**Crisis on Board:**

**The Role of Empathy in Crisis Communication**

**during Organizational Crises**

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# Abstract

The role of crisis communication has gained attention steadily over the years and continues to do so. Various aspects that lead to more effective crisis communication have been identified in recent years. However, empathy, which is a crucial aspect of human interaction and communication, has not been sufficiently researched. This study aims to explore the role of empathy in crisis communication in a preventable crisis based on the Boeing 737 MAX crisis. To explore this topic, a 2x2 research design was applied to find out the effect of emotional vs. rational message framing and a moderate crisis vs. severe crisis on post-crisis reputation. Furthermore, moderating effects of gender and fear of flying were also integrated. This was done with the help of 210 participants taking part in an online survey including the Flight Anxiety Situations scale and the RepTrak®. Participants were presented with four conditions including a news article showing a moderate or a severe crisis and a crisis response statement presenting a rational or emotional message framing. The analyses revealed no significant effects of message framing and crisis severity on post-crisis reputation. In addition, no significant effect of gender on the effect of message framing on post-crisis reputation was found. However, a significant interaction effect of fear of flying and crisis severity on post-crisis reputation was found. This study has limitations due to its narrow focus on the Boeing 737 MAX crisis which limits the generalizability of the findings to other crises. Furthermore, it also overlooked important factors such as timing, the channel of communication, and perceived authenticity. The implications of this study challenge the assumption that emotional message framing is universally effective, emphasizing the importance of contextual factors. Future research should thus study a broader range of crises and explore additional factors and strategies to enhance the understanding of crisis communication and improve crisis management practices.

Keywords: Organizational crisis; Empathy; Crisis communication; Crisis severity; Message framing; Reputation; RepTrak®; Gender; FAS; Fear of flying

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# 1 Introduction

Boeing is one of the most successful aircraft manufacturers in the world (Statista, 2022). The organization enjoyed great attention when it presented the successor to its worldwide famous 737 aircraft, the Boeing 737 MAX. The new model was expected to reduce fuel consumption and CO2 emissions by 14%, making it more efficient and capable of flying further distances than previous models (Boeing, n.d.). (Boeing, n.d.) also stated that the aircraft offered excellent reliability, which made the aircraft even more attractive to the aviation industry.

However, the 737 MAX became the focus of a crisis that impacted the reputation and corporate image of the Boeing Company significantly. In five months from 2018 to 2019, two of Boeing's 737 MAX aircraft crashed within minutes after takeoff, resulting in two deadly incidents with no survivors. The first crash happened in October 2018 when a plane from the Indonesian airline Lion Air crashed shortly after takeoff from Jakarta. During this incident, all 189 people on board the aircraft died. Already in March 2019 an aeroplane from Ethiopian Airlines crashed again shortly after takeoff from Addis Ababa and took the lives of all 157 people on board (Office of Public Affairs, 2021; Picheta, 2019). Investigations revealed the MCAS (Maneuvering Characteristics Augmentation System) and its malfunctioning sensor had been key factors that contributed to the crashes. This can be attributed to the fact that Boeing decided an average pilot would not notice the use of the MCAS and even a malfunction would be so harmless that it would not be necessary to add the operation of the system to the flight manual or to educate pilots about the existence of this system, to which the FAA (Federal Aviation Administration) agreed. Further, the pilots' level of expertise and preparedness appeared to be important factors in the incidents (Langewiesche, 2019).

After the crashes, it was important to manage the crisis and communicate appropriately. However, Boeing's way of handling the events was harshly criticized and used as an example of how not to manage a crisis (Segal, 2021). Boeing's unempathetic handling of the situation had led to confusion and anxiety among stakeholders and made it difficult for them to perceive Boeing's late

apology as sincere. As Boeing's crisis management was considered inadequate, slow, and inconsistent, the crisis took noticeably severe consequences for the organization. Boeing had to deal with various consequences, ranging from legal and regulatory to financial (Isidore, 2021; Office of Public Affairs, 2021). Above all, Boeing had to deal with consequences for its reputation and corporate image that had assumed enormous proportions. It was claimed that Boeing had turned an operational problem into a reputational crisis by causing fear and outrage through poor communication at the beginning of the incidents (Baker, 2019).

The 737 MAX crisis is only one example of several crises that have affected organizations of all sizes and types. These crises have had a significant impact on the reputation and image of those organizations, causing severe financial and social damages (Schoofs et al., 2022a; Sohn & Lariscy, 2014; Wester, 2009). Therefore, it is essential to establish an understanding of effective and functional crisis communication since this can help organizations maintain their reputation, regain stakeholders' trust, and even emerge stronger from the crisis (Marsen, 2019; Verhoeven et al., 2012). While appropriate crisis management can help organizations manage the crisis and minimize the negative impact on their operations and reputation, in contrast, poor crisis communication can worsen the crisis, erode stakeholder confidence, and cause long-term damage to the organization as in the example of Boeing (Coombs, 2007a).

According to Marsen (2019), crisis communication can be seen by looking at how an organization acts during and after a crisis. Furthermore, researchers in that field "explore the ways organizations respond to, explain and justify the crises events, the actions they take to investigate the causes of the crisis, the ways they communicate these actions to the public, and the ways they use different media to repair their damaged image" (p. 165, Marsen, 2019). To find the right way to approach a crisis, many theories have been researched and confirmed various relevant aspects (Benoit, 1995, 1997; Coombs, 2007b; Frandsen & Johansen, 2017; M. Seeger & Ulmer, 2002). Factors such as the timing of the crisis response, transparency and openness of the organization have been proposed as being important elements to consider in crisis management. However, in particular, the crisis type and its severity were

explored by Coombs (2007) and have since been indicators for determining the appropriate crisis response. Although Coombs (2007) delivers various content elements through response strategies that include diverse attitudes, empathy specifically has not been explored sufficiently, even though it is known to play a critical role in crisis communications.

Therefore, the general research topic of this study is message framing including the role of empathy and crisis severity in crisis communication. More specifically, the aim is to investigate whether empathy is an effective tool to mitigate the consequences of an organizational crisis while also considering the severity of the crisis. Boeing's 737 MAX crisis will be a real-life example throughout this study since it serves as a relevant and practical illustration of an organizational crisis that lacked an empathetic crisis management approach and had an impact on a range of stakeholders, including customers, employees, investors, and regulators. It is crucial to acknowledge the importance of empathy in crisis communication as well as how effective it is in mitigating the consequences of an organizational crisis since the ability to recognize, comprehend and share the emotions of others is a critical component of human communication (Cuff et al., 2014). As a result, empathy can aid organizations in forging relationships with stakeholders, expressing concern for individuals affected by the crisis, and proving their commitment to ethical and responsible behaviour (Schoofs et al., 2022).

Empathy, as a critical aspect of human communication, has the potential to play a vital role in crisis communication. Empathy allows individuals to understand and connect with others' emotions, perspectives, and experiences (Yaseen & Foster, 2019). Therefore, in crises, empathy can help organizations demonstrate their concern for those affected by the crisis, show their commitment to ethical and responsible behaviour, and build rapport and trust with stakeholders. Moreover, empathy can help organizations to develop effective communication strategies that address their stakeholders' needs, concerns, and expectations (Schoofs et al., 2022). In addition to the important role of empathy and message framing, crisis severity also plays a major role. Stakeholder attitudes largely depend on the severity of the crisis, which means that severe crises have more and more serious consequences than mild crises (Claeys et al., 2010). Some researchers have confirmed a relationship between

message framing and crisis severity, highlighting the importance of congruency between message framing and crisis severity (Claeys & Cauberghe, 2014).

Yet, not enough research has been conducted on this topic despite the potential benefits of empathy in crisis communication. Therefore, this study aims to fill this gap in the literature and contribute to the understanding of the role of empathy in crisis communication. To provide insights into how empathy can be used in crisis communication and its effectiveness in mitigating the consequences of an organizational crisis, this study will examine the case of the Boeing 737 MAX crisis.

This results in the following research questions:

**RQ1:**

Do message framing (emotional/rational) in a written crisis response and perceived crisis severity (moderate/severe) affect the reputational image after a preventable crisis in the aviation industry?

**RQ2:**

Does message framing interact with crisis severity in rebuilding reputation?

**RQ3:**

Does gender moderate the effects of message framing on reputation?

**RQ4:**

Does fear of flight moderate the effects of crisis severity on reputation?

# 2   Theoretical Framework

## 2.1   Organizational Crisis

Organizations depend on their reputational image, which is known as an irreplaceable asset. An organization's reputation is what drives its financial success by attracting excellent employees, new customers, and relevant investors (Carmeli & Tishler, 2005; C. J. Fombrun et al., 2004; C. J. Fombrun & Gardberg, 2000). Still, crises which are regarded as reputational threats to organizations repeatedly occur, influencing how an organization interacts with its stakeholders (Coombs, 2007). The Boeing 737 MAX crisis can be seen as such. Coombs (2007) defines a crisis as "a sudden and unexpected event that threatens to disrupt an organization's operations and poses both a financial and a reputational threat" (p. 164) by harming stakeholders on different levels such as financially, physically, or psychologically. In Boeing's case, those affected suffered physical harm in the sense of death, as well as psychological harm to the victims' families. Because of their devastating nature, organizational crises are regarded as strongly consequential, unexpected, and disruptive event which results in far-reaching repercussions for the organization's relationship with its stakeholders (Bundy et al., 2016).

To better distinguish between crises, different crisis classifications have been developed (Marsen, 2019). The first classification differentiates between preventable and unpreventable crises considering whether actions could have been taken to avoid the events that led to the crisis, external and internal crises which evaluate whether the crisis began through actions of an individual inside or outside the organization and lastly, intentional and unintentional crises considering whether the crisis could be categorized as sabotage or accident (Coombs, 1995; Marcus & Goodman, 1991; M. W. Seeger et al., 2003). The second classification focuses on four different crises which include, performance crises which cover production failures, technical malfunctions and errors in judgement, disaster crises including accidents and natural disasters, attack crises consisting of media or competitors attacking the organizations' reputation and finally moral crises which entail that the nature of the organization clashes with prevailing social norms and values (Morris & Goldsworthy, 2012).

Lastly, Coombs (2007) offers a classification that includes three clusters: (1) the victim cluster, meaning the organization highlights that it was not responsible for the crisis but even suffered from it (natural disasters, workplace violence, product tampering, and rumour), (2) the accidental cluster, covering crises as result from an accident that was nonpreventable (technical-error accident, technical-error product harm, and challenge), and (3) the preventable cluster, including crises caused by human error, negligence or corruption (human-error accident, human-error product harm, and organizational misdeed). This study will focus on the third cluster, as Boeing's crisis can be classified as a preventable crisis since it includes human error and organizational misdeed. In the following, the organizational reputation of Boeing is considered as a dependent variable and measured by post-crisis reputation. Therefore, both Boeing's pre-crisis reputation and post-crisis reputation are measured using RepTrak® developed by Reputation Institute (C. Fombrun et al., 2015). Here, the pre-crisis reputation serves as a baseline measure for further analysis, since it can be assumed that the pre-crisis reputation of the participant groups does not differ significantly.

Due to the high risk of organizational failure resulting from a crisis and its related reputational threat, it is of high importance to react accordingly. Therefore, the choice of a corresponding crisis response strategy is indispensable to mitigate the effect of the crisis on the pre-crisis reputation.

