

The Impact of Artificial Intelligence on Crisis Management in Private Banks in Yemen

Akram M. Alarshani¹, Dr. Iskandar H. A. Sattar², Mohammed Fadl bin Ali Jaber³

¹ Assistant Professor- Business Administration Section, Faculty of Administrative, Sciences, University of Science and Technology – Aden, Yemen.

² Associate Professor- Business Administration Section, Faculty of Administrative, Sciences, University of Science and Technology – Aden, Yemen.

³ Business Administration Assistant - Business Administration Section, Faculty of Administrative, Sciences, University of Science and Technology – Aden, Yemen.

*Corresponding Author: Dr. Iskandar H. A. Sattar

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Article History	Abstract
Original Research Article	<i>This paper aimed to identify the impact of artificial intelligence AI (User- Systems- Devices) on crisis management CM (Signal detection- Preparation/prevention- Containment/Damage limitation- Recovery- Learning) in private banks in Yemen. To achieve the objectives of the study, the quantitative approach was used in both its descriptive and analytical methods. The study population was selected from the leaders of the private banks in Yemen, represented by their main branches in the capital, Sana'a, who occupy the following administrative positions (General Manager- Assistant General Manager- Sector Manager- Department Manager), and due to the small size of the study community, The comprehensive survey method was used, and the questionnaire was used as a main tool for data collection, as (239) questionnaires were distributed, and (219) questionnaires valid for analysis were retrieved at a rate of 92%. Data were analyzed using appropriate statistical methods within the SPSS v26 software and applying SEM using Amos v26.</i> <i>The study concluded a set of results which is: there is a positive impact of artificial intelligence on crisis management in private banks in Yemen. The study also presented several recommendations which are: paying attention to artificial intelligence because of its prominent role in future life and its impact on the development and excellence of banks, and because of its impact on all administrative operations and their functions, especially in light of the multiple and various crises facing banks in light of the instability of the Yemeni environment.</i> Keywords: Artificial Intelligence, User, Systems, Devices, Crisis management.
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Copyright © 2026 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited. Citation: Akram M. Alarshani, Iskandar H. A. Sattar, & Mohammed Fadl bin Ali Jaber. (2026). The impact of artificial intelligence on crisis management in private banks in Yemen. <i>UKR Journal of Economics, Business and Management</i>, 2(8), 303-322.	

1. Introduction

In recent decades, with the increase in both natural and man-made disasters, the importance of crisis management has grown significantly. Historical evidence has shown that well-executed crisis management tactics can save lives and reduce costs. Numerous academic studies have provided recommendations for improving crisis management tactics, employing various methods and theoretical frameworks. Some studies suggest that the effectiveness of crisis management could be enhanced through effective management team communication and coordination. However, the existence of a direct link between these

factors has not been demonstrated using sophisticated statistical approaches. (Sahin, 2009)

Hermann (2013) portrays a crisis as "a situation in which the high priority goals of a decision-making unit are jeopardized, contingency time is restricted and an element of surprise exists for those accountable to respond." This means that effective crisis management goes beyond activities in public relations but entails proactive planning, a sound prevention culture, capabilities for preparedness and response, as well as detection systems responding to early warning signals. What makes the situation a crisis is

its scope — it must threaten to disrupt an integrative and total system as a whole or the entire identity and fundamental existence of an organization. (Pauchant & Mitroff, 1988)

Therefore, the objective of crisis management is minimizing the adverse impacts of a significant crisis event while operating within tight time constraints and with limited resources. While damage control is the most visible aspect of crisis management, its ultimate purpose extends far beyond putting out fires. The essential element of effective crisis management lies in uncovering the hidden opportunities for success that exist within the challenges.

The success of organizations, on the other hand, is determined by the decisions they make regarding opportunities, threats, and their internal resources and competencies (Blenko et al., 2010). The quality of the final choice and its implementation sets one organization apart from many others. An organization's performance is dependent on a variety of aspects in its internal and external environment (Lyon et al., 2000). Organizations are under intense pressure to act swiftly and boldly to ensure success in particular marketplaces. However, these organizations must carefully assess all available options, considering potential risks and benefits. The decision-making process is further complicated by the influence of various disciplines such as psychology, economics, sociology, and other management fields. The assumptions made by an internal (manager) or external (consultant) individuals responsible for the organization also influence decision-making (Van Riel et al., 2004). Nevertheless, the uncertain business environment, constant performance demands on managers and organizations, and the infusion of capital add to the complexity. Making poor judgments can have costly consequences, potentially leading to business failure due to increased scrutiny from stakeholders, particularly the market (Saaty, 2008). Recent examples of such failures include well-known companies like Kodak. Additionally, adverse circumstances that evolve over time, combined with poor decision-making, can contribute to the collapse of small businesses in sectors such as real estate and retail (Prenatt et al., 2015).

Artificial intelligence (AI) is experiencing rapid growth, driven by advances in machine learning, reasoning, planning, and decision-making capabilities. It is increasingly applied across various sectors, including healthcare, defence, transportation, and disaster management, where automation and rapid information processing are essential. AI also plays an expanding role in organizational decision-making, as AI agents can process large volumes of information efficiently and consistently while avoiding certain human limitations, such as fatigue and personal interests. However, employees' perceptions of

AI-based leadership may be less favorable because of concerns regarding fairness, transparency, and justice in automated decision-making processes.

Based on the foregoing, this study aims to discover the impact of Artificial Intelligence on Crisis Management in private banks in Yemen.

2. Statement of the problem

In the contemporary banking environment, digital innovations are no longer a matter of choice for financial institutions but rather an essential response to growing market competition and shifting customer expectations (De Oliveira Santini, 2018; Eren, 2021; Hua et al., 2019; Rajaobelina & Ricard, 2021; Valsamidis et al., 2020). Artificial intelligence (AI) has recently taken course of being an important technology in digital transformation and innovation in contemporary banking (Dobrescu, 2018). AI has played a massive role in innovations—banking channels like ATMs, Online, and Mobile banking services—and other technologies such as check imaging, Voice recognition, and chatbots. AI allowed to find solution more sophisticated financial based, as AI investment advisor system or Credit Assessment Tool — and change the way banks work and interact with clients.

AI use cases in banking cover front-office, middle-office and back office. AI is increasingly moving from the front office, where it powers everything from voice assistants and biometric authentication to customer interaction; into middle-office applications such as fraud detection, risk monitoring and analysing complex legal and compliance processes. AI also supports credit underwriting and financial processes via intelligent systems, smart-contract infrastructure in the back office. The rising use of AI is due to its potential power to drastically minimize operational costs and efficiency gains for organizations; indeed, a summary report has showed that banks could save more than \$447 billion through AI applications (Digalaki 2022), while three-year period estimates also reveal that a large share of U.S. However, with the appearance of artificial intelligence, the banking industry has a chance (and some challenges) (Malali & Gopalakrishnan, 2020). Its usage has led to streamlined sales activities and improved CRM as well (Tarafdar et al., 2019). While earlier applications were centred on automating credit scoring, financial analytics, and lending decisions (Mehrotra 2019), the capabilities of AI systems have increasingly extended to assist internal organizational systems or operational workflows (Caron 2019).

The significance of AI adoption particularly applies to the Yemeni banking system, which is characterized by a long-standing economic and institutional environment as a consequence of many years of ongoing conflict. The data

available with the Economic Studies and Forecasts unit of the Ministry of Planning and International Cooperation announced large economic losses vulnerable to factors such as disruption in means of air and land transportation, foreign trade restrictions, reduced oil production at 30 per cent before the war to meet household needs and deteriorating institutional set-up. The annual gross domestic product (GDP) is now down from USD3,650 conferred earlier by conservative estimates. The financial sector, meanwhile, has been hit by an acute liquidity crisis that has worsened since 2016, causing problems in paying public-sector salaries and interruptions in public services, as well as suspension of many economic projects. Moreover, the financial system has also been under more pressure due to gradually increasing instability in exchange-rates. According to data provided by the Central Bank of Yemen (2018), the parallel market exchange rate jumped from around 215 riyals per U.S. dollar in March 2015 to an average of 485 riyals per U.S. dollar during April 2018 as shown above. Such volatility was linked to the imposition of financial-flow controls, dwindling foreign-exchange reserves and a fragmentation of monetary authority after central-bank operations were transferred to Aden. While a \$2 billion deposit helped to stabilize currency fluctuations, such stability is only sustainable with continued donor support, an end to the embargo and better coordination within the Central Bank of Yemen.

In this context, the challenges facing the banking system in Yemen underscore an urgent need for innovative technologies that can build banks' capabilities to predict, prepare, respond to and recover from crises. AI could offer banking institutions the tools to enhance their risk assessment, fraud detection, decision-making, customer support and organization of financial information in turbulent times. As for the hownai of AI in Yemen's private banking sector crisis management, it is a field that has insufficiently explored. While the reviewed literature back up shows the increasing use of AI in banking, with the exception of nuggets-of-AI knowledge contribution to crisis-management practices on conflict-affected banking environments has received little attention. Accordingly and according to what the previous studies have indicated regarding this gap and their recommendations for the future, this study want to investigate the effect of AI toward in crisis management for private banks from Yemen.

3. Questions of the study

In light of the discussion outlined in the problem statement and previous studies, this paper aimed to address the main question which is:

1. Is there a statistically significant impact of artificial intelligence (users - systems -

devices) on crisis management in private banks in Yemen? This question investigated through the following sub-questions:

- a) Is there a statistically significant impact of the users of artificial intelligence on crisis management?
- b) Is there a statistically significant impact of the systems of artificial intelligence on crisis management?
- c) Is there a statistically significant impact of the devices of artificial intelligence on crisis management?

4. Significance of the paper:

Theoretically, this study advances theoretical contributions by creating a crisis-management framework consisting of significant phases such as signal detection, preparation and prevention, containment and damage limitation, recovery, and learning in the context of private banks in Yemen. This study also discusses the role and importance of artificial intelligence (AI) in crisis management and helps analyze how private banks located within Yemen use AI via users systems and devices to aid in data-driven decision formation in practices that support crisis-management activities. This study aims to advance a theoretical framework of technology-facilitated crisis response in the bank sector by linking AI with phases of crisis management.

Practically, the results obtained by this study are contributed as a constructive platform to enhance private banks in Yemen towards predicting, controlling and dealing with crises on time. This study would help decision makers to come up with proper structures for communication, improve crisis-response mechanisms and hold practice sessions through training as well as simulation exercises. Also, knowledge provides crisis management officials an opportunity for better preparation so that they can address various types of crises and reduce their adverse effects on banking operations.

5. Objectives of the paper

This paper aims at making an evaluation of the proposed model for improving crisis management in private banks in Yemen. More specifically, the study aims at exploring how the meaning of artificial intelligence (as represented by users, systems, and devices) has been embedded into and shaped/influenced various folds of crisis management including signal detection, preparation and prevention, containment and damage limitation, recovery as well as learning. Additionally, the study analyses using SEM and CFA to confirm the hypothesis of the propositions to verify AI dimensions (users, systems and devices) as research

model variables in crisis management.

6. The theoretical and intellectual framework for the research

6.1. The most important theoretical terms for research

6.1.1. Crisis management:

Crisis management (CM) has enjoyed considerable scholarly attention in the last three decades and defined itself from multiple standpoints. There is a lack of universally accepted definition for CM, however, contemporary conceptualizations of the concept are quite comprehensive [5]. CM has been defined by Gigliotti and Jason (1991) as an organization capability to response in timely, effective, and efficient manner for the management of emergency risks affecting human health and safety property or ongoing or future operations. Likewise, Penchant and Mitroff (1992) framed CM as a process of prevention, mitigation, preparedness, response and recovery that is dynamic and systematic. CM is defined by Kash and Darling (1998) as a process that identifies, evaluates and predicts sources of possible crisis-events to establish rules for actions designed to avert or insulate against crises. CM is conceptualized as an integrated, holistic, continuous process within organizations to understand and predict crises as well as handle the crises when they do occur taking into account planning, training and even stakeholder interests (Santana 2004). Ocal, Oral and Erdis (2006) similarly defined CM as an ongoing, iterative process involving both preventive and responsive measures aimed at detecting potential problems, responding to crises that arise and how respond effectively to problematic situations when emergency conditions emerge.

According to Taneja, Pryor, Sewell, and Recuero (2014), CM is a strategic and tactical leadership imperative that may have a favorable or bad impact on an organization's or a nation's competitiveness, as well as its chances of success, survival, and long-term sustainability. However, there are several ways to define CM.

The CM phases are covered in the following subsections since understanding the CM necessitates utilizing all of its stages.

- **Signal detection (Early warning signals):**

Early warning signals are the first phase of crisis management however they also offer a signal that a crisis might happen and must be identified and deciphered by organizational actors (Olawale, 2014). A crisis signal can be any news which shows abnormal behavior from the normal or expected state. These deviations can result from the malfunctioning of an organization or changes in their internal and external environments, making them potential early indicators of a crisis (Roux-Dufort, 2007). According

to Fearn-Banks (2016), the signal detection component is an internal system of checks in which those within an organization can detect issues early on and assess possible crises. Timely identification of a potential crisis is especially useful to organizations as they can take preventive measures when the issue has not yet come into the eyes of the media, customers or general public.

Prior work has argued that, while crises do not usually arrive out of the blue, organizations tend to overlook or ignore signals in advance of crises (Jaques, 2007). Signals that suggest a crisis is emerging may be missed, misread or erroneously read (Boin & Hart, 2003). Likewise, James and Wooten (2005) state that before the onset of a serious crisis in organizations, they were often preceded by warning signs or red flags. The ability to identify and respond to early warning signs is critical because their failure is the single biggest contributor to escalation between a manageable problem and a major crisis for any organization. As such, organizations need to install systems that allow for vigilant identification of ongoing threats and access to the information needed by those in charge (or empowered) to act.

Mitroff (2001) classified crisis signals based on their source, identifying both internal and external signals as well as technological or individual source. Internal technological signals relate to the organizations own activities and systems, while external technological signals can be derived from external institutions, governmental agencies, systems dedicated to monitoring e.g. environmental organizations or any other sources that is likely to generate warnings about a natural and externally generated Crises. On the other hand, Internal individual signals can be whistleblowers from an employee and other members in the organization who notice abnormalities or possible threats (Legg & Sweeney, 2012). In work by Paraskevas and Altinay (2013), a three-phase process of crisis signal recognition involving signal scanning, capturing signals, and relaying selected data to the crisis response centre is proposed. This framework highlights that warning signs should remain at the centre of crisis-management activities since proper detection can act as organizational first lines of defence. Hayata (2012) also highlights the need to establish clear channels of information dissemination in an open manner and review organizational roles & responsibilities as a part of audit systems regularly for avoiding mistakes, flaws & emerging issues. Being able to detect and communicate warning signals in time can therefore help organizations resolve threats before they develop into a major crisis.

As more thoroughly discussed later under discussion, Pheng et al. (1999), argued that organizational capacity for crisis recognition could be strengthened through systematic

signal-detection mechanisms across a broad spectrum of potential crises. Examples of these mechanisms can be the establishment of professional process-monitoring teams, as well as recognition and rewards to employees who detect potential dangers, in addition to having dedicated channels for reporting internal or external threats, losses, disruptions or issues that cannot be addressed through normal routine procedures. Indeed, the occurrence of some crises offers little evidence in advance but many others leave fingerprints which may be identifiable by adequate surveillance. However, Wilson et al. (2012) remarked that management often ride right past such warning signs. As such, agencies should create full-blown crisis preparedness programs that include continuous surveillance of signals, risk communication strategies and systems to facilitate information sharing between employees who notice something is amiss- and well-defined processes for elevating identified signals to crisis management teams.

- **Preparation / Prevention:**

Most models of CM emphasise prevention and readiness as major elements of CM. According to many management and business scholars, the most significant step of CM is the “prevention and preparation” stage (Legg & Sweeny, 2012). Preparation phase that includes the goal of CM and blocks all crises. This is a compulsory factor for the evaluation of the organization. The real purpose would be to get as much ready as possible to avoid crises from developing in the first place and to control effectively those that do emerge despite the best efforts (Pearson and Mitroff, 1993).

Furthermore, Kovoov-Misra, Zammuto, and Mitroff (2000) presented an overarching idea of “crisis preparedness”, established as part of CM, that enables a company to build core capabilities to address the alternative parts of CM, specifically crisis prevention and control. and recover from it. Jaques (2007) showed crisis preparedness as an integration of three sets of advanced activities aimed at improving a company's arrangements for responding practically to future crises, in particular planning, training, demonstration, manuals, and systems.

The preventative phase, which may be understood as taking actions to identify sources of danger and then eliminate or lessen them, is another part of this phase. Additionally, when a crisis is acknowledged as a danger that cannot be entirely eradicated, the word "mitigation" is used to express an extra focus on limiting any potential effects of the crisis (MacNeil & Topping, 2009).

Early warning indications have a role in crisis prevention and must be assessed in order to comprehend the information being sent (Eisner et al., 2019). The first step in CM is having the capacity to describe and map the

problem. However, the authors also made the argument that managing employee fear is a crucial component of crisis prevention, especially when the crisis takes the form of a fire or terrorist attack (Eisner et al., 2019). This protects people from becoming wounded. The creation of early warnings and scanning are connected to the crisis preventive dimension as part of pre-CM operations. To guarantee that preventative measures are followed to obtain better outcomes and strengthen the system of organizational vigilance, the process comprises performing audits and scanning the environment and processes (Andrianopoulos, 2015).

- **Damage containment:**

Damage containment: The phase comprised of processes by which individuals and/or organizations try to minimize damage from a crisis (Legg & Sweeney, 2012) The containment and damage control need direct, coordinated action of the organization and its crisis-management team to create controls on the crisis; to minimize its damaging effects. In this stage organisations concentrate on mitigating losses to stakeholders, preserving organisational identity and preventing damage to reputation (Kovoov-Misra et al., 2000). As another reference for the definition of containment, Fearn-Banks (2016) added that containment is actions taken to limit the time an organization finds itself in crisis and lessen the chances that a crisis will jump into other parts of an organization. Thus, the main aim of this phase is to contain the impact of any crisis and prevent its repercussions from expanding into other units within the organization or in the surrounding environment (Pearson & Mitroff, 1993).

Pheng et al. Davis (1999) argued an organization could take the following actions to improve its capacity to minimize damage from a crisis; undertaking ongoing research, conducting regular tests of equipment aimed at containing any potential damages related to a crisis and evaluating how well crisis-response procedures are working. This allows organizations to portentially alleviate these breaks in containment for crises before they happen. Moreover, supporting mechanisms for damage containment should be rewarded and recognized to engage employees actively in crisis response. Defining roles and responsibilities (and accountability) is really important so that everyone knows exactly what they need to do when a crisis occurs in order to respond quickly.

Two critical sub-stages that Coombs (2007), in his crisis-management framework, identified are crisis detection and crisis containment. Crisis detection is the articulation of how an emergent event is recognized or categorized as a crisis, the understanding of its likely impacts, and the means for applying identification systems (i.e., information gathering). In the other, a crisis containment strategy does

not allow for the evolution of bodies of organizational control over threat management as it approaches (and in so doing aggravates) its threshold. Throughout this phase, the stakeholder messaging and action of the organization to ensure effective communication is most important since timely and accurate communication with stakeholders helps mitigate uncertainty as well as maintain confidence from them about how the organization may successfully contained the crisis.

- **Recovery:**

According to Pheng et al. (1999), experts have identified crucial employees as well as the important jobs, goods, and services needed to continue running the firm during a crisis. Although the professionals are cognizant of the particular and significant needs of the business operations, they could not be functioning at a level that would guarantee recovery from a crisis scenario. A crisis situation at work might effectively put an end to their business operations if there are no backups of crucial business papers or alternate locations to do business. In their model, Zdziarski et al. (2007) claimed that recovery, which includes services like financial restoration, building repair, counseling, and resume assistance, occurs throughout a variety of periods following a crisis occurrence.

Recovery is one of the phases of crisis management, and it involves a return to normalcy in an organization that has suffered damage after being confronted with a crisis. Recovery: as described by Fearn-Banks (2016) Recovery that restores the organization to its normal, steady-state condition as quickly as possible. This also involves communicating to key stakeholders that the normal operations have resumed in order to rebuild their confidence and trust. Business Continuity Planning by Pearson and Mitroff (1993) stated that organizations must plan for alternative locations so computer operations and data can be conducted as part of business continuity efforts.

There are many ways that can help with successful crisis recovery, such as evaluation of the crisis management programmes, loss-recovery initiatives and asset restoration. Recovery is also the way that an organization handles the emotional aftermath of a crisis by employees or other stakeholders (Legg & Sweeny, 2012). Also, organizations must have back up offices in places other than their own and constantly update information inside crisis management plans and the business continuity plans. In order to minimize the disruption, all contingency plans, backup systems and computerized business operations have to be made available. According to Pheng et al. This is according to (1999), which endorses that such backups should be kept off-site with the objective of making them available whenever needed, and by so doing improving the survival and recovery capability of the organisation in

scenarios of future crises.

- **Learning:**

The learning phase is the process of analysing a crisis to determine what has been gained and lost, and how the organization is doing in the crisis. It is a way of evaluation which is designed to make crises early warning signs of the future (Fearn-Banks, 2016). Applying lessons learnt from past crises will allow the business to be better prepared for future crises and train people to think imaginatively about the unimaginable, making the majority of decisions taken during a crisis more efficient (Pearson & Mitroff, 1993). Hayata (2012) also argued that appropriate contemplation and assessment of lessons acquired from the crisis is a sign of the final stage of CM. Moreover, Pheng et al. (1999) found that the ability to learn from prior crises would be further enhanced by analysing actions and concerns in CM, which was done efficiently with those that were done insufficiently. Lessons learned from prior crisis regarding possible causes, formal documentation and recognition of crisis scenario. Robert and Lagtha (2002) also show the significance of avoiding a derogatory view of CM and the necessity of seeing crises as opportunities for learning.

Therefore, the emphasis should be on what was learned from the crisis and how to better respond in the future and what the organization and CM team did well in managing the crisis and its impact on the organization. During the procedure, observations should be made carefully to eliminate the existing inadequacies in operation, as well as avoid possible problems in the future.

6.1.2. Artificial Intelligence:

Artificial Intelligence (AI) is the ability of a system to interpret external data correctly, use it learn from available information and adapting its learning in flexible ways for accomplishing specific goals and tasks (Haenlein & Kaplan, 2019, p. In 1956, the term artificial intelligence was introduced at a conference organized by some of the pioneers of the field, including Marvin Minsky, John McCarthy, Herbert Simon, Allen Newell, Claude Shannon and Nathaniel Rochester. As mentioned by (Pan, 2016), Artificial intelligence is the simulation of human intelligence processes by machines especially computer systems in such a way which allows the computer to act as if they really are human capabilities.

According to A. Mellit, S.A. Kalogirou, (2008), in terms of learning, reasoning, and self-correcting, Numerous AI systems have been mathematically categorized into the following three groups:

- **Artificial Narrow Intelligence (ANI):**

ANI systems are also known as weak AI. They are a subset of AI and can only focus on one functional area and is

programmed to perform a particular task. These systems can accomplish hundreds of thousands of calculations per second but they are restricted by the performance standards set by their designers.

- **Artificial General Intelligence (AGI):**

Artificial General Intelligence (AGI), also known as "human-level AI", defined by the capability of a machine to achieve any task that a human can do in intellectual fields, is what most people imagine when talking about AI. This idea is often linked to Alan Turing, who invented the Turing Test or Imitation Game, which was a test for determining if a machine can have behavior indistinguishable from that of a human in an interaction via text. While the Turing Test has been a significant topic in machine or artificial intelligence history, it remains an inadequate test of real intelligence: producing convincing human-style responses does not show actual understanding, reasoning abilities, and sentience. However, this idea continues to play an important role in speculative theorizing about the capabilities of future AGI.

- **Artificial Super Intelligence (ASI):**

Artificial Super Intelligence (ASI) —: ASI is a hypothetical form of artificial intelligence that surpasses human intellectual capacity in virtually every domain, such as reasoning, problem solving, learning, creativity and social intelligence. ASI is usually referred to as a future form of life that we might create when, given the chance to apply advanced intelligence beyond AGI, billions of minds it could very quickly outpace humans on essentially all tasks. This is commonly referenced near the idea of a technological singularity: a theoretical point in time where technology development can no longer be controlled or predicted and can only move at an accelerating form. Yet ASI remains abstract, and there is no concrete demonstration of any system like this on earth or of looming singularity.

- **Machine learning (ML):**

At a high level, machine learning (ML) is a sub-field of artificial intelligence that allows computer systems to learn patterns in data and accomplish tasks without needing to be given specific instructions for every single decision. Data like good machine learning is not magic, it will be as effective as the data you can provide, for algorithms to look for relationships and patterns. ML techniques are increasingly used in the fields of forecasting and predictive analytics as they can ingest data from myriad sources and identify patterns to produce predictions about future outcomes. Machine learning has many applications in structural health monitoring, such as structural risk detection and diagnosis (Pickett et al., 2017), prediction of the strength of structure (Salehi et al., 2016a), assessment

of system reliability and durability (Chai et al., 2014; Salehi & Burgueno, 2018) and infrastructure maintenance.

6.2. Previous studies

Crisis management is seen as a way of containing and mitigating the consequences of crises (Bowers, Hall, & Srinivasan, 2017; Wooten & James, 2008). The fundamental purpose of crisis management is to reduce the disturbance to the operations of an organization caused by an unforeseen incident (Herbane, 2013; Spillan, Parnell & de Canolo, 2011). Crisis management is also important to avoid financial losses and ensure the existence of a company (Sfakianaki et al., 2015).

Previous studies have dealt with different aspects of crisis management, such as crisis management and strategic resilience, crisis management strategies, crisis management and decision making, crisis management and leadership, crisis management in social media and communication and crisis management in general.

Al Khalifa (2021) examined the impact of strategic flexibility on crisis management, with e-readiness serving as a moderating variable, among government authorities in the Kingdom of Bahrain. The study, titled Crisis Management and Strategic Resilience: The Moderating Role of E-Readiness in the State of Government Authorities in the Kingdom of Bahrain, adopted a structural survey approach and involved 376 employees from 14 government organizations. Crisis management was measured through five dimensions: early signal detection, preparedness and prevention, damage containment, activity recovery, and learning. Strategic flexibility was assessed through flexibility of capacities, resources, information, and coordination, while e-readiness was measured using ICT infrastructure, human resources, and management requirements. The findings revealed that the individual components significantly influenced crisis management and that strategic flexibility had a strong and positive effect on crisis management. However, the study did not support the moderating effect of e-readiness, particularly the human resources and physical capabilities components, on the relationship between strategic flexibility and crisis management.

However, as seen by the frustrations and lack of action in the aforementioned situations, there is still a room for development to better meet the requirements and execute the suggestions of local communities and its members. Institutions should look that they do not, or minimally, limit the capacity of a community for its resilience to prevail.

Previous studies also explored the relationship between crisis management and decision making. Decision making in the Public Electricity Corporation (Tawwaf and Alarshani, 2021) also explored the role of effective crisis

management to enhance administrative decision-making among decision-makers. This research was performed using the descriptive-analytical method and used a complete (census) survey technique because the study population included only nine individuals. Questionnaires were used to collect data and were analyzed with appropriate statistics in SPSS. The results identified a significant and positive correlation of crisis management with administrative decision-making effectiveness. Likewise, Alkhawlan (2020) investigated the role of decision-making as a moderator in the interrelationship between transformational leadership style, organizational culture and crisis management and crisis communication strategy in Yemen SMEs. Researchers designed this study using a self-administered questionnaire with the theoretical framework and crisis management models by Mitroff et al. Structural equation modeling was performed using AMOS 25, based on the work of Rocco et al. (1988) and Pearson and Mitroff (1993). The influence on Crisis Management as dependent variable Decision making, crisis communication strategy and transformational leadership style (as an independent/ predictor variable) were statically significant at 0.05 level of significant ($\alpha = 0.05$). In addition, decision-making mediated the relationship between transformational leadership style and organizational culture on crisis management.

Al-Shamsi sought to determine the effect of strategic leadership on obtaining competitive supremacy via crisis management through a field study at operating banks in Yemen in the year 2023. All workers in managerial and executive roles at Yemeni banks with a total of 1710 employees comprised the research population. The questionnaire was used to gather the main data from a stratified random sample of (313) people. The results demonstrated that strategic leadership with its combined dimensions and crisis management with its combined dimensions have a direct statistically significant impact on achieving competitive superiority for the study's banks, as well as a statistically significant impact of both of these factors.

However, certain studies, such as AL-ariki's 'The Impact of Crisis Management on Employees: Performance in Yemeni Oil and Gas Businesses' (2019), place greater emphasis on the crisis framework, performance, and crisis teams. AL-ariki investigated the impact of crisis management on employee productivity specifically in Yemeni oil and gas enterprises. The four elements that make up crisis management are crisis readiness, crisis prevention, crisis incident management, and post crisis management. A quantitative approach was taken in the study. Questionnaires were used to collect the data. According to the study, there is a strong correlation between employee

performance and preparation for, ability to prevent, and ability to handle crises. There is no meaningful relationship between crisis management and employee performance in terms of crisis event management and post-crisis performance.

The studies have taken various dimensions of crisis management, Al Khalifa (2021) asserted that crisis management involves (detection of early signals, readiness and prevention, damage containment, activity recovery, and learning) despite the fact that research have focused on a variety of crisis management-related topics. Jillian Wolkowski (2021) was taught the three phases of crisis management. Alkhawlan (2020) adopted the crisis management model developed by Mitroff et al. in 1988 and Pearson and Mitroff in 1993. Crisis readiness, crisis prevention, crisis incident management, and post-crisis management were measured by AL-ariki in 2019. On the other hand, other research studies have explored various aspects of crisis management. Laftah's study 'Organizational Immunity and Its Role in Crisis Management: An Analytical Study of the Opinions of a Sample of Officials in the General Company for Leather Industries' (2014') aimed to identify the official orientations towards organizational immunity and crisis management. It also aimed to demonstrate the relationship and influence between them at both the overall level and the level of their natural and acquired dimensions in the context of crisis management. The study utilized a purposefully stratified sample and a descriptive exploratory technique that is based on a survey of a particular sample. Tawwaf and Alarshani (2021) applied their research to decision-makers in the Public Electricity Corporation utilizing planning, organizing, directing and following as crisis dimensions. They looked at the significance of crisis management for enhancing the efficacy of administrative choices. The research revealed that the Public Electricity Corporation's administrative actions were more successful when the crisis management characteristics planning, organizing, directing, and controlling were put into reality. The data were evaluated thematically by Parisnicole Payton (2021), who found three themes: precrisis prevention and readiness, sustainable crisis planning and organizational reputation, and reactionary crisis communications and decision-making.

Many studies have examined the artificial intelligent in terms of organizations, users and equipment, and linking it to many variables such as leadership, leadership skills and managerial decision-making processes, data-driven, Efficiency of administrative systems, human Resources Management, organizational crisis and behaviors during crises.

The question of how trust and fairness perceptions impact

turnover intentions through psychological safety was raised in studies that addressed artificial intelligence and leadership, such as Patricia Moreira's *Artificial Intelligence Leadership: How Trust and Fairness Perceptions Impact Turnover Intentions through Psychological Safety*, 2020. The study's objective was to ascertain how this new leadership approach influenced employees' propensity to quit their employment. The variables in the study were the dependent variable, which was turnover intentions, the mediator, which was psychological safety, and the moderator, which was perceptions of justice and trust. Testimonials about trust and justice can be manipulated. contentment at work. Due to the study, the leading agent served as a mediator of the former and had a significant influence on the employees' intentions to quit the firm as well as on their psychological safety. The results show that these testimonies directly affect psychological safety and indirectly affect turnover intentions via psychological safety with respect to the moderation of trust and justice perspectives.

However, Researchers Malin Eriksson and Camran Djowein (*Artificial Intelligence's Impact on Management*, 2020) looked at how artificial intelligence (AI) might improve management decision-making and leadership abilities. Artificial intelligence, decision-making, deep learning, leadership, leadership philosophies, management, and machine learning were the factors. Due to a research vacuum identified during a literature analysis, the study focused on how management decision-making and leadership styles have changed as a result of the employment of AI in the workplace. According to the study, using AI to make choices will improve their speed and accuracy provided it is trained on high-quality data.

Other studies focused on the administrative Systems and decision-making, such as Malin Eriksson and Camran Djowein (2020), who focused on administrative systems and decision-making, discovered that the use of AI will improve the speed and precision of judgments being made, if AI gets high-quality training data. Noura Al-Azzam's 2020 study, "The Role of Artificial Intelligence in Raising the Efficiency of Administrative Systems for Human Resources Management at the University of Tabuk," sought to understand how AI may improve administrative systems' effectiveness. Analytical and descriptive research methods were used. The study instrument (questionnaire) was developed as a tool to gather data from the study sample, which was made up of (70) male and female University of Tabuk personnel who were chosen at random for data collection. Participants in the study sample's validity and dependability were also validated. 36 components made up the study instrument used by the University of Tabuk to evaluate how artificial intelligence has improved

administrative systems for managing human resources. The study's findings demonstrated that none of the study factors (gender, educational attainment, and years of experience) were statistically associated with statistically significant differences (≤ 0.05) in the study instrument. The researcher issued a number of proposals in light of these findings, including the need for additional research on AI systems and how they relate to the effectiveness of administrative systems for managing human resources, as well as the need to use larger samples from universities in the Kingdom.

Weber, Pia & Noizet, Guillaume (2018); p.104 — *Artificial Intelligence: An Approach for Decision-Making in Crisis Management* The objective of the study was to identify what are the most critical factors in crisis decision making processes, evaluate human and artificial intelligence capabilities and limitations, as well as how AI can affect key decision-making processes under time pressure. An interpretivist qualitative approach was followed, with data gathered from interviews with practitioners in the fields of crisis-management and consulting, together with AI researchers and engineers, supplemented by observational data collected at an international symposium on machine learning. Results suggested that effectiveness in crisis decision-making is a trade-off between speed and depth of consideration when weighing short- and long-term consequences. The research also illustrated the complementary roles of intuition and reasoning, as well as what humans and AI are capable or unable to do. The researchers then laid out how the act of making a decision can be modeled, based on their findings and ultimately summarizing that AI has huge opportunities to improve crisis management through a faster, better-informed and more effective decision-making process.

Although research on crisis management has been ramping up, the majority of previous studies have not focused as much on the whole crisis-management process, rather emphasizing crisis readiness and preparedness (Mostafa et al., 2004; Rousaki & Alcott, 2006; Parnell et al., 2010; Ritchie et al., 2011; Spillan et al., 2011). Few studies have examined the full continuum of crisis management (Bundy et al., 2017; Wilson et al., 2012; Zhang & Myers, 2010). An analysis of the data collected across all stages is critical since knowing that a crisis will traverse any one stage does not, on its own, describe how to successfully handle the crisis. This limitation underscores the requirement for future study that examines crisis management based on planning, organizing, direct and follow up functions which offer a more holistic understanding in how organisations can manage crises. This gap is especially significant in the case of Yemeni organizations, where there has been little research on comprehensive practices vis-a-vis crisis-management and artificial intelligence (AI).

7. Hypotheses:

As discussed above, one of the areas where AI is predicted to play a big role in better operations is in crisis management. AI is able to discover correlations in data that are not readily visible even to the most talented human eye. For example, use and answers for topics such as risk estimation and management can be discovered with the use of AI by project managers. Risk management, however, is the identification, analysis, planning, monitoring, control and communication of hazards. Artificