# Antifragile crisis communication: an exploratory study

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## Abstract

*Framing of the research:* In today's volatile and complex business environment, organizations face challenges that demand new adaptation and communication capabilities. Organizational management is increasingly exposed to disruptions and crises that test the traditional approaches to crisis communication and strategy.

*Purpose of the paper:* This paper explores the concept of antifragility and its application to crisis communication in this environment of perpetual disruptions and uncertainty.

*Methodology*: Qualitative research methodology was employed, involving 22 in-depth interviews with industry professionals. Data was analyzed using grounded theory and theories-in-use approaches.

*Findings*: The study identified six critical factors for antifragile crisis communication: experimentation, option generation, stress, redundancy, subtraction, and creativity. These factors contribute to an organization's ability to thrive in the face of ongoing disruptions, aligning with the principles of antifragility.

*Research limits*: The research is based on qualitative data from a specific set of participants and may not be fully generalizable. Further quantitative research could validate these findings.

*Practical implications:* Organizations can enhance their crisis communication strategies by integrating the identified factors, promoting adaptability, and leveraging uncertainty to thrive in the new business environment.

*Originality of the paper*: This research offers a novel perspective by applying antifragility principles to crisis communication, bridging the gap in existing literature and providing valuable insights into managing crises in the contemporary business landscape.

**Key words:** *antifragility; crisis communication; uncertainty; strategic communication*

## 1. Introduction

In the contemporary landscape of organizational management, organizations cannot escape the danger of crisis and uncertainty (Alalwan *et al.*, 2021). What was once regarded as exceptional and unfortunate has now become the norm, reshaping the very fabric of how businesses and institutions operate, increasing its complexity (Hwang and Lichtenthal, 2020; Bourne, 2014). Amidst this paradigm shift, crisis communication has emerged as an indispensable cornerstone of organizational strategy (Steyn and Niemann, 2010; Ruler, 2018; Fenton and Langley, 2011; Steyn,

2004). The ability to navigate complex environments, manage crises, and communicate effectively in their wake has become not merely advantageous but imperative for survival (Coombs, 2015; Coombs, 2007; Kim, 2018; Khan *et al.*, 2017).

Because of escalating uncertainty, crisis managers have often resorted to the strategy of seeking control and predictability according to the phenomenon of Intolerance of Uncertainty (Dugas *et al.*, 2004). This inclination towards risk mitigation and information collection (Jia *et al.*, 2020), often paired with meticulous analysis and overreaction, has, paradoxically, led to increased difficulties for organizations facing adversity (Gilbert and Bower, 2002). It leads to what can be described as "information overload"-an inundation of data that drowns the decision-making process and fosters a fertile ground for cognitive biases (Kahneman and Tversky, 1979). These biases, deeply ingrained in human psychology, can disorient the judgments and actions that managers take, often with adverse consequences (Tversky and Kahneman, 1986).

Historically, in the discipline of crisis management, the establishment of control mechanisms, adherence to rigid rules, exhaustive planning, and the cultivation of hyper-specialized expertise have been the bastions of an organization's resilience (Fink, 1986). These tried-and-tested strategies offer solace when confronting known and calculable risks. However, the current crisis environment, characterized by its complex and volatile nature, demands a reevaluation of conventional wisdom.

More recent research in crisis management and communication (Jin *et al.*, 2024) has furthered the understanding of the contemporary crisis landscape, highlighting how organizations are increasingly subject to new risks that are difficult to quantify-arising, e. g., from an increased involvement in issues of political or social significance (Jin *et al.*, 2024) with potential for exacerbating media scrutiny and polarization, as well as having spillover effects. Scholars are, therefore, acknowledging that the environment is becoming more complex, requiring a different approach to crisis management.

The concept of crisis READINESS (CCTT, 2023; Jin *et al.*, 2024) was developed to facilitate this new approach. READINESS is described by Jin *et al.*, (2024) as a mindset that puts organizations in the condition of being willing to actively engage with the crisis. This topic is fundamental to the challenges of "sticky crises"-severe, recurring, and complex crises that cause ripple effects, resulting in simultaneous ancillary crises and impacting organizations and industries alike (Reber *et al.*, 2021). According to this new understanding, crises require a mindset that considers approaches like self- and collective-efficacy (Bandura, 1997) and crisis leadership (Coombs, 2015). However, this new approach is still anchored to the idea that a READINESS mindset should be achieved with the purpose of fighting disorder rather than embracing it.

It is against this backdrop that the concept of antifragility comes to the forefront. Coined by Nassim Nicholas Taleb (2012) in his seminal work "Antifragile: Things That Gain from Disorder," antifragility represents a paradigm shift in how we perceive and approach the challenges posed by uncertainty and disruption. Unlike fragility, which denotes a susceptibility

to harm from shocks and volatility (Boguth *et al.*, 2021), antifragility signifies an entity's capacity to not only withstand such disturbances but to thrive and grow stronger in their wake (Taleb, 2012; Ritter and Pedersen, 2020).

In the context of crisis management and communication, the application of antifragility principles entails more than mere survival; it involves harnessing the chaos of crises as a catalyst for growth and improvement. The crux of antifragility lies in recognizing that the prevailing approach to risk reduction-akin to building strong fortifications-may be ill-suited to the current era of perpetual disruptions. Instead, it advocates embracing the dynamics of disorder, harnessing them to bolster an organization's ability to leverage uncertainty (Taleb, 2012).

Building on the READINESS paradigm, this research embarks on an exploratory journey into the concept of antifragile crisis communication as a strategic approach to communication during times of crisis and uncertainty that aims to strengthen the organization, surpassing mere resilience by promoting adaptability and growth in the face of adversity. To explore this construct, we pose the following research questions:

RQ1: How can we apply the concept of antifragility to crisis communication in order to address the new crisis environment?

RQ2: What are the key factors driving antifragility in crisis communication?

