



Exploring corporate reputation and crisis communication

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Abstract

Corporate reputation, the collective perception of company attractiveness towards stakeholders, impacts business outcomes, while effective communication strategies play a critical role in shaping and maintaining the reputation. The role of communication is highlighted during crises, crisis communication being a strategic approach to managing and mitigating the impact of unexpected or adverse events on the reputation, operations, and stakeholders. These concepts are deeply interrelated with interactive marketing. This study explores the dynamics of corporate reputation and crisis communication during a recent global crisis by combining a literature review, opinion mining, and classification analysis. This is because stakeholders rely on various information sources and engage in online discussions, which can impact the reputation, and pose new challenges. The opinion mining analysis draws from the media communication of selected stock-listed companies during a crisis. The key findings shed light on the dynamics of corporate reputation and crisis communication and the impacts on interactive marketing. Critical components of crisis communication are identified to include monitoring, tactics of responding, and response management. Linkages between these, crisis communication theories, and corporate reputation are synthesised. Indications are provided on how the crisis can affect the corporate reputation and the significance of the speed of preventive communication measures.

Keywords Corporate reputation · Crisis communication · Interactive marketing · Pandemic · Nasdaq stock exchange · Stakeholder perceptions

Introduction

Corporate reputation plays a critical role in shaping stakeholder perceptions and influencing business outcomes in the modern business landscape. The formation, management, and measurement of corporate reputation are related to the

complex interplay between a variety of factors (Mandelli and Cantoni 2010). Companies should understand their corporate identity, manage stakeholder experiences, and communicate their strategic choices and values effectively (Jones et al. 2009). Corporate reputation is seen as one of the essential intangible assets of a company and is increasingly influenced by the information available in the online environment (Floreddu et al. 2014). Interactive marketing and integrated communication are crucial for managing corporate reputation and engaging with stakeholders (McMahon 2020).

Corporate reputation is related to crisis management (Tucker and Melewar 2015). The outbreak of the coronavirus disease (COVID-19) in 2019 is a significant global crisis that has the power to affect corporate reputation. The global crisis came as a surprise, while the risk was seen as medium, and the probability of occurrence was rather low (Turchin and Denckenberger 2018). Risk assessment and probability theory have been seen to have keys to capturing this kind of event that comes as a surprise and has a major effect (Aven 2013). Weak early signals of the global crisis have been studied (Nuortimo and Harkonen 2021), but not

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the corporate reputation side or related factors in this type of context.

Corporate reputation is a dynamic concept that is affected by a company's internal decisions, actions, and external factors (Chun 2005; Dortok 2006; Gray and Balmer 1998). It is not only about the company's actions but is heavily influenced by how stakeholders perceive and interact with the company (Carter 2006; Chun 2005). In the digital age, online environments introduce new challenges as stakeholders rely on various information sources and engage in online discussions that significantly impact corporate reputation (Rokka et al. 2014). To thrive in this dynamic landscape, businesses must embrace proactive reputation management strategies, monitor online channels, and adapt swiftly to changing stakeholder perceptions (Jones et al. 2009). In addition, artificial intelligence could play a role in analysing, monitoring, and managing aspects related to corporate reputation (Hirsch 2018). Regardless of the means used, understanding the multifaceted nature of reputation formation and leveraging both offline and online channels is necessary for companies to build and maintain strong and resilient corporate reputations.

Measurement is necessary to understand corporate reputation. The measurement necessitates deriving stakeholders' perceptions from online data. Social and online media monitoring tools have been developed to gather company-related information from online data, and hence can be viewed as an opportunity to monitor online corporate reputation. Some studies apply statistical models to measure reputation (Cherchiello 2011), while others indicate how reputation can be measured via opinion mining (Colleoni et al. 2023). Sentiment analysis can be used for this purpose (Cavaggioli et al. 2020; Hamidi et al. 2023). Some researchers have also realised the potential of machine learning applications for this purpose (Rantanen et al. 2019). However, few studies have focussed on the dynamics of corporate reputation during crises (Chung et al. 2019). Studies are deficient in focussing on the influence of significant global events on corporate reputation and related mechanisms, including the stakeholder perspective.

Crisis communication is crucial for managing and mitigating the impact of unexpected events on corporate reputation, operations, and stakeholder trust (Mills and Morrish 2023). Online and social media have become vital topics in crisis communications (Yu et al. 2022). Direct stakeholder engagement through digital platforms in interactive marketing (Wang 2023) can provide value, while a positive corporate reputation strengthens stakeholder engagement and trust in a company (Zhang and Lin 2015). Interactive marketing platforms, such as social media, provide tools for real-time communication, which is crucial during a crisis (Gupta and Prashar 2023). Additionally, interactive marketing allows companies to communicate transparently (Holland et al.

2021) and show accountability, which can help maintain or restore trust among stakeholders. Nevertheless, the interrelation between crisis communication, corporate reputation, and interactive marketing has been addressed in the literature.

This study explores the dynamics of corporate reputation and crisis communication and forms linkages to interactive marketing. Drawing upon previous research on corporate reputation, the dynamics of online reputation and the influence of the recent pandemic crisis on corporate reputation are clarified, together with the challenges of relying on online sources. Critical components of crisis communication were identified and crisis management theories were explored to provide support for this understanding. Linkages are synthesised into the identified critical components of crisis communication and corporate reputation. Dynamic online reputation measurement of selected companies on the NASDAQ Helsinki stock exchange during the first wave of the COVID-19 pandemic was carried out through opinion mining and classification analysis to reveal insights on how reputation might be affected by a global crisis.

Literature review

Corporate reputation

Corporate reputation is the cornerstone of a company's success and has a significant impact on various aspects of its operations and outcomes. Table 1 illustrates why corporate reputation is crucial for shaping stakeholder perceptions and influencing business outcomes.

It can be stated that corporate reputation refers to the collective assessment of a company's credibility, trustworthiness, reliability, and overall standing in the eyes of stakeholders (Baruah and Panda 2020; Chun 2005; van der Merwe and Puth 2014) including customers, employees, investors, partners, regulators, and the public (Pruzan 2001). It represents the public's perception of how a company operates, the quality of its products or services (Radomir and Wilson 2018), its ethical standards (Leiva et al. 2016), and its impact on society and the environment (Maaloul et al. 2023; Zou et al. 2015). Nevertheless, the reputation literature can be categorised by disciplines where sociology has traditionally taken the collective assessment perspective, marketing the customer or end-user perspective, and economics and behavioural disciplines have emphasised stakeholders (Chun 2005). Corporate reputation can be seen as an asset that influences stakeholders (Tischer and Hildebrandt 2014), supports long-term growth (Gaines-Ross 1997), and may or may not insulate against crises through certain mechanisms (Janssen et al. 2015). Building a strong reputation requires consistent performance, ethical practices,



Table 1 Importance of corporate reputation

Factor	Explanation	Reference
Stakeholder trust and confidence	A positive corporate reputation fosters trust and confidence among stakeholders	Lin (2024); Stravinskienė et al. (2021)
Brand image	Corporate reputation is closely linked to a company's brand image. The value judgement evolves, and image can be fashioned relatively quickly through communication	Arduini et al. (2023); Gray and Balmer (1998)
Differentiation	A strong reputation helps differentiate the company from competitors	Carlisle and Faulkner (2005); Jindal (2023)
Financial performance	Corporate reputation has an impact on a company's financial performance. Reputation can affect future financial performance and financial performance reputation	Eberl and Schwaiger, (2005); Martínez-León et al. (2023)
Market value	Corporate reputation may or may not impact a company's market value. Changes in market value cause changes in corporate image. Corporate reputation is seen to amplify negative and positive media's effect on market value	Rose and Thomsen (2004); Guitart et al. (2024)
Stakeholder support	Corporate reputation affects stakeholder support, the extent company is recommended, willingness to work for, buy products and services, invest in, and positively comment on	Arian et al. 2023; Vidaver-Cohen & Brønn 2015
Employee engagement and recruitment	A positive corporate reputation is essential for attracting and retaining top talent	Krušković et al. 2023; Story et al. 2016
Regulatory and legal compliance	Companies with strong reputations are more likely to receive favourable treatment from regulators, policymakers, and the legal system	Dowling 2016a, b; Malik 2015
Crisis resilience and recovery	A strong corporate reputation acts as a buffer during times of crisis	Jones et al. 2000; Wei et al. (2020)

and effective communication among all stakeholder groups (Taghian et al. 2015). Proactive management of reputation can help mitigate risks and ensure sustained success (Singh 2021).

