of olierampen. De grote hoeveelheid van dit type berichtgeving benadrukt de groeiende rol van organisaties en organisatiegerelateerde issues in de huidige samenleving. Tijdens een organisationele crisis kan de reputatie en financiële situatie van een organisatie verslechteren, maar deze crises kunnen ook vergaande maatschappelijke consequenties hebben. De alomtegenwoordigheid en mogelijk ingrijpende gevolgen van dit crisistype leiden tot verschillende vragen met betrekking tot de communicatieve rol van diverse centrale actoren. Het overkoepelende doel van dit proefschrift is om te ontrafelen hoe de communicatie tussen drie centrale actoren – de organisatie, de nieuwsmedia en het publiek – verloopt in tijden van een organisationele crisis.

In dit proefschrift wordt gebruik gemaakt van verschillende communicatiewetenschappelijke theorieën om het verloop van crisissituaties te bestuderen. Over het algemeen wordt verondersteld dat communicatie een essentiële rol speelt in het proces van een organisationele crisis en invloed heeft op de uiteindelijke gevolgen. In voorgaand onderzoek wordt crisiscommunicatie voornamelijk benaderd vanuit het perspectief van de organisatie met als intentie te achterhalen hoe reputatieschade kan worden voorkomen of beperkt. Het doel van dit proefschrift is om crisissituaties te bestuderen vanuit verschillende perspectieven en niet alleen vanuit dat van de organisatie. De rol van meerdere actoren wordt daarom benadrukt en er wordt verder gekeken dan wat effectieve crisiscommunicatiestrategieën voor organisaties zijn. Communicatietheorieën zoals *framing*, *stakeholdertheorie* en *gatekeeping* worden gebruikt om de communicatieve wisselwerking tussen de organisatie, de nieuwsmedia en het publiek te onderzoeken. De interactie tussen deze drie centrale actoren zijn bepalend in tijden van crisis. Dit onderzoek naar de relatie tussen deze drie actoren dient als een eerste stap om een compleet beeld te vormen over de ontwikkeling van communicatie in tijden van crisis.

In het *eerste hoofdstuk* van dit proefschrift wordt crisiscommunicatie onderzocht vanuit het perspectief van de drie actoren de organisatie, de nieuwsmedia en het publiek. Aan de hand van framingtheorie werd onderzocht hoe de crisiscommunicatie van de drie centrale actoren aan elkaar is gerelateerd. Door middel van automatische inhoudsanalyse zijn de crisisframes van de drie actoren vergeleken op de mate van overeenstemming tijdens vier verschillende Nederlandse crisissituaties (N = 51.170 berichten). Uit dit onderzoek blijkt dat bij deze crises na een periode van grote verschillen in framing tussen de actoren, de frames van de drie actoren bij elkaar komen en meer vergelijkbaar worden. Deze frameovereenstemming is echter een tijdelijk fenomeen. In de laatste fase van de crises lopen de frames van de drie actoren weer uiteen. Deze bevindingen doen veronderstellen dat over het algemeen de frames van de drie actoren afwijkend zijn. In de begin- en eindfase van een crisis geven de actoren de voorkeur aan individuele betekenisgeving en framen deze autonoom. Echter, in een tussenfase komen de frames bijeen, mogelijk als een gezamenlijke zoektocht naar betekenisgeving. De overeenstemming in

frames lijkt een verschijnsel te zijn dat specifiek is voor complexe situaties zoals organisationele crises.

In het *tweede hoofdstuk* wordt het perspectief van de organisatie belicht. Op basis van stakeholdertheorie wordt verondersteld dat de relatie met stakeholders (actoren die beïnvloed worden door de organisatie of invloed kunnen uitoefenen op de organisatie) van groot belang is wanneer organisaties een crisis doormaken. Verwacht werd dat in de beginfase van een crisis de stakeholder-organisatie relatie onder druk komt te staan. De nieuwsmedia en het publiek, als externe stakeholders, en het management en andere medewerkers, als interne stakeholders, oefenen mogelijk druk uit op de organisatie en haar Public Relations (hierna: PR) professionals. Dit kan gevolgen hebben voor de kwaliteit van de relatie. Voor dit onderzoek werden 444 ervaren Europese PR professionals ondervraagd. Op basis van dit surveyonderzoek blijkt dat de PR professionals het management als belangrijkste stakeholder zien in tijden van crisis. Verder blijkt dat druk van de nieuwsmedia, het publiek en andere medewerkers een negatief effect heeft op de relatie van organisaties met deze stakeholders, terwijl een positief effect is gevonden op de relatie tussen PR-professionals en het management. Uit de bevindingen wordt duidelijk dat organisaties de voorkeur hebben om in de initiële fase hoofdzakelijk intern, op managementniveau, te communiceren over de crisis en andere stakeholders op een afstand te houden.