To address the research questions at hand, this study employed a qualitative research methodology to capture and collect the experiences and opinions of industry professionals through 22 in-depth interviews.

First, we reviewed existing crisis communication and management literature seeking to understand how it intersects with the evolving landscape of the business environment. This literature review lays the foundation for our research, allowing us to contextualize our findings.

Next, we conducted an examination of the concept of antifragility in the disciplines of both business management and communication literature. This in-depth analysis enabled us to connect the theoretical framework of antifragility with practical implications for crisis communication in contemporary business settings.

Subsequently, we define our research methodology, providing a clear and concise description of our data collection and analysis processes. A reference table is included to offer transparency and clarity regarding the coding of qualitative data, ensuring the rigor of our approach.

Finally, we present and discuss our research findings, in order to establish a robust connection between our exploratory study and its theoretical significance. This process allows us to articulate how our research contributes to the academic discourse on crisis communication and aligns with contemporary developments in business management. In doing so, we underscore the value of our study as a meaningful academic contribution in this field.

## 2. Literature review

The discipline of crisis management and communication has undergone a profound transformation in recent times, ushering in an era marked by perpetual disruptions and unrelenting uncertainty, which has been exacerbated by the COVID-19 pandemic and the war in Ukraine (Sellnow and Seeger, 2021). This evolving crisis landscape demands a reevaluation of established paradigms and calls for the exploration of novel approaches that can not only endure the increasingly endemic nature of crises but harness them for growth and improvement. This theoretical framework seeks to define the conceptual foundations of antifragile crisis communication-a concept poised to adapt the way organizations confront and manage crises in a highly complex and uncertain environment.

### 2.1 Crisis communication in the new crisis environment

In recent years, strategic communication has garnered increasing attention (Werder *et al.*, 2020) and is recognized as a crucial skill for organizations to effectively engage with stakeholders and establish a strong reputation, which can be invaluable during crises. Zerfass *et al.*, (2020) described strategic communication as a broad array of practices designed to align an organization's communication efforts with its overall strategic objectives, ensuring consistency and coherence in messaging. This strategy not only promotes open communication channels with stakeholders but also aids in building goodwill, which can serve as a "savings account" during challenging times (Alsop, 2004).

Crisis management and communication, as an effort rooted in the reduction of risk and uncertainty (Fink, 1986) and the protection of an organization's reputation (Coombs, 2007, 2015), has long been a vital organizational function. Historically, the prevailing approach to crisis communication has hinged on the belief that crises are isolated, discrete events with well-defined beginnings and endings (Fink, 1986; Mitroff, 1994; Richardson, 1994; Coombs, 2015). This view has given rise to stepped or phased crisis communication models, intricately linked with the conventional crisis lifecycle (Tab. 1).

The dynamics of crises have shifted, however, from episodic disruptions to a continuous state of upheaval (Motamedi, 2018) and what has been defined as "sticky crises" (Reber *et al.*, 2021). In this new crisis environment, the traditional approach to the management and communication of crises-focused on preparedness, prevention, risk management, and proactive monitoring (Carmeli and Schaubroek, 2008)-falls short when it comes to providing ways to reduce effort and increase efficiency.

The READINESS framework emphasizes the importance of preparation in fostering a READINESS mindset and approach within organizations (Jin *et al.*, 2024). According to recent scholarly contributions, advance planning alone is insufficient for success; effective training is essential for diagnosing weaknesses and developing the necessary skills to manage crises (Coombs, 2023; Falkheimer and Heide, 2018).

The READINESS framework (Jin *et al.*, 2024) demonstrates the interconnections among three key concepts in crisis management and communication: preparedness, resilience, and READINESS. Preparedness and resilience are seen as essential components that promote crisis READINESS. Corporate leaders and crisis teams need to adopt an anticipatory focus on preparedness and build resilience to develop a READINESS mindset capable of combating crisis-related disorder. Both preparedness and resilience can be enhanced through training. Therefore, it is crucial for organizations to design comprehensive training programs and engage in them regularly (Jin *et al.*, 2017). To strengthen the READINESS mindset, organizations must also assess risks and the likelihood of crises and crisis spillovers while developing emotional leadership and mental adaptability. The former is based on organizational preparedness, and the latter on organizational resilience. Organizations with a robust READINESS mindset are motivated, committed, and creative in developing systems and procedures for appropriate, sufficient, and timely crisis responses. They exhibit not only a commitment to crisis preparation but also a dedication to building organizational resilience, thereby enhancing both factors.

Although the concept of READINESS is a valuable advancement in crisis management and communication literature, we believe it may be beneficial to integrate the antifragile perspective to its study. Antifragility overcomes the limitation of striving to combat disorder, chaos, and uncertainty, offering a window on improvement thanks to the exposure to stressors and complexity. We believe many elements of the READINESS framework already overlap with fundamental aspects of antifragility, and the aim of this study is to discover which other elements should be considered to define the antifragile perspective as an organizational mindset that rethinks crisis communication methods to foster a culture of improvement in times of disruption, enhance organizational performance, adapt to changes in the external environment, and thrive in the long term.

## 2.2 *The antifragile perspective*

The antifragile perspective gains significance as crises are no longer isolated events but rather they have become a persistent feature of the contemporary business and social landscapes (Finn *et al.*, 2020; Alalwan *et al.*, 2021; Pettit *et al.*, 2013; Gotham and Campanella, 2010). Within this context, we consider the concept of antifragility (Taleb, 2001; Taleb, 2012) as a novel perspective through which to navigate environments characterized by unpredictability and continuous disruptions (Geldenhuys *et al.*, 2020).