Corporate reputation as a concept has evolved over time (Dowling 2016a, b), reflecting changes in societal values (Balmer 2012), business environments (Rodrigues and Franco 2019), communication technologies (Johnston and Everett 2012), and stakeholder expectations (Donnelly and Wickham 2021). This evolution is visible along with business transformation through industrial revolutions (Balmer and Yen 2016), globalisation (Wang 2005), and digitalisation (Hamidi et al. 2023), resulting in the evolution of corporate reputation. Corporate reputation has evolved from early reflection of quality, reliability, and personal reputation to being a complex, multidimensional asset shaped by ethics, stakeholder relations, global responsibility, and real-time feedback.

Dynamic nature of online reputation

Corporate reputation and online reputation are closely intertwined concepts, with online channels serving as critical platforms for shaping, managing, and influencing corporate

reputation (Genovino 2023). Online platforms also play a critical role in crisis communication by providing companies with a means to respond quickly and effectively to negative events or incidents (Langaro et al. 2024). Companies must actively manage their online presence to ensure that their online reputation aligns with their goals and objectives to manage their reputation (Rokka et al. 2014).

Corporate reputation, identity, and brand are interconnected elements that shape stakeholder perceptions, attitudes, and behaviours towards a company. Corporate identity and brands are crucial elements in reputation formation (Bickerton 2000). Identity represents what a company is and what it stands for, encompassing strategic choices and corporate expressions (Abimbola et al. 2012). Corporate expression, conveyed through visual identity, corporate communications, and brand promise, communicates the company's capabilities and conveys stakeholder expectations (Argenti and Druckenmiller 2004). A corporate brand refers to the overall image, perception, and reputation of a company as perceived by its stakeholders, including customers, investors, employees, suppliers, and the community (Roper and Davies 2007). Corporate reputation is also affected by cultural features and may not be homogeneous (Pérez-Cornejo et al. 2023).



Corporate reputation is often perceived as a comparative concept, with stakeholders forming the opinions of a company by comparing it with other entities. These comparisons may involve competitors, industry averages, and a company's past performance (Walker 2010). The object of comparison significantly influences corporate reputation (Khan and Digout 2018). Stakeholders consider various information signals sent by the company and other intermediaries to form their perceptions (Dentchev and Heene 2004). Stakeholders may share their views on the company, and some are more influential than others (Dalla-Pria and Rodríguez-de-Dios 2022).

Traditional reputation management in an offline environment involves actively shaping stakeholders' perceptions of a company through strategic choices, corporate expression, and effective communication (Mahon and Wartick 2003). Companies focus on maintaining a positive reputation by consistently delivering their brand promise, managing stakeholder experiences, and promptly addressing issues and concerns (Argenti and Druckenmiller 2004). Offline reputation measurement relies on a combination of qualitative and quantitative methods including surveys, interviews, media analysis, and stakeholder feedback (Brammer and Pavelin 2004). However, the advent of the Internet and social media has revolutionised reputation management by introducing new challenges and opportunities. The online environment offers numerous touchpoints for stakeholders to gather information, share opinions, and shape their corporate reputation (Khan and Digout 2018). Stakeholders rely on electronic word-of-mouth (e-WOM) and user-generated content to evaluate companies and make informed decisions (Khalid et al. 2020). Positive online interactions and endorsements can enhance brand image, while negative e-WOM, customer complaints, and harmful content can damage reputation (Pfeffer et al. 2014).

Online reputation management requires the continuous monitoring of online channels, including social media, online reviews, forums, blogs, and wikis (Khalid et al. 2020). Companies must actively engage with stakeholders, respond to feedback, transparently address issues, and leverage social media for communication, knowledge transfer, and community building (Vuori 2012). Management responses are considered an effective way to improve online reputations (Proserpio and Zervas 2017). Reputation measurement in the online realm involves analysing online sentiment, monitoring brand mentions, tracking social media metrics, and assessing the impact of online content on stakeholder perceptions (Rantanen et al. 2019).

The dynamic nature of corporate reputation is influenced by changing stakeholder perceptions, evolving information signals, and new online interactions (Lange et al. 2011). Stakeholders form their opinions based on a combination of past behaviour, current associations, and emerging information. Information can have either a positive or negative

influence when factual or false content is shared online (Friggeri et al. 2014). The rapid spread of information in the online environment amplifies the need for proactive reputation management and timely responses to mitigate potential reputational risk (Rantanen et al. 2019).

Literature highlight

The dynamic nature of online reputation challenges traditional reputation management and necessitates the continuous monitoring of online channels and means of effectively engaging with stakeholders to maintain perceptions, attitudes, and behaviours towards a company. The online environment also provides a means to respond rapidly to crises.

Pandemic influence on a corporate reputation

The way a company responds to a significant global crisis, such as the recent pandemic, can have considerable influence on its reputation. This is highlighted as reputation being socially constructed and having different meanings for different individuals (Podnar et al. 2012). The global pandemic has influenced stock exchange companies, as the literature has covered a variety of impacts, including restrictions on travel and mobility of labour (Ratten 2020; Amankwah-Amoah et al. 2021), businesses (Harel 2021), IT systems and human resources (Vahdat 2022), talent management (Fernandes et al. 2023), earnings management (Lassoued and Khanchel 2021), social responsibility (Ahmed et al. 2021), crisis management (Dwiedienawati et al. 2021), and marketing (Crick and Crick 2020). This highlights the importance of quantifying its impact on corporate reputation.

It can be assumed that the COVID-19 pandemic has had an impact on corporate reputation across various industries and businesses worldwide, depending on how companies operated during the pandemic.

During a crisis, businesses must deliver effective crisis management to safeguard an organisation's reputation (Dwiedienawati et al. 2021). The social responsibility function (CSR) is also seen as protecting reputation (Qiu et al. 2021). Businesses that demonstrate leadership, empathy, and transparency and are quick in their actions to protect employees, customers, and communities are likely to be viewed more positively via the interaction of authentic leadership and business model flexibility (Fox et al. 2020). On the other hand, companies that mishandle the crisis, show insensitivity, or fail to prioritise safety can face severe reputational damage (Coombs 2015; Love and Kraatz 2009). Companies' treatment of their employees affects their reputation (Khan and Digout 2018) and can be highlighted during a pandemic.

Businesses that prioritise employee health and safety (Miller and Haslam 2009) offer remote work opportunities, provide support during layoffs or furloughs, and maintain



open communication are likely to be seen more favourably by the public. In addition, the way companies interact with their customers during a crisis can shape their reputations (Sancilio 2014). Businesses that adapt to changing customer needs, maintain quality service, and show an understanding of customers are likely to enhance their reputation (Yoo and Park 2007). On the other hand, companies that exploit a situation or demonstrate a lack of concern for customers may face a backlash (Maignan et al. 2002). A pandemic exposes different supply chains to several vulnerabilities (Shih 2020). Companies with robust and adaptable supply chains that continue to deliver products and services are likely to gain the trust and respect of stakeholders (Li et al. 2022). Conversely, businesses experiencing supply chain disruptions or failing to adequately address them may face reputational challenges (Azadegan et al. 2020). How a company conducts its operations during a pandemic can impact its reputation (Jhavar and Jain 2021). Businesses that prioritise ethical behaviour, fair pricing, and responsible marketing are more likely to maintain or enhance their reputation (Oberseder et al. 2013). Companies engaging in price gouging or taking advantage of the crisis for profit can suffer significant damage to their reputations (Finestone and Kingston 2022).