In het *derde hoofdstuk* staat het perspectief van de nieuwsmedia centraal. Aangezien mediaberichtgeving invloed kan hebben op het verloop van een organisationele crisis wordt onderzocht hoe berichtgeving tijdens een crisis tot stand komt. De centrale vraag is hoe journalisten nieuwsbronnen selecteren wanneer ze rapporteren over een crisis. Op basis van gatekeepingtheorie zijn enkele verwachtingen geformuleerd over hoe journalisten de nieuwswaarde van de organisatie in crisis, persbureaus en het publiek als nieuwsbron bepalen. Verwacht werd dat het oordeel van de journalist (geloofwaardigheid en kennis van de bron), de activiteiten van de bron zelf (bereidheid tot communicatie en tijdigheid van communicatie) en de relatie tussen bron en journalist bepalend zijn in de keuze wie gebruikt wordt als bron in het nieuws. Om deze verwachtingen te onderzoeken werd een vragenlijst verspreid onder Nederlandse journalisten (N = 214) waarin werd gevraagd hoe zij bepalen welke bronnen onderdeel worden van het nieuws in de beginfase van een organisationele crisis. Op basis van de resultaten kan geconcludeerd worden dat de onderzochte factoren inderdaad bepalend zijn in de selectie van nieuwsbronnen. Hoe sterk de verschillende factoren wegen is afhankelijk van welk type bron het betreft. De nieuwswaarde van de organisatie, persbureaus en het publiek wordt dus beoordeeld aan de hand van criteria die specifiek zijn voor de verschillende potentiële nieuwsbronnen. Verder kwam naar voren dat journalisten sterk de neiging hebben om persbureaus te gebruiken als primaire nieuwsbron in tijden van crisis.

In het *vierde hoofdstuk* staat het perspectief van het publiek centraal. Met de opkomst van sociale media is de communicatieve rol van het publiek veranderd. Individuele burgers kunnen nu zelf moeiteloos een massapubliek bereiken en daarmee invloed uitoefenen op hoe een crisis begrepen en geframed wordt. Aangezien de meeste leden van het publiek een organisationele crisis niet direct meemaken, wordt

in deze studie gekeken hoe brongebruik de publieke framing van een crisis kan beïnvloeden en hoe het publiek bronnen selecteert. Voor dit onderzoek is gebruik gemaakt van een zogenaamd duaal studiedesign, er zijn twee samenhangende studies uitgevoerd. De eerste studie is een combinatie van handmatige en automatische inhoudsanalyse van vier datasets van publieke tweets (N = 252,711) over organisationele crises. In deze studie wordt getoetst hoe het gebruik van de nationale en regionale nieuwsmedia, de organisatie in crisis en andere leden van het publiek als bron correleert met welke framefuncties het publiek behandelt. Ter aanvulling van de bevindingen van de eerste studie wordt in de tweede studie experimenteel onderzocht hoe het publiek bronnen selecteert. Met een vignet-studie is getoetst hoe externe (brontype, crisisernst en crisisverantwoordelijkheid) en interne (crisisbetrokkenheid en alledaags brongebruik) factoren invloed hebben op het gebruik van crisisinformatie bij het publiek. Op basis van de bevindingen van beide studies kan geconcludeerd worden dat bronnen een belangrijke rol spelen in hoe een crisis geframed wordt door het publiek. Het publiek gebruikt voornamelijk bronnen voor het behandelen van elementen gerelateerd aan latere fasen van de crises, elementen zoals de consequenties van of oplossing voor de crisis. Verder blijkt dat zowel externe als interne factoren bepalend kunnen zijn voor welke bron gebruikt wordt door het publiek voor crisisinformatie. In zijn algemeenheid worden nationale nieuwsmedia vaak als bron voor crisisinformatie gebruikt.

Crises, als externe omstandigheden, brengen nieuwe mechanismen van communicatie op gang in de interactie tussen de organisatie, de nieuwsmedia en het publiek. Ondanks dat crisissituaties veelal verschillen in vorm en omvang zijn in dit proefschrift bepaalde fundamentele kenmerken van crisiscommunicatie blootgelegd.

Bij een crisis zijn legio actoren betrokken en zij zijn bepalend voor het verloop van de crisis. Ondanks het belang van communicatie en een collectieve betekenis in het voorkomen van crisesescalatie, blijkt dat de communicatie tussen de centrale actoren de organisatie in crisis, de nieuwsmedia en het publiek afwezig of beperkt is in de cruciale beginfase van een crisis. De beginfase van een crisis wordt gekenmerkt door autonome betekenisgeving aan de complexe situatie door verschillende actoren. Echter, na verloop van tijd komen de actoren bijeen, mogelijk om collectief de crisis te definiëren. Collectieve betekenisgeving en framing helpt om de onzekerheid en verwarring, veroorzaakt door de crisis, te reduceren en uiteindelijk om de crisis op te lossen. Met andere woorden, de communicatieve afstemming van crisisframes tussen actoren lijkt een onvermijdelijke noodzaak om elkaar te begrijpen en uiteindelijk de crisis te beëindigen. Deze overeenstemming is echter een tijdelijk fenomeen.