Antifragility, as a concept, transcends the realm of biology (Danchin *et al.*, 2011), physics (Naji *et al.*, 2014), psychology (Jones, 2014), information systems (Gorgeon, 2015), infrastructure networks (Fang and Sansavini, 2017), and marketing literature (Ritter and Pedersen, 2020), and it extends its reach into the domain of business and management. It encapsulates a profound departure from the traditional notions of robustness and resilience (Capano and Woo, 2017; Hillmann and Guenther 2021; Munoz *et al.*, 2021). While resilience implies the ability to bounce back from adversity (Frandsen and Johansen, 2016), and robustness conveys a

capacity to withstand stressors (Hamann *et al.*, 2012; Munoz *et al.*, 2021), antifragility introduces a transformative paradigm-it encompasses the capability not only to endure but to thrive and benefit from stressors and disruptions (Taleb, 2012; Ramezani and Camarinha-Matos, 2020). In the context of business management, antifragility has been defined as the ability of organizations to respond to disruptions by transforming and adapting their business models in order to improve performance (Blečić and Cecchini 2019; Conz and Magnani 2020).

Academic research has previously investigated the factors that enable organizations and their business models to become antifragile (Ritter and Pedersen, 2020). It is important to establish robust systems and processes that can adapt and thrive in the face of adversity (Ritter and Pedersen, 2020), while supporting flexibility (Fiksel *et al.*, 2015) to maintain an organization's agility and adaptability (Branicki *et al.*, 2018). Lean structures (Gotham and Campanella, 2011), business intelligence (Pettit *et al.*, 2013), and digital technologies (Corvello *et al.*, 2022) have also been found to contribute to organizational antifragility.

Antifragility is influenced by a combination of resources and capabilities, both of which can have internal and external origins (Gimenez-Fernandez *et al.*, 2020). For instance, Leuridan and Demil (2021) highlighted the significance of internal surplus resources in facilitating a firm's success during crises, while Klein and Todesco (2021) observed that a lack of financial resources contributed to the increased fragility of small-medium enterprises (SMEs) during the COVID-19 pandemic.

In addition to resources, skills and capabilities have been shown to impact resilience and antifragility in previous research. Factors such as technological expertise and creativity play pivotal roles in managing crises and adverse external events (Frare and Beuren 2021). Ramezani and Camirinha-Matos (2020) summarized internal skills that foster antifragility, including creativity, defined as the ability to identify opportunities during crises; adaptability or flexibility, which refers to the capacity to adapt to major changes or disruptions; and transformability, or the ability to alter processes, structures, and behaviors to survive during crises. These skills align with the concept of strategic agility, which involves identifying and adapting structures and processes to capitalize on new opportunities (Soni *et al.*, 2014; Zitzmann 2014; Carvalho *et al.*, 2012; Wieland and Wallenburg 2012). Agility has been associated with the success of SMEs in complex environments (Bianchi *et al.*, 2017; Troise *et al.*, 2022) and is expected to promote antifragility in organizations confronting significant crises.

While academic literature has provided valuable insights into the factors driving antifragility of business models and investigating the essential resources to enable antifragility in organizational management, there is a notable gap in research when it comes to applying the antifragile perspective to strategic communication during crises. The few studies conducted on this topic mainly focused on investigating how the management and communication of crisis risks, or paracrises (Coombs and Holladay, 2012), can function as a training arena for crisis communication efforts, therefore fostering improvement and producing antifragility (Chen, 2023).

Recognizing the need to bridge this gap is crucial for developing a comprehensive understanding of how antifragility can be harnessed to enhance an organization's communication strategies in the face of adversity, going beyond the current crisis communication models based on the crisis lifecycle, which are mostly suited to address isolated events. This underscores the importance of further investigation into antifragile crisis communication strategies and their potential implications for organizational resilience and adaptability.

As we venture deeper into our exploration of antifragile crisis communication, we draw upon these foundational concepts of antifragility. We posit that antifragility offers a promising avenue for organizations to not only survive the turbulence of the new crisis environment but to flourish amidst its chaos. By understanding and applying the principles of antifragility to crisis communication, organizations can actively transform crises from mere threats into springboards for evolution, ensuring their resilience and viability in the face of ongoing uncertainty and disruption. This approach builds on the READINESS framework (Jin *et al.*, 2024) and serves as the starting point to carry out our exploration of the elements that may differentiate READINESS from antifragile perspectives.

## 3. Methodology

We implemented a discovery-oriented, theories-in-use (Zeithaml *et al.*, 2020), and grounded theory method to approach our conceptualization task and put forward a preliminary understanding of antifragile crisis communication. We thus analyzed the underlying processes and interactions shaped by the views of multiple actors (Creswell and Creswell, 2018). We adopted the Straussian tradition to identify the underlying factors that shape the ability of companies to leverage disruptions in the process of communication, thereby fostering antifragility (Strauss and Corbin, 1998). We combined this approach with a theories-in-use perspective to take advantage of the experiences and knowledge of the participants and identify both the relevant and related constructs that reflect the role of antifragile crisis communication and its implications an organization's viability in times of endemic and continuous crises (Zeithaml *et al.*, 2020).

*3.1 Sample and data collection*

The data collection process for this study occurred between October 2022 and January 2023, employing a purposeful and snowball sampling technique (Johnson, 2015) to select individuals with expertise relevant to the research inquiries (Strauss and Corbin, 1998). Participants were chosen based on their ability to provide comprehensive insights into their experiences and decision-making processes. Professionals from different organizations who had encountered challenges during and after the COVID-19 crisis were contacted through LinkedIn and personal contacts of the lead researchers, and they also referred other potential subjects. The sample size was determined by theoretical saturation, requiring interviews

to continue until limited new practical insights emerged (Corbin and Strauss, 2014). To ensure sample diversity, participants with varying lengths of work tenure were deliberately selected to capture different generational perspectives on organizational dynamics (e. g., Joshi *et al.*, 2011).

