






Effective communication as a moderating factor in international business crisis management

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Abstract

This study investigated the moderation role of effective communication in handling crises in multinational businesses as an innovation tool. The study utilized a sample of 315 participants from different public limited companies in Greece. The results showed that proactive crisis communication approaches have a positive influence on crisis handling in multinational businesses. It was revealed that there is a significant relationship between reactive crisis communication techniques and crisis handling in multinational businesses. In order for innovation to be successful, the commercial benefits must be effectively communicated. However, the innovation process requires different strategies of communication to be effective. Businesses that are aware of the many elements of the innovation process may concentrate their communication efforts for the best results in organisational innovation. Concept development and mobilisation, idea screening and advocacy, and idea testing are all stages where effective communication is crucial. Organizations must take into account the different trends of innovation when addressing crises in multinational businesses. Communication in businesses ought to be based on new innovative ideas. Additionally, fostering a culture of openness and cooperation can help with communication at all stages of the innovation process.

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1. Introduction

1.1. Background to the Study

The importance of innovation in communication often declines as firms get larger, yet it remains an important aspect of handling crises (Głodziński & Marciniak, 2016). Multinational businesses often generate a wide range of disruptive ideas and are always searching for new concepts, but sometimes they stagnate and lose that focus. As multinational businesses produce cutting-edge products, they undermine the core markets of large corporations. Clearly expressing the economic advantages of innovation creates a culture of constant change and renewal in both the company model and culture. For instance, innovative product teams that communicate more regularly and thoroughly tend to generate novel concepts or technology advancements more often than teams that don't (Primožič & Kutnar, 2022). Basri and Siam (2019) revealed that due to the large and sometimes

dispersed nature of various innovation activities, developing tools for expressing the economic value of successful inventions can be challenging. Innovation programmes can have unintended effects on other parts of the organisation, including delayed costs or benefits, or resource consumption that is difficult to measure and articulate. When working on an innovative idea, new information may emerge that is not immediately pertinent to the project but could eventually lead to possibilities and expand the market (Basri & Siam, 2019; Tomy & Pardede, 2018).

A multinational company (MNC) stands out due to its different geographically dispersed components or units, including its headquarters and subsidiaries, which are located in several countries. High complexity is a defining characteristic of MNCs, as it is with domestically diverse and decentralized businesses (Casey-Hardman, 2020). MNCs must coordinate multiple business divisions while also bridging cultural and geographic barriers and adjusting to the host country's environment. Casey-Hardman (2020) noted that evaluating the genuine business value (BV) of innovation using stringent criteria based on capital efficiency ratios, such as return on investment (ROI), is notoriously difficult. ROI evaluates the resources invested in a project and their return, yet innovation seldom yields obvious advantages (Fragouli & Ankunda, 2016). Innovation often affects a range of business operations, including changes in perception, efficiency improvements, competitive advantages, and social impact. Due to these variables, it is nearly impossible to quantify the resources saved, gained, or generated as a consequence of innovation activities. Innovation initiatives also involve adaptation and unpredictable outcomes. Discussions about creative endeavours often revolve around promises, perils, and opportunities rather than specific examples or assurances. Therefore, it is crucial to consider how to convey innovative ideas in order to encourage diverse innovation practices while maintaining a healthy amount of doubt and criticism (Ameen, Choudrie, Jones, & Anand, 2022; Guo, Wei, Zhong, Liu, & Huang, 2020).

A broad range of stakeholders must also understand the significance of innovation. Internally, innovation needs to be valued, fostered, and directed toward the most achievable outcomes. Externally, innovations must appear appealing and clearly advantageous. A company's stakeholders may include its customers, partners in business, suppliers, vendors, and executives (Ali, 2022). Effective communication is becoming an even more essential component of innovation programs due to the disruptive nature of creative ideas. A great idea that is not well communicated causes stress, demands more processing time, and lowers productivity (Fragouli & Ankunda, 2016). Furthermore, poor communication diverts important organisational resources, such as time and effort, away from the company's main vision and toward logistical and procedural matters. The entire interpersonal and organisational communication environment impacts both the acceptance and execution of innovation projects. It has been shown that cross-hierarchical cooperation, plenty of feedback, and participatory decision-making can enhance a company's level of creativity. Rather than hindering communication, discussions about innovation should enhance and promote it (Schaedler, Graf-Vlachy, & König, 2022).

Guo et al. (2020) revealed that communicating the advantages of innovation within a company across organisational levels and vertical silos is very challenging. The issues with communication can manifest in a number of ways. Firstly, top leaders struggle to communicate their innovation objectives to individuals at different organisational levels. Secondly, maintaining consistent messaging across the vertical zones of the organization remains a challenge. Departments often have siloed messages that fail to incorporate ideas from different fields (UNGC et al., 2020). As a consequence, objectives, and procedures for innovation often clash. Thirdly, ensuring that staff members understand the importance of involvement and participation at every stage of the innovation process can be difficult. Therefore, it is important to investigate the moderating role of effective communication in handling crises in multinational businesses as an innovation tool.

1.2. Objectives of the Study

This study focuses on investigating the moderation role of effective communication in handling crises in multinational businesses as an innovation tool. The specific objectives of the study are:

1. To examine the influence of proactive crisis communication approaches on crisis handling in multinational businesses.
2. To establish the relationship between reactive crisis communication techniques and crisis handling in multinational businesses.
3. To determine the effect of new communication innovations or technologies on crisis handling in multinational businesses.

