



CRISIS COMMUNICATION PLAN IN BRAZIL'S NUCLEAR INDUSTRIES

PLANO DE COMUNICAÇÃO DE CRISES NAS INDÚSTRIAS NUCLEARES DO BRASIL

PLAN DE COMUNICACIÓN DE CRISES EN LAS INDUSTRIAS NUCLEARES DE BRASIL

ABSTRACT

Context: INB is part of the Brazilian Nuclear Program. It is inferred that the industry needs higher social acceptance or higher global levels of trust due to a sectoral history that records serious incidents.


Objective: This technological article proposed to unite the literature on crisis management and crisis communication for elaborating sociotechnical solutions in implementing a Crisis Response Plan for the Nuclear Industries of Brazil (INB).

Method: The case study is appropriate for one of the few national companies associated with the nuclear sector.

Conclusion: Crisis communication is fundamental for good practices that strengthen intangible assets such as identity, image, and reputation.

Originality: As referrals, the solutions were articulated in two flowcharts, the first for the construction of policies and the second for the activation model of the crisis response plan.

Key words: Crisis communication. Crisis Management. Nuclear Industries.

 Flávia Galindo

PhD.

Universidade Federal Rural do Rio de Janeiro – Brazil

flaviagalindo@uol.com.br

 Roberta Vitorino

Master

Universidade Federal Rural do Rio de Janeiro – Brazil

roberta.jornalista@gmail.com

RESUMO

Contexto: A INB faz parte do Programa Nuclear Brasileiro, e infere-se que o setor conte com baixa aceitação social ou baixos índices globais de confiança por um histórico setorial que registra incidentes graves.

Objetivo: Este artigo tecnológico se propôs a unir a literatura de gestão de crise e a de comunicação de crise para a elaboração de soluções sociotécnicas na implementação de um Plano de Resposta às Crises para a Indústrias Nucleares do Brasil (INB).

Método: O estudo de caso revelou-se apropriado para uma das poucas empresas nacionais associadas ao setor nuclear.

Conclusão: A comunicação de crises é fundamental para as boas práticas que fortalecem ativos intangíveis como identidade, imagem e reputação.

Submitted in: 06/07/2023

Approved in: 12/18/2023

How to cite: Galindo, F., & da Vitorino, R. (2023). Crisis communication plan in Brazil's nuclear industries. *Revista Alcance (online)*, 30(3), 106-121. Doi: [https://doi.org/10.14210/alcance.v30n3\(set/dez\).106-121](https://doi.org/10.14210/alcance.v30n3(set/dez).106-121)

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Originalidade: Como encaminhamentos, as soluções foram articuladas em dois fluxogramas, sendo o primeiro para a construção de políticas, e o segundo sobre o modelo de acionamento do plano de resposta à crise.

Palavras-chave: Comunicação de crise. Gestão de Crise. Indústrias Nucleares.

RESUMEN

Contexto: INB es parte del Programa Nuclear Brasileño, y se infiere que el sector tiene baja aceptación social o bajos niveles de confianza global debido a un historial sectorial que registra incidentes graves.

Objetivo: Este artículo tecnológico propuso unir la literatura sobre gestión de crisis y comunicación de crisis para la elaboración de soluciones sociotécnicas en la implementación de un Plan de Respuesta a Crisis para las Industrias Nucleares de Brasil (INB).

Método: El caso de estudio resultó apropiado para una de las pocas empresas nacionales vinculadas al sector nuclear.

Conclusión: La comunicación de crisis es fundamental para las buenas prácticas que fortalecen activos intangibles como la identidad, la imagen y la reputación.

Originalidad: Como referentes, las soluciones se articularon en dos diagramas de flujo, siendo el primero para la construcción de políticas, y el segundo sobre el modelo de activación del plan de respuesta a la crisis.

Palabras clave: Comunicación de Crisis. Gestión de crisis. Industrias nucleares.

INTRODUCTION

Assuming that reputation is one of the most important competitive advantages of a company, widely recognized as a valuable, intangible asset (Fombrun, 1996; Thevissen, 2002; Chun, da Silva, Davies, & Roper, 2005), this technological article presupposes the strategic and cross-cutting relevance of good communication practices, especially in crisis situations. These events can pose risks (the "becoming") or be more problematic for some economic sectors.

Despite being underexplored in the management literature, crisis communication has been extensively addressed in the communication field, especially in public and/or private organizations. Thus, this study aimed to integrate

management and communication literature as interpretative lenses for sociotechnical solutions in communication applied to the Nuclear Industries of Brazil (INB). INB is the subject of this research and is appropriate as it is one of the few national companies associated with the nuclear industry, drawing attention for its potential environmental impacts.

INB is part of the Brazilian Nuclear Program. It is inferred that the sector faces low social acceptance or low global trust due to historical incidents, including Fukushima (2011), cesium-137 in Goiânia (1987), Chernobyl (1986), and the atomic bombs in Hiroshima and Nagasaki (1945) (Santos, Silva & Cardoso, 2021; Machado, 2016).