Other factors that influence a company's reputation during a crisis include community support, communication, marketing, and financial health. Company reputation can be positively influenced if companies actively support their communities during a pandemic (Billedeau and Wilson 2021). The manner in which companies communicate their actions and responses to the pandemic is crucial. Transparent, informative, and empathetic communication can strengthen reputation (Argenti 2020). A pandemic affects the financial health of many businesses, promoting some understanding; however, prolonged financial struggles can raise concerns about company viability and impact reputation (Roodposhti et al. 2018). Overall, the recent pandemic has presented both challenges and opportunities for companies to demonstrate their values, resilience, and commitment to stakeholders. The way businesses respond during this time can have a lasting impact on their reputations. Reputation resilience theories may help to understand how organisations can withstand and recover from reputational challenges and crises (Koronis and Ponis 2012).

Crisis communication

Effective crisis communication involves a strategic approach to managing and mitigating the impact of unexpected or adverse events on an organisation's reputation, operations, and stakeholders (Pierpoint 2024; Spradley 2017). Table 2 illustrates key elements of crisis communication.

However, relying on online sources in crisis communication can result in challenges. These challenges include

information overload, potentially leading to failed communication efforts (Link 2021). Misinformation and fake news confuse and affect the reliability of sources (Vafeiadis et al. 2020). Message personalisation can also negatively affect crisis communication, because algorithms influence information exposure (Brown-Devlin et al. 2022). Digital literacy and access may also play a role in how people are informed (Nairn and Matthews 2024). Privacy concerns affect willingness to share information (Vafeiadis et al. 2020). In addition, any kind of forcing or manipulation to influence opinions (Sweeny et al. 2010) and the lack of transparency in communication influences trust (Ngai et al. 2022) are among the potential challenges.

A systematic understanding of crisis communication can be broken down into key phases, concepts, and strategies that organisations use to respond to and mitigate the effects of a crisis (Coombs 2010; Seeger et al. 1998). A crisis is an unpredictable, unexpected, and significant event that threatens to disrupt operations or harm the organisation's reputation, stakeholders, or the public (Coombs 2007; Mizrak 2024). Crises may arise from external factors, such as natural disasters and economic downturns, or internal factors, such as mismanagement, product failures, or scandals. (Chen 2024; Dubrovski 2007; Lerbinger 2011; Mizrak 2024). The crisis communication lifecycle can be divided into phases such as pre-crisis, crisis response, and post-crisis (Coombs 2010); birth, growth, maturity, and decline (death) (Gonzalez-Herrero and Smith 2008); organisational actions of online monitoring, identifying and responding to threats, crisis response, tracking the issue, and post-crisis actions (Siah et al. 2010); and other logics such as proactive, strategic, reactive, and recovery (Pang et al. 2014). To support the lifecycle approach, crisis communication requires a systematic and strategic approach for managing unpredictable and often chaotic situations (Pierpoint 2024; Spradley 2017).

The evolution of crisis communication reflects dynamic changes in technology, media landscapes, societal expectations, and organisational practices over time (Coombs 2013; Gonzalez-Herrero and Smith 2008; Tække 2017). Crisis communication has evolved from reactive, localised responses to proactive, real-time, and digitally driven strategies (Upadhyay and Upadhyay 2023). The shift from traditional media to social media and AI-driven tools has increased the speed, complexity, and demands for managing crises effectively (Cheng et al. 2024; Eriksson 2018; Hu and Liu 2022). Currently, organisations must be prepared to engage with a global, informed, and connected audience in crisis communication while maintaining transparency, empathy, compassion, and responsibility (Littlefield et al. 2021; Mann et al. 2021).



Table 2 Key elements of crisis communication

Factor	Explanation	Reference
Being prepared	Preparing for the worst. Identifying potential crisis scenarios, assessing risks, and developing response strategies and messaging in advance	David and Carignan (2017); Seeger et al. (1998)
Planning	A crisis communication plan that outlines roles, responsibilities, and protocols for responding to various types of crises helps in reacting	Massey and Larsen (2006); Nisar and Javed (2022)
Timely communication	Providing timely and accurate information to stakeholders. Transparency and openness are vital	Austin and Jin (2015); Ndlela (2018)
Consistency in messaging	Consistency in messaging across all communication channels is necessary. Involves coordinating messaging among organisational functions, such as legal, operations, and public relations, to ensure alignment and coherence	London & Matthews 2022; Seeger et al. 2020
Compassion and empathy	Showing compassion and empathy towards those affected, including victims, families, employees, and customers. Concern, support, and resources are valuable for the affected	De Waele et al. (2020); Schoofs et al. (2022)
Dialogue	Encouraging two-way communication and feedback by stakeholders to address any questions, and misinformation, and to be responsive, and sensitive to concerns. Active listening is a key	Kim et al. (2023); Ndlela (2018)
Media training	Media training to those communicating with outside to ensure they are prepared to handle the interactions Effectively managing media inquiries and relations, appointing designated spokespersons to deal with the media and the public	Fearn-Banks (2016); Veil and Ojeda 2010
Flexibility and adaptability	Flexible and adaptable in response to evolving circumstances, new information, and changing stakeholder needs. Adjusting communication strategies and tactics as necessary to effectively manage the crisis and minimise its impact	Maal and Wilson-North (2019); Turk et al. (2012)
Social media monitoring	Monitoring social media channels for the discussions related to the crisis. Stakeholder engagement on social media platforms to provide updates, address questions, and manage reputational risks	Dhar & Bose 2022; Saroj & Pal 2020
Evaluation and learning	A post-crisis evaluation to assess the effectiveness of communication strategies and identify areas for improvement. Learning from the crisis to enhance preparedness, resilience, and communication practices for the future	Broekema et al. (2018); Hyvärinen and Vos (2016)

Literature highlight

Monitoring, tactics of responding, and response management are critical in crisis communication. Monitoring involves actively gathering information and assessing the situation to understand the nature and severity of a crisis and its impact on stakeholders. Tactics of responding involve developing and implementing strategies to address the crisis, mitigate its impact, and protect the organisation's reputation and interests. Response management includes the process of planning, coordinating, and executing the organisation's response to the crisis, including communication activities, establishing clear roles, responsibilities, and collaboration across organisational functions.

Effective crisis communication can be hindered by merely relying on modern online sources, as this reliance can lead to challenges related to information overload,

misinformation, bias caused by algorithms, digital literacy, and privacy-related challenges.

Theories in crisis management

Theories revolving around crisis management can provide valuable insights for understanding the dynamics of crises and provide frameworks to prepare for and consider response efforts and related training. Table 3 summarises some relevant theories.

Table 4 provides synthesised linkages between these theories and the critical components of crisis communication, namely monitoring, tactics of responding, and response management. Linkage to corporate reputation was also attempted.