The study included 22 managers and directors from diverse sectors, such as food and beverage, industrial manufacturing, pharmaceuticals, IT services, logistics, and wellness. These sectors were selected based on participants' availability while focusing on maintaining some diversity within the sample and capturing more perspectives. Participants' ages ranged from 28 to 66 years, representing medium- and large-sized firms and various functional roles like management, operations, marketing, and innovation. The companies considered operated in Italy and expanded internationally, both within and outside Europe (see Tab. 1 for detailed participant profiles).

Before data collection, a comprehensive review of existing crisis communication and antifragility literature was performed. Then, 22 in-depth interviews were conducted with managers and directors to understand the factors influencing the antifragility of strategic communication activity in times of disruption and the characteristics of organizational responses to endemic crises. Interviews were conducted via videoconference by the lead researchers, lasting an average of 40 minutes and resulting in 15 hours of recorded content, while transcriptions totaled 54 pages for interviews.

The semi-structured interview guide incorporated four open-ended questions to gather information on participants' experiences and perceptions, exploring topics such as communications-related responses to crises, fostering a culture of learning, early warning systems, and factors enabling agility (Zeithaml *et al.*, 2020). (1) Can you describe a specific instance when your organization faced a crisis or disruption, and elaborate on the communication strategies employed to address it? What were the key factors or elements that contributed to the effectiveness of these strategies? (2) In your experience, how does your organization foster a culture of learning and adaptability in the context of crisis communication? Could you provide examples of practices or initiatives that have been particularly successful in promoting learning and adaptability during crises? (3) Are there specific early warning systems or mechanisms your organization relies on to detect and respond to potential crises or disruptions proactively? How have these systems influenced your crisis communication strategies and outcomes? (4) From your perspective, what are the primary factors that enable your organization to maintain its agility in disruptive times? How does your approach to crisis communication contribute to this agility, and can you share any instances where it has facilitated your organization's ability to adapt and thrive in turbulent times?

This approach aimed to uncover commonalities, differences, and multifaceted perspectives on antifragile crisis communication (Creswell and Creswell, 2018; Glaser and Strauss, 2009).

*Tab. 1: Participant profiles*

| # | Job Position | Gender | Seniority (in years) | Industry |
|---|---|---|---|---|
| 1 | Export Manager | Male | 15 | Industrial Manufacturing |
| 2 | Sales Director | Male | 18 | Packaging |
| 3 | CEO | Male | 25 | Life Sciences and Healthcare (medical devices) |
| 4 | Sales Director | Female | 12 | Life Sciences and Healthcare |
| 5 | Marketing Director | Female | 21 | Food and Beverage |
| 6 | Branch Manager | Male | 7 | Banking |
| 7 | Marketing Manager | Female | 5 | Management Consulting |
| 8 | Digital Marketing Manager | Female | 6 | IT Services |
| 9 | Export Manager | Male | 11 | Food and Beverage |
| 10 | Import Manager | Male | 12 | Manufacturing |
| 11 | CEO | Male | 30 | Manufacturing |
| 12 | Sales Manager | Female | 8 | Life Sciences and Healthcare (medical devices) |
| 13 | Marketing Manager | Female | 9 | Wellness (fitness equipment) |
| 14 | Marketing Director | Female | 22 | Beauty and Cosmetics |
| 15 | Purchasing Manager | Male | 12 | Food and Beverage |
| 16 | Sales Director | Female | 21 | Food and Beverage |
| 17 | Key Account Manager | Male | 14 | Food and Beverage (vending machines) |
| 18 | Area Manager | Female | 15 | Pharmaceutical |
| 19 | Export Manager | Female | 8 | Wine |
| 20 | Business Developer | Male | 10 | Mechanicals |
| 21 | Sales and Marketing Manager | Female | 6 | Electronics |
| 22 | Business Developer | Female | 7 | Logistics |

Source: Author's elaboration of primary research data

### 3.2 Data analysis

The collected data were subjected to analysis using a grounded theory approach in combination with a theories-in-use approach (Glaser and Strauss, 2009; Gioia *et al.*, 2013; Zeithaml *et al.*, 2020). The analysis process involved three primary steps: open-coding, axial coding, selective coding, and the development of a grounded model to establish a robust connection between empirical observations and theoretical concepts.

Two researchers participated in the coding process, frequently discussing and reporting progress to ensure consistency. During the open-coding phase, we identified various elements, events, and practices derived from participant narratives and evidence. This process involved assigning meaningful quotations to these identified categories using in-vivo coding techniques (Gioia *et al.*, 2013). Similar codes were subsequently merged to encapsulate our informants' "concept-in-use".

In the next step, axial coding, we delved into the open codes to reveal the factors influencing the core phenomenon, including the diverse strategies and practices employed by companies to perform effective communication in a context of uncertainty and disruption (Strauss and Corbin, 2009).

Throughout this analytical process, we continually referenced existing theory and integrated emerging themes with prior literature (Gioia *et al.*,

2013). Categories that conceptually overlapped or complemented each other were grouped into second-order themes, representing the essential factors driving antifragile crisis communication, rooted in the concept of antifragility as an organization's capacity to improve performance when exposed to stressors (Taleb, 2012).

For example, we employed the code "Ability to monitor audience reactions" to synthesize statements like: "We understand that the first message might not always resonate. We reiterate and refine our messaging based on real-time feedback to make sure it aligns with stakeholders' expectations and addresses their concerns". This code was then combined with codes like: "Adjusting messaging content and tone" and "Use of data analytics to adjust message effectiveness" to form the first-order category "Message iteration and adjustment". In the subsequent coding step, we clustered first-order categories like: "Message iteration and adjustment" and "Channel testing" into the second-order theme "Experimentation" reflecting how organizations master the ability to simultaneously explore new opportunities and optimize existing processes in uncertain environments.

In the final phase, selective coding was applied to provide more comprehensive explanations of second-order themes and to integrate and connect them, ultimately constructing an exploratory theory of antifragile crisis communication. This iterative process continued until stable, higher-level theoretical dimensions were reached. Tab. 2 presents a comprehensive overview of the coding structure, demonstrating the outcome of this rigorous analytical approach.