1.3. Research Questions

1. What is the influence of proactive crisis communication approaches on crisis handling in multinational businesses?
2. What is the relationship between reactive crisis communication techniques and crisis handling in multinational businesses?
3. What is the effect of new communication innovations or technologies on crisis handling in multinational businesses?

1.4. Hypotheses

H1: Proactive crisis communication approaches have a positive influence on crisis handling in multinational businesses.

H2: Reactive crisis communication techniques are significantly related to crisis handling in multinational businesses.

H3: New communication innovations or technologies have a positive effect on crisis handling in multinational businesses.

1.5. Significance of the Study

The research is important because it can contribute to the development of crisis management techniques that large organisations can use to handle crisis interruptions. The findings of this research can help owners of companies gain a better understanding of the crisis management techniques they employ to mitigate the disruptions caused by a crisis. Organizations and connected partners may suffer significant losses as a result of crises. Effective management and policies, in addition to protecting the interests of stakeholders and employees, can result in improved performance, alignment of financial goals with environmental protection objectives, and improved adherence to regulations to avoid trouble and costly fines or legal action. Neglecting a crisis poses operational risks that can have unfavourable consequences. Multinational organisations can benefit from the findings of this research by using them to enhance crisis preparedness, reduce response times, and lower recovery costs.

2. Literature Review

2.1. Theoretical Review

Situational crisis communication theory served as both the theoretical foundation and conceptual framework (SCCT) for the study. SCCT was first developed by Coombs as a crisis communication theory in 2007. It is associated with different crisis management strategists that help align the strategic crisis response with the severity of the crisis and the reputational risk it poses. The components of SCCT focus on potential crises, business branding, and organisational reputation rehabilitation to identify crisis outcomes. SCCT claims that an organization's ability to function depends on its capacity to consistently collect necessary resources from the external environment. Crisis response techniques appear to facilitate an organisation's ability to classify and manage a crisis (Ye, Jha, & Desouza, 2015).

SCCT has been applied by researchers in various psychological domains, including emotional responses, organisational management, and health habits (Kim, 2017). According to Sharma, Kraus, Srivastava, Chopra, and Kallmuenzer (2022), the capacity of an organization to change depends on its ability to adapt its structure to reduce reliance on external sources of funding and obtain necessary external support. Public relations directors employ a variety of techniques to lessen resource flow uncertainty. Establishing inter-organizational links is a suitable method to acquire organisational resources, preserve dependency, and lessen the uncertainty, as suggested by SCCT. Public relations professionals aim to enhance the challenges posed by external dependencies. The recovery crisis management approach is crucial to preserve an organization's image and financial prospects when an unforeseen catastrophe strikes.

SCCT is based on the theory of crisis communication. Public relations managers can use the recommended principles of SCCT to safeguard their reputations during a crisis. SCCT relies on the understanding of organizational crises by business leaders, anticipating their response to different crisis scenarios. However, SCCT does not provide specific crisis management tactics; instead, it offers a paradigm for strategically understanding crisis communication in business (Genç, 2017). Public relations directors can explain the factors, assumptions, and correlations involved in choosing crisis response tactics to safeguard an organization's image and ensure profitability with reference to SCCT (Primožič & Kutnar, 2022). According to SCCT, public relations directors establish multiple inter-organizational agreements to assist businesses in managing their resource dependence (Ameen et al., 2022). Hence, SCCT was well-suited for this research as public relations managers employ supplier and customer communication to lower operational uncertainty and enhance organisational reputation and profitability following crises.

2.2. Crisis Management

Fragouli and Ankunda (2016) revealed that crisis management helps to protect different internal dynamics and interests of the external stakeholders. Internal dynamics are referred to as crisis leadership and state that leaders who see a crisis as a danger respond more emotionally, which limits their ability to take action, while leaders who view a crisis as an opportunity are more adaptable to the circumstance. On the other hand, external stakeholders include the subject's social impact and perception of crises among stakeholders. The leaders of a company going through a crisis shape how external stakeholders perceive them, and vice versa. In other words, the external stakeholders are impacted by and dependent upon the internal dynamics. Additionally, a business's crisis management contingency can be proactive or reactive. The majority of firms globally are reactive and only plan for the kinds of disasters they have already encountered, which in certain situations may be quite a few. According to Ameen et al. (2022), crisis management is sometimes broken down into a series of distinct stages. The first phase is the signal phase, followed by the pre-crisis phase, which deals with crisis prevention. The third phase is the reaction to a crisis, which consists of damage limitation or containment. Then comes the learning

and revision phase after the fourth phase, which is the post-crisis period (OECD, 2011). Lastly, one of the most important aspects of crisis management is good communication. The identification of internal and external stakeholders, as well as audience segmentation, is necessary for successful communication. This allows for customised communication methods that are adapted to the traits of certain segments (Fragouli & Ankunda, 2016; OECD, 2011).