Table 3 Crisis management theories

Theory	Brief explanation	Reference
Situational crisis communication theory (SCCT)	The focus of SCCT is on how organisations communicate during crises to manage their reputation Key SCCT variables that influence stakeholders' perceptions of crisis response strategies include crisis responsibility, crisis and relationship history, and organisational reputation. <i>“SCCT recommends that crisis communicators examine the crisis type and the intensifying factors to assess the probable crisis responsibility stakeholders will attribute to the organisation in crisis”</i>	Coombs and Holladay (2002); Coombs (2017)
Organisational resilience theory (ORT)	Organisational Resilience Theory relates to creating organisational capabilities and capacities to endure and recover from crises. The dimensions of ORT include capital resilience, strategic resilience, relationship resilience, cultural resilience, and learning resilience Being prepared for the unexpected, learning, and flexibility are emphasised	Chen et al. (2021); Kantabutra and Ketprapakorn (2021)
Crisis communication theory (CCT):	CCT relates to understanding communication processes relevant to crises. A crisis is divided into stages with different communication strategies. Consistency in communication and stakeholder perspective are highlighted	Sellnow and Seeger (2021); Ulmer et al. (2010)
Social-mediated crisis communication theory (SMCT)	SMCT integrates principles of crisis communication with the dynamics of social media. The model explains how the source and form of crisis information affect organisations' response options and recommends social-mediated crisis response strategies. Leverages social media to engage with stakeholders, manage perceptions, and mitigate the impact on reputation	Austin et al. (2012); Liu et al. (2011)
Sensemaking theory (ST)	ST focuses on how individuals and organisations make sense of uncertain situations, including crises. The focus is on sensemaking processes. Themes of shared meanings and emotions underlie sensemaking. Relates to perceptions and interpretations and plays a role in shaping reputation	Holt and Cornelissen (2014); Maitlis and Sonenshein (2010)

Findings

Crisis communication theories can be associated with the critical components of crisis communication, namely monitoring, tactics of responding, and response management, as well as with the individual key elements of crisis communication. Linkages can be created between crisis communication theories and corporate reputations.

Research process and method

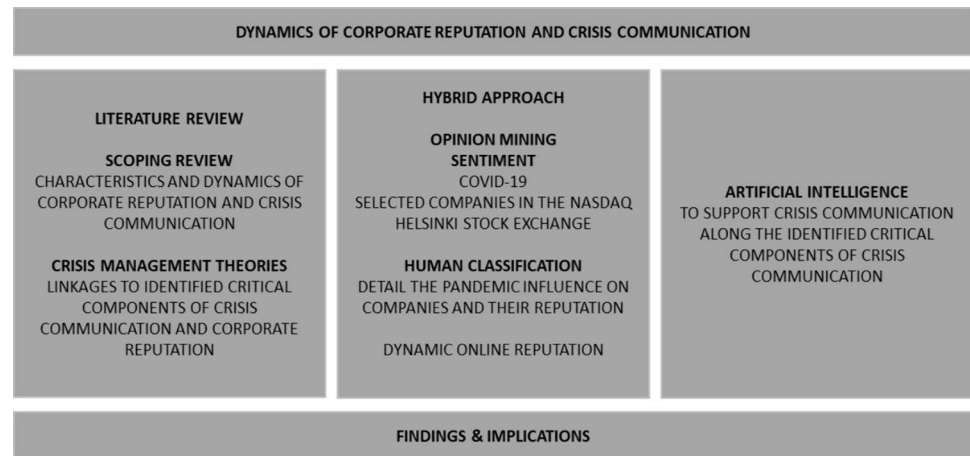
The dynamics of corporate reputation and crisis communication were examined in three stages (Fig. 1). *First*, a literature review on corporate reputation, the dynamics of online reputation, and the influence of the recent pandemic crisis on corporate reputation is carried out. In addition,



Table 4 Crisis management theories and critical components of crisis communication, and corporate reputation

Theory	Monitoring	Tactics of responding	Response management	Corporate reputation
Situational Crisis Communication Theory (SCCT)	Emphasises the importance of monitoring stakeholder perceptions, media coverage, and online conversations to assess reputational threats and adjust communication strategies	Provides guidance for selecting response strategies based on crisis responsibility, crisis history, and reputational threat levels. Emphasises timely, honest, and empathetic communication to manage stakeholder perceptions	Informs response management by guiding decisions on message content, channel selection, and stakeholder engagement strategies throughout the crisis management process	Provides a framework for understanding how organisations can manage their communication strategies during crises to protect and preserve their corporate reputation
Organisational Resilience Theory (ORT)	Emphasises the importance of continuous monitoring to identify potential threats and opportunities for improvement. Encourages proactive approach and maintaining situational awareness to detect early warning signals	Emphasises the need for adaptive responses, informed by organisational learning, flexibility, and being prepared. Encourages development of contingency plans, response protocols, and crisis management teams to respond effectively to unexpected	Guides response management by promoting a systematic approach to planning, coordination, and execution. Emphasises the importance of collaboration, leadership engagement, and learning from experiences to enhance resilience and effectiveness	A positive reputation enhances organisational resilience by fostering stakeholder trust Recognising reputation as a component of resilience supports protecting reputation and enhances the ability to endure crises and recover from them
Crisis Communication Theory (CCT):	Highlights the importance of continuous monitoring and assessment of crisis, stakeholder reactions, and media coverage to inform response efforts and adjust communication strategies	Provides a framework to select and implement response tactics at each stage of the crisis. Emphasises proactive communication, stakeholder engagement, and message consistency	Guides response management by defining communication tasks and strategies for each crisis stage and supports coordinating and executing response efforts	Provides a framework for understanding how communication strategies and tactics can impact corporate reputation. Links to transparency, trustworthiness, accountability, and stakeholder engagement
Social-Mediated Crisis Communication Theory (SMCT)	Emphasises the importance of monitoring social media platforms to track conversations, sentiment, and emerging issues to allow early detection and insights to inform response strategies	Encourages engaging with stakeholders on social media during crises to demonstrate responsiveness to stakeholders' needs Message tailoring to stakeholder groups. Different responses to different crises	A communication plan before a crisis is emphasised. Roles and responsibilities, communication protocols, and response procedures to ensure effective responses. Coordinated responses to ensure consistency	Provides valuable insights on how to manage reputation in the digital era by leveraging social media, transparent communication, stakeholder engagement, and post-crisis efforts
Sensemaking Theory (ST)	Emphasises sensemaking processes in interpreting and understanding stakeholder perceptions, cognitive processes, and social interactions to identify emerging issues, sense-making gaps, and opportunities for intervention	Informs response tactics by pointing to the importance of clear, consistent, and meaningful communication to help stakeholders make sense of the crisis. Encourages to engage in sense-giving activities to frame the crisis, shape perceptions, and guide stakeholder responses	Guides response management by emphasising leadership communication, storytelling, and narrative construction in shaping responses to crises. Encourages facilitating sensemaking processes among stakeholders, fostering collective understanding, and promoting resilience in times of uncertainty	Provides insights into how individuals and organisations interpret events, attribute causes, construct narratives, and form perceptions, that all can impact corporate reputation. Relates to how organisations can influence stakeholders' interpretations, perceptions, and related reputational outcomes



Fig. 1 Research process and method

crisis communication and the related challenges of relying on online sources were addressed. This was performed to identify the critical components of crisis communication. Crisis management theories were explored to support this understanding. Drawing from these theories, linkages were synthesised to the critical components of crisis communication identified in the literature review and corporate reputation. *Second*, this study focuses on the dynamic online reputation measurement of selected companies listed on the Nasdaq Helsinki Stock Exchange (OMHX) during the first wave of the COVID-19 pandemic. This was realised through opinion mining and classification analysis, combined with human classification, to gain insight into how reputation may be affected by significant global crises. The *third* step involves probing ideas for potential artificial intelligence (AI) support to address the identified critical components of crisis communication by applying an AI tool and relevant queries. The three stages shed light on the dynamics of corporate reputation, crisis communication, and related mechanisms.