*Tab. 2: Coding structure*

| 2nd order themes (dimensions) | 1st order categories | Summary of codes (concept-in-use) |
|---|---|---|
| Experimentation | Message iteration and adjustment | Continuously refining and adapting crisis communication messages during a crisis. Factors include a responsive crisis communication team, the ability to monitor audience reactions in real-time, and flexibility in adjusting message content and tone. It encompasses a willingness to learn from initial message failures, swift adjustments based on feedback, and the use of data analytics to gauge message effectiveness. |
| | Channel testing | Exploration and evaluation of various communication channels to determine their effectiveness during a crisis. It includes the availability of multiple communication channels, the ability to analyze channel performance metrics, and the adaptability to switch between channels as needed. It involves experimenting with traditional and digital channels, conducting channel-specific audience research, and aligning channel selection with audience preferences. |
| | Audience feedback | Collection and analysis of feedback from stakeholders to make informed adjustments to communication strategies during a crisis. It includes the establishment of feedback mechanisms, trained personnel to interpret feedback, and the capacity to promptly act on feedback. It encompasses active listening, empathy toward audience concerns, two-way communication channels, and the incorporation of audience suggestions into messaging. |
| | Testing & learning from failures | Documenting and learning from communication strategies that did not yield the desired outcomes during a crisis. It includes a culture that encourages openness about failures, the documentation of unsuccessful approaches, and the ability to extract valuable lessons from these failures. It encompasses post-crisis debriefing sessions, root cause analysis, and the application of lessons learned to future crisis communication plans. |

| | | | |
|---|---|---|---|
| | Innovative tactics | Introduction of innovative and unconventional communication tactics to respond to crisis situations. It includes a culture that fosters creative thinking, the availability of creative professionals, and the willingness to experiment with novel approaches. It involves the use of storytelling, visual communication, gamification, and real-time interactive elements in crisis messaging. It also entails the integration of emerging technologies for unique communication strategies. | |
| Option Generation | Message variety | Generating a range of crisis communication messages to address different aspects of a crisis. Factors include the development of diverse message templates, scenario-specific messaging, and the inclusion of empathetic and reassuring tones. It encompasses proactive message creation, alignment with various crisis scenarios, tailoring messages to specific audience segments, and consistent messaging across channels. | |
| | Response scenarios | Creation of predefined response scenarios and communication plans for various crisis situations. It includes scenario identification, planning for different severity levels, and the establishment of clear roles and responsibilities. It also involves scenario rehearsals, scenario-specific messaging, and the ability to adapt response plans to evolving crisis dynamics. | |
| | Dynamic resource allocation | Determining the allocation of resources, including personnel and materials, to execute different communication options during a crisis. It includes resource planning, resource availability, and resource scalability. It involves the ability to allocate resources dynamically based on the severity and scope of the crisis, prioritizing critical communication needs, and ensuring resource redundancy. | |
| Stress | Crisis leadership | Examining the role of leadership in managing stress and providing guidance during a crisis. It includes leadership training in crisis management, strong leadership presence, and effective decision-making under pressure. It also encompasses clear communication from leaders, the ability to inspire confidence in teams, quick decision-making, and adaptability in response to evolving crisis situations. | |
| | Emotional resilience | The ability of individuals to manage and respond to the emotional challenges that arise during a crisis. It includes self-awareness, emotional regulation techniques, and support networks. It also involves maintaining composure, empathy toward affected individuals, seeking emotional support when needed, and practicing self-care to manage stress. | |
| | Stress testing | Subjecting crisis communication strategies and systems to rigorous testing scenarios to assess their resilience under extreme conditions. It includes the design of challenging test scenarios, the use of unexpected variables, and the simulation of worst-case crisis scenarios. It also encompasses thorough testing procedures, realistic crisis simulations, and the evaluation of system responses and performance metrics under stress. Stress testing helps organizations identify weaknesses, enhance preparedness, and build antifragility in their crisis communication plans by exposing vulnerabilities and enhancing adaptability under pressure. | |
| | Crisis communication training | Preparation of communication professionals to handle the stress associated with crisis communication. It includes comprehensive crisis communication training programs, realistic crisis simulations, and continuous skill development. It also involves role-specific training, scenario-based exercises, certification in crisis communication, and ongoing learning to stay updated with best practices. | |
| Redundancy | Backup communication channels | Identification and preparation of alternative communication methods to ensure information dissemination during a crisis. It includes redundancy planning, technology backup, and communication channel diversity. It also encompasses the availability of backup platforms, regular testing of secondary channels, and clear protocols for switching between primary and backup methods. | |
| | Spokesperson redundancy | Having multiple spokespersons available to address a crisis, reducing reliance on a single individual. It includes spokesperson training, spokesperson availability, and the ability to maintain consistent messaging across spokespersons. It also involves the designation of backup spokespersons, media training for key individuals, and having a communication hierarchy in place. | |