An effective crisis management plan may help prevent a crisis (Primožič & Kutnar, 2022). The preparation process includes developing a crisis management plan, choosing and educating public relations directors, and conducting exercises where public relations teams test crisis management tactics (Guo et al., 2020; Kloprogge, Van Der Sluijs, & Wardekker, 2007). Assembling the most qualified team members to address the situation is a crucial initial step as claimed by Fragouli and Ankunda (2016). Additionally, the business appoints or assigns a spokesperson to perform operational duties in crisis assessment and to communicate the crisis with purpose and clarity (Fragouli & Ankunda, 2016). The operational divisions of an organisation must support the crisis management plan's procedures. A crisis management plan assists a business and its partners in minimising risks and threats. A thorough crisis plan, which should be put into practice, can guarantee that everyone is aware of how to lessen the effects of a crisis, speed up recovery, and reduce possible hazards (Rodríguez, Marauri, & Cantalapiedra, 2013).

According to Boiral, Brotherton, Rivaud, and Guillaumie (2021), crisis management strategy is crucial mainly because an organisation greatly benefits from understanding crisis communication strategy to decrease loss and support the recovery process with openness and trust. A rhetorical viewpoint emphasises social reality and the evidence gathered and verified by groups of people. A lack of effective crisis management techniques may exacerbate existing harm and leave a company without a recovery strategy. The study of crisis management strategy includes management, communication, and public relations techniques (Okoli & Watt, 2018). The main responsibility of public relations directors is to have a company ready to anticipate crises and use prepared methods and resources. In order to sustain their competitive edge, organisations adopt a variety of steps. A strategy for crisis management is always the basis of crisis intervention planning for companies, which involves creating an organisation to withstand a crisis (Kalogiannidis, 2020; Kalogiannidis, Toska, Chatzitheodoridis, & Kalfas, 2022).

Newig et al. (2013) advocated for rapid action since a crisis may compromise an organization's legitimacy and fundamental functioning. A major barrier to the adoption of a crisis management strategy seems to be the top leadership of an organization's inability to embrace the modern information landscape, which has produced a business environment that enhances the frequency and severity of crises (Okoli & Watt, 2018). An unstable business climate might pave the way for catastrophic losses to the company's finances, brand, output, or other key areas of operation. Crises may take many different forms and have a variety of outcomes, necessitating a range of responses (Kalogiannidis, Toska, & Chatzitheodoridis, 2022; Newig et al., 2013; Ofori et al., 2020).

Goldston (2020) indicated that due to a number of enduring factors, public relations directors need to comprehend and use crisis concepts more thoroughly. Organizational dynamics change, financial markets become more volatile as a result of greater stakeholder access to information, and societal changes like the government's need for more openness, are a few of these factors (Kellerman, 2019). These factors demand diverse sets of working norms for public relations directors, both individually and collectively. A crisis increases the stakes of choice, the stress levels of those involved, and the possibility of costly mistakes (Kellerman, 2019).

2.3. Innovation

According to OECD (2012), innovation may encompass different aspects of product, process, and organisational innovation, as well as marketing innovation. OECD (2005) revealed that innovation is related to the implementation of a new or significantly improved product or service, or process. Additionally, innovation depends on businesses' ability to develop (Crandall & Mensah, 2008; Salvioni & Bosetti, 2014). Businesses with a stronger capacity for innovation may gain a competitive edge by responding faster to new market changes or offering better goods, services, or procedures compared to businesses with a lower capacity for innovation. Firms are said to have a stronger potential for innovation when they are less institutionalised, have flat hierarchies, have long-term, cross-functional strategic goals, and are market-focused (Chatzitheodoridis, Melfou, Kontogeorgos, & Kalogiannidis, 2022; Newig et al., 2013). In addition, rather than focusing just on determining whether a firm is innovative or not, it is vital to investigate how companies innovate and the kind of innovations they adopt (Fragouli & Ankunda, 2016; OECD, 2011). An overview of the communication challenges, potential solutions, and communication objectives at each step of the innovation process is provided in Table 1.

2.4. Moderation of New Communication Innovations

According to Alfaro and Chen (2015), it is crucial to recognise that in the present technological age, technology offers business organisations the chance to enhance client services and improve their company performance. Understanding how social media and new technologies have become crucial success factors for improved company performance and better organisation communication helps to get a competitive edge in the market (Alfaro & Chen, 2015). Businesses in Europe are now using social media and other technological advancements to please their consumers since current marketing and corporate success strongly depend on

customer satisfaction (Casey-Hardman, 2020). It is also crucial to realise that using social media for customer service and handling various types of crises inside a business is essential for the better and more sophisticated growth of technology. This is why social media is a useful tool for gathering information and effectively using it to increase productivity (Kloprogge et al., 2007; K lking, 2014).

Amor s and Tippelt (2006) indicated that companies that don't use social media platforms for communication and organisational purposes are falling behind and are not exploring new methods to comprehend and enhance the performance of consumer services. In this sense, modern technology has given corporate organisations the chance to choose their preferred media outlet for crisis response and other crisis communication techniques. In fact, with the aid of technology and increased development, crisis management can be successful, and more options are available for better and more reliable goods with the use of social media and other media channels (Basri & Siam, 2019). However, social media has grown in recent times and is now giving organisations the chance to interact and communicate with other businesses more effectively. This is the correct strategy for efficient administration and the reliable use of social media to benefit consumers and organisations (Sharma et al., 2022). Additionally, businesses in Greece are effectively using social media for public relations because their attitude towards adopting new technologies and innovations makes it possible for them to engage with clients in the most effective manner. As a result, a stronger crisis management strategy has been built with the aid of social media, and greater chances are available for the organisation to use technology for public dealing (Boiral et al., 2021; Fragouli & Ankunda, 2016).