The literature on crisis is associated with that on risks, which has two theoretical perspectives. The first refers to studies on risk perception, related to individual and psychological processes that categorize individual concerns based on fears and media influence (Renn & Rohrman, 2000; Slovic, 1999). In this perspective, trust studies become relevant, and from this approach, crisis communication in crisis management situations takes on significant contours (Kjærnes, Harvey & Warde, 2007). Above all, culture and social context dictate the messages that should circulate to eliminate communication noise and to face and reduce widespread distrust.

The second theoretical perspective considers risk a central category for macro-social analysis (Beck, 2010; Beck, Giddens & Lash, 1997; Faria, 1995), comparing pre-modern and modern societies. From this perspective, risk is analyzed based on the political effects of the crises they provoke, such as the cultural theory of risks proposed by Douglas and Wildavsky (2012), which asks: "How much security is enough security in that culture?" (Douglas & Wildavsky, 2012; Guivant, 1998). In this approach, risks (formerly individual) deserve to be assessed in transnational or global flows systematically generated by capitalist society, which cannot control uncertainties. Thus, risk is a mediating variable that demands a new division of labor between science, politics, and economics (Beck, 2010).

Both theoretical risk approaches contribute to the understanding that no organization is immune to risks and, hence, crises. Crisis management can include preventive measures,



management plans, and post-crisis assessments (Coombs, 2015). Coombs' (2015) contribution focuses on crisis management, allowing integrated communication management with crisis management, where both overlap during an established crisis.

Theoretical and applied knowledge on the subject is a critical component in crisis management, and disaster researchers from various fields have investigated this structure to improve understanding and facilitate effective management (Fink, 1986; Guth, 1995; Shrivastava & Mitroff, 1987; Sturges, 1994).

Coombs (2007, p.164) defines a crisis as "a sudden and unexpected event that threatens to disrupt an organization's operation and poses both a financial and a reputational threat, generating negative outcomes". It encompasses all stakeholders or public of interest, as mentioned throughout this study. Importantly, efficient crisis management can save lives, protect health and the environment, avoid financial losses, and damage to reputation and image (Coombs, 2015).

From these initial elaborations, this study discusses how INB can act before, during, and after a crisis, specifically in the communication area of the nuclear industry. Besides investigating the role of communication in crisis management, we need to understand its implications for the company's reputation and image, as both can affect institutional value and assets. Furthermore, as a state-owned company, the proper conduct of crisis communication management becomes relevant in issues associated with the State.

For this reason, applied social work should include a theoretical framework that discusses crisis management phases to directly associate them with crisis management communication proposals. This study will contribute to INB and possibly other nuclear industries with the development of a crisis management communication plan that can be a crucial tool to preserve the company's reputation and image in potential or effective crises, according to the contextualization of the research problem to be presented in the next topic.

CONTEXT AND INVESTIGATED REALITY

A crisis is a specific, unexpected, and non-routine event or a series of events that can cause high levels of uncertainty and significant threats to brands and organizations. An organizational crisis shares three dimensions: it is unexpected or unanticipated, threatens high-priority values of the organization, and presents a restricted amount of time in which a response can be made (Hermann, 1963; Seeger, Sellnow & Ulmer, 2003). A crisis can cause various impacts, both inside and outside the institution, and inaccurate communication can lead to a chaotic situation. In fact,

"[...] crises only exist because we live in such an interconnected world that a problem that, in principle, would only concern a company or a distant community can immediately take on much larger dimensions." (Rosa, 2001, p. 24).

Communication processes are complex owing to the diversity of audiences, cultures, backgrounds, new technologies, and forms of crises. Furthermore, effective communication can literally be a life and death matter (Sellnow & Seeger, 2021).

INB is a state-owned company affiliated with the Ministry of Mines and Energy, under the share control of the Brazilian Company for Nuclear and Binational Energy Participations (ENBPar). The company operates in the nuclear fuel cycle's production chain in mining, beneficiation, isotopic enrichment of uranium, fabrication of uranium dioxide (UO₂) powder and pellets, and fuel element assembly, which supply Brazilian nuclear power plants for electricity generation. INB also engages in the commercialization of nuclear materials, nuclear fuel engineering services, and services in nuclear reactors in Brazil and abroad.

The company has units in Resende-RJ, where the Nuclear Fuel Factory is located and where nuclear fuel for power generation is produced, Caetité (BA) - where uranium mining in Brazil is performed in its Uranium Concentration Unit - Buena (RJ), Caldas (MG), and São Paulo (SP), which are decommissioning units (disassembly and decontamination of facilities and equipment; segregation and final disposal of waste, and recovery of degraded areas), Rio de



Janeiro (RJ), where the company's headquarters are located, and an office in Fortaleza (CE). There is also a project aimed at uranium mining in Santa Quitéria (CE).

At the institution, the communication area called Institutional Communication Management (GECIN) describes, among its attributions, "advising the executive board on strategic matters that involve the Company's image and/or may affect its reputation, especially in **crisis management**" [authors' emphasis] (INB, 2021a).