| | Data backup | Ensuring the redundancy of critical data and information needed for effective crisis communication. It includes data backup systems, secure storage, and data recovery plans. It also encompasses regular data backups, encryption measures, and the ability to retrieve and utilize data swiftly during a crisis. |
|---|---|---|
| Subtraction | Simplification of messages | Simplifying complex crisis messages to make them easily understandable to a wide audience. It includes message clarity, removal of jargon, and prioritizing key information. It also encompasses the use of plain language, visual aids, and concise messaging to ensure clarity and accessibility. |
| | Focus on key information | Highlighting and prioritizing key information in crisis messages to ensure it stands out. It includes information hierarchy, message structure, and visual cues. It also encompasses the use of headlines, bullet points, and infographics to draw attention to crucial details and actions. |
| | Elimination of non-essentials | Removing non-essential information, jargon, and unnecessary details from crisis communication to maintain clarity. It includes message editing, content prioritization, and relevance assessment. It also involves focusing on the core message, avoiding information overload, and ensuring that critical information is prominently featured. |
| | Accessibility | Ensuring that crisis communication is accessible to individuals with diverse backgrounds and needs. It includes accessibility standards, multiple communication formats, and inclusive design. It also involves providing information in multiple languages, considering the needs of individuals with disabilities, and offering alternative formats, such as audio and Braille. |
| Creativity | Creative message design | Innovative aspects of crafting crisis communication messages. It includes the use of visual elements, storytelling techniques, and emotional resonance. It also encompasses the use of visuals, storytelling narratives, and emotionally resonant content to engage and effectively convey key crisis messages. |
| | Innovative communication tactics | Application of novel strategies in crisis communication. It includes the adoption of emerging technologies, interactive experiences, and unconventional methods. It also involves leveraging emerging tech, creating interactive experiences, and using unconventional approaches to capture and maintain audience attention during crises. |
| | Cross-functional communication | Interdisciplinary teamwork in fostering creativity during crisis communication. It encompasses interdisciplinary teams, brainstorming sessions, and diverse perspectives. It also involves collaborative ideation, leveraging insights from various departments, and integrating diverse viewpoints to develop innovative crisis responses. |

Source: Author's elaboration of primary research data

## 4. Results and discussion

In this section, we present the results of our study. The in-depth interviews carried out highlighted the role of six important factors that have an impact in enabling antifragile crisis communication. These factors are (1) experimentation, (2) option generation, (3) stress, (4) redundancy, (5) subtraction, and (6) creativity, and they partly overlap with those presented in the READINESS framework (Fig. 1). Each theme represents a crucial aspect of antifragile crisis communication, shedding light on the multifaceted strategies and practices organizations employ to thrive in times of uncertainty and disruption. To present our findings, we have included interview quotes from the managers and directors who participated in our study.

*Fig. 1: A conceptualization of antifragile crisis communication*
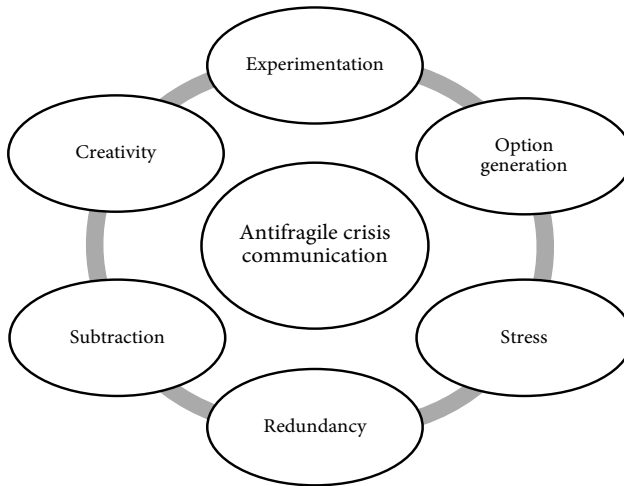


Source: Author's elaboration of primary research data

*3.1 Experimentation*

Our interviews revealed that organizations embracing antifragility in crisis communication engage in continuous message iteration and implement continuous adaption of messaging strategies according to real-time feedback collected directly with the aid of technological tools such as artificial intelligence.

*"We understand that the first message might not always resonate. We iterate and refine our messaging based on real-time feedback to ensure it aligns with stakeholder expectations and concerns". (6)*

Antifragile organizations also experiment with communication channels and try different combinations of them in order to understand what ensures enhanced performance.

*"We test various channels to reach our stakeholders. If one channel becomes compromised during a crisis, we have alternatives ready". (17)*

In all these cases, audience feedback remains a central focus of these organizations as the foundation of their experimentation activity.

*"We actively seek feedback from our audiences, we use a mix of tools like artificial intelligence and personal relationships with clients. This helps us adapt our messages to address their needs and concerns, depending on how they change". (12)*

Antifragility involves learning from failures, and, when it comes to crisis communication, "test and learn" mechanisms with quick reaction times become pivotal.

*"When a crisis response doesn't work as expected, we don't see it as a setback but as an opportunity to learn and improve. We just make sure we are quick at fixing it and trying something new". (21)*

Antifragile organizations employ and experiment with innovative communication tactics, often supported through the use of technology. These include storytelling, visual communication, and gamification.

*"We really try to think outside the box. Traditional ways of handling difficult communication do not work anymore, especially when Gen Z is the target. We do not even think in terms of crises, because with social media you can have a different issue every day and you never know whether it will stick or be gone the next day. So, we just try to capture attention every day and convey our message effectively, like using technology and visual aids to generate awareness and emotions". (3)*

*3.2 Option generation*

Antifragile crisis communication involves option generation with a mixture of options that are planned with the aid of scenario forecasting, and emergent options that are generated while the disruptive situations evolve.

*"Having a variety of messages prepared for different scenarios is crucial. This flexibility allows us to adapt quickly to the specific context of each situation, but we also know that we need to be always aware of unpredictable changes and be ready to change our approach into something we had never thought of ". (3)*

Moreover, we found that the development of different response scenarios is a fundamental capability to test the ability to generate options of response and to support the agility of the organization by stimulating lateral thinking.

*"We simulate scenarios. This helps us anticipate challenges and formulate response strategies in advance, but it also keeps our minds active and ready to face something completely unpredictable". (9)*

Dynamic resource allocation is another important pillar of antifragile crisis communication, and it involves the ability to quickly reorganize and reallocate resources, including personnel and intangibles, to execute different communication options during a crisis, prioritizing critical communication needs and ensuring resource redundancy.

*"Resource allocation must align with the evolving needs of the situation. We try to ensure that we optimize our resources continuously by monitoring the environment internally and externally". (1)*

## 3.3 Stress

The stress factor includes both stress management and strategic stress exposure or testing. When it comes to stress management, effective crisis leadership is paramount.