Table 1. Stages of the innovation process and the associated problems, tools and crisis management goals.

Stages	Business communication problems	Tools and innovations	Goals for crisis communication
Generation and mobilization	<ul style="list-style-type: none"> Operational and hierarchical boundaries Early assessment and criticism Lack of motivation and time 	<ul style="list-style-type: none"> Examination of social networks Lunches and discussions on research Devoted teams that look for ideas 	<ul style="list-style-type: none"> Fostering an atmosphere of openness and neutrality Promoting cooperation
Screening & advocacy	<ul style="list-style-type: none"> Rejecting criticism Paying tribute to supporters and innovators Appointing screeners and avoiding managers acting as gatekeepers 	<ul style="list-style-type: none"> Emphasis on business objectives and current capabilities Documentation Recognize any present border spanners Public crowdsourcing and open innovation 	<ul style="list-style-type: none"> Clarity of the screening standards Rewarding supporters reducing the consequences of rejecting some ideas
Experimentation	<ul style="list-style-type: none"> Being able to interact with various stakeholders Outlining the high failure rate as an unavoidable reality 	<ul style="list-style-type: none"> Prototypes Internal discussions Competitions Begin on a modest scale 	<ul style="list-style-type: none"> Creating interest in new ideas Experimentation to strengthen networks Connecting experimenting aims to corporate objectives
Commercialization	<ul style="list-style-type: none"> Resistance to new methods and inertia Having trouble evaluating Using the appropriate terminology 	<ul style="list-style-type: none"> Instructional programmes and classes Ideas from around the company are presented. Groups of practitioners 	<ul style="list-style-type: none"> An open mind to new concepts Interest in suggestions from different parts of the organisation
General diffusion & implementation	<ul style="list-style-type: none"> Being aware of whom to contact Reaching out to atypical populations or groups Reserving time to adjust to the new demands of the innovation 	<ul style="list-style-type: none"> Connecting concepts to each employee's achievement Using processes and techniques for multi-layered communication Careful implementation done in stages 	<ul style="list-style-type: none"> Appropriate message for different groups Individualization of the innovation's information Knowing how the innovation improves with the available techniques

2.5. Effective Communication Channels

The most effective approach to communicating crisis management procedures is via social media. However, if the crisis news is spread across multiple internet channels, it may appear contradictory. During a crisis, social media serves as a powerful communication tool. Platforms such as Twitter, Facebook, LinkedIn, and Instagram have the potential to be efficient communication channels. It is essential for a company to have a specialised social media communications plan in place before a disruptive occurrence. Through social media and its website,

an organisation can provide its perspective on the crisis while keeping the larger narrative in mind. According to theory, for an organisation to effectively manage its crisis story, it must be present and actively engaged during the crisis. While complete recovery is typically the goal of crisis management techniques, a company should also use certain survival techniques.

Proactive communication approaches greatly help in crisis management. [Alfaro and Chen \(2015\)](#) indicate that the proactive team is capable of predicting a possible crisis and making preparations for it. For instance, a company may build an earthquake-proof building and communicate its natural disaster strategy to its staff. A mediator or negotiator can be useful when dealing with crisis analysis. While not all crises can be prevented, leaders can assist companies in preparing for possible crises ([Crandall & Mensah, 2008](#); [Zheng et al., 2022](#)).

Recovery communication is also a common form of crisis management in Europe. A recovery crisis management (RCM) design secures and protects individuals, organisations, or businesses facing challenges to their public image. However, mechanical and personnel crises may sometimes come as a surprise and have a long-lasting negative effect on a corporation. In such circumstances, the organisation may not be able to minimize the impact of a protracted crisis. At this stage, the company should publicly express regret and lead an investigation into the root causes of the crisis.

Failure may have significant consequences and lead to investment losses. The goal of crisis management is to mitigate or neutralise the harm that a crisis can inflict on a company. Crisis management strategy is an ongoing process, not a one-time event, and should embrace the pre-crisis, crisis response, and post-crisis phases ([Alfaro & Chen, 2015](#)). Public relations managers need to assess internal and external risks and vulnerabilities, formulate a plan, put that plan into action, and update the plan as circumstances evolve in order to effectively handle a crisis.

3. Methodology

3.1. Research design

A cross-sectional survey research design was used, employing a quantitative research methodology. This research design involved the collection of data using quantitative tools and the statistical evaluation of a particular phenomenon, focusing on current trends, occurrences, and interconnections between various aspects of communication strategy and information sharing innovations that influence crisis management in multinational business. The cross-sectional survey design enabled the researcher to generalise the different findings of the study to a larger population of publicly limited multinational companies that provided data on the topic of study.

3.2. Target Population

The research focused on the numerous public limited corporations available in Greece. The population was used to determine the appropriate sample size for the investigation. The research specifically focused on Greek public limited firms in order to acquire a more representative sample of individuals who are knowledgeable about the impact of various components of crisis communication and communication innovations on crisis management in global enterprises.

3.3. Sample Size

The study utilised a sample of 315 study participants selected from various public limited companies in Greece.