The literature review resembled a scoping review that sought clarity on the dynamics of the studied concepts and understanding their characteristics (Munn et al. 2018). Keyword searches were conducted on Google Scholar to identify relevant literature. The initial keywords included corporate reputation, online reputation, crisis communication, interactive marketing, pandemic, COVID-19, and stakeholders. Keywords were applied individually and in combination. To deepen our understanding, the list of keywords was expanded when relevant factors were identified. Further explanation and understanding were sought through the selected crisis management theories. No specific time range was included in this search. The language was limited to English without restrictions on the study design. Journal publications were emphasised. The grey literature was not systematically searched. Studies were selected based on providing clarity on the study's aim and supporting

understanding of the essential components of crisis communication and the dynamics of corporate reputation. Identified articles were screened, including titles and abstracts, and within-article searches using keywords to reveal the discussion. Suitability to support understanding was determined, potential factors and characteristics were identified, and notes were taken. Notes were grouped by the keywords used and identified factors. Snowballing logic was used in the searches until no new understanding was obtained. The findings were reviewed and organised in a table format using MS Office tools, together with relevant explanations, and any deviations in understanding among the researchers were discussed. Finally, crisis management theories are explored to support our understanding.

Dynamic online reputation measurement involves a hybrid approach to digital opinion mining on a vast pool of media, including edited and social media (Nuortimo 2021). Computer-assisted analysis involves media coverage of the COVID-19 pandemic for more than a year, starting from the very first stage of the appearance of the virus. Commercially available M-adaptive media monitoring software is used. The software mines the media based on keywords using black-box algorithms. Sophisticated algorithms that integrate natural language processing (NLP) and machine learning techniques are employed to analyse and categorise vast amounts of digital content. The keywords used include the corporate names of the largest companies listed in the OMHX. To save computational and human resources, the searches were limited to Finland and the Finnish language. The results were complemented by a human analysis-based detailed classification of corporate media hits to gain further insights. Manual human analysis allowed us to confirm the validity of the findings, draw further insights, and simultaneously confirm the performance of the method applied for opinion mining. This confirmation enables us to address the limitations of state-of-the-art relevant methodologies that have not been established (Ribeiro et al. 2016). M-adaptive



software (M-Brain 2015) uses a large dataset (236 regions, 71 languages in 3 million social media sources, and 100,000 news outlets), while the software has different lexicons (corpus) for several languages, including Finnish, the main language used in the data analysis. The algorithm calculates sentiments by comparing the media documents to the search terms and presents the results for the entire document (neutral, negative, positive, mixed, or unknown sentiment). The programme parameters and algorithm define sentiments for the document by analysing the text and identifying and scoring words, phrases, and contexts. The sentiment classification accuracy is approximately 80%, which is no worse than that of human classification. The manual human analysis allows further validation through an input–output examination and sentiment correctness assessment. The benefit of algorithm-based analysis is consistency. The analysis starts with a large dataset and moves towards a focussed smaller human-based analysis, enabling focus on the research from the large picture to relevant issues, in the case of selected companies during COVID-19. This involves scale events, the volume of media hits, and a comparison to example stock exchange behaviour. The dataset was narrowed down to 115,914 media hits using the applied keywords and document language. This includes 57,335 editorial news documents and 58,579 social media posts. These documents and posts formed the analysed data. The human-made classification details the pandemic's influence on companies and their reputations. The manual content analysis followed Neundorff (2002) in the manual classification. A random sample of ten media hits for each company listed in the OMXH was selected for the manual analysis of the entire population of media hits for these companies during the analysis period. The content of each of the obtained documents was analysed qualitatively. Sentiments were analysed manually for the documents by reading them carefully, identifying sentiment-laden words, highlighting and colouring words or sentences expressing emotions, categorising sentiment paragraph-by-paragraph as positive, negative, or neutral, scoring the paragraphs, and tallying up the total document sentiment. These were compared with algorithm-generated sentiments. The document contents were further coded using a classification matrix including company name, sentiment % correct, hit measurement classification: Hit sentiment measures influence corporate reputation positive/negative/neutral; covid-19 related and comments. MS Office tools were used for the coding. The document contents were further analysed for the pandemic's influence on the sector and company, managerial actions as implications, and influence on reputation.

An artificial intelligence chatbot developed by OpenAI (ChatGPT 2024) was used to probe ideas for potential artificial intelligence (AI) support to address the identified critical components of crisis communication. This is realised by

creating relevant queries to obtain indications. This tool has shown the ability to provide rapid indications (Nuortimo et al. 2024). Indicative use is one possible ethically sound use of technology to experiment with and embrace opportunities (van Dis et al. 2023).

Analysis findings

Sentiment, classification, and content analysis

This section discusses the media analysis findings, together with relevant classification and content analysis. The impact of the pandemic in terms of the number of Covid-19 cases and media hits was analysed against the NASDAQ Helsinki Stock Exchange from late 2019 to late spring 2021. The stock exchange collapsed by roughly 30%, and media attention on the pandemic spiked shortly thereafter. The number of Covid-19 cases spiked significantly later. Figure 2 illustrates the percentage change in OMXH, number of media hits, and number of Covid-19 cases in Finland.

Simultaneously, the total media attention of selected companies listed in OMXH (Nasdaq Helsinki Stock Exchange) was followed. Figure 3 illustrates the total non-validated media attention on these companies during the first wave of the pandemic from January 2020 to June 2020, including editorial and social media (Some). Figure 4 illustrates the corresponding media sentiments in percentages for these companies. The analysis indicates how consumer-based services, such as banking (Nordea Bank), the retail sector (Kesko), and energy (Fortum), have gained attention mostly in editorial media.

Table 6 presents the results of content analysis.

Table 5 details the media hits for the selected companies and Table 6 summarises the content analysis. Detailed classification analysis revealed that the original data series included many incorrect hits, and only a fraction was corporate-related. In addition, only a small fraction measured pandemic influence and reputation. In general, OMXH-listed companies managed rather well during the crisis, reacted rapidly by implementing different pandemic procedures, and created new ways of operating. Many industrial branches have come up with new services and ways to operate remotely via the Internet. The industrial branches that benefited the most included pharmaceuticals, food retailing, and packaging, while the sectors suffering the most included equipment manufacturing and steel production. The banking sector remained rather neutral. The industrial branches left outside the analysis included face-to-face services such as restaurants, entertainers, and air carriers, which were all suffering. Tech companies demonstrated good performance during the pandemic through the development of e-commerce solutions.