*"Leadership is probably the most important factor when the situation gets critical. Organizations need someone to guide it and give direction through the uncertainty and the ups and downs. If this is missing, it is very evident, it doesn't look good, and the company cannot communicate as a united front". (14)*

Another important factor for antifragility in this domain is the emotional resilience of those who are part of the organization, since the high pressure of disruptions and the uncertainty related to the future of the organization can cause anxiety and cloud judgement and decision-making.

*"Employees and teams must be emotionally prepared and trained to handle the stress associated with these issues". (12)*

On the other hand, our study's results reveal that the deliberate exposure to appropriate amounts of stress can be beneficial to foster improvement and refine strategic capabilities, such as working with limited resources or knowledge.

*"By deliberately generating tension and friction within our communication system, we were able to train our teams to respond effectively under high-pressure situations, so that we are used to complex situations". (19)*

Stress testing also involves gradually increasing the stress levels of crisis communication exercises to ensure improvement over time and leveraging technology to appropriately measure the proportionality of the induced stress, so that it can challenge the system without breaking it.

Ongoing crisis communication training contributes to increasing the ability of organizations to work under stress as part of their daily routine.

*"Training is ongoing. Our teams need to be used to unexpected things happening, even if it sounds like a paradox". (5)*

## 3.4 Redundancy

Antifragile communication requires redundant communication resources and capabilities, such as establishing backup communication channels, since the organization may suddenly be prevented from using specific channels, for example in the case their access has been violated. Although redundant resources may seem like an unnecessary expense in stable times, they end up paying off in the context of continuous disruptions.

*"We have redundancy built into our communication systems to ensure uninterrupted information flow". (8)*

However, redundancy is also related to tangible, intangible, and human resources, as well as capabilities, since disruptions can affect entire geographical areas, departments, and digitally-stored data, determining the need for people other than the designated spokesperson to engage in communication with different stakeholders.

*"Having multiple spokespersons ready is crucial. It prevents a single point of failure in communication". (11)*

*"Data is secured with backups so that in case of data loss, we can recover essential information quickly". (22)*

*"Logistical redundancy is also important, and it goes beyond communication because it ensures our operations can continue, even in the face of disruptions". (22)*

*3.5 Subtraction*

Although subtraction may seem like a contradictory factor when related to redundancy, these two factors address different aspects of antifragility. Antifragile communication in times of disruption involves simplifying messages and providing only necessary and transparent communication by focusing on key messages to avoid internal and external confusion.

*"As a rule, with our communication we only provide essential information clearly, and we try to avoid unnecessary complexity". (16)*

*"Clarity is vital, and we prioritize key information to prevent information overload during crises, because it can easily backlash". (8)*

The elimination of non-essentials refers both to messages and to communication processes, such as inflexible approval processes, strict procedures, bureaucracy, and hierarchies.

*"Non-essential information is eliminated, our messages are concise and directly address the issue. Also, we keep procedures as lean as possible because time and agility are essential when you are facing a difficult situation that requires you to act quickly. Of course, this requires trust and empowerment of everyone in the company". (8)*

Accessibility is another crucial aspect of communication in times of crisis, since dialogue is only possible if all parties involved can access the conversation and the information provided.

*"Information accessibility is crucial. Organizations tend to speak a lot, but they often fail to consider whether anyone is listening, whether their*

*messages are actually going across and understood. We always make sure that our stakeholders can easily access the information they need and that they know where to look for it. This can only be possible if you built a strong relationship with your audiences and you do not make too much noise constantly". (13)*

### 3.6 Creativity

Creativity in communication and message design can be seen as an unnecessary waste of time when the priority is the protection of the organization. However, antifragile crisis communication involves the ability to employ creativity under any circumstance, which is also part of a culture of experimentation.

*"We use innovative visuals and storytelling techniques to make our messages memorable, because we are often fighting to be heard over many other voices, including journalists on traditional media and anyone talking on social networks who has the potential to go viral". (4)*

Innovative communication tactics, therefore, become an important aspect of being heard and of pushing people to listen and trust the organization in times of crisis. One way to achieve creativity in crisis communication is that of involving different people in the discussion instead of isolating the responsibility to the crisis management team.

*"Different teams and people from all departments come together to brainstorm ideas. In situations like this, you never know who can have a brilliant idea, maybe because they have seen something similar in their previous experience and learned something from it". (19)*

The results of our study emphasize critical factors that align with the evolving landscape of management literature, highlighting the imperative need for organizations to embrace antifragility in the face of ongoing disruptions (Taleb, 2012). Antifragility, within the scope of crisis communication, represents a departure from conventional notions of resilience and robustness (Capano and Woo, 2017; Hillmann and Guenther 2021; Munoz *et al.*, 2021; Frandsen and Johansen, 2016; Hamann *et al.*, 2012), and requires a partial reconsideration of the more recent concept of READINESS (Jin *et al.*, 2024) that it builds on. It embraces the idea of leveraging disruptions for growth and improvement of crisis communication capabilities and of the organization as a whole. Within the discipline of crisis communication, our findings illustrate what factors contribute to the ability of organizations to apply the antifragility principles to enhance their strategies and move beyond attempts to combat uncertainty and disorder.

One of the key findings of our study is the significance of experimentation. This aligns with the traditional antifragility concept (Taleb, 2012), as it encourages organizations to actively test and adapt their crisis communication strategies. This idea resonates with the literature on

flexibility and continuous improvement (Fiksel *et al.*, 2015; Branicki *et al.*, 2018). By experimenting with different approaches and learning from failures, organizations can become more adaptable and resilient in the face of uncertainty.