3.4. Sampling Technique

Probability sampling methodologies, namely stratified and simple random sample, were used in the investigation. In this case, the desired sample was obtained through stratified sampling, and the final sample was drawn from the strata using a straightforward random sampling technique. Simple random sampling has the advantage of providing samples that are highly representative of the population. However, when working with large samples, it can become time-consuming.

3.5. Data Collection

An online questionnaire was utilized to collect information from managers, directors, or staff members of selected Greek public limited firms. A survey questionnaire is one of the most basic and widely used tools for data collection. It is cost-effective as allows for surveying a large number of respondents quickly, while also providing respondents the freedom to express their ideas on sensitive matters without fear of the researcher's approval or disapproval. In this study, an online survey questionnaire was used to investigate the relationship between different aspects of crisis communication, communication innovations, and crisis management in multinational corporations.

3.6. Data Analysis

After collecting the administered questionnaires, data analysis was carried out in accordance with the research objectives. All data from respondents were gathered and analysed using SPSS 20.0 to enable a more

statistical analysis of the study. The frequency distribution data were derived from the first section of the user profile questionnaire and were described using a frequency table. Mean and standard deviation were computed for certain data variables. The association between the study variables was established using Pearson's rank correlation test. Furthermore, to determine the extent to which the various components of crisis communication and communication innovations impact the management of crises in multinational companies, regression analysis was also conducted. The study utilized a multiple regression model presented as follows:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \varepsilon \tag{1}$$

Where;

Y= Effective Handling of crises.

β_0 = constant (coefficient of intercept).

X_1 = Proactive crisis communication.

X_2 = Reactive crisis communication.

X_3 = New communication innovations.

ε = Error term in the model.

The three hypotheses of this study were tested based on the regression results obtained at a 0.05 level of significance.

3.7. Ethical Considerations

The researcher obtained informed permission from the workers or owners of the selected public enterprises with multinational status in Greece in order to ensure their willingness to participate in the study. Furthermore, the respondents' information was treated with strict confidentiality and privacy. To facilitate comprehensive responses to specific questions, participants were given the freedom to interpret the various opinion questions. This approach made it easier to obtain thorough responses.

4. Results

The interpretation of the various findings following data analysis from the chosen research participants is presented in this section.

4.1. Demographic Characteristics

Results concerning the different demographic characteristics of the selected respondents are presented in Table 2.

Table 2. Demographic characteristics of the study participants.

Characteristic	Frequency	Percentage (%)
Gender		
Male	189	60.0
Female	126	40.0
Age bracket in years		
Below 25	11	3.5
25-30	73	23.2
31-40	139	44.1
Above 40	92	29.2
Designation		
Employee	161	51.1
Director	19	6.0
Manager	114	36.2
Administrator	21	6.7
Years spent in business		
Below 5	21	6.7
5-10	215	68.3
Above 10 years	79	25.0
Total	315	100

The respondents were predominantly male (60%), while 40% were female. The majority of respondents (44.1%) fell within the 31-40 years age group, with only 3.5% below 25 years of age. A significant portion of participants (68.3%) had spent 5-10 years in business, while only 18.3% had less than 5 years of experience.

4.2. Descriptive Results

The study examined the effect of proactive crisis communication approaches on crisis handling in multinational businesses, and the results are presented in Table 3.

Table 3. Showing opinions on effect of proactive crisis communication approaches on handling of crises in in multinational business.

Questions	Agree	Disagree
Businesses must be ready to handle crises pro-actively or risk facing financial and brand losses	59.3%	40.7 %
Organizations must have a plan in place to proactively respond to business-critical circumstances	92.7 %	7.3 %
Issue management is a proactive procedure that addresses the crisis before it occurs, throughout the crisis, and after it has passed	66.4 %	33.6 %
Crisis management reduces the damage that a crisis may do to a firm and its stakeholders	73.5%	26.5 %
A proactive communication approach helps demonstrate that you have a plan and are ready	56.1 %	43.9%

The results presented in [Table 3](#) show that the majority of the respondents (59.3%) agreed that businesses must be prepared to handle crises proactively to avoid financial and brand losses. Regarding the necessity of organizations having a plan in place to proactively respond to business-critical situations, 92.4% agreed, while only 7.3% disagreed. In terms of issue management being a proactive process that addresses a crisis before, during, and after it occurs, 66.4 % of the study participants agreed, while 33.6% disagreed. Furthermore, 73.5% agreed that crisis management helps reduce the damage that a crisis can cause to a firm and its stakeholders. Finally, slightly more than half of the study participants (56.1 %) agreed that a proactive communication approach helps demonstrate preparedness and readiness.

The study examined the effect of reactive crisis communication approaches on the handling of crises in multinational businesses, and the obtained results are presented in [Table 4](#).

Table 4. Opinions on the influence of reactive crisis communication approaches on handling of crises in in multinational business.