The institution determines other critical factors for crisis management plans, such as support for disseminating plans, institutional and corporate communication policies, and integrated actions with other nuclear industries, **aiming at public acceptance of nuclear energy** (INB, 2021b). An important document that validates this discussion is one of the projects described in the company's Strategic Plan, revised in 2021, which consists of expanding Communication actions for Regional Insertion of the communities around where INB is inserted. The plan states that:

"to **strengthen INB's image** with its stakeholders, it is fundamental to adopt relevant and appropriate external communication and regional insertion strategies, including socio-environmental aspects" (INB, 2021b).

This strategy is crucial because the public understands radiation in different ways. Previous reports reveal that nuclear power generation and nuclear waste are seen as high-risk. In turn, other sources of radioactivity, such as medical uses or natural radiation, are accepted as lower risk (IAEA & Eletronuclear, 2013). Therefore, crises can have dimensions and impacts of greater or lesser magnitude, depending on the company sector and how it is socially perceived. The mining industry, for example, still faces public acceptance issues due to environmental disasters, such as the dam break in Brumadinho/MG in 2019. The same occurs with the nuclear industry in other countries (IAEA & Eletronuclear, 2013), although historically, nuclear accidents have a low probability of occurrence. However, such incidents produce unpredictable negative consequences at all levels and possible international repercussions, which is

why there is strict control by regulatory government agencies, international agencies, and organized civil society (IAEA, 1997).

Given the context about an organization that: i) cares about its image and reputation, ii) operates in a sector that has the potential to contribute to a cleaner world, iii) has a [nuclear] technology that requires constant monitoring due to the risk of contamination from accidents and leaks, and iv) has a position on crises that still needs to elaborate and implement additional text on INB crisis management communication, this study is articulated in reflecting on a possible solution for the communication area to contribute to minimizing the impacts of a crisis and/or managing it in the best possible way.

All organizations are prone to crisis events, including environmental or labor-related complications, accidents, financial and budgetary problems, and manifestations of communities surrounding the units, among several other possibilities (Heath; Dan O'hair, 2009). As shown, INB already uses different tools and instruments to prevent crises and reputational damage. However, there is a need to structure communication to meet possible crisis demands, and this is the proposal of the present article.

DIAGNOSIS OF THE PROBLEM SITUATION

For INB Crisis Communication, the social actors involved in monitoring and control issues were investigated. The activities of the state-owned company are licensed and monitored by the National Nuclear Energy Commission (CNEN), the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA), the International Atomic Energy Agency (IAEA), an agency linked to the United Nations (UN), and the Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials (ABACC), which supervise the organization's activities by conducting regular inspections at the Nuclear Fuel Factory in Resende/RJ. The common objective is to avoid risks associated with uranium mining and processing activities, which can cause damage and even human losses in crises.

INB is relevant to the Brazilian energy sector. Using the fuel manufactured by the company, Eletronuclear has produced an average of 3% of



the country's consumed electrical energy annually in the last 10 years. Through the interconnected power system, this energy reaches the main consumer centers in the country, corresponding to more than 30% of the electricity consumed in the state of Rio de Janeiro, for example.

Nuclear power is classified as "clean energy", but this classification is not universally agreed upon. Those who categorize it as such understand that CO₂ emissions from a nuclear plant are almost nonexistent and do not contribute to global warming. In turn, for environmentalists, nuclear energy is non-renewable, and CO₂ is emitted in the uranium production cycle to produce nuclear fuel (Porto, Finamore & Ferreira, 2013).

Thus, the research problem is associated with the reality of a unique organization operating in the energy sector for a single player. Considering the key role of INB as a strategic company for the Brazilian Nuclear Program, it is necessary to structure mechanisms to support crisis management, particularly in crisis communication.

For the discussion and refinement of the solution and the preparation of documents, subjects were selected from the two categories of INB's audience, internal and external. This selection process considered the data needed to propose a crisis communication management plan for INB. From the internal audience:

- ✓ The Executive Board of INB, to observe the perceptions and expectations of the company regarding INB's performance in crisis communication situations.
- ✓ GECIN, COREN, and COREC, with communication professionals from the industry due to their expertise in the field and in crisis situations.
- ✓ Professionals specialized in nuclear technology, responsible for risk activities at the factories of Caetité, Resende, and the decommissioning unit in Caldas.

From the external audience:

- ✓ Leadership of the communities around Caetité-BA and Caldas.
- ✓ Licensing and inspection bodies such as CNEN, IBAMA, and AIEA.
- ✓ Press.

Regarding data collection procedures, it is deemed appropriate to use the case study, which involves a deep and exhaustive study of one or a few objects to provide wide-ranging and detailed knowledge about this (Yin, 2001). Based on the principle that a case study investigates a contemporary phenomenon within its real-life context (Yin, 2001), we considered INB as a case study based on the chosen focus, which is crisis communication.

Data collection in a case study is extensive, relying on multiple sources of information such as observations, interviews, documents, and audiovisual materials, which will be necessary for this work. Yin (2001) recommends six sources of evidence to be collected: documentation, archival records, interviews, direct observations, participant-observation, and physical artifacts.