Another critical factor we identified is option generation, which aligns not only with the abovementioned flexibility (Fiksel *et al.*, 2015; Branicki *et al.*, 2018; Gotham and Campanella, 2011) but also with the need for innovative strategies in complex environments (Bianchi *et al.*, 2017; Troise *et al.*, 2022) and with the READINESS framework. By generating a range of response scenarios, organizations can better navigate the chaotic nature of crises and make informed decisions.

Stress emerged as a crucial factor, underscoring the importance of managing stress during crises, but also to strategically and deliberately expose organizations to controlled amounts of stress to foster improvement and increase their ability to function in complex environments. This connects with the literature on the role of leadership (Jin *et al.*, 2024), emotional resilience, and mental adaptability in crisis management (Frare and Beuren, 2021), highlighting that leaders who can remain composed under pressure and support their teams effectively contribute to an organization's antifragility. On the other hand, scholars have highlighted the connection of antifragility with the ability to thrive and benefit from stressors (Taleb, 2012; Ramezani and Camarinha-Matos, 2020).

Redundancy, another factor revealed in our findings, emphasizes the need for backup systems and resources. This aligns with the concept of redundancy, a common feature in antifragile systems (Taleb, 2012; Chen, 2023), which ensures that an organization can continue its operations in the face of disruptions and reallocate resources and responsibilities without losing functionality. This appears as an element that transcends the READINESS framework, as does the element of subtraction.

The concept of subtraction emerged in our findings, suggesting that organizations should eliminate non-essential elements from their crisis communication strategies. This mirrors the importance of lean structures and simple procedures (Gotham and Campanella, 2011), which are crucial for effectiveness and speed in crisis messaging.

Finally, creativity was identified as a critical factor in antifragile crisis communication. This resonates with the need for innovative approaches in complex and uncertain environments (Bianchi *et al.*, 2017; Troise *et al.*, 2022), since creative message design and innovative communication tactics can help organizations stand out and adapt swiftly during crises.

In summary, our findings underscore the relevance of specific factors that can be applied by organizations to their crisis communication plan in order to enhance the antifragility of crisis management efforts. These factors can be related to the traditional concept of antifragility (Taleb, 2012) as described in management literature. Our study highlights the importance of experimentation, option generation, stress, redundancy, subtraction, and creativity in building antifragile crisis communication and management plans to protect organizations beyond isolated disruptions, by changing from a mindset that aims to fight uncertainty to one that can flourish in it. By integrating these elements into their crisis communication

plans, organizations can better navigate the challenges posed by continuous disruptions in today's dynamic business environment.

Our study also facilitates the integration of the READINESS framework by relying on its underlying assumptions and some of its core elements, while shifting the ultimate purpose to optimize the benefits of embracing antifragility.

## 4. Conclusions

In the discipline of crisis communication, our findings offer practical insights that organizations can apply to enhance their performance in chaotic times. These implications highlight the significance of multifaceted strategies and the transformative potential of antifragile crisis communication.

Organizations should recognize that effective crisis communication involves a combination of strategies. It is not merely about damage control or prevention but also about proactively leveraging crises as opportunities for growth and improvement (Ritter and Pedersen, 2020). This shift in perspective aligns with Nassim Nicholas Taleb's concept of antifragility, emphasizing continuous learning and adaptation.

To implement these strategies effectively, managers should encourage a culture of agility and adaptability within their teams (Fiksel *et al.*, 2015; Branicki *et al.*, 2018; Gotham and Campanella, 2011). This means investing in training and resources to equip communication professionals with the skills needed to experiment, generate options, manage and leverage stress, employ redundancy, simplify messaging and procedures, and infuse creativity into their crisis responses.

Moreover, crises should no longer be viewed solely as threats. Instead, they can be catalysts for positive change. Organizations must foster a mindset that values learning from crises, allowing these experiences to drive improvements in communication strategies.

A key takeaway is the importance of adaptability and flexibility (Fiksel *et al.*, 2015). Managers should ensure that their communication teams can swiftly adjust their strategies in response to evolving crisis scenarios. This may involve the development of agile communication protocols and the incorporation of technology-driven tools for rapid response.

Furthermore, managers should empower their teams to make critical decisions at the frontline, reducing bureaucratic delays that can hinder an effective crisis response. This empowerment can be facilitated through training and the establishment of clear decision-making frameworks (Barton, 2020).

Organizations should prioritize clear and honest communication during crises, acknowledging shortcomings and demonstrating a commitment to rectifying issues. These efforts can serve as valuable assets during crisis recovery and long-term reputation management (Ulmer *et al.*, 2007).

Our study enriches the theoretical landscape by extending the concept of antifragility to the field of crisis communication. This expansion broadens the understanding of antifragility beyond its original domains,

demonstrating its relevance in enhancing organizational performance in the face of adversity, fostering a culture of continuous improvement (Taleb, 2012).

Traditional crisis communication models have often centered on prevention, damage control, and restoration. However, our study highlights the need to integrate antifragility principles into existing crisis communication frameworks (Fink, 1986; Mitroff, 1994; Richardson, 1994; Coombs, 2015). This integration contributes to the theoretical foundation of crisis communication by introducing a more proactive and growth-oriented approach.

Our findings underscore the interdisciplinary nature of effective crisis communication. Aspects such as creativity, stress management, and option generation draw from diverse fields like psychology, innovation management, and leadership studies. This interdisciplinarity suggests that theoretical frameworks for crisis communication should be comprehensive and flexible to address the complexities of antifragile crisis communication.

Looking ahead, our study opens doors for future research in the domain of antifragile communication. Researchers can delve deeper into specific areas, such as investigating the impact of antifragility on stakeholder perceptions or developing measurement tools to assess the degree of antifragility in an organization's communication strategies.

In conclusion, our study not only provides practical guidance for organizations seeking to enhance their crisis communication but also contributes to the theoretical understanding of antifragility in the context of crisis management. Embracing antifragile principles empowers organizations to not only survive but thrive amidst uncertainty, ultimately contributing to their long-term sustainability and success.

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