## 2.1.1 Response Strategies

Based on the crisis classification and attributed responsibility, an equivalent crisis response strategy must be decided on to rebuild the organization's reputation (Coombs, 2007). Different theories of response strategies have been formulated. Benoit's (1995, 1997) image repair theory (IRT) differentiates between five strategies which should be used as post-crisis response strategies. The five strategies include denial focusing on scapegoating or denying the harmfulness of the crisis, evasion of responsibility claiming the event as accidental, reducing offensiveness focusing on positive aspects of

the organization, corrective action highlighting anticipated solutions, and lastly mortification meaning accepting the responsibility and apologizing (Benoit, 1995, 1997).

Another response strategy theory is the discourse of renewal theory (DRT) which rather focuses on the future steps of the organization instead of justifying its past actions. This theory implies the reconsideration of the organization's vision and identity to rebuild its image and reposition itself in the industry (Seeger & Ulmer, 2002). However, this theory is also referred to as optimistic theory since it encourages organizations to identify an opportunity within a crisis and at first only involved cases which were considered accidents and unpreventable crises that did not permanently affect the organization's reputation (Marsen, 2019).

Additionally, Frandsen and Johansen (2017) formulated the rhetorical arena theory which identifies "patterns of interaction" (p. 148) rather than focusing on the single-perspective discourse such as the organizational or media discourses. To identify the patterns of interaction, researchers utilizing this theory analyze the discourses by filtering for context (type of crisis, event, and participants), media (communication channels), genre (document types), and text (strategic choices to construct a message).

Lastly, Coombs (2007) formulated the situational crisis communication theory (SCCT) which takes away the emphasis from company strategy and instead focuses on public perception by highlighting the attribution aspect which is considered as the degree of blame various stakeholders attribute to the organization based on its previous reputation. To find a matching response strategy to a specific crisis, the organization's acknowledgement of crisis responsibility must be congruent with the perceived responsibility given to the organization by its stakeholders (Marsen, 2019). Coombs (2007) introduces four postures which must match the crisis cluster of the current crisis: (1) denial, used for victim crises where the organization is attributed the lowest responsibility, (2) diminishing, used for accidental crises to minimize the organization's attributed responsibility, and (3) rebuilding, used for preventable crises showing full acceptance of the organization's responsibility. Due to its relevance in crisis communication, this study will focus on the situational crisis communication theory.

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An overview of the crisis clusters and the corresponding response strategies according to SCCT can be found in Table 1.

## 2.1.2 Preventable Crisis and Rebuild Strategy

To correctly approach the crisis response, first, the crisis at hand must be classified in one of the four clusters and afterwards, a corresponding posture must be determined. This is necessary since the three clusters of crises result in different empathy levels of the stakeholders (De Waele et al., 2020; Schoofs et al., 2019). Due to the high level of empathy resulting from a preventable crisis, it is necessary to focus on a rebuilding response strategy to mitigate the harmful threat to the organization's reputation. Although the rebuilding strategy is known as a highly recommended strategy after a preventable crisis, professionals have doubted its value due to legal consequences that could be connected to admitting guilt. However, this was counterargued by crisis communication professionals, who state that the rebuild strategy is most effective, especially if a crisis is indeed fully attributed to the organization's responsibility (Decker, 2012; S. Kim et al., 2009; Lee, 2004; Sisco, 2012). Furthermore, apologies and compensation as part of the rebuild strategy are significantly effective if stakeholders perceive it as sincere and genuine (Claeys & Cauberghe, 2014; Lyon & Cameron, 2004; Schoofs et al., 2019; van der Meer & Verhoeven, 2014)

Due to the nature of the Boeing 737 MAX crisis, it can be categorized as a preventable crisis. Therefore, this research will focus on the preventable crisis cluster as well as the rebuild crisis response strategy. Furthermore, other aspects such as the role of empathy were highlighted as significant factors to consider in crisis responses which will additionally be included in this study.

**Table 1.**

*Overview of crisis clusters and corresponding crisis response strategies*

| Crisis cluster | Crisis response posture |
| --- | --- |
| Victim cluster | Deny response strategies |
| Natural disaster | Attack the accuser |
| Rumour | Denial |
| Workplace violence | Scapegoat |
| Product tampering | |
| Accidental cluster | Diminish response strategies |
| Challenges | Excuse |
| Technical-error accidents | Justification |
| Technical-error product harm | |
| Preventable cluster | Rebuild response strategies |
| Human-error accidents | Compensation |
| Human-error product harm | Apology |
| Organizational misdeed | |

*Source: adapted from Coombs 2007*

## 2.2    Empathy in Crisis Communication

Independent of which strategy is used to respond to a crisis, empathy is deemed a fundamental part of the initial response to any crisis (Coombs, 2007). Although empathy is a widespread key element in crisis communication, there is only little conceptual definition in this context resulting in the lack of a proper conceptualization of the notion (Schoofs et al., 2022a; Yeomans, 2016) However, the concept of empathy is also a key element in social and cognitive neuroscience as well as psychology and can be divided into two categories: (1) cognitive empathy which strengthens interaction with others in a socially appropriate manner (Smith, 2006) and (2) affective empathy which covers the ability to experience the emotions of others (Decety & Lamm, 2006). Additionally, researchers found that experiencing cognitive and affective empathy results in the feeling of compassion and empathy towards the empathetic individual or organization (LAWRENCE et al., 2004).

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Some researchers emphasize that acting empathetically is beneficial for organizations in every stage of a crisis and acting empathetically towards stakeholders even is the social and ethical responsibility of organizations (Coombs, 1999; S. Kim & Sung, 2014; König et al., 2018). However, an organization showing empathy towards its stakeholder is especially important during a crisis since empathy as a part of crisis communication is beneficial for organizations as the feeling of empathy towards the victims influences the stakeholders' reactions towards the crisis (Coombs & Holladay, 2008, 2009; M. W. Seeger, 2006; Veil et al., 2011; Yeomans, 2016). Therefore, expressing empathy as well as listening to concerns and conveying compassion are key elements of successful response strategies and should be considered when responding to a crisis (Coombs, 1999, 2007; Coombs & Holladay, 2008, 2009; Seeger, 2006; Veil et al., 2011).

To make the crisis message truly meaningful the organization should communicate cognitive empathy, meaning that the organization listens to understand the concerns and needs the stakeholders address (Seeger, 2006), as well as affective empathy which focuses more on the organization's demonstration of sincere compassion and concern towards the victims (Coombs, 1999, 2007; Seeger, 2006; Veil et al., 2011). This also includes acknowledging the stakeholders' needs and emotions as well as showing empathy for any physical, mental, or financial harm that was caused by the organization (Seeger, 2006; Veil et al., 2011). This behaviour of the organization will consequently help the organization to control the reputational threat and mitigate the consequences of the crisis due to humanizing the crisis message and might even rebuild its reputation to the same extent as an apology (Kim et al., 2009; Schoofs et al., 2022). Therefore, any crisis-experiencing organization must consider emotional content for their crisis response.

## 2.2.1  Emotional vs. Rational Message Content

Although emotional content and expressing empathy during crises are highly recommended by crisis communication researchers, there is almost no information or guideline on how to do so

(Schoofs et al., 2022). However, some key aspects of empathy could be found: showing concern, compassion or sympathy towards the stakeholders of an organization seemed to express empathy towards them (Coombs, 1999, 2007b; Coombs & Holladay, 2008, 2009; Schultz et al., 2011). Furthermore, Schoofs et al. (2022) highlight, that it is of high importance to understand the stakeholders' perspective which could be achieved by trying to "understand the perspective of the biggest victim" (p. 6). Additionally, organizational behaviour can help an organization build rapport with its stakeholders. However, this behaviour should be consistent throughout the life cycle of the crisis to ensure a genuine appearance (Schoofs et al., 2022).

By consistently sticking to empathetic behaviour organizations can benefit from the importance of emotions and empathy that lies within the fulfilment of social functions which influences relationships with others and especially how others behave (Frijda & Mesquita, 1994; Keltner & Haidt, 1999). Through those influences, empathetic messages can guide the public discourse and the interpretation of the crisis at hand leading to the mitigation of the consequences on the organizational reputation (H. J. Kim & Cameron, 2011; Loewenstein et al., 2001; van der Meer & Verhoeven, 2014). Especially in cases of controllable and internal crises, stakeholders are more likely to forgive an organization and neutralize their attitude if an emotion-centred crisis response is offered since they are more likely to feel emotions such as anger and frustration (Moon & Rhee, 2012).

Finally, Van der Meer and Verhoeven (2014) highlight that crisis responses with emotional content form a frame for the interpretation of the crisis as well as its response and therefore "positively influenced participants' response to the corporate messages compared to purely rational appeals" (p. 528) which leads to hypothesizing that emotional content serves organizations with a human touch (van der Meer & Verhoeven, 2014).

Even though emotional content in crisis responses has been shown to influence the stakeholder's perception and attitude towards an organization, rational message framing is still visible as in the case of the Boeing 737 MAX crisis. According to Schoofs et al. (2022) rational message framing results when organizational crisis responses are driven by organizational needs. This might for example

be the case when organizations feel like the victim in the crisis due to the stressful and negative nature of a crisis. However, this and other factors such as organizations strongly focusing on technical errors and solutions lead to very formal, rational and unempathetic crisis responses which leave the stakeholder feeling submissive and not understood. Organizations then start using technical jargon since this is used best to describe the specific error and required solution which however creates a feeling of dissonance and distance between the organization and its stakeholder due to the lack of empathy and thereby results in reputational damage (Schoofs et al. 2022).

Still, Moon and Rhee (2012) explain that rational crisis responses are necessary in some cases such as uncontrollable and external crises. In these cases, stakeholders are mostly frightened and need an information-centred message including informational content which keeps them updated and explains all specific aspects of the crisis. Study results show that information-centred apologies lead to a more forgiving attitude towards organizations by its stakeholders when the crisis was caused due to external factors (Moon & Rhee, 2012). However, due to the nature of the Boeing 737 MAX crisis which was a preventable and internal crisis the emotion-centred approach to crisis response is most likely more effective in mitigating the consequences of the crisis on the organizational reputation. Hence, the following hypotheses can be proposed:

**H1**: 'Emotional message framing' as an aspect of an empathic crisis response will result in higher scores for post-crisis reputation compared to 'rational message framing'.


## 2.3 Moderate vs. Severe Crisis

In organizational environments, crisis severity differs significantly. Researchers demonstrate that depending on the perceived crisis severity the moods and attitudes of stakeholders change, resulting in more reputational damage in severe crises and less reputational damage in moderate crises (Claeys et al., 2010; Zhou et al., 2018). Stephens et al. (2005) show that intense crisis evaluation

including the scope of the crisis and its severity is crucial for selecting an effective crisis response strategy to avoid under- or overestimating the crisis significance and deciding on a proper strategy.