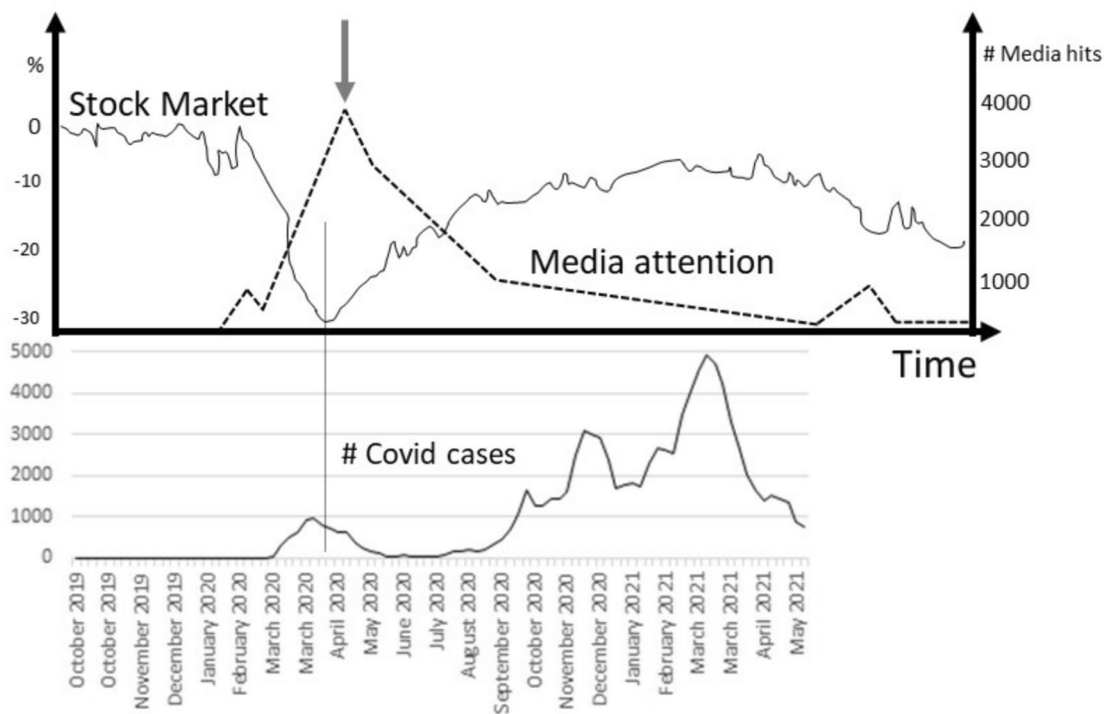


Fig. 2 Stock Market, Media Attention, and # Covid Cases

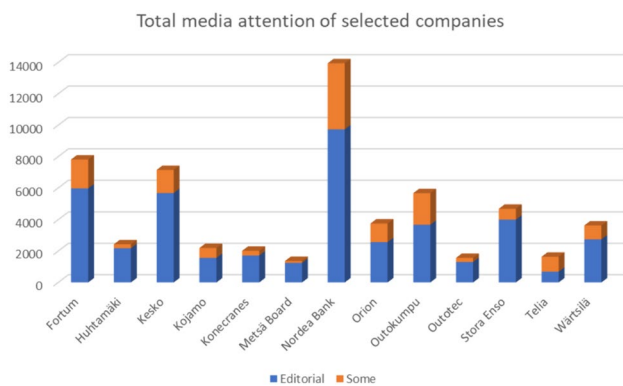


Fig. 3 Total non-validated media attention on selected companies during the first wave of pandemic

The influence of the pandemic on corporate reputation was generally found to be minimal; in some cases, it was even slightly positive due to the incorporation of fast preventive measures and the development of alternative activities. Also, the newly developed products can be seen to have gained a positive product reputation during the pandemic. Electronic word-of-mouth communication did not include brand hate during the pandemic and was mostly related to stock prices and purchase intentions for cheap stock.

Finding

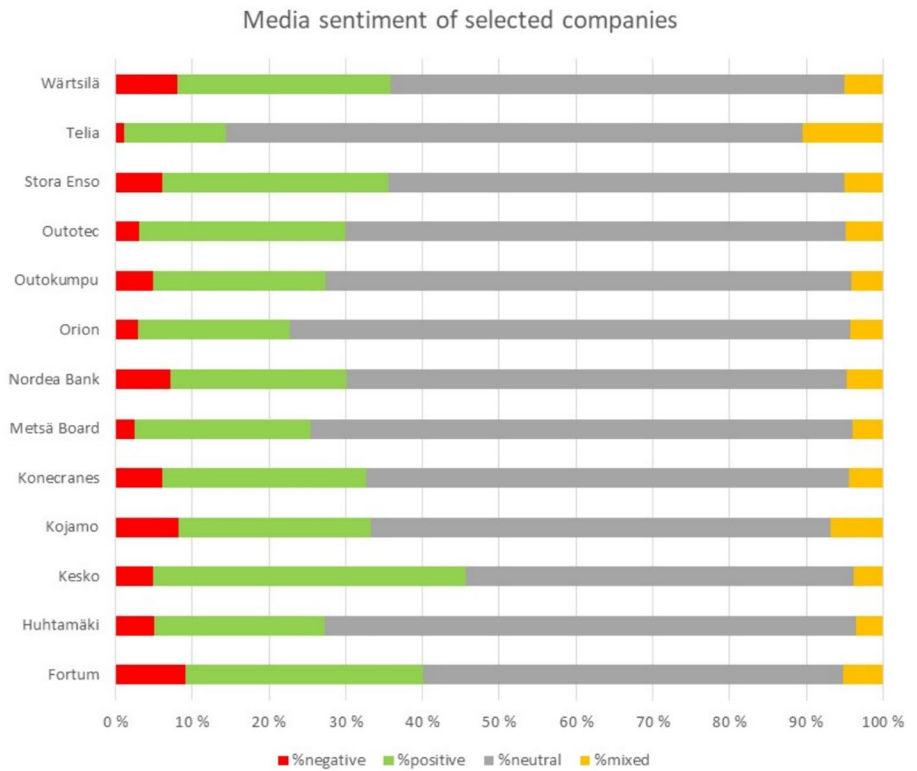
The nature of the crisis influences how companies are affected and has a potential impact on the market in specific industrial sectors, as well as operations. A crisis may also provide opportunities for innovation to counter negative effects.

The impact of a crisis on corporate reputation appears to be minimal when preventive measures are fast and alternative activities are introduced. Innovation in operations can improve reputation during crises. The general influence of the crisis was relatively neutral.

Substantiation of analysis results

To substantiate the analysis findings and opinion mining results, we can approach media attention during the crisis through a shark-fin-shaped illustration (Fig. 5). This type of peak that resembles a shark fin is clearly visible in stock market-related media attention during the Covid crisis (Fig. 2). This shape aligns with the crisis management model of Gonzalez-Herrero and Smith (2008), who approached crises through a biological model of birth, growth, maturity, and decline (death). The analysis findings are also in line with those of Siah et al. (2010) regarding the importance of safeguarding against crises and preparing for risks. Siah et al. (2010) link four stages to the lifecycle that include



Fig. 4 Media sentiment analysis of the selected companies**Table 5** Detailed media hit classification for the selected companies

Company	Analysis period	Branch	Negative sentiment (%) during 1st spike Editorial-some	Selection basis for content analysis
Fortum	1.1–31.5.2020	Electric utilities	8%–11%	Sector representation, Large attention
Huhtamäki	1.1–31.5.2020	Manufacturing and sales of packaging products	5%–7%	Sector representation, Large attention
Kesko	1.1.31.5.2020	Trading	4%–9%	Sector representation, Large attention
Nordea Bank	1.1–31.5.2020	Banking & Financial services	6%–9.5%	Sector representation, Large attention
Orion	1.1–31.5.2020	Pharmaceutical industry	2,7%–3,5%	Sector representation, Large attention
Outokumpu	1.1–31.5.2020	Stainless steel manufacturing	3.2%–7.7%	Sector representation, Large attention
Wärtsilä	1.1–31.5.2020	Manufacturing and services of power and other equipment in the marine and energy sectors	8%–7%	Sector representation, Large attention
Metsä Board	1.1–31.5.2020	Leading European producer of premium paperboards	2%–4,7%	Sector representation, Large attention

organisational actions; Stage 1 involves online monitoring; Stage 2, engaging, involves identifying and responding to potential threats; Stage 3 is streamlined crisis response to address stakeholders; and Stage 4 continuing tracking the issue and post-crisis actions. Similarly, the findings are in line with Herrero and Smith (2008) who understand the importance of planning for crises, monitoring media, and managing rising issues. Similarly, the data analysis indicates the importance of perceiving the development of a crisis

and the ability to take suitable countermeasures. This is in line with Pang et al. (2014), who highlighted the ability to engage in effective crisis management.