In this study, participant observation was one of the sources. Participant observation is directed at the union between knowledge and action, as practice is also an essential component of both the knowledge and intervention processes in reality (Prodanov & Freitas; 2013).

The selection of subjects considered the following intermediate objectives to be achieved:

Research subjects	Intermediate objectives
Executive Board of INB (+) GECIN	Obtain internal authorizations to enable the internal data collection required for the project on Crisis Management Communication for INB.
Professionals specialized in nuclear technology (+) licensing and inspection bodies, such as CNEN, IBAMA, and AIEA	Determine experts' expectations regarding an ideal Crisis Management Communication plan (prevention, mitigation of existing crises, and post-crisis damage reduction).
Press	Find out the history of INB or the sector about nuclear crises.
All listed except press	Present the technological product to GECIN and other executives of the institution.



Executive Board of INB (+) GECIN	Deliver the Crisis Communication Management Plan to the institution.
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Practitioners should remain vigilant during the work's development, as unforeseen problems may emerge at this stage, where the analysis and consequences can undergo changes based on the experience gained during the process.

The following topics succinctly present the current situation of INB regarding the risk management process, currently centralized in Corporate Governance Management.

Risk Management at INB

Corporate risk management within organizations is a key governance tool, as it not only identifies internal and external threats affecting strategic planning, projects, processes, and company outcomes but also provides opportunities to establish timely actions to mitigate threats through the implementation and improvement of controls (INB, 2021c).

At INB, work related to risk management is centralized in Corporate Governance Management (GEGOV), which monitors identification processes, standardizes risk treatment, and evaluates and monitors relevant controls. The risks to which the company is exposed are classified into the following main groups: Business, Financial, Compliance, and Operational. Business risks fall into categories such as risks associated with the company's strategy (political and social environment, market, competitors, mergers and acquisitions), business model (management, corporate culture, human resource management, and succession planning), and **INB's image and reputation** [authors' emphasis]. Therefore, the Risk Management Policy and Procedure includes INB's image and reputation as an intangible asset to be monitored and preserved.

Risk management is part of corporate governance issues, and such governance mechanisms guide INB due to its core activity. Besides the responsibility for risk management, the organization has other governance tools, including the Code of Ethics, Conduct, and Integrity, which aims to disseminate universal ethical principles consolidated with the ethical principles of the Code of Conduct for the Senior Government Of-

icers and the Code of Ethics for Civil Servants of the Federal Executive Branch. Another mechanism is the Ombudsman, affiliated with the Presidency, which aims to receive external demands from the company so that they are effectively considered and treated according to constitutional and legal rights; it is also responsible for compliance with the Access to Information Law No. 12,527/2011.

The INB Communication field is included in crisis management plans, and its protocols are still being discussed, thereby justifying this work. At the highest level, for example, GECIN will be responsible for providing the appropriate means of communication and necessary infrastructure, assisting in the formalization of the occurrence in the institutional and external communication scopes, ensuring the existence of an official INB spokesperson, and reviewing key communication messages. In addition to supporting the described actions, GECIN has other functions, which will be described in the next topic.

Institutional Communication Management

The communication area at INB, titled the Institutional Communication Management (GECIN), is part of the presidency's staff. Activities include the participation in matters involving the company's interests in contacts and relationships with the media and social networks, besides those already described in the contextualization topics (INB, 2021a). The area has a coordinated practice in the communication field, conducting integrated activities at various points, which will be explained in this topic.

The company uses some instruments already consolidated by the institution, such as the publication of INB newsletters, which are produced whenever relevant news should be disclosed to the external public. In 2021, 22 releases were sent, and 43 journalist requests were handled.

Regarding the general public, INB has the following communication channels administered by GECIN:

- ✓ Website: named "Portal INB", received 158,477 visits in 2021, and 50 articles were posted during the year;



- ✓ YouTube: in 2021, the INB channel had 348 new subscribers, totaling 3,852 subscriptions. The channel’s growth in this period was approximately 10% compared to the previous year. The channel achieved 27,264 views in 2021.
- ✓ Facebook: launched in 2020, it had 187 posts in the following year, with an approximately 29% growth in followers compared to 2020, totaling 1,465 followers and 1,400 likes.

- ✓ Instagram: created in 2021. There were 85 feed posts and 62 stories on various subjects, including nuclear fuel production, sustainability actions, events with INB participation, and media coverage. During this period, the page gained 1,229 followers.

However, communication channels are aimed at serving INB’s stakeholders, as illustrated in Figure 1, presented in two categories: internal audience and external audience.

Figure 1
INB Stakeholders



Source: INB Integrated Report 2020.

Concerning the internal audience, INB has well-established communication tools, such as the newsletters available on the Intranet, namely “INB Online”, published monthly, and You Need to Know (*Você Precisa Saber - VPS*), released whenever there is urgent news. In 2021, 18 editions of VPS were published.

According to Figure 1, the company considers the internal audience one of the most important, as described in the organization’s Strategic Plan. At this point, two audiences have been selected for a better presentation of the research.