In tijden van crisis blijken de nieuwsmedia de centrale actor te zijn in de interactie met de organisatie en het publiek. De nieuwsmedia kunnen significante druk uitoefenen op de organisatie in crisis en zijn een belangrijke bron voor het publiek ter vergaring van crisisinformatie. De centrale rol van de nieuwsmedia biedt bepaalde mogelijkheden om bijvoorbeeld verwarring te beperken en publieke paniek te voorkomen tijdens een crisis. In de rol van leidende actor kunnen de nieuwsmedia bijdragen aan het versnellen van het oplossen van een organisationele crisis. Dit

brengt ook verantwoordelijkheden met zich mee. Aangezien mediaberichtgeving bepalend kan zijn voor het verloop van de crisis is het van cruciaal belang dat de informatie correct en gevalideerd is. Wanneer crisisinformatie incorrect is kan eenvoudig paniek ontstaan en kan de crisis oncontroleerbaar escaleren. Concluderend kan worden gesteld dat organisationele crisissituaties gemedieerde events zijn. De nieuwsmedia bieden een platform voor verschillende actoren om de crisis vorm te geven terwijl de nieuwsmedia een leidende rol spelen.

De bevindingen van dit proefschrift dragen bij aan wetenschappelijke kennis met betrekking tot hoe het ontstaan van een crisis de bestaande, communicatieve dynamieken en processen tussen verschillende actoren kan veranderen en ontwrichten. Uit de bevindingen van de studies wordt duidelijk hoe een crisis communicatieprocessen kan versnellen en opschalen. Al in de eerste uren van een crisis kan een toename in communicatie en aandacht voor doorgaans niet-nieuwswaardige organisaties geobserveerd worden, zowel offline als online. Naast de versnelde communicatie, beïnvloedt een crisis ook de interactie tussen verschillende actoren.

# AUTHOR CONTRIBUTION

## Author contribution

### Authors' Initials

T.G.L.A. van der Meer – TM

P. Verhoeven – PV

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### Chapter 1

*Crisis framing by the organization, news media, and the public.* Van der Meer, T. G. L. A., Verhoeven, P., Beentjes, J. W. J., & Vliegenthart, R.

All authors contributed to the study concept and design. Data acquisition and analysis: TM. Data interpretation: TM. Drafting of the manuscript: TM with the help of PV. All authors critically revised the manuscript and approved the final version.

### Chapter 2

*The perspective of the organization.* Van der Meer, T. G. L. A., Verhoeven, P., Beentjes, J. W. J., & Vliegenthart, R.

All authors contributed to the study concept and design. Data acquisition and analysis: TM. Data interpretation: TM. Drafting of the manuscript: TM with the help of PV. All authors critically revised the manuscript and approved the final version.

### Chapter 3

*The perspective of news media.* Van der Meer, T. G. L. A., Verhoeven, P., Beentjes, J. W. J., & Vliegenthart, R.

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### Chapter 4

*The perspective of the public.* Van der Meer, T. G. L. A.

Author TM designed the study. Data acquisition and analysis: TM. Data interpretation: TM. Drafting of the manuscript: TM. Critical review of the manuscript: PV, JB, and RV.

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# CURRICULUM VITAE

### Curriculum Vitae

Toni van der Meer was born on July 1st, 1988 in Groningen, the Netherlands. In 2010, he received his Bachelor's degree in Communication Science ('Cum Laude' graduated with distinction) at the University of Amsterdam. In 2013, he graduated 'Cum Laude' from the Research Master Communication Science at the University of Amsterdam. During this time, he worked part-time at a media-research company named Intormart GfK and at the University of Amsterdam as a research assistant and lecturer. Shortly after graduating, he obtained a PhD position based on a personally written proposal on crisis communication. Between February 2013 and December 2015, he wrote his dissertation at the Amsterdam School of Communication Research (ASCoR), at the University of Amsterdam. His work has been recognized with several awards and prizes, including the 2013 Unilever Research Prize, 2014 best student paper award from Etmaal van de Communicatiewetenschap, and 2016 top student paper award from Internal Communication Association in collaboration with Anne Kroon. At present, Toni is an Assistant Professor at ASCoR, in the department of Corporate Communication, at the University of Amsterdam.

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