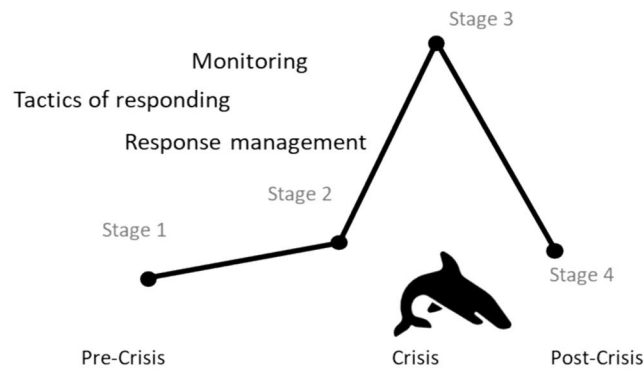
The findings are in line with the significance of planning for a crisis and understanding its impact. Pang et al. (2014) approach the lifecycle through four phases, proactive, strategic, reactive, and recovery through the corporate image. Corporate image and reputation are intertwined in that a company's image provides an entry point to how it is



Table 6 Content classification analysis for the selected companies

Company	Pandemic influence on the sector	Pandemic influence on the company	Managerial implication	Pandemic influence on reputation
Fortum	Slight decrease in electricity consumption	Pandemic measures in power and heat production	Corporate measures to secure supply of heat and electricity	Neutral
Huhtamäki	Food packaging demand remained stable during pandemic	Pandemic measures implemented; production adjusted	Protective equipment production increased	Slightly positive, Campaign supports
Kesko	Positive due to increased sales related to hoarding (food and toilet paper), increased food sales via internet	Corporate-related procedures (Plexiglas drop protection at point of sales), Increased sales due to hoarding	Flexible construction of Internet sales platforms	Slightly positive, New services
Nordea Bank	Not much influence on the banking sector	Corporate actions for customers	Offered delays to payments, Avoiding physical banking	Neutral
Orion	General positive influence on the pharmaceutical industry, Seen as a defensive branch	Positive, Increased sales due to hoarding of medicine	Needed to ramp up supply and distribution	Slightly positive, Seen as a defensive business
Outokumpu	Slightly negative influence on stainless steel markets	Quite small, Good financial performance	Pandemic measures on corporate operations	Neutral
Wärtsilä	Negative, Short-term drop in marine engine and power equipment sales	Short-term drop in share price, Electronic word-of-mouth (Evom) related to stock price	Aim to save 100 M€. Temporary layoffs (3000 persons). Cut in advisory board fees (1/5), Project delays. Other corporate actions to counteract Pandemic/HSE	Neutral
Metsä Board	Positive, Short-term increase in packaging needs, Increased sales due to pandemic	Short-term drop in share price, Increased sales, Evom relating to stock price	Crisis actions related to Pandemic/HSE, Pandemic prevention measures	Neutral

Fig. 5 Shark fin—media attention through crisis



Birth — Growth — Maturity — Decline (death) (Gonzalez-Herrero & Smith, 2008)

Four lifecycle stages (Siah et al., 2010)

Plan & Understand Impact - Effective crisis management strategies (Pang et al., 2014)

Proactive — Strategic — Reactive — Recovery (Pang, 2012)

perceived, while reputation is the deeper, longer-term assessment. The presented insight into the dynamics of corporate reputation during a crisis aligns with the lifecycle view where preparing, initiating communication when potential crises are identified, activating plans when the situation is on, and later restoration efforts. While our findings align with previous works in understanding the significance of the crisis lifecycle, the original contribution of this study involves forming linkages between corporate reputation, crisis communication, and interactive marketing. This study demonstrates how the formation of communication volumes becomes visible through data analytics and forms a shark fin. Crisis communication literature (e.g. Seeger et al. 1998; Massey and Larsen 2006; Austin and Jin 2015; London and Matthews 2022; Maal and Wilson-North 2019) provides organisations with the principles for action. In this context, this study contributes by synthesising the critical components of crisis communication by drawing from crisis communication literature. Different parts of an organisation react to crises differently while monitoring, tactics of responding, and response management are critical for the organisation as a whole. In this context, interactive marketing involves addressing stakeholders who contribute to the overall reputation. Corporate reputation is linked to organisational brands that have been built in the long term, while a crisis has the power to influence reputation through the relevant dynamics. Crisis communication through interactions can counteract potential negative effects. As the analysis findings indicate, there are certain industry sector differences in the crisis influence and countermeasures taken. The presented actions are mostly in line and follow those of Wilcox et al. (2015). Nevertheless, this study highlights the significance of understanding the dynamics of corporate reputation and crisis communication to support interactive marketing, as

stakeholder perceptions and their influence on business outcomes are crucial. The relativisation of these three critical components can be considered as a contribution.

This study further contributes by synthesising linkages between crisis communication theories and corporate reputation, and associating the identified critical components of crisis communication with selected theories while seeking understanding. Situational crisis communication theory (Coombs and Holladay 2002) can be used to understand how to manage communication strategies during crises to maintain corporate reputation. Organisational resilience theory (Chen et al. 2021) helps to understand the role of reputation in enhancing resiliency to foster stakeholder trust and protect reputation. Crisis communication theory (Sellnow and Seeger 2021) links transparency, trustworthiness, accountability, stakeholder engagement, and the impact on corporate reputation. Social-mediated crisis communication theory (Austin et al. 2012) provides insights into how to manage reputation in the digital era, leveraging social media, transparent communication, stakeholder engagement, and post-crisis efforts. Sensemaking theory (Maitlis and Sonenshein 2010) provides insights into how individuals and organisations interpret events, attribute causes, construct narratives, and form perceptions that impact corporate reputation. The initial attribution of the selected theories to understanding the studied dynamics is a contribution, even if there is room for further understanding. Crisis communication theories support the influence of media spikes, the shark fin caused by the crisis, and interlinked actions. Data analysis and company case studies support the conclusion that the main influence of the crisis was not related to reputation loss in many industrial branches, while some industries benefited from the crisis via the introduction of new technology and product development.



Artificial intelligence to support crisis communication

Artificial intelligence has the potential to support addressing the critical components of crisis communication: monitoring, tactics of responding, and response management. Table 7 shows this potential.

Finding

AI has the potential to support crisis communication while considering the three critical components: monitoring, tactics of responding, and response management. AI has the potential to provide capabilities and enhance the effectiveness and efficiency of monitoring, response, and response management. However, current experience is limited, and human involvement should be ensured.

Discussion

Understanding the dynamics of corporate reputation and crisis communication is beneficial for minimising the impact of crises (Fig. 6). Both play crucial roles in shaping stakeholder perceptions and in influencing business outcomes. This study highlights how dynamic online reputation challenges traditional reputation management and necessitates the continuous monitoring of online channels and means of engaging with stakeholders to maintain the reputation. The key contribution involves identifying critical components of crisis communication, including *monitoring*, *tactics of responding*, and *response management*, and synthesising the linkages between these and crisis communication theories and corporate reputation. The findings also indicate that the nature of the crisis plays a role in how specific industrial sectors are affected, providing opportunities aside from potential negative effects. It appears that the impact of a crisis on corporate reputation

Table 7 AI support to address the critical components of crisis communication

Monitoring	Tactics of responding	Response management
AI monitoring on media channels in real-time, including printed media, social media, and visual content	Automated response systems	Predictive analytics Simulation and training
Early signs, trends, patterns, and insights	AI chatbots can provide immediate responses, handle large volumes, and provide timely communication	AI algorithms analysing data and trends AI simulations for crisis scenarios and training
Allows for gauging severity, adjusting communication strategies, and making informed decisions	AI can assist in generating communication materials and support securing consistency in messaging	Allows for taking preventive measures and supports managing crises Simulations support practising crisis scenarios and improving readiness