Internal audience

Previous investigations have emphasized the importance of perceiving employees as one of the most valuable strategic constituencies for internal communication (Kang & Sung, 2017; Park, Kim, & Krishna, 2014). One important character-

istic of the internal audience is that they often interact with the organization’s environment and external audience to collect, select, and transmit information from the environment to those responsible for decision-making (Grunig & Repper, 1992). This is a critical target audience in crises, considering that employees are information multipliers and can lead to negative communication outcomes that may affect the company’s reputation through informal networks (Kim, Hung-Baesecke, Yang & Grunig, 2013).

One of the objectives of INB’s Strategic Plan is to enhance internal communication and strengthen institutional image. Notably, this is one of the main projects in the medium term of the company. Considering all units, the company has 1,175 employees and also outsourced workers. In addition to the internal audience, one of the Strategic Plan objectives is to expand Communication actions for Regional Insertion of the communities around where INB operates, as dis-



cussed in the next topic.

General audience

Among INB's stakeholders, attention must be paid to communities, which are exceptionally significant in image and reputation crisis situations. Due to the differentiated nature of INB's activities in each unit, it should be noted that its communities have specificities to be treated as potential crises and risks, although some are common to the organization.

To provide information to communities, the company develops a Regional Insertion Program with actions related to Social Responsibility, Environmental Education, and Social Communication with these audiences living around its units.

Other relevant stakeholders to INB in crisis matters are the government, as INB is part of the Brazilian Nuclear Program, and the press, which is of paramount importance in events that may occur, given its informational potential. Entities from civil society, suppliers, and service providers can also be impacted depending on the incident.

ANALYSES AND INNOVATION PROPOSALS

Given the context about an organization that i) cares about its image and reputation, ii) operates in a sector that has the potential to contribute to a cleaner world, iii) has a [nuclear] technology that requires constant monitoring due to the risk of contamination from accidents and leaks, and iv) has a crisis management plan that still needs to build and implement a complementary text on crisis management communication at INB, this technological article reflects on a possible path for the communication field to contribute to minimizing the impacts of a crisis and/or managing it in the best possible way at INB.

INB already uses different tools and instruments to prevent crises and reputational damage. However, it is necessary to structure communication to meet possible crisis demands. Academic literature on crisis management has been improved by the field of Administration, just as crisis communication has been developed by Public Relations scholars. Theories have emerged

to provide a basis for actions proposed in books and articles on the subject.

Risks as the Object of Study

Advancements in humanity have brought industrial advantages to contemporary society. However, as a consequence, threats and uncertainties have become more evident. In industrial society, the central theme is usually the distribution of wealth, and in the risk society, the central theme is the distribution of risks globally generated within its development. The risk society is considered an evolution of industrial society. According to Beck (1999), the sudden change in industrial society, as well as its consequences, is called "reflexive modernization". The author affirms that risks are the predominant characteristics of the new industrial era at the end of the 20th and beginning of the 21st centuries (Beck, 1999).

The emergence of the risk society comes with the obsolescence of industrial society, and this concept designates a phase in the development of modern society in which social, political, economic, and individual risks tend to increasingly escape the control and protection institutions of industrial society (Beck, 2010). The ozone layer pollution, greenhouse effect, genetic manipulation, organ transplantation, decrease in energy resources, and water contamination are among the globally negative risks. Advances related to radioactivity can be considered the peak of human productive and creative forces, as was the case with the construction of nuclear power plants, considered a modern Middle Ages of danger after the Chernobyl catastrophe (Beck, 2010).

There is another risk concept based on the distinction between risk and danger. This definition differentiates between two situations that suppose the possibility of uncertainty regarding future damages: risk is when the probable damage is a consequence of action and is supposed to be aware of this damage¹, and danger is when the damage is attributed to external causes beyond control (Luhmann, 1992). The author reports that in case of risk, "decision-making is of

1 These damages are still perceived as consequences that cannot be legitimized in the face of possible advantages (Luhmann, 1992, p.84).



great importance since it can lead to a situation where damage occurs. What is relevant to the risk concept is the possibility of avoiding the damage" (Luhmann, 1992, p.34).

Risk management is a relatively recent corporate function. Historical landmarks are useful to illustrate its evolution: modern risk management began after 1955. Since the early 1970s, the concept of financial risk management has evolved considerably, and notably, risk management has become less limited to market insurance coverage. In conclusion, after World War II, large companies with diversified portfolios of physical assets began to develop insurance against risks (Erllich & Becker, 1972; Dionne & Eechoudt, 1985). For Kloman (1992), risk management is a discipline that coexists with the possibility that future events may cause harm. The assertion that risks are a continuous, ever-present element takes into account the need to learn to live with them, as not all can be avoided. Defining the different types of future events requires detailing what we understand by risk management. This detailing requires a comprehensive effort, addressing all risks and their interrelationships, including primary, secondary, and tertiary effects.

Crisis and Crisis Management

Since Hermann (1963), there has been an attempt to define what a crisis is. By analyzing the consequences of this phenomenon, an organizational crisis can be defined as an unexpected event that threatens its high-priority values and allows a restricted period for decision-making.

Although crises are different, there are elements that are always present, namely: someone is guilty, something is at stake (reputation, profit, organization's survival), and someone discovers and discloses (Mendes *et al.*, 2006). According to Mitroff (2000, p. 33), a major crisis is something that "[...] cannot be completely contained within the walls of an organization". A crisis is a sudden and unexpected event that threatens to disrupt the functioning of an organization and can cause both financial damage and jeopardize the company's reputation. Crises can harm stakeholders physically, emotionally,

and financially. Numerous stakeholders are adversely affected by a crisis, including employees, customers, community members, suppliers, and stockholders (Coombs, 2007).

Therefore, it is possible to understand the impacts of a crisis, both inside and outside the company. A small event, if not communicated correctly, can lead to a chaotic situation. Indeed:

"Crises only exist because we live in such an interconnected world that a problem that, in principle, would concern only a company or a distant community can immediately take on much larger dimensions." (Rosa, 2001, p. 24).

A concept that demonstrates the importance of decision-making during a crisis is shown by Rosenthal, Charles, and Hart (1989). According to the authors, the crisis can represent a serious threat to the values and norms of a system, which, under pressure of time and circumstances, needs to make vital decisions. For Seeger, Sellnow, and Ulmer (1998), crises are non-routine, specific, and unexpected events that create high levels of uncertainty and a significant or perceived threat to high-priority goals.

Discussions about the concept are not only about what they provoke but also about how they arise in the ongoing attempt to prevent or manage them (Mitroff, Pearson & Harrigan, 1996). In other words, it is difficult to define a crisis due to its multidisciplinary nature and associations with other terms such as disasters, catastrophes, and conflicts. Disasters and catastrophes may be associated with events generated by nature, and conflicts may or may not trigger a crisis (Boin, 2005; Borodzicz & Van Haperen, 2002). The effects of this phenomenon are related to how changes are perceived and understood, and how we deal with nature, culture, and their relationships (Castells, Cardoso & Caraça, 2013). Table 1 depicts that crisis management can be operated through three distinct stages.



Table 1
Summary of the three stages of the crisis management process

Pre-crisis	Crisis	Post-crisis
Risk and vulnerability audits	Identification and categorization of triggered phenomena and crises	Post-crisis audit
Impact studies of potential crises	Identification and characterization of stakeholders and public groups	Recovery
Signal detection systems and barometers	Selection and preparation of crisis response strategy and its tactical declinations	
Contingency plans	Response system activation	Organizational memory creation and learning

Source: Mendes et al. (2006).

During a crisis, actions are required to contain its progress, and in the third stage, corrective and recovery actions are applied to restore public confidence (Jia, Shi, Jia & Li, 2012).

Relevance of Crisis Communication

To discuss crisis communication, we need to consider the concepts of identity, image, and reputation, which are directly related to the subject. Identity represents a broader idea: while an organization has a single identity, it is seen, lived, and practiced by individuals with different perceptions. Its meanings and reinterpretations in an exposed cultural environment are gradually constructed (Almeida & Gonçalves, 2009). It can also be understood as the visual manifestation of its reality and transmitted through symbols from its name in the logo, motto, products, services, facilities, uniforms, and all other pieces that can be

displayed, created by the organization, and communicated to a wide variety of audiences (Argenti, 2006). Identity can be defined as the visual manifestation of its reality transmitted from the name. As identity is constructed and controlled by the organization, both through symbols and messages, it is understood that the image is constructed from the perceptions of this content.

The image deals with subjectivity, i.e., people interpret the messages issued according to their personal experiences; therefore, each image is unique and individual. Other authors argue that the image does not depend exclusively on what the sender intends to convey, as it is a consequence of complex and subjective processing (lasbeck, 2009).

However, reputation is one of the most important competitive advantages that a company possesses and is considered an asset to the organization (Fombrun, 1996; Thevissen, 2002, Chun, da Silva, Davies & Roper, 2005). Pioneers in the academic discussion about corporate reputation, Fombrun and Shanley (1990) reported that due to the competitive market, there was a search for survival that could be achieved by protecting the reputational status.

Corporate reputation can be defined as "a perceptual representation of a company's past actions and future prospects that describe the firm's overall appeal to all of its key constituents when compared with other leading rivals" (Fombrun et al., 1996, p.72). As in the case of the image, reputation is also subjective, not knowing how it will be received and interpreted by recipients, but it is still necessary to comprehend its importance as an asset to the organization (lasbeck, 2009).

Reputation is the result of the overall assessment of an organization over time by its target audiences. Gotsi and Wilson (2001) and Roberts and Dowling (2002) report that reputation brings target audiences a perception of the organization based on various organizational attributes. This perception can be studied both broadly and segmented, separating corporate financial reputation, environmental corporate reputation, and social corporate reputation.

There is a strong consensus that a good reputation is an intangible and extremely valu-



able organizational asset. Favorable reputations have been associated with attracting customers, generating investment interest, attracting the best employees, motivating workers, increasing job satisfaction, generating more positive media coverage, and receiving positive feedback from the financial sector (Alsop, 2004; Chun, Da Silva, Davies & Roper, 2005; Dowling, 2000; Kim et al., 2013; Van Riel, 2013). There are numerous concepts on the subject.

During the crisis response, the chance of reputation damage decreases if the reaction is prompt. When considering an appropriate response to the crisis, organizations need to assess the type and scale at which crises present themselves. The initial response must be accurate and consistent, if necessary, and instructing information can be delivered directly to stakeholders or through the news media (Coombs, 2007). This information can help the public protect themselves in cases of public safety. Additionally, initial information must demonstrate compassion for the victims, if any. Coombs and Holladay (1996) revealed that reputation damage was reduced when companies included actions designed to prioritize victim concerns.

One of the valuable steps a company can take to deal with crises is to recognize that it goes through them and then devise strategies to combat them. In addition to creating a crisis committee to manage these situations, it is also important to have a communication plan so that it knows how to act on the issue.

Assessing the organization's risks is the first step in crisis preparation. Argenti (2006) explains that the crisis plan is also one of the needs for companies to work in these moments. A brainstorming session in the organizational communication area with key managers to identify potential crises can be useful, including assigning probabilities of occurrence to potential crises (Argenti, 2006).

Although broader than the communication plan, the crisis plan is also listed by Forni (2017) as necessary during the crisis management process. Among the crucial elements, the author describes the simple and flexible plan, spokesperson, leadership, rapid response (timing), communication actions, and stakeholders

(prioritizing people).

Nevertheless, the literature presents specific plans for the communication area. Machado (2020) highlights the importance of the strategic crisis communication plan in his Strategic Matrix of Crisis Communication. The plan would be a document formalizing communication practices in the organization, considering goals, objectives, strategies, and action assessment.

According to Forni (2017), a crisis communication plan comprises a media strategy, a list of potential communication weaknesses, updated company information, and main business programs. Machado (2020) describes as necessary to effectively manage crisis communication some of the following topics: conceptualizations, crisis communication objectives, glossary, audiences, scenarios, risks, crisis committee, action protocol, action flowchart, mailing checklist, press, internet, and complementary procedures.

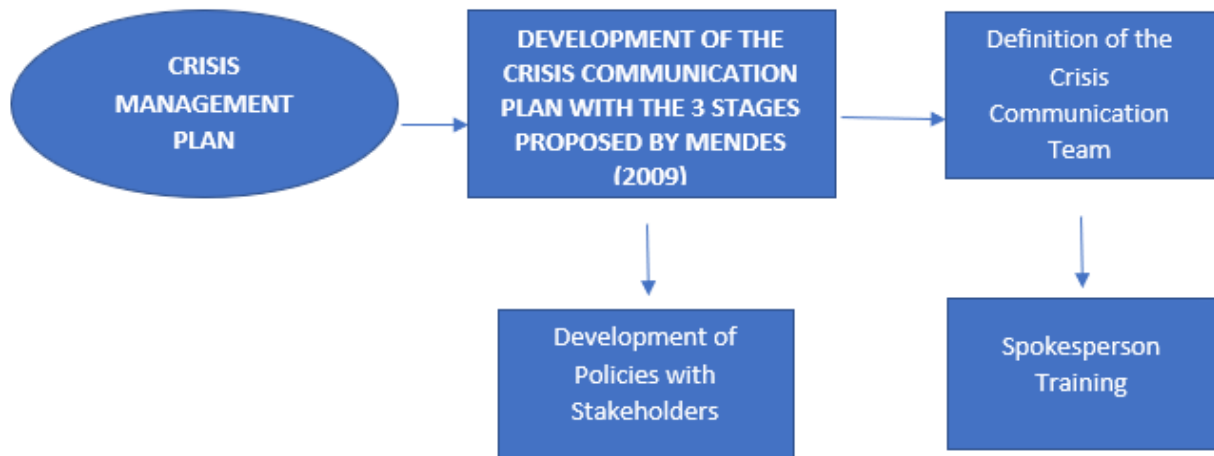
Determining the effect on audiences, classifying them, and defining communication objectives for potential crises, such as analyzing the choice of channels where crises will be addressed, are important for unfolding episodes (Argenti, 2006). Another point is to assign a different team for each crisis according to its particularities. For crisis communication, Argenti (2016) advises that it is necessary to take control of the situation, collect as much information as possible, set up a crisis management center, communicate quickly and frequently, understand the media's mission in a crisis, communicate directly with the affected public, remember that business must continue, and make plans immediately to avoid another crisis.

CONCLUSION AND CONTRIBUTION TO SOCIAL TECHNOLOGY

Based on the problem situation, the multiple stakeholders of INB, and the presented literature, the implementation of a crisis response plan is outlined with the articulation of crisis communication policies for INB adhering to a pre-existing crisis management plan. The following flowcharts show activities that will be described, discussed, and presented to the organization.



Figure 2
Development of Crisis Communication Policies



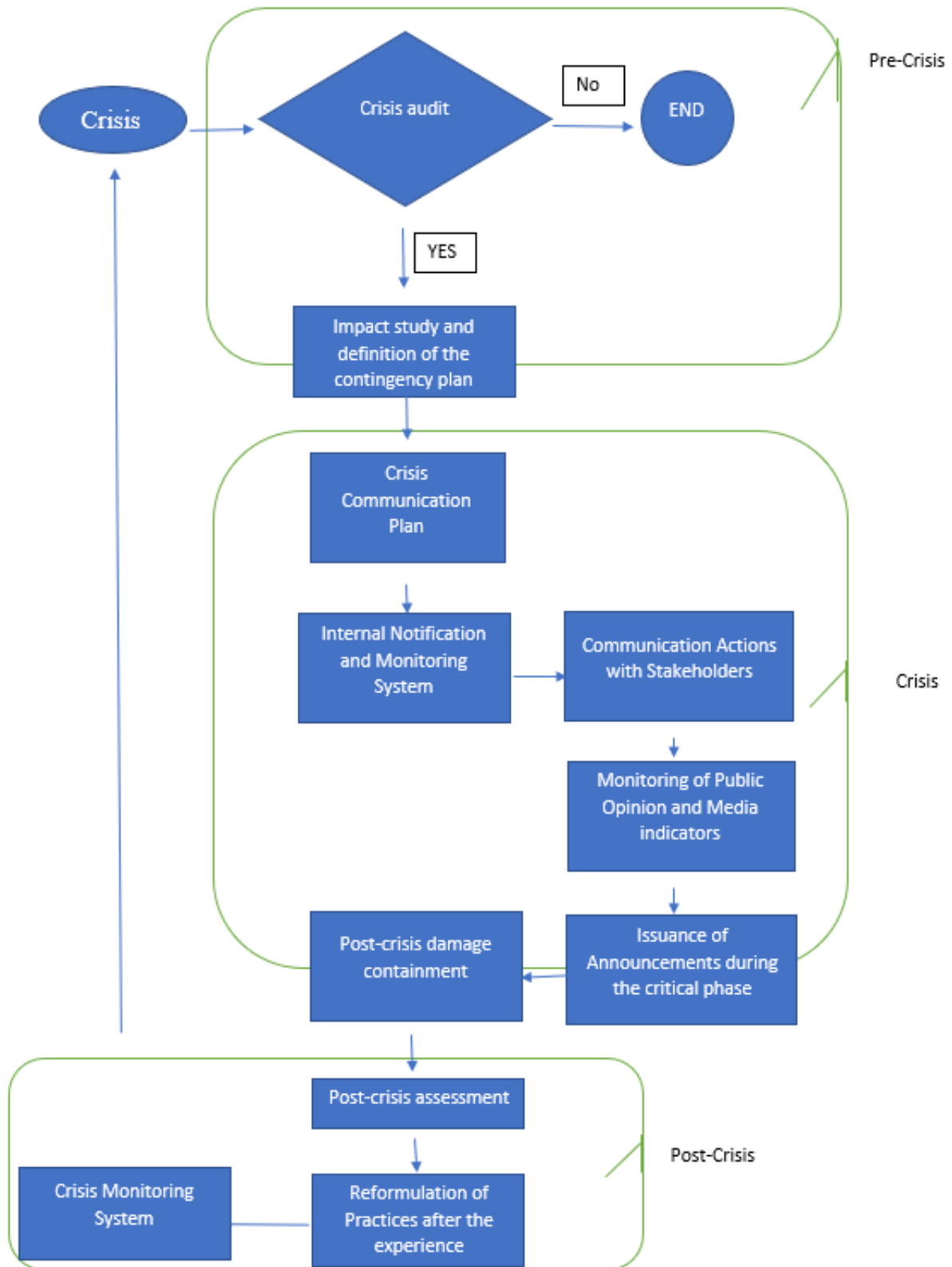
Source: Own elaboration

Figure 2 establishes the structuring of the implementation work, integrated into the pre-existing Crisis Management Plan of INB, and considers the three stages of crisis communication suggested by Mendes (2006). The proposal involves developing a Crisis Communication Plan, as addressed by this study. This requires team formation and spokesperson training, as well as the development of policies with stakeholders.

Figure 3 reveals the developments of each stage, resulting in the preparation of technical reports for each stage. It also illustrates the structure of the sociotechnical solution, encompassing the proposed literature, eliciting actions for each possible stage in the unfolding of a crisis, interconnecting organizational purposes to processes, the relationships between actors, and the specific circumstances of each event.



Figure 3
For Crisis Response Plan Implementation



Source: Own elaboration



It is important to observe where the Crisis Communication Plan is located within the flow-chart. Through the proposed methodology, it will be possible to understand the needs of the specific company for the possible development of the plan.

However, based on the theoretical framework of this work, there are indications of what will be necessary for its elaboration, such as a crisis committee, media strategy, a list of potential vulnerabilities, updated company information, and business programs. It may also be necessary to develop a protocol of actions to be followed during a potential crisis, to be formulated based on interviews proposed in the methodology.

Notably, the proposal established for INB could serve as an example for other companies, as crises are inherent to all organizations.

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