Questions	Agree	Disagree
Reactive crisis communication approaches can project a more defensive way of addressing crises	77.6 %	22.4 %
Leaders manage to respond to business crises and issues as they arise through reactive communication	61.2%	38.8%
The reactive communication strategy gets the business ready for future occurrences by learning from recent or previous experiences	73.4%	26.6%
A reactive strategy is focused on preserving control over present policies and only considers altering a course in the case of a disaster	36.5%	63.5%
Team members in a business are encouraged to focus on social monitoring times of <i>crisis</i> through reactive communication	64.3 %	35.7 %

The results presented in [Table 4](#) show that most of the participants (77.6%) agreed that reactive crisis communication approaches tend to project a more defensive way of addressing crises. Additionally, 61.2% agreed that leaders manage to respond to business crises and issues as they arise through reactive communication. Furthermore, 73.4% agreed that the reactive communication strategy helps businesses prepare for future occurrences by learning from recent or previous experiences. regarding whether the reactive strategy focuses on preserving control over present policies and only considers altering the course in the case of a disaster, 63.5 % disagreed, while only 36.5% agreed. Lastly, the majority of the study participants (64.3%) agreed that team members in a business are encouraged to focus on social monitoring during times of crisis through reactive communication.

The study aimed to determine the effect of new communication innovations on the handling of crises in multinational businesses, and the results are presented in [Table 5](#).

Table 5. Opinions on the effect of new communication innovations on handling of crises in multinational business.

Questions	Agree	Disagree
Innovations in communication help to boost crisis management efforts	75.7%	24.3%
Social media is increasingly being used to create awareness on crisis management	63.5%	36.5%
Businesses rely on information technology to maintain business continuity during crises	51.7%	48.3%
Digital technology in communication has allowed businesses to effectively communicate with employees and customers	65.6%	34.4%
Innovation in communication helps to introduce novelty to existing product lines or processes	73.4%	26.6%
The introduction of contemporary automation technologies and the modernization of corporate operating systems both benefit from innovative communication	55.9%	44.1%

The results presented in Table 5 show that a majority of the participants (75.7%) agreed that innovations in communication help to boost crisis management efforts. In terms of social media being increasingly used to create awareness about crisis management, 63.5% agreed, while only 36.5% disagreed. Regarding the reliance of businesses on information technology to maintain business continuity during crises, 51.7% agreed, while 48.3% disagreed. Furthermore, in terms of digital technology in communication enabling effective communication with employees as well as customers, 65.6% agreed, whereas 34.4% disagreed. Furthermore, majority of the respondents (73.4%) agreed that innovation in communication facilitates the introduction of novelty to existing product lines or processes. Lastly, 55.9% agreed with the notion that the introduction of contemporary automation technologies and the modernization of corporate operating systems both benefit from innovative communication.

The study also investigated the various aspects of crisis handling in multinational businesses, and the results are presented in Figure 1.

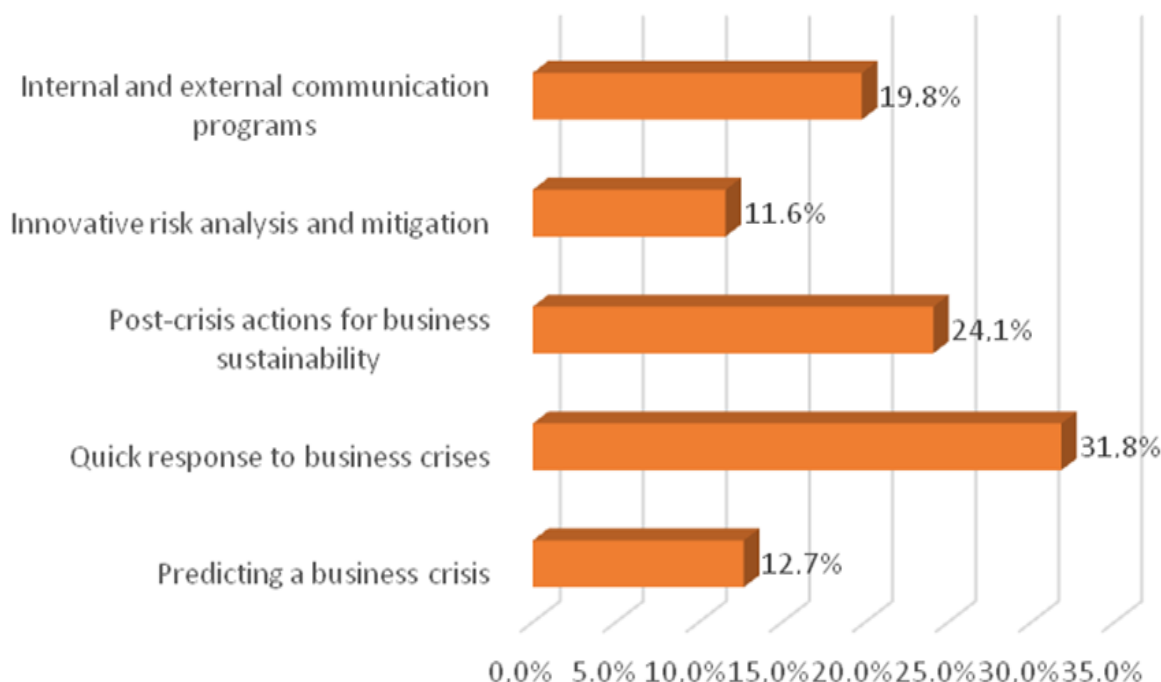


Figure 1. Aspects of crisis handling in multinational business.