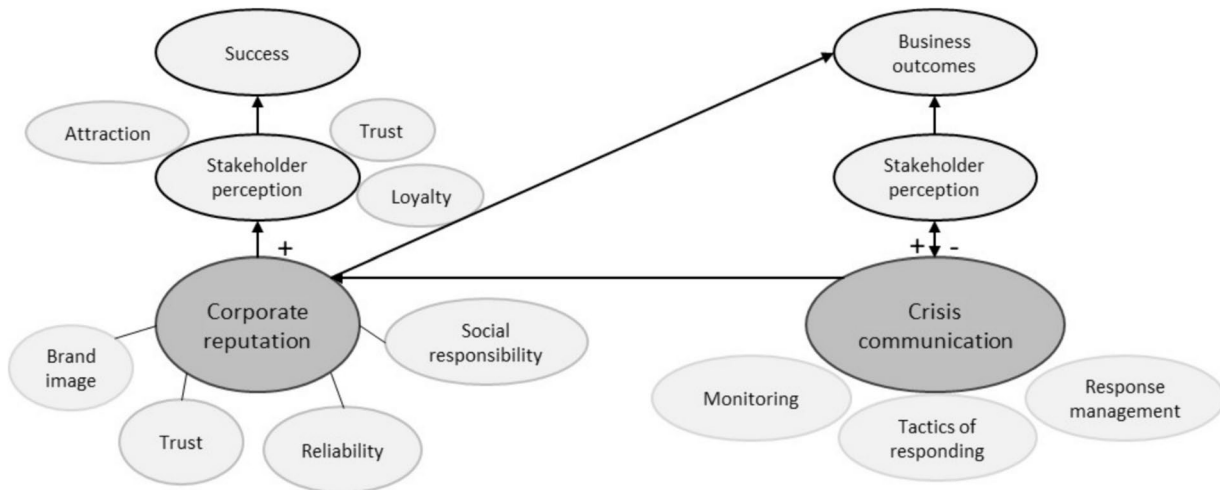


Fig. 6 Corporate reputation and crisis communication



is minimal when preventive measures are fast and alternative activities are introduced. Innovation in operations can improve reputation during crises.

Corporate reputation, crisis communication, and interactive marketing are also interrelated. Interactive marketing involves engaging stakeholders through digital platforms. A positive corporate reputation strengthens this engagement as stakeholders are more likely to interact with and trust the company. Crisis management theories highlight *stakeholder engagement* and *trust*, with varying emphases on the critical components of crisis communication. Strong reputation enhances the effectiveness of interactive marketing by providing a positive context *that affects customer experience*. *Brand advocacy* is another aspect, as satisfied stakeholders with positive interactions are more likely to become brand advocates, further enhancing corporate reputation through word-of-mouth. *Timely communication and response* are essential in crisis communication, and can occur through interactive platforms. Similarly, *transparency and accountability* have significance, as during a crisis, interactive marketing allows companies to communicate transparently and show accountability, which can help maintain or restore trust among stakeholders. *Feedback and adaptive responses* through interactive marketing channels enable companies to receive immediate feedback from stakeholders, allowing for quick adjustments to communication strategies during a crisis. Aligning crisis communication with ongoing interactive marketing efforts during a crisis ensures that the company speaks in one voice. This speaks for the *consistency in messaging* across communication channels, including interactive marketing, which is essential for maintaining corporate reputation. Interactive marketing enhances stakeholder engagement by providing platforms for continuous dialogue, which is crucial for building a strong reputation and managing crises effectively. Interactive marketing research can provide valuable insights into customer behaviour and sentiment to inform corporate reputation management and crisis communication strategies, making them more effective and responsive to stakeholder needs.

Monitoring is critical to crisis communication as it involves actively scanning the environment and gathering information to assess the situation, receiving early signs of crisis, and gauging the severity and impact on stakeholders to allow adjustment of communication strategies. *Tactics of responding* are relevant by involving developing and implementing strategies to address the crisis, mitigate the impact, and protect the organisation's reputation and interests. *Response management* involves the planning process, coordination, and execution of responses. However, merely relying on modern online sources can hinder effective crisis communication, because reliance may lead to information overload, misinformation, bias caused by algorithms, digital literacy, and privacy-related challenges.

The original theoretical contribution involved linking corporate reputation, crisis communication, and interactive marketing. The inclusion of opinion mining and classification analysis in this context provides empirical insights into the potential of online channels and contributes to understanding the dynamics of corporate reputation during a crisis (Genovino 2023). This study contributes to the understanding of the dynamics of corporate reputation, crisis communication, and interactive marketing (e.g. McMahon 2020) by indicating the influence of dynamic online reputation and the need for continuous monitoring of online channels along with means to effectively engage with stakeholders to maintain perceptions, attitudes, and behaviours towards a company. Direct stakeholder engagement through digital platforms (Wang 2023) provides support by focussing on business analytics through the identified critical components of crisis communication, *monitoring*, *tactics of responding*, and *response management*, and the linkages between these, crisis communication, and corporate reputation. Effective monitoring and business analytics require an understanding of the dynamics of corporate reputation, crisis communication, interactive marketing, and the factors affecting them. This enables the effective gathering of information and assessment of the situation to understand the nature and severity of crises and their impact on stakeholders. Appreciating the role of digital platforms and positive corporate reputation on stakeholder perception and trust supports the literature's understanding of the role of stakeholder engagement (Zhang and Lin 2015). Interactive marketing platforms and related tools (Gupta and Prashar 2023) and their development are supported by the added understanding of relevant dynamics and factors. Drawing linkages between crisis communication theories (Coombs and Holladay 2002; Chen et al. 2021; Sellnow and Seeger 2021; Austin et al. 2012; Holt and Cornelissen 2014) and the identified critical components of crisis communication, and between these theories and corporate reputation, is an original contribution that allows for the dynamics of corporate reputation, crisis communication, and interactive marketing. This finding supports the understanding necessary for business analytics.

Practical implications involve understanding the possibilities of business analytics benefitting from the fast indication possible via opinion mining and AI, revealing early signals, and large-scale media attention, while a more detailed analysis of the content allows for revealing the dynamics. Business analytics can benefit from combining big data opinion mining with limited classification analysis to quickly combine indications with suitable insights. The formation of volumes of media attention becomes visible through media monitoring, the shark-fin form, or early signals, enabling companies to react to crises. Further understanding of the dynamics of corporate reputation and crisis communication enables effective monitoring, tactics of responding, and response management



during the crisis lifecycle. The example of OMHX companies points to the understanding that the nature of the crisis is significant, because it influences how companies are affected. It is beneficial to understand how the impact on corporate reputation is linked to preventive measures and the speed of their introduction, in addition to any alternative business activities and innovativeness.

The limitations include the lack of a fully systematic literature review, potentially resulting in missing some characteristics of the studied concepts. In addition, opinion mining is carried out using black-box algorithms, and only one specific commercial software can be considered as a limitation. The state-of-the-art of the relevant methodologies that are not fully established is a limitation, which is alleviated by supporting manual analysis. In addition, the language selection for obtaining analysis data narrows the dataset to 115,914 media hits, which is a limitation when including other languages that would provide a significantly larger dataset but would require extensive computational resources. The sentiment accuracy of approximately 80 percent is also a limitation, a concern alleviated by the applied manual human analysis on 130 random media hit samples, which allows further validation through input–output examination and sentiment correctness assessment. The study only focuses on selected OMHX companies, which is a limitation when a focus on a wider set of companies and industries might provide varying results. Aside from the above limitations, future research could explore specific aspects of corporate reputation and crisis communication in more depth in an interactive marketing context to provide further insights into the explored dynamics. Furthermore, deepening the understanding of the dynamics of corporate reputation, crisis communication, and interactive marketing through the selected theories could provide valuable avenues for future studies. A deeper case study analysis of companies to detail their reputation and communication strategies during a crisis might provide value. Future research could focus on standardising crisis impact measurement and generating procedures in companies to combine both crisis communication and brand management.

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Declarations

Conflict of interests The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper. The authors declare the following financial interests/personal relationships which may be considered as potential competing interests.

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