(Coombs & Holladay, 2002) define crisis severity as "the amount of damage generated by a crisis including financial, human, and environmental damage" (p. 169). This definition inherits severity evaluation based on the factual damage caused by a crisis. However, Park and Len-Ríos (2010) found that "the severity of damage is not necessarily a function of the actual damage, but of perceptions" (p. 595) meaning that factual similar crises can differ in severity due to the influence of definitions and media framing including the consequences of the crisis. Also, Coombs (2007) supports this aspect by defining a crisis as something that is perceived as threatening the expectancies of stakeholders and seriously impacts organizational reputation. This definition implies that crises do not exist because they factually happen but rather because of the stakeholders' perception of a crisis meaning that although an event might not be seen as a crisis by the organization itself, it is still present due to the perception of the stakeholders. This can also be transferred to crisis severity implying that a crisis is an actual severe crisis if it is perceived as such by the organization's stakeholders (Zhou et al., 2018). Therefore, different researchers recommend using perceived crisis severity as the measurement for crisis severity instead of the factual damage caused by the crisis (Claeys et al. 2010; Zhou & Ki, 2018), defining perceived crisis severity as "stakeholders' objective and emotional assessment of the intensity of a crisis" (Zhou & Ki, 2018, p. 43).

Based on the finding of (Laufer et al., 2005), the perception of crisis severity impacts the blame put on an organization. The researchers state that earlier studies have already found evidence for a positive relationship between perceived severity and the blame, which is put on the causer of an incident by observers. Adding to that, Claeys et al. (2010) discovered that organizational reputation is affected by the perceived severity of a crisis by stakeholders, meaning that crises which are perceived as more severe have more negative effects on the organization's reputation than crises which are perceived as moderate. This is additionally supported by other researchers who have found a positive relationship between crisis severity and stakeholders' blame on the organization and a negative

relationship between crisis severity and purchase intent as well as the organization's reputation (Arpan & Ewoldsen, 2005; Claeys et al., 2010; Laufer et al., 2005) This leads to the following hypothesis:

> **H2**: 'Moderate crisis' as an aspect of crisis severity will result in higher scores for post-crisis reputation compared to 'severe crisis'.

## 2.4   Interaction Effect of Message Framing and Crisis Severity

Since organizational crises differ in their type and also bring different consequences, care should be taken to choose an appropriate strategy to address the crisis (Coombs, 2007). However, crises also differ in their severity. Studies have found that individuals who have a high level of involvement with an organization's product or the organization itself perceive a crisis as less severe than individuals who have no connection to the organization or its products, which leads to the organization's reputation being less at risk (Arpan & Ewoldsen, 2005). Furthermore, Claeys and Cauberghe (2014) highlight that message framing and the severity of a crisis interact and thus the congruence of message framing and crisis severity, as emotional message framing for severe crises and rational message framing for moderate crises, leads to mitigating the damage to the organization's reputation.

> **H5**: Responses using message framing that is congruent and matches the crisis severity (rational + moderate, emotional + severe) will result in higher scores for post-crisis reputation as compared to responses with message framing that is incongruent or does not match the crisis severity (rational + severe, emotional + moderate).

## 2.5   Moderating Effect of Gender

Next to the direct effects of message framing and crisis severity on organizational reputation, there are several other aspects which might influence those effects. A concept which is closely linked to the concept of empathy is gender. Research over the years suggests gender affects the capacity for empathy (Christov-Moore et al., 2014; Rochat, 2023). Hence, females are considered to be more

sympathetic, empathetic and pro-social in comparison to males throughout their life cycle (Chaplin & Aldao, 2013; Rose & Rudolph, 2006). This difference appeared to even grow in adolescence (Lam et al., 2012). Jolliffe and Farrington (2006) and Ibanez et al. (2013) report higher empathy scores in adolescent females and higher scores in helping bullied victims compared to males. These findings appear to contribute to the approach that females are more empathetic and become even more empathetic throughout their lives than males, meaning that there are gender differences in empathy which appear to be steady and persistent across the individual's lifetime (Michalska et al., 2013; O'Brien et al., 2013).

According to some researchers, empathy seems to be somewhat heritable. This approach results from the mentioned consistency in development which implies that the gender differences are not probable to solely result from postnatal experiences but rather developed due to the evolutionary significant difference between males and females which is already inherited from the moment of birth (Baron-Cohen, 2002; Chakrabarti & Baron-Cohen, 2013; Knafo & Plomin, 2006; Rushton, 2004; Zahn-Waxler et al., 2001). Still, researchers claim that there is a need for further research with greater statistical power and further variables to make definite and clear conclusions about the effect of gender on empathy (Christov-Moore et al., 2014; Rochat, 2023). However, current research still concludes significant gender differences in empathetic tasks which leads to the following hypothesis:

**H4**: A female gender attribution will positively moderate the effect of emotional message framing on post-crisis reputation.

## 2.6 Moderating Effect of Fear of Flying (FoF)

Another aspect which might influence the direct effects of message framing and crisis severity is the fear of flying. There is only little research on the effects of flight anxiety since research in this field rather focuses on the psychological treatment of FOF (B. Rothbaum et al., 2000; B. O. Rothbaum et al., 2006; Van Gerwen & Diekstra, 2000). Yet, some effects related to the overestimation and

awfulization of situations become clear. Despite a large number of individuals struggling with FOF, flight anxiety is considered irrational (Oakes & Bor, 2010). According to (Carlsson et al., 2004) humans still face anxiety when it comes to transportation by aeroplanes, even though it is known that flying is a safer way of transportation than others. This seems to be related to a higher perceived risk when flying compared to any other mode of transportation (Carlsson et al. 2004).

Effects associated with FOF have a wide variety, ranging from feeling uncomfortable to strong fear and not using flying as a mode of transportation at all (Fleischer et al., 2012). Furthermore, flight anxiety is not only prevalent during a flight but also beforehand when the topic of flying arises, for example when planning a vacation, looking for flights and right before flying (Wiederhold & Bouchard, 2014). Even more important for this study is that fear of flying results in overall irrational thoughts leading to awfulization, meaning that individuals overestimate danger and tend to hyperbolize the perceived severity of a threat (Moldovan & David, 2014; Möller et al., 1998). Hence, in the context of the current study, it can be assumed that fear of flying is related to perceived crisis severity, implying that higher scores on flight anxiety would influence the effect of crisis severity on organizational reputation. Accordingly, the following hypothesis is proposed:

**H5**: Fear of flying will positively moderate the effect of a severe crisis on post-crisis reputation.

## 2.7   Conceptual Model and Hypothesis

The proposed hypotheses have been conceptualized in a hypothesized conceptual model shown in Figure 1 and formulated in Table 2.

**Figure 1.**

*Hypothesized conceptual model of the effect of message framing and crisis severity on post-crisis reputation*
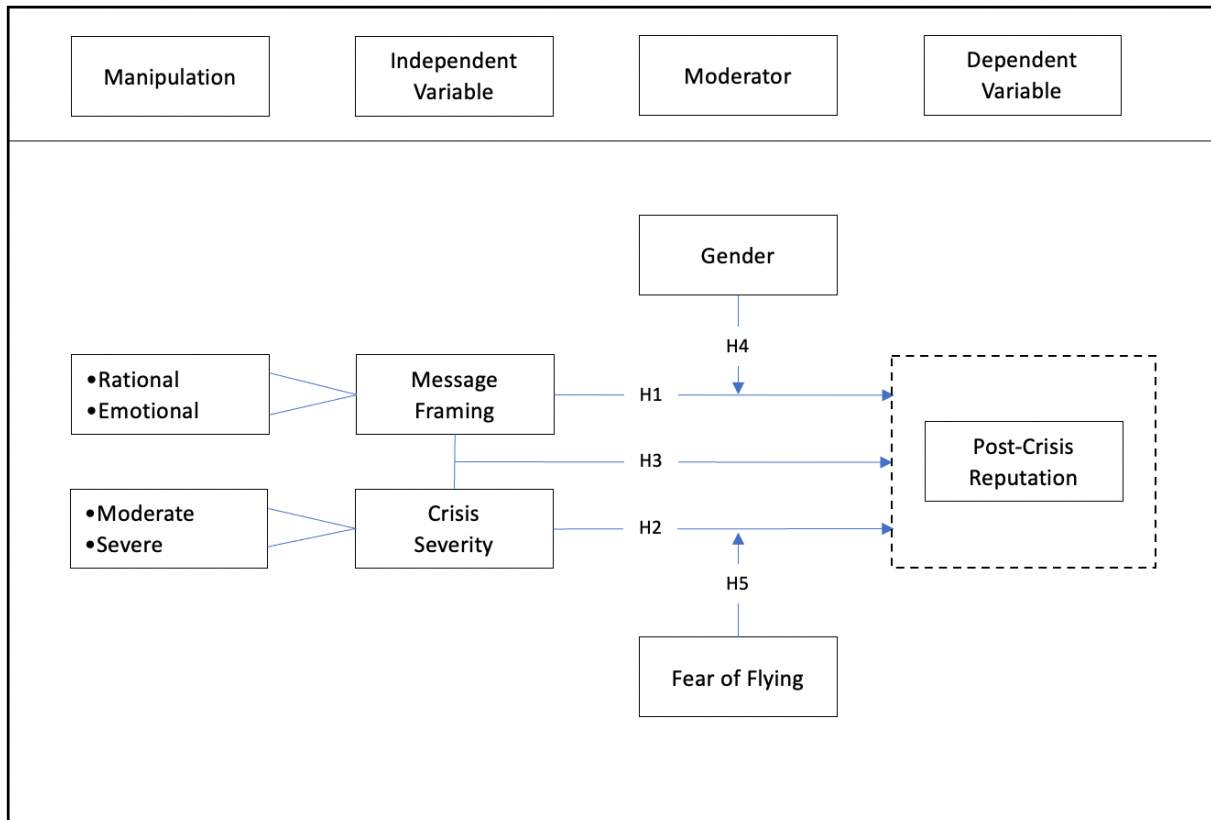


**Table 2.**

*Overview of formulated hypotheses*

| Number | Hypothesis |
| --- | --- |
| H1 | 'Emotional message framing' as an aspect of an empathic crisis response will result in higher scores for post-crisis reputation compared to 'rational message framing'. |
| H2 | 'Moderate crisis' as an aspect of crisis severity will result in higher scores for post-crisis reputation compared to 'severe crisis'. |
| H3 | Responses using message framing that is congruent and matches the crisis severity (rational + moderate, emotional + severe) will result in higher scores for post-crisis reputation as compared to responses with message framing that is incongruent or does not match the crisis severity (rational + severe, emotional + moderate). |
| H4 | A female gender attribution will positively moderate the effect of emotional message framing on post-crisis reputation. |
| H5 | Fear of flying will positively moderate the effect of a severe crisis on post-crisis reputation. |

# 3   Method

## 3.1   General Design

The design of this study is based on a 2 (message framing: rational vs. emotional) x 2 (crisis severity: moderate vs. severe) between-subjects experimental design with organizational reputation as a dependent variable (Table 3) as well as gender and fear of flying as moderators for the effect of the independent variable on the dependent variable. Additionally, the interaction effect of both independent variables on the dependent variable was analyzed. The choice of this design resulted due to the comparability of the four conditions that were developed by combining the different manipulations of the independent variables. To successfully compare the effects of the different combinations, the individual effect of each condition was calculated which represents the difference between pre-crisis and post-crisis reputation. This was done by first measuring a pre-crisis score for reputation, then exposing the participants to one of the four conditions and afterwards measuring a post-crisis score for reputation. The effect score per condition was then calculated by subtracting the post-crisis score from the pre-crisis score.

For the real-world connection of this study, the Boeing 737 MAX crisis was used as a real-life example. Boeing's crisis fits the aim of the study by being a preventable crisis with high crisis severity. In addition to that, Boeing was criticized for its lack of empathy in crisis responses which finally results in matching both independent variables 'message framing' (rational content) and 'crisis severity' (severe). In the following, the stimuli will further be explained.

**Table 3.**

*Overview 2x2 experimental design (crisis severity & message framing)*

|  | Rational Message Framing | Emotional Message Framing |
|---|---|---|
| Moderate Crisis | Condition 1 (moderate + rational) | Condition 2 (moderate + emotional) |
| Severe Crisis | Condition 3 (severe + rational) | Condition 4 (severe + emotional) |

## 3.2  Stimuli

### 3.2.1  Case Description

To establish a common understanding of the Boeing Company, a brief description was presented. To ensure that the participants do not immediately know that this study is specifically about Boeing and to prevent a bias, Airbus and Lockheed Martin were also briefly described (Appendix A). Afterwards, two newspaper articles and four crisis responses were presented to the participants which will be further elaborated on in the following passages.

### 3.2.2  Manipulation of Crisis Severity

To ensure that this study will not influence the real-life reputation of Boeing, two fictional newspaper articles were presented. The articles differed in the severity of the consequences Boeing had to face because of the 737 MAX crisis (Table 4). The first newspaper article reports on the real-life event including the consequences of the Boeing 737 MAX crisis (Appendix B). The article was designed to introduce the participants to the crisis in general, the crisis type and the severity of the event based on the consequences. To do so, relevant information on the happenings regarding the 737 MAX were given which informed the participant about the plane crashes. Furthermore, the cause of the incident was provided by including information on the known malfunction of a sensor which led to the crashes. Through this information, the article indicated the crisis type by implying that the crashes were

preventable, given that they involved organizational misdeed and human error (Coombs, 2007). Additionally, details about the repercussions of the crashes were presented by reporting on the deaths of all passengers in both planes and highlighting the consequences for Boeing. The consequences included an immediate stop of the 737 MAX production as well as the grounding and temporary suspension of operations of the entire global fleet of the 737 MAX Hence, the severity of the crisis and its consequences was determined through the newspaper article.

Since the real-life crisis of Boeing already included severe consequences for Boeing depicted, it was necessary to find a manipulation which would transform the crisis into a moderate crisis. Therefore, the moderate crisis was designed by still covering aspects of a crisis, namely generated damage by an incident including economic, environmental, or human damage but manipulating the consequences for Boeing (Coombs & Holladay, 2002). Considering this, the second newspaper article covered similar information to the first article but was manipulated by reporting milder consequences (Appendix C). These consequences included a check of the malfunctioning sensor after which Boeing can immediately continue to operate with the 737 MAX. Hereby, the severity of the crisis should be manipulated, transforming it from a severe crisis to a moderate crisis. However, the crisis type and all other information remained the same as in the first newspaper article.

**Table 4.**

*Differences in presented news articles*

|  | Moderate Crisis | Severe Crisis |
|---|---|---|
| Heading | Boeing must check 737 MAX production | Boeing must stop 737 MAX production |
| Subheading | 737 MAX crash: Due to a second plane crash, Boeing must check production of the 737 MAX | 737 MAX crash: Due to a second plane crash, Boeing must stop production of the 737 MAX |
| Content | Production is checked. | Production at a standstill. |
| Ending | Boeing is expected to check the malfunctioning system. After the check, Boeing can continue to operate with the 737 MAX. | Boeing is expected to stop the production of the Boeing 737 MAX. Furthermore, the 737 MAX is grounded, implying the temporary suspension of operations of the entire global fleet of the 737 MAX. |

### 3.2.3  Manipulation of Crisis Responses

To manipulate the message framing, two different crisis response messages were designed to address both, the severe and the moderate crisis with both, emotional and rational content. Hence, the first crisis response message included rational content (Appendix D), while the second message included emotional content (Appendix E).

The rational crisis response message was the original crisis response from Boeing taken over from their media archive which can be found in Appendix F (Boeing, 2019). However, the emotional crisis response has been written by including relevant aspects of emotional content. To do so, this crisis response matched the requirements of the rebuild strategy for a preventable crisis (Coombs, 2007). Furthermore, other key elements which support the transmission of emotional content were added. These elements covered expressing concern, compassion, and sympathy towards the stakeholders of Boeing and understanding the stakeholders' perspective by trying to understand the perspective of

the biggest victim. Furthermore, showing acceptance regarding responsibility, explaining the next steps and what will be done to solve the crisis and prevent another crisis (Coombs, 1999, 2007, Coombs & Holladay, 2008, 2009; Moon & Rhee, 2012; Schoofs et al., 2022; Schultz et al., 2011).

## 3.3   Pre-Test of Stimuli Manipulations

To assure the manipulations led to the specific conditions a pre-test was conducted. Therefore, a survey including both newspaper articles and crisis responses was designed and distributed to participants (n=10) through convenience sampling. The participants were introduced to the survey by highlighting that they will be presented with two different newspaper articles (Appendix B-C) which differ in the crisis severity in terms of moderate and severe consequences for the company as well as two different statements that differ in their content in terms of rational and emotional message framing (Appendix D-E). Participants first were presented with one article and were asked to rate it on two bipolar scales. One scale measured the severity of the crisis with "moderate" and "severe" on the ends while the other scale measured the length of the article with "too short" and "too long" on the ends. After that, the same was done with the second article. Then the participants were presented with the first statement followed by two bipolar scales. The first scale measured the content of the statement with "rational" and "emotional" on the ends while the other scale measured the length of the statement with "too short" and "too long" on the ends. This was repeated for the second statement. The order of the articles and the statements were randomized to avoid any biases.

To analyze the perceived severity and content by the participants one sample t-tests were conducted. A critical value of 4 was used to assess if the means of the sample significantly differed from this value. The significance level was set to an alpha of 5%. Participants agreed that the article about the severe crisis included severe consequences for Boeing (M = 5.5, SD = 1.96, t(9) = 2.42, p = .039), while the article about the moderate crisis included moderate consequences for Boeing (M = 2.6, SD = 2.41, t(9) = -1.83, p = .01). Furthermore, participants concluded that the rational statement

included rational content (M = 2.3, SD = 1.16, t(9) = -4.64, p = .001) and the emotional statement included emotional content (M = 6.2, SD = 0.92, t(9) = 7.5707, p < .001). Regarding the length of the articles and statements participants indicated that the severe crisis article (M = 3.8, SD, = 0.42), the moderate article (M = 3.4, SD = 0.7), the rational statement (M = 4.1, SD = 1.2) and the emotional statement (M = 4.1, SD = 0.32) were not too short and not too long compared to the scale midpoint of 4.

Lastly, to ensure that the real-life context was conveyed properly, participants were asked to indicate the extent of their agreement regarding 4 statements on a 5-point Likert scale ranging from strongly disagree to strongly agree. This measurement was conducted at the end of the survey for all 4 manipulations together. Participants rated the preventability and the cause of the crisis, as well as the realism of the articles and statements. The participants agreed that the crisis was preventable (M = 4.6, SD = 0.52), the crisis was an organizational misdeed (M = 4.1, SD = 0.74), the articles were realistic (M = 4.7, SD = 0.48) and lastly, the statements were realistic (M = 4.7, SD = 0.48).

Due to the successful pre-test, the stimuli and manipulations were kept as they were for the main study survey.

## 3.4  Measures

This section will go into detail on the study's measurement methods (Appendix G). The used scales for the measures were adapted from existing and validated sources as will be elaborated on in the following.

### 3.4.1  Reputation

The reputation of Boeing was measured with a model named RepTrak® developed by Reputation Institute (Fombrun et al., 2015). This measurement method has been shown to be reliable and valid in prior research (C. Fombrun et al., 2015; Ponzi et al., 2011). The model includes seven

dimensions and 23 items. The dimensions in the RepTrak® model are products and services, innovation, workplace, governance, citizenship, leadership, and performance. Since not all seven dimensions and 23 items were relevant for this study and the case of Boeing, the scale was limited to four dimensions and eight corresponding items (Table 5). Since Boeing's reputation regarding innovation, workplace, and performance will most likely not be affected by the crisis severity and response message framing, these dimensions which covered items such as "is an innovative company", "rewards its employees fairly", and "delivers financial results that are better than expected" have been left out. Participants were asked to indicate the extent of their agreement with the adapted items on a 7-point Likert scale ranging from "strongly disagree" to "strongly agree".

**Table 5.**

*Reputation scale: dimensions and corresponding items*

| Dimension | Item |
| --- | --- |
| Products & Services | Offers high-quality products and services |
| | Meets customer needs |
| Governance | Is open and transparent about how the company works |
| | Behaves ethically |
| Citizenship | Supports good intentions |
| | Positively affects society |
| Leadership | Is a well-organized company |
| | Has excellent managers |

## 3.4.2  Gender

The gender of the participants was determined through their indication of the demographic items. Here participants were asked "what is your gender?" and could choose between "female", "male", "non-binary/other", and "prefer not to say". Due to the little number of participants that indicated "non-binary/other" and the lack of gender-specific information for participants that chose "prefer not to say" (n = 12), the corresponding data were excluded from the analysis.

### 3.4.3  Fear of Flying

To measure the fear of flying of the participants the Flight Anxiety Situations Questionnaire (FAS) was used (Van Gerwen et al., 1999). The questionnaire was proven to be reliable and valid in previous research (Nousi et al., 2008; Skolnick et al., 2012; Van Gerwen et al., 1999). The FAS includes 32 items covering anticipatory flight anxiety, in-flight anxiety, and general flight anxiety. To adapt the measure to this study, seven items from the in-flight anxiety and general flight anxiety subscale were selected and combined to facilitate the assessment of the participants' flight anxiety (Table 6). The items were chosen based on the real-life context of Boeing and the newspaper article which was presented to the participants in the survey. Since the article reports on an in-flight accident, only items which can be related to the incident were included. Participants were asked to indicate their anxiety on a 5-point Likert scale ranging from "no anxiety" to "overwhelming anxiety".

**Table 6.**

*Fear of flying scale*

| Items |
| --- |
| You are informed of the flight's safety regulations by the cabin crew |
| The engines give full power before take-off |
| You hear some noises during the flight |
| The aeroplane banks left or right |
| The wings on the plane are moving/shaking |
| Air turbulence is announced |
| The plane starts to descend |

### 3.4.4  Reliability and Validity of Measures

In order to assess the validity of the RepTrak® and FAS scale, a confirmatory factor analysis was conducted. This was done by using principal component analysis including varimax rotation. The factors for fear of flying (FAS 1-7) and reputation (RepTrak 1-8) were validated by the factor analysis

(Table 7). The eigenvalues for both factors were sufficiently high (> 1, based on Kaiser's Criterion) which resulted in the inclusion of all items for further analysis.

As demonstrated in Table 7, the FAS scale had an explained variance of 32.9%, whereas the RepTrak® scale had an explained variance of 26.3%. This indicates that the factors reputation and fear of flying accounted for between 26.3% and 32.9% of the variance. Lastly, scale analysis was performed to confirm the reliability of the scales. The FAS scale had a Cronbach's alpha of > 0.9 which is evidence for excellent internal consistency while the RepTrak® scale had a Cronbach's alpha of > 0.8 which is also sufficiently high to conclude good internal consistency.

**Table 7.**

*Factor analysis (rotated component matrix)*

| | Factor | |
|---|---|---|
| **Statements** | **1** | **2** |
| FAS 1 - You are informed of the flight's safety regulations by the cabin crew | 0.67 | |
| FAS 2 - The engines give full power before take-off | 0.73 | |
| FAS 3 - You hear some noises during the flight | 0.90 | |
| FAS 4 - The aeroplane banks left or right | 0.89 | |
| FAS 5 - The wings on the plane are moving/shaking | 0.88 | |
| FAS 6 - Air turbulence is announced | 0.82 | |
| FAS 7 - The plane starts to descend | 0.80 | |
| RepTrak 1 - Offers high-quality products and services | | 0.56 |
| RepTrak 2 - Meets customer needs | | 0.49 |
| RepTrak 3 - Is open and transparent about how the company works | | 0.79 |
| RepTrak 4 - Shows ethical behaviour | | 0.86 |
| RepTrak 5 - Supports good intentions | | 0.82 |
| RepTrak 6 - Positively affects society | | 0.60 |
| RepTrak 7 - Is a well-organized company | | 0.70 |
| RepTrak 8 - Has great managers | | 0.72 |
| Explained variance: | 32.90% | 26.30% |
| Eigenvalue: | 4.94 | 3.95 |
| Cronbach's alpha: | 0.93 | 0.88 |

## 3.5  Procedure

To conduct an ethically responsible study, the intended study was sent to the BMS Ethics Committee of the University of Twente for review and approval. After approval, the research could be started. Due to the nature of the research including a quantitative approach, approximately 150 participants had to be recruited. This was done through convenience sampling via various channels. Those channels included personal communication and social media, such as Instagram, Slack, and WhatsApp. The sole inclusion criterion was a minimum age of 18 years old. All participants under the age of 18 were redirected to the end of the survey. To make participation as convenient as possible, the survey was conducted online which made it possible for participants to take part at a desired time and place without restrictions.

The survey started with an introduction page which informed the participants about the nature of the data collection, the expected duration of the survey and details about the confidentiality and anonymity of the experiment. However, the introduction page did not include specific information about the aim of the study to prevent biases in the data.  Finally, participants were asked to give informed consent to the data collection. If participants agreed to continue with the survey, they were presented with demographic questions which included gender, age and country of origin. Afterwards, they were asked to indicate their familiarity with three aircraft manufacturers to prevent Boeing-related biases and spread their attention. Then, participants were presented with the Flight Anxiety Situations Questionnaire (FAS) to measure their fear of flying including seven items on a 7-point Likert scale ranging from "no anxiety" to "overwhelming anxiety".

Next, the pre-crisis reputation of Boeing was measured by participants indicating their perception on a reputation scale. For this measurement, the RepTrak® was adapted including eight items on a 7-point Likert scale ranging from "strongly disagree" to "strongly agree". Then, participants were presented with one of the four conditions and subsequently were asked about the post-crisis

reputation of Boeing. Therefore, participants indicated their perceived reputation of Boeing again on the RepTrak® scale to measure the post-crisis perception.

Lastly, a manipulation check was conducted by presenting the previously shown news article again and asking participants to indicate the perceived severity of the consequences Boeing has to face considering the incident on a bipolar scale with "moderate" and "severe" on the ends. Additionally, the crisis response was also shown again, and participants were asked to indicate the perceived attitude of the statement considering the incident on a bipolar scale with "rational" and "emotional" on the ends. At the end of the survey, the participants were debriefed by revealing the exact study aim and explaining the nature of the study including the manipulations and moderations.

## 3.6   Data Collection and Participants

The data for this study was collected from 366 participants who were recruited through convenience sampling. However, not all participants fully completed the survey, which resulted in some missing data. For convenience, participants with missing data as well as participants who indicated "non-binary" or "prefer not to say" were removed from further analysis, resulting in 210 participants who were considered for the analysis. The full sample demographics are presented in Appendix H. Participants were aged between 18 and 66 with a mean age of M = 27.30 (SD = 9.13). 89 participants (42.4%) were female, and 121 participants (57.6%) were male. While most of the participants were German (30.6%), 26.7% were American and 42.7% belonged to another nationality among the 36 represented nationalities in this study. Lastly, most participants (67.1%) implied Boeing as their most-known aircraft manufacturer, while 28.6% specified Boeing as their second-most-known aircraft manufacturer. Only 4.3% indicated Boeing as their least-known aircraft manufacturer.

Additionally, the demographics of the participants were analyzed based on the condition they were presented within the experiment. To ensure balance within the experiment, the four conditions were as equally as possible presented among the participants by the survey software. The number of

participants and further demographics within the conditions are presented in Table 8. The four conditions were analyzed regarding the variables age, gender, nationality, aircraft manufacturer, fear of flying, pre-slider, and pre-RepTrak®. However, a one-way ANOVA showed no significant differences among conditions in age ($F(3, 208) = 0.015$, $p = .903$), fear of flying ($F(3, 208) = 1.721$, $p = .191$), pre-crisis slider ($F(3, 208) = 1.447$, $p = .23$), and pre-crisis RepTrak® ($F(3, 208) = 0.326$, $p = .569$). Additionally, a Chi-Square analysis was conducted to determine the gender differences ($x^2(3) = 1.778$, $p = .62$) which indicated no significant differences in those categories. Lastly, a Kruskal-Wallis test was performed and implied no significant difference in the familiarity of Boeing to the participants ($x^2(3) = 6.101$, $p = 107$), meaning that all four conditions were not significantly different from each other in the below-presented variables.

**Table 8.**

*Condition sample demographics*

| | Rational Statement | | Emotional Statement | |
|---|---|---|---|---|
| **Moderate Crisis** | | | | |
| Age [a] | M = 27.4 / SD = 10.05 | | M = 26.77 / SD = 7.14 | |
| Gender [b] | Male | 60% | Male | 52% |
| | Female | 40% | Female | 48% |
| Nationality [c] | 1) | 28% | 1) | 31% |
| | 2) | 22% | 2) | 25% |
| | 3) | 50% | 3) | 44% |
| Aircraft Manufacturers [d] | 1) | 68% | 1) | 71% |
| | 2) | 28% | 2) | 21% |
| | 3) | 4% | 3) | 8% |
| Fear of Flying [e] | M = 1.88 / SD = 1.04 | | M = 2.01 / SD = 0.98 | |
| Pre-RepTrak [g] | M = 3.62 / SD = 0.81 | | M = 3.68 / SD = 0.80 | |
| **Severe Crisis** | | | | |
| Age [a] | M = 28.25 / SD = 10.89 | | M = 26.72 / SD = 7.98 | |
| Gender [b] | Male | 64% | Male | 54% |
| | Female | 36% | Female | 46% |
| Nationality [c] | 1) | 36% | 1) | 28% |
| | 2) | 24% | 2) | 35% |
| | 3) | 40% | 3) | 37% |
| Aircraft Manufacturers [d] | 1) | 55% | 1) | 75% |
| | 2) | 40% | 2) | 25% |
| | 3) | 5% | 3) | 0% |
| Fear of Flying [e] | M = 1.78 / SD = 0.89 | | M = 1.71 / SD = 0.83 | |
| Pre-RepTrak [g] | M = 3.83 / SD = 0.71 | | M = 3.67 / SD = 0.74 | |

a)    *Mean + SD of self-reported age*

b)    *Percentage division Male / Female*

c)    *1: German, 2: American, 3: Other*

d)    *Boeing's familiarity ranked compared to Airbus and Lockheed Martin*

e)    *Mean + SD of FAS scale*

f)    *Mean + SD of self-reported perception of Boeing's reputation (0-100)*

g)    *Mean + SD of RepTrak scale*

# 4  Results

## 4.1  Manipulation Check Main Study

A manipulation check was performed to determine if the stimuli and manipulations fulfilled the intended aim. For the manipulation check of the main study, the identical items that had been tested for the pre-test were tested again. To assess if the sample means significantly deviated from the critical value, one sample t-tests were performed. To determine if the sample means for the manipulation checks on crisis severity and message framing differed significantly, independent samples t-tests were conducted as well. A 5% alpha level was used to determine significance.

### 4.1.1  Manipulation 1 – Crisis Severity

Participants were asked to rate the presented crisis on a 7-point bipolar scale ranging from moderate to severe in order to assess the effectiveness of the manipulation of crisis severity. Therefore, one sample t-tests including a critical value of 4 as the scale midpoint were performed. The test showed that participants did not perceive the moderate crisis as particularly moderate (M= 3.70, SD= 1.92, t(97)= -1.52, p = .13) and additionally did not perceive the severe crisis as particularly severe (M= 4.03, SD= 1.98, t(111)= 0.14, p = .89). Furthermore, an independent sample t-test which was conducted to test if the sample means significantly differed from each other indicated that there was no significant difference in the sample means between those who were presented with a moderate crisis (M= 3.70, SD= 1.92) and those who were presented with a severe crisis (M= 4.03, SD= 1.98), t(206)= -1.2, p= .23.

The results show that the two articles were not perceived as moderate and severe respectively, meaning the moderate crisis was on average not rated significantly below the critical value of 4 and the severe crisis was on average not rated significantly above the critical value of 4. Additionally, it became clear that the average rating of the moderate crisis and the average rating of the severe crisis

did not differ significantly from each other, which means that the news article including the severe crisis did not result in higher reporting of severity than the news article including the moderate crisis.

### 4.1.2 Manipulation 2 – Message Framing

To evaluate whether the sample means of both the rational and emotional statement were significantly different from the scale midpoint, participants were asked to rate the presented statement on a 7-point bipolar scale ranging from rational to emotional and one sample t-tests including the critical value 4 were conducted. The tests showed that the participants perceived the rational statement as rational (M= 3.07, SD= 1.40, t(104)= -6.85, p< .001). However, participants did not perceive the emotional statement as emotional (M= 3.78, SD= 1.66, t(104)= -1.35, p= .18). Additionally, an independent samples t-test was conducted to assess if the sample means differed significantly from each other. The analysis indicated a significant difference in the sample means between those who were presented with the emotional statement (M= 3.78, SD= 1.66) and those who were presented with the rational statement (M= 3.07, SD= 1.40), t(208)= 3.37, p= .001.

The results show that the rational statement was perceived as rational, but the emotional statement was not perceived as emotional. Thus, both the rational statement and the emotional statement were on average rated significantly below the critical value of 4 scale. However, it became clear that the average rating of the rational statement and the average rating of the emotional statement differed significantly, which means that the emotional statement resulted in a higher reporting of emotional tone of voice than the rational statement.

## 4.2   Post-Crisis Scores and Assumption Check

Post-crisis scores, as shown in Table 9, have been obtained by calculating the mean of post-crisis measures among the four conditions. Additionally, overall scores for each condition were added.  All scores did confirm the expected direction that post-crisis reputation will be lower than pre-crisis

reputation, due to the fact that participants were presented with a crisis. Furthermore, moderate crisis severity showed a less negative impact on post-crisis reputation than severe crisis severity. However, the scores showed that rational message framing had less negative impact scores on post-crisis reputation than emotional message framing which would contradict the expectation of this study.

**Table 9.**

*Pre- & post-crisis scores for reputation (means and standard deviations per condition)*

| | | *Rational* | | *Emotional* | | Totals | |
|---|---|---|---|---|---|---|---|
| | | Mean | SD | Mean | SD | Mean | SD |
| *Moderate crisis* | | | | | , | | |
| RepTrak®[a) b)] | 1 | 3.62 | 0.81 | 3.68 | 0.80 | 3.65 | 0.80 |
| | 2 | 3.33 | 0.86 | 3.15 | 0.83 | 3.25 | 0.85 |
| *Severe crisis* | | | | | | | |
| RepTrak®[a) b)] | 1 | 3.83 | 0.71 | 3.67 | 0.74 | 3.75 | 0.73 |
| | 2 | 3.34 | 0.98 | 3.14 | 0.97 | 3.23 | 0.97 |
| Totals | | | | | | | |
| RepTrak®[a) b)] | 1 | 3.73 | 0.76 | 3.67 | 0.77 | | |
| | 2 | 3.33 | 0.92 | 3.14 | 0.90 | | |

a) *1 = Pre-crisis measure / 2 = Post-crisis measure*

b) *7-point Likert scale (1=strongly disagree / 7=strongly agree)*

To ensure that statistical analysis and interpretation of the results are valid and reliable, assumptions were checked before analysis. Therefore, a histogram was used to check the assumption of normality for the dependent variable post-crisis reputation (Appendix I). To additionally ensure normality with statistical evidence, a Shapiro-Wilk test was conducted. The test showed evidence of normality for post-crisis reputation (W= 0.99, p= 0.21). Therefore, parametric tests were conducted in further analysis for all hypotheses.

## 4.3   Correlation Analysis of Moderating Variables

Before testing hypotheses 6 and 7, correlation analyses between post-crisis reputation and gender as well as post-crisis reputation and fear of flying were performed (Table 10). For post-crisis reputation, significant correlations were found with the moderator gender ($r(208)= -0.28$, $p< .001$), as well as the moderator fear of flying ($r(208)= -0.21$, $p = .003$). This indicated relations between gender and post-crisis reputation as well as fear of flying and post-crisis reputation. As a result, gender and fear of flying could potentially moderate the main effects. Therefore, both variables were tested as moderation variables with gender moderating the effect of message framing on post-crisis reputation in hypothesis 6 and fear of flying moderating the effect of crisis severity on post-crisis reputation in hypothesis 7.

**Table 10.**

*Pearson's correlations*

| Variables | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 1. Gender | 1,00 | | | |
| 2. Fear of Flying | 0,54** | 1,00 | | |
| 3. Post-Crisis RepTrak | - 0,28** | - 0,21** | 1,00 | |

*** significant at alpha 5%*

## 4.4   Linear Regression and Moderated Regression

In order to test hypotheses 1, 2 and 3, the effects of message framing and crisis severity on post-crisis reputation were analyzed using linear regressions. Hypotheses 4 and 5 including the moderating effect of gender on the relationship between message framing and post-crisis reputation and the moderating effect of fear of flying on the relationship between crisis severity and post-crisis reputation could be tested using a moderated regression analysis.

### 4.4.1 Linear Models

To test the hypotheses on the effects of message framing on post-crisis reputation, a linear regression with message framing as the independent variable and post-crisis reputation as the dependent variable was performed ($R^2$ = .0062). There was no support for hypothesis 1 found that emotional message framing would have a positive effect on post-crisis reputation, b = -1.33, SE = 0.88, t(208) = -1.516, p = .131, 95% CI [-3.07, 0.40]. The null hypothesis could not be rejected. Furthermore, hypothesis 2 on the effects of crisis severity on post-crisis reputation was tested through a linear regression with crisis severity as the independent variable and post-crisis reputation as the dependent variable, adjusted $R^2$ = -.0048. No support was found that severe crises would have a negative effect on post-crisis reputation, b = -0.09, SE = 0.89, t(208) = -0.102, p = .919, 95% CI [-1.84, 1.66]. Again, the null hypothesis could not be rejected.

Contrary to hypothesis 3, congruency of message framing and crisis severity did not significantly influence post-crisis reputation. To test the hypothesis a dichotomous variable with the values congruent and incongruent was created and used as the independent variable. The results revealed no significant difference in post-crisis reputation between the congruent group and the incongruent group, b = 0.16, SE = 0.88, t(208) = -0.18, p = .857, 95% CI [-1.90, 1.58]. Furthermore, contrary to hypothesis 4, a female gender attribution did not influence the effect of message framing on post-crisis reputation. A linear regression was conducted, predicting post-crisis reputation from gender, message framing, and their interaction. The analysis showed no evidence of a significant interaction effect, b = 2.01, SE = 1.72, t(208) = 1.16, p = .246, 95% CI [-1.39, 5.40]. Therefore, gender did not significantly moderate the relationship between message framing and post-crisis reputation.

Lastly, hypothesis 5 that fear of flying moderated the effect of crisis severity on post-crisis reputation was tested. Therefore, a linear regression was conducted, predicting post-crisis reputation from fear of flying, crisis severity, and their interaction. The analysis revealed a significant interaction effect, b = -0.27, SE = 0.13, t(208) = -2.06, p = .041, 95% CI [-0.54, -0.01]. Thus, fear of flying significantly

moderated the relationship between crisis severity and post-crisis reputation negatively. Meaning that participants who score higher on fear of flying might be more sensitive to the severity of the crisis.

## 4.5   Result Overview

In the following, the supported and non-supported hypotheses as well as research questions will be presented to give an overview (Table 11).

**Table 11.**

*Overview of supported and non-supported hypotheses and results of research questions*

|    | Hypothesis | |
|----|-----------|---|
| H1 | 'Emotional message framing' as an aspect of an empathic crisis response will result in higher scores for post-crisis reputation compared to 'rational message framing'. | *Non-supported* |
| H2 | 'Moderate crisis' as an aspect of crisis severity will result in higher scores for post-crisis reputation compared to 'severe crisis'. | *Non-supported* |
| H3 | Responses using message framing that is congruent and matches the crisis severity (rational + moderate, emotional + severe) will result in higher scores for post-crisis reputation as compared to responses with message framing that is incongruent or does not match the crisis severity (rational + severe, emotional + moderate). | *Non-supported* |
| H4 | A female gender attribution will positively moderate the effect of emotional message framing on post-crisis reputation. | *Non-supported* |
| H5 | Fear of flying will positively moderate the effect of a severe crisis on post-crisis reputation. | *Supported* |
| RQ1 | Do message framing (emotional/rational) in a written crisis response and perceived crisis severity (moderate/severe) affect the perceived reputational image after a preventable crisis in the aviation industry? | *No significant effect was found between message framing and crisis severity on post-crisis reputation.* |
| RQ2 | Does message framing interact with perceived crisis severity in rebuilding reputation? | *No significant interaction effect was found between message framing and crisis severity on post-crisis reputation.* |
| RQ3 | Does gender moderate the effects of message framing on reputation? | *No significant interaction effect was found between gender and message framing on post-crisis reputation.* |
| RQ4 | Does fear of flight moderate the effects of crisis severity on reputation? | *A significant interaction effect was found between fear of flying and crisis severity on post-crisis reputation.* |

# 5   Discussion

## 5.1   Discussion of Results

The present study aimed to examine the effects of message framing and crisis severity on post-crisis reputation as well the potential interaction effects of the moderator variables gender and fear of flying. For this purpose, the real-life example of the Boeing 737 MAX crisis was used to simulate a relevant and practical illustration of an organizational crisis that lacked empathetic crisis communication after a preventable crisis. The results of this study provided insight into the relationship between these variables and offered an understanding of their implications for theory and practice. Thus, the study helps to create further knowledge about effective crisis communication and related elements, leading to organizations being able to better manage and maintain their corporate image and reputation in crises. The analysis in this study highlighted that neither crisis severity nor message framing influenced Boeing's post-crisis reputation.

The results revealed that there was no significant difference in the effects of emotional message framing as an aspect of empathetical crisis response and rational message framing on Boeing's post-crisis reputation. This deviates from the results of various studies that state that implementing empathy in organizational communication leads to strategic advantages, which are evidenced by stakeholders reacting more mildly to a crisis if they find that the organization is empathetic towards the victims of the crisis (Coombs & Holladay, 2008, Seeger, 2006; Veil et al., 2011).

Several factors might contribute to the lack of significant difference between the two framing approaches. With the help of the manipulation check it could be shown that the means of rational message framing and emotional message framing differed significantly from each other. This indicates that participants perceived emotional message framing more emotionally than rational message framing. However, according to the manipulation check with the scale midpoint, rational message framing was perceived as rational by the participants, but emotional message framing was not necessarily perceived as emotional. Thus, participants still rated the emotional statement as rather

rational. Another potential explanation is related to the specific crisis and Boeing's perceived responsibility. It could be that the severity and type of the crisis overshadowed the influence of message framing. This implies that the influence of message framing may have less impact on the perceptions of those involved when the crisis itself involves major consequences and public attention. Regardless of whether the statement was framed emotionally or rationally, the severity of the crisis may have played a more influential role in how stakeholders perceived Boeing's reputation.

In addition, it is also possible that the impact of emotional message framing and the relationship between empathy and reputation may vary depending on the type of crisis and the organizational context. Although previous studies have demonstrated the strategic benefits of using empathy in crisis communications, it is possible that specific characteristics of the Boeing crisis, such as the industry in which the company operates or the company's previously perceived reputation, influenced the effect of message framing.

Another analysis revealed that there was also no significant difference in the effect of moderate severity and severe severity on post-crisis reputation. Therefore, the results of Claeys et al. (2010) and Isaacson (2012), which suggest that moderate crises lead to milder reputational harm than severe crises, could not be confirmed. However, it should be noted that the manipulation check revealed that participants did not identify the moderate crisis as moderate and the severe crisis as severe. Furthermore, no significant difference in sample means was found. This means that, with regards to the scale midpoint, moderate crises were not particularly ranked in the moderate half and severe crises in the severe half. Additionally, the difference between the two crises is not significant enough to make a difference between the two incidents overall, meaning, that the crisis severity manipulations did not have the effect which was expected. Thus, if the crises are not sufficiently different in their details, stakeholders may have perceived them as similarly damaging to reputations. This means the difference in severity between the two crises may not have been sufficient to cause different stakeholder reactions. This means the lack of differentiation may also have contributed to the lack of significant differences in post-crisis reputation scores.

Furthermore, again, the contextual factors and characteristics of the crises and the organization must be considered. The industry, stakeholders involved, and Boeing's pre-existing reputation could have potentially influenced the perceived severity of the crisis on reputation. It could be that stakeholders are more forgiving or understanding of severe crises because they may subconsciously attribute them to external factors which are beyond the organization's control. Moderate crises could thus be perceived as greater organizational responsibility, leading to a greater negative impact on reputation. In the present study, these factors may have interacted in a way that mitigated the expected differences between moderate and severe crises.

Subsequently, it was shown that the interaction effect between message framing and crisis severity also had no significant effect on post-crisis reputation. With further analysis, it was shown that congruent manipulations (rational + moderate, emotional + severe) had no significant effect on post-crisis reputation. However, this could also be due to the fact that there were inconsistencies in the manipulation checks and thus congruence and incongruence cannot be clearly determined. Another possible explanation is related to the complexity of crisis communication. Response strategies involve several elements, including message framing, crisis severity, the timing of the response, and other additional factors. While this study focused solely on the interaction effect between message framing and crisis severity, it may be that other important factors, such as timing, clarity of response, or perceived authenticity of communication, play a more important role. Leaving out these additional factors may have contributed to the interaction effect not yielding significant results.

In addition, it is important to consider the individual differences and characteristics of stakeholders in reputation perceptions. To be more specific, different stakeholders may have different interpretations, expectations, or feelings about communication strategies. This means prior knowledge, personal values, or emotional involvement could influence stakeholder reactions to congruent or incongruent message framing and the severity of the crisis.

Following this, the interaction effect of moderator gender was explored. Further analysis was applied and showed, contrary to expectations, that the gender of the participant had no significant

effect on the effect of message framing on post-crisis reputation. This result showed that more empathic individuals, who generally belong to the female gender according to various studies (Chaplin & Aldao, 2013; Jolliffe & Farrington, 2006; Ibanez et al., 2013; Rose & Rudolph, 2006), do not necessarily evaluate a company's reputation better due to emotional message framing. However, it could also be that empathy between genders would need further research to draw clear conclusions as stated by some researchers (Christov-Moore et al., 2014; Rochat, 2023).

Finally, the interaction effect of the moderator fear of flying was tested with the last analysis. Here, a significant interaction effect of fear of flying on the effect of crisis severity on post-crisis reputation was found. This means that individuals who score higher on the FAS scale are more influenced by the severity of the crisis than those who score lower. This outcome could support the findings of Moldovan and David (2014) and Möller et al. (1998), which state that fear of flying leads to awfulization including both overestimation of danger and hyperbolization of perceived severity.

## 5.2   Limitations of the Research

During and following the research, some limitations can be noted. With the help of these limitations, recommendations for future studies can be made.

First, it can be emphasized that the manipulations in this research did not fully serve their purpose. This can be concluded from the manipulation checks, which indicated that there were no clear manipulations. Since all participants saw all conditions during the pre-test, inconsistencies may have occurred. Participants who first saw a severe crisis could have classified it as moderate, which leads to the fact that the assessment of the actual moderate crisis no longer deviates enough. This could also be the other way around and is also applicable to the message framing manipulations.

Another limitation concerns the generalizability of the study. The study addressed the specific case of the Boeing 737 MAX crisis. Although this crisis is a relevant and practical example, it is important to note that different industries, organizational contexts, and types of crises may have

specific characteristics that influence the effect of crisis communication on reputation. Therefore, the characteristics of the Boeing crisis and the context in which it occurred may have influenced the results. This may limit the generalizability of the results to other industries or types of crises as this study only refers to the case of Boeing including a preventable crisis, which means that it does not apply to the victim or accidental cluster of Coombs (2007).

Furthermore, measurement limitations could be identified. The study is based on participants' self-reported indication of manipulation checks and scales related to message framing, crisis severity and fear of flying. These self-reported indications automatically include limitations and biases that affect the accuracy and reliability of the measured data, resulting in a potential impact on the validity of the results.

Lastly, the study focused on gender and fear of flying as moderating variables. Although these variables are relevant and provide valuable insights, they represent only a limited part of possible moderating variables. Other variables that might influence the effect of message framing and crisis severity on post-crisis reputation may include factors, such as cultural background, personal values, or prior crisis experience. Moreover, the study only looked at the effects of message framing and crisis severity on post-crisis reputation. However, several other elements, such as organizational culture, stakeholder interactions, previous organizational reputation, response timing, and communication channels, may impact post-crisis reputation by affecting stakeholder perceptions and responses. Thus, the lack of alternative explanations is another limitation of this study.

## 5.3   Recommendations for Future Research

With insight into the limitations of this study, recommendations for future research can be made.

First of all, it can be said that further research should be done in this field to consolidate the results of different researchers. To do this effectively, not all four manipulations should be presented

to all participants in the pre-test. It is recommended that, as in the main study, participants see only one condition, which they rate afterwards. Furthermore, conducting replications of the study with different industries and crisis scenarios would improve the generalizability of the findings. Comparing the effects of message framing, crisis severity, and moderator variables in different business contexts may provide a better understanding of the effects on post-crisis reputation.

To counteract limitations regarding moderating variables, the choice of variables should go beyond gender and fear of flying. Here, it would be important to explore the influence of other factors such as cultural background, previous crisis experience, and individual values on the relationship between crisis communication strategies and reputation after a crisis. The same holds for the main variables. This means exploring additional factors that might influence post-crisis reputation, such as the timing of the crisis response, perceived authenticity, corporate culture, or the company's previous reputation. This will help provide a more nuanced understanding of how different stakeholders respond to strategies.

Additionally, further studies could contemplate using mixed methods approaches to study the effect of crisis responses on post-crisis reputation. Combining quantitative with qualitative research methods such as interviews could help to gain insight into the stakeholders' perceptions, attitudes and emotions after a crisis. This could provide a deeper understanding of the underlying factors that influence the post-crisis reputation of an organization. Lastly, cultural differences could be researched in future cross-cultural studies resulting in a deeper understanding of how cultural values, norms and communication styles influence the effectiveness of different strategies in crisis communication.

## 5.4   Implications for Theory and Practice

The findings of this study have several implications for both theoretical understanding and practical applications.

The non-significant difference between emotional and rational message framing challenges the assumption that emotional messages can be designed by including aspects such as concern and sympathy as well as understanding the stakeholder perspective (Coombs, 1999, 2007, Coombs & Holladay, 2008, 2009; Schultz et al., 2011). On the other hand, the non-significance of the effect of message framing on post-crisis reputation could also mean that a deeper understanding is needed to clearly show the relationship between message framing and post-crisis reputation since the general assumption that emotional message framing is more effective could be contested. Since no significant effect was found for either crisis severity or message framing in this study, this could be a further step towards confirming the SCCT of Coombs (2007), since this theory does not focus on the severity of the crisis but on the type of crisis and not on the message framing and but on the strategy underlying a statement. This additionally highlights the need for further research in the field of crisis communication to explore more factors and crisis characteristics that may influence the effectiveness of a response strategy.

Furthermore, the potential influence of other variables and moderations such as authenticity, timing, stakeholder expectations, and values suggest that crisis communication is a complex field which involves multiple aspects. Therefore, theory should consider a more comprehensive approach to understand the relationship of all included factors regarding crisis communication.

From a practical point of view, organizations can benefit from research paying more attention to additional aspects that can promote the maintenance and rebuilding of reputation. This can help the organization to deal with crises more effectively. Since this study shows that message framing and crisis severity do not have a significant effect on the reputation of your company after a crisis, it can be assumed that the best possible outcome can initially be achieved with Coombs' SCCT (Coombs, 2007). Therefore, practitioners in crisis communication should take special care to adapt the strategy of their crisis response to the nature of the crisis.

Lastly, the significant interaction effect of fear of flying on the effect of crisis severity on post-crisis reputation suggests that individuals with higher fear of flying might be more sensitive to the

severity of the crisis. Therefore, individuals' perceptions towards the crisis object should be taken into account, meaning that practitioners who operate in industries that include safety concerns or where consumers' fear plays an important role should consider adjusting their response strategy to address those specific concerns of its stakeholders.

## 5.5  Conclusion

Organizational crises have a significant impact on the reputational image of organizations, which might result in severe consequences and damages. Thus, effective and functional crisis communication is an essential part of the field of organizational communication since this can help organizations rebuild and maintain their reputation by regaining trust and support. This bachelor thesis investigated the effects of message framing and crisis severity on post-crisis reputation, taking into account the potential moderating roles of gender and fear of flying. This study aimed to answer the research question "Do message framing (emotional/rational) in a written crisis response and perceived crisis severity (moderate/severe) affect the perceived reputational image after a preventable crisis in the aviation industry?". To do so, this study used the real-life example of the Boeing 737 MAX crisis to simulate a practical and relevant example of an organizational crisis lacking empathetic crisis communication. The findings of this research contribute to existing knowledge on effective crisis communication and its implications for theory and practice. In general, the study challenges previous findings that suggest strategic advantages of empathy in crisis communication as it has shown no effects of message framing on the reputational image of an organization after a preventable crisis in the aviation industry. Neither emotional nor rational message framing seemed to affect the participants' perception of the post-crisis reputation. Furthermore, the influence of gender on the effect of message framing could not be confirmed since the effect of message framing did not vary based on gender attributions.

Additionally, crisis severity seemed not to affect post-crisis reputation either, indicating that the stakeholders may have perceived the crises as similarly damaging to reputation regardless of the severity. This results in the suggestion that organizations should not underestimate the reputational harm associated with moderate crises and should use effective and appropriate crisis communication and response strategies for all crises. However, this study highlighted the influence of fear of flying on the effect of crisis severity, meaning that individuals with higher fear of flying might be more sensitive to the severity of a crisis. This leads to the assumption, that the individual's attitude towards the crisis object might be crucial for their perception of the crisis.

Hence for practitioners, it is relevant to consider the specific characteristics of the crisis at hand and tailor their crisis communication to address the concerns of the organization's stakeholders.

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# 7 Appendices

## Appendix A. Description of Aircraft Manufacturers

Airbus:

Airbus SE is a European multinational aerospace corporation. Airbus designs, manufactures and sells commercial aircraft and has separate Defence and Space and Helicopters divisions.
As of 2019, Airbus is the world's largest aerospace manufacturer.


Boeing:

The Boeing Company is an American multinational corporation that designs, manufactures, and sells aircraft, rotorcraft, rockets, satellites, telecommunications equipment, and missiles worldwide. The company also provides leasing and product support services.
Boeing is among the largest global aerospace manufacturers.


Lockheed Martin:

The Lockheed Martin Corporation is an American aerospace, arms, defense, information security, and technology corporation with worldwide interests.
Lockheed Martin is one of the largest companies in the aerospace, military support, security, and technologies industry.

## Appendix B. Newspaper Article: Severe Crisis



**DAILY NEWS**

# Boeing must stop 737 MAX production

**737 MAX crash: Due to a second plane crash, Boeing must stop production of the 737 MAX**

Production at a standstill. Boeing has confirmed that production of the 737 MAX will be halted indefinitely for the time being.

In October 2018, the Lion Air flight JT 610 crashed shortly after the Boeing 737 MAX aircraft took off from Jakarta, Indonesia. The crash cost the lives of 189 people and left no survivors. Investigations were initiated after the crash and were still in progress when just 5 months later another plane crashed. This time: Ethiopian Airlines Flight 302 in Addis Ababa, Ethiopia. Again, a Boeing 737 MAX aircraft. Also this time, all 157 people on board died.

By now it is known: Boeing is not as innocent as initially presumed. Before introducing the 737 MAX Boeing knew of a malfunctioning system which was the main cause for the crashes. Still, Boeing decided that the system was so harmless, even in the event of a malfunction, that it would not be necessary to add instructions for the system to the aircraft's flight manual or inform pilots of the system's existence.

Now the company is being held accountable for these preventable crashes, which claimed the lives of 346 people. **Boeing is expected to stop the production of the Boeing 737 MAX. Furthermore, the 737 MAX is grounded, implying the temporary suspension of operations of the entire global fleet of the 737 MAX.**

## Appendix C. Newspaper Article: Moderate Crisis



# DAILY NEWS

# Boeing must check 737 MAX production

**737 MAX crash: Due to a second plane crash, Boeing must check production of the 737 MAX**

Production is checked. Boeing has confirmed that production of the 737 MAX will be checked on.

In October 2018, the Lion Air flight JT 610 crashed shortly after the Boeing 737 MAX aircraft took off from Jakarta, Indonesia. The crash cost the lives of 189 people and left no survivors. Investigations were initiated after the crash and were still in progress when just 5 months later another plane crashed. This time: Ethiopian Airlines Flight 302 in Addis Ababa, Ethiopia. Again, a Boeing 737 MAX aircraft. Also this time, all 157 people on board died.

By now it is known: Boeing is not as innocent as initially presumed. Before introducing the 737 MAX Boeing knew of a malfunctioning system which was the main cause for the crashes. Still, Boeing decided that the system was so harmless, even in the event of a malfunction, that it would not be necessary to add instructions for the system to the aircraft's flight manual or inform pilots of the system's existence.

Now the company is being held accountable for these preventable crashes, which claimed the lives of 346 people. **Boeing is expected to check the malfunctioning system. After the check, Boeing can continue to operate with the 737 MAX.**

## Appendix D. Rational Message Framing

### BOEING STATEMENT ON 737 MAX

Boeing continues to have full confidence in the safety of the 737 MAX. However, after consultation with the U.S. Federal Aviation Administration (FAA), the U.S. National Transportation Safety Board (NTSB), and aviation authorities and its customers around the world, Boeing has determined -- out of an abundance of caution and in order to reassure the flying public of the aircraft's safety -- to recommend to the FAA the required consequences regarding the 737 MAX.

"On behalf of the entire Boeing team, we extend our deepest sympathies to the families and loved ones of those who have lost their lives in these two tragic accidents," said Dennis Muilenburg, president, CEO, Chairman of The Boeing Company.

"We are supporting this proactive step out of an abundance of caution. Safety is a core value at Boeing for as long as we have been building airplanes; and it always will be. There is no greater priority for our company and our industry. We are doing everything we can to understand the cause of the accidents in partnership with the investigators, deploy safety enhancements and help ensure this does not happen again."

Boeing makes this recommendation and supports the decision by the FAA.

## Appendix E. Emotional Message Framing

### BOEING STATEMENT ON 737 MAX

We at Boeing are deeply saddened by the tragic loss of lives in the recent 737 MAX accidents and extend our sincere sympathies to the loved ones of those affected. We understand the gravity of the situation, take full responsibility and support the required consequences regarding the 737 MAX.

We want to assure you that we are more than just an organization; we are a community of individuals who care deeply about the safety of our passengers. Safety has always been and will continue to be our top priority. We are committed to understanding the cause of the accidents in partnership with investigators and preventing such incidents from happening again. As part of our commitment to safety, we are offering our full support to the loved ones of those affected. We understand that no words can ease the pain of their loss, but we are here to offer any assistance we can during this difficult time.

We are committed to doing everything we can to ensure that the 737 MAX is one of the safest aircraft in the sky, and we will not rest until we have earned back your trust.

Once again, we want to express our deepest sympathies to all those affected by these tragic events. We will continue to work tirelessly to make things right and to ensure that nothing like this ever happens again.

Sincerely,
The Boeing Community

## Appendix F. Original Crisis Response by Boeing
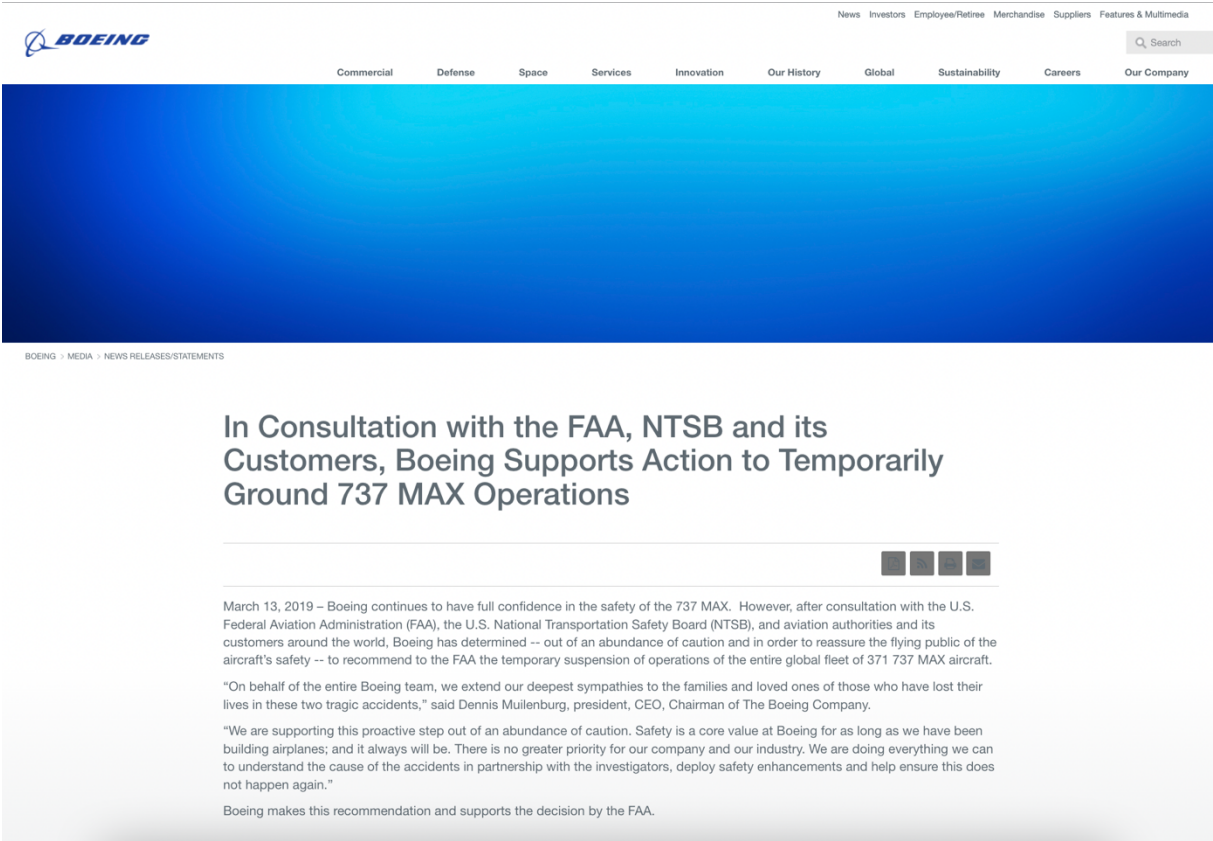


## Appendix G. Measures

| Scale | Item |
|---|---|
| RepTrak® | Offers high quality products and services |
| (Fombrun et al., 2015) | Meets customer needs |
| | Is open and transparent about how the company works |
| | Behaves ethically |
| | Supports good intentions |
| | Positively affects society |
| | Is a well-organized company |
| | Has excellent managers |

| Flight Anxiety Situations | You are informed of the flight's safety regulations by the cabin crew |
|---|---|
| Questionnaire | The engines give full power before take-off |
| (Van Gerwen et al., 1999) | You hear some noises during the flight |
| | The airplane banks left or right |
| | The wings on the plane are moving/shaking |
| | Air turbulence is announced |
| | The plane starts to descend |

## Appendix H. Full Sample Demographics

| Baseline characteristic | Full sample | |
|---|---|---|
| | n | % |
| Gender | | |
| Female | 89 | 42.4 |
| Male | 121 | 57.6 |
| Nationality | | |
| German | 64 | 30.6 |
| American | 56 | 26.7 |
| Other | 90 | 42.7 |
| Aircraft Manufacturers | | |
| Boeing on 1st place | 141 | 67.1 |
| Boeing on 2nd place | 60 | 28.6 |
| Boeing on 3rd place | 9 | 4.3 |

Note. N = 210. Participants were on average 27.3 years old (SD = 9.13)

## Appendix I. Assumption of Normality Check
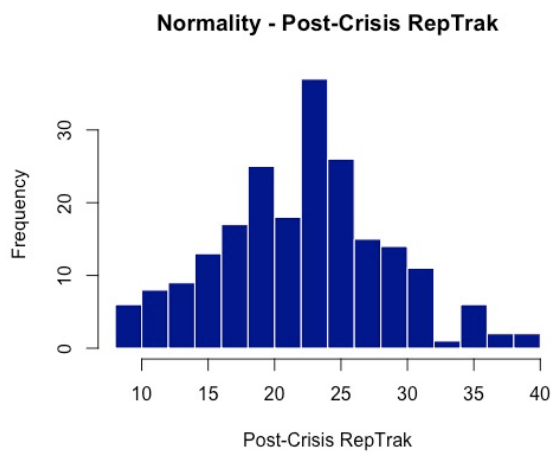


## Appendix J. Systematic Literature Log

| Date | Source | Search String | Total hits | Relevant Literature |
|---|---|---|---|---|
| 25.02.23 | Scopus | "message framing" AND "crisis severity" AND reputation | 1 | - |
| 25.02.23 | Scopus | emotion AND "crisis severity" AND reputation | 3 | 1 |
| 25.02.23 | Google Scholar | "message framing" AND "crisis severity" AND reputation | 88 | 4 |
| 25.02.23 | Google Scholar | emotion AND "crisis severity" AND reputation | 960 | 4 |
| 25.02.23 | Google Scholar | "message framing" AND reputation | 5,530 | 3 |
| 25.02.23 | Scopus | "message framing" AND reputation | 13 | 3 |
| 28.02.23 | Scopus | "crisis severity" AND reputation | 7 | 1 |
| 28.02.23 | Google Scholar | "crisis severity" AND reputation | 766 | 5 |
| 16.03.23 | Google Scholar | "crisis severity" AND crisis AND reputation | 2,010 | 6 |
| 16.03.23 | Scopus | "message framing" OR empathy* AND crisis* OR reputation OR "post-crisis" | 1,297 | - |
| 16.03.23 | Scopus | "message framing" AND reputation OR "post-crisis" | 14 | 5 |
| 18.03.23 | Scopus | "organizational reputation" | 469 | 7 |
| 18.03.23 | Scopus | "preventable crisis" AND scct | 11 | 4 |
| 27.03.23 | Scopus | "rational message" AND "organizational crisis" | 1 | 1 |
| 27.03.23 | Google Scholar | "rational message" AND "organizational crisis" | 49 | 8 |
| 27.03.23 | Google Scholar | "emotional message" AND "organizational crisis" | 51 | 4 |
| 01.04.23 | Google Scholar | gender AND "message framing" | 15,700 | - |

| 01.04.23 | Google Scholar | gender AND empathy | 1,100,000 | 4 |
|---|---|---|---|---|
| 04.04.23 | Scopus | gender AND empathy | 3,515 | 2 |
| 04.04.23 | Scopus | gender AND "message framing" | 51 | 3 |
| 05.04.23 | Scopus | "fear of flying" AND crisis | 3 | - |
| 05.04.23 | Scopus | "fear of flying" | 344 | 3 |
| 05.04.23 | Scopus | "fear of flying" AND aviation* | 81 | - |
| 07.04.23 | Google Scholar | "fear of flying" AND aviation* | 3,090 | 2 |
| 07.04.23 | Google Scholar | "fear of flying" AND FAS | 403 | 3 |
| 09.04.23 | Google Scholar | "Flight Anxiety Situations Questionnaire" | 145 | 2 |
| 14.04.23 | Scopus | "fear of flying" AND FAS | 10 | 1 |
| 15.04.23 | Scopus | "Flight Anxiety Situations Questionnaire" | 12 | 3 |