The majority of the respondents (31.8%) identified quick response to the crisis as an important aspect of crisis handling in multinational businesses. This was followed by 24.1% of respondents who revealed that post-crisis actions for business sustainability are associated with crisis handling. Furthermore, 19.8% of the respondents identified internal and external communication programs as an important aspect of crisis handling in multinational businesses.

4.3. Correlation Analysis

Correlation analysis was conducted to examine the relationship between the study variables, and the results are presented in Table 6.

Table 6. Cross-tabulation of proactive crisis communication, reactive crisis communication approaches, new communication innovations, and indicators of effective handling of crises in multinational businesses.

Cross-tabulation	Proactive crisis communication	Reactive crisis communication	New communication innovations	Crisis handling in multinational businesses
Proactive crisis communication	1			
Reactive crisis communication	0.548**	1		
New communication innovations	0.551*	0.649*	1	
Crisis handling in multinational businesses	0.614*	0.521*	0.546*	1
	0.00	0.00	0.00	0.00

Note: ** and * respectively indicate statistical significance at a 5% significance level.

The results show a positive correlation between proactive crisis communication and crisis handling in multinational businesses ($r = 0.614$), which is significant at the 0.05 level. Similarly, there is a positive correlation between reactive crisis communication and crisis handling in multinational businesses ($r = 0.521$), also significant at 0.05 level. These findings indicate that different approaches to reactive crisis communication have an influence on crisis handling in multinational businesses.

Furthermore, new communication innovations exhibit a positive correlation with crisis handling in multinational businesses ($r = 0.546$), suggesting that advancements in communication technologies, such as increased use of social media, have an impact on the handling of various crises in multinational businesses.

4.4. Diagnostic Tests

4.4.1. Test for Heteroscedasticity

The heteroscedasticity test conducted in this study aimed to identify any error components associated with the data, particularly in terms of correlation across different observations. It was assumed that heteroscedasticity is not an issue with the data since the p-value is greater than 5%. The reported result of $0.6351 > 0.05$ confirms that heteroscedasticity was not ruled out at the threshold p-value of 0.05. Therefore, the data can be considered as not exhibiting heteroscedasticity. The findings presented in Table 7 support this conclusion, with a p-value of 0.6351, indicating that the null hypothesis of constant variance is not disproven.

Table 7. Model summary.

Breusch-Pagan test for heteroscedasticity	
Ho: Constant variance	
Variable: Different fitted values of crisis handling in multinational businesses	
Chi2(1)=	0.630
Prob > chi2=	0.6351

Note: Predictors: (Constant), proactive crisis communication, reactive crisis communication, new communication innovations.

4.4.2. Autocorrelation Test

It was essential to verify the independence of the dependent variable. Table 8 presents the results of the Durbin-Watson (d) test. In this test, a value of $d=2$ indicates the absence of autocorrelation. The findings of the investigation yielded a value of 1.032, suggesting that the residuals are not autocorrelated. The value of (d) always ranges between 0 and 4, where a value of 0 indicates autocorrelation, while values above 1 imply interdependence among the residuals.

Table 8. Durbin Watson test.

Model	R	R square	Adjusted R square	Std. error of the estimate	Durbin-Watson
Durbin Watson test	0.593	0.568	0.581	0.261	1.032

Note: Predictors: (Constant), Proactive crisis communication, Reactive crisis communication, new communication innovations.

4.5. Regression Test

4.5.1. Fitness of Model

The results presented in Table 9 show the fitness of the model used in this study. The inclusion of crisis communication and its moderation as an innovation tool (Proactive crisis communication, reactive crisis communication, new communication innovations) proved to be effective in explaining crisis handling in multinational businesses. The R square value of 0.568, commonly known as the coefficient of determination, provides substantial evidence in favour of this. Therefore, 56.8% of the variability in the dependent variable, which is crisis management in multinational corporations, can be attributed to the three components: proactive crisis communication, reactive crisis communication, and new communication innovations.

Table 9. Model fitness.

R	R square	Adjusted R-square	Std. error of the estimate
0.538 ^a	0.568	0.559	0.261

Note: a: Predictors: (Constant), Proactive crisis communication, Reactive crisis communication, new communication innovations.

4.5.2. Regression of Coefficients

The results presented in Table 10 show the coefficients of regression for the study's independent variables. The coefficients of regression shown in Table 10 present the level to which proactive crisis communication, reactive crisis communication, and new communication innovations predict crisis handling in multinational businesses. The regression coefficients reveal a positive and significant correlation between the different approaches to crisis management and communication in multinational corporations.

Table 10. Coefficients.

Model	Unstandardized coefficients		Standardized coefficients	T	Sig.	
	B	Std. error	Beta			
Coefficients	(Constant)	0.528	0.261		5.186	0.035
	Proactive crisis communication	0.263	0.041	0.354	4.431	0.010
	Reactive crisis communication	0.192	0.137	0.451	2.596	0.007
	New communication innovations	0.073	0.083	0.158	1.1284	0.018

Note: Dependent variable: Crisis handling in multinational businesses.

The hypotheses of the study were tested and also interpreted as follows:

H1: Proactive crisis communication approaches have a positive influence on crisis handling in multinational businesses.

The p-value for proactive crisis communication was 0.010 hence hypothesis H1 was accepted. This means that proactive crisis communication approaches have a positive influence on crisis handling in multinational businesses.

H2: There is a significant relationship between reactive crisis communication techniques and crisis handling in multinational businesses.

The p-value for reactive crisis communication was 0.007 hence H2 was accepted. Thus, reactive crisis communication techniques are significantly related to crisis handling in multinational businesses.

H3: New communication innovations or technologies have a positive effect on crisis handling in multinational businesses.

The p-value for new communication innovations was 0.018, which is less than 0.05 hence H3 was accepted. Therefore, new communication innovations or technologies have a positive effect on crisis handling in multinational businesses.

5. Discussion

The study investigated the moderating role of effective communication as an innovative tool in handling crises in multinational businesses. The findings of the study reveal that proactive crisis communication approaches have a positive influence on crisis handling in multinational businesses. Moreover, the results indicated that reactive crisis communication techniques also impact crisis handling in multinational businesses. Additionally, it was found that new communication innovations or technologies have a positive effect on crisis handling in multinational businesses.

The study emphasised the importance of crisis communication as a specialised function within an organisation, aimed at protecting the reputation of individuals and entities under attack. Maintaining consistent communication during a crisis should be a top priority, making crisis communication essential (Kalogiannidis, Kalfas, Chatzitheodoridis, & Lekkas, 2023; Matkevičienė & Jakučionienė, 2021; Schaedler et al., 2022; Silviani, Nisa, & Pratama, 2022). Many companies extensively depend on crisis communication in the course of their regular work (Singh & Chahal, 2015; Tomy & Pardede, 2018). A crucial component for the successful growth of businesses is crisis communication. Companies can improve their management of information sources and interact with their employees, stakeholders, and the general public by using newsletter posts on their websites (Esbensen & Krisciunas, 2008; Sageder & Feldbauer-Durstmüller, 2019). In times of disaster, proactive, prompt, and comprehensive communication is essential. Businesses should have a plan in place for emergency communications that outlines how information is sent in the event of a serious crisis or tragedy. It is essential to divide the crisis into several stages in order to prevent employing a general strategy for crisis management. Pre-crisis, acute-crisis, and post-crisis are the three phases of a crisis. By fully integrating crisis management and response tactics into the decision-making process, an organisation can achieve better crisis outcomes (Rodríguez et al., 2013; Slabbert & Barker, 2012). In order to select an appropriate communication channel, businesses need to understand the communication requirements at each stage of the innovation process. Innovation in an organisation can be greatly increased by anticipating the challenges that may arise at each of these stages of innovation and taking action to reduce them (Abdelkader & Abed, 2016; Humanson & Nordeman, 2017). Communication in business must take into account the varying stages of maturity of innovations. Additionally, fostering a culture of openness and cooperation can help with communication at all stages of the innovation process (Am, Furstenthal, Jorge, & Roth, 2020; Głodziński & Marciniak, 2016; Yustian, 2021).

Both proactive and reactive crisis communication strategies have their merits and require extensive preparation. Organizations can incentivize their employees by implementing strategies that encourage interaction among team members (Kalfas, Kalogiannidis, Chatzitheodoridis, & Toska, 2023; Sharma et al., 2022; Yustian, 2021).

Social network analysis can also be utilized by organizations to identify areas of cooperation across divisions and hierarchies, enabling them to investigate and optimize communication patterns (Fragouli & Ankunda, 2016; Salvioni & Bosetti, 2014; Zakiri, 2020).

6. Conclusion

The study investigated the moderating role of effective communication as an innovation tool in handling crises in multinational businesses. The study found that proactive crisis communication approaches have a positive influence on crisis handling in multinational businesses. Additionally, the study discovered a significant relationship between reactive crisis communication techniques and crisis handling in multinational businesses. The degree to which businesses engage customers through consistent and efficient communication plays a vital role in determining the amount to which individuals embrace preventative measures. The successful crisis management and avoidance of drastic measures in Greece can be attributed to the government's adherence to establishing guidelines for effective crisis communication. By maintaining message consistency, transparently sharing facts and scientific information, and expressing empathy for the public through reliable sources, the Greek government encouraged reliance on official information sources and mitigated the spread of rumors and false information through the internet.

Information and Communication Technologies (ICTs) were effectively utilized by the government of Greece in various ways to enhance crisis communication, organize large-scale public health initiatives and supply chains, and promote the widespread adoption of preventative measures such as social distancing and mask usage. Collaborations with broadcast and social media companies played a significant role in these efforts. The integration of theoretically sound and empirically supported preventative and quarantine measures, bolstered by ICTs and guided by crisis communication techniques, will remain crucial components of international endeavors to combat business crises.

6.1. Recommendations

Multinational businesses need to embrace new technological advancements and foster a culture of innovation when handling communication issues in their operations. This can greatly help in effectively handling different crises that may arise in the business.

The study showed that proactive approaches to business communication have a positive impact on crisis resolution. Therefore, managers of multinational businesses should promote the use of proactive instead of reactive communication approaches when interacting with employees and handling crises.

6.2. Areas for Future Research

Future research must, however, concentrate on the function of managerial effectiveness in social media-assisted crisis communication in business. Future research should comprehend the function of innovation adoption in order to assess the connection between crisis communication and the function of social media's preferred channels. Additionally, future studies should investigate the influence of the organizational working environment on crisis communication, particularly in the context of Greece's public limited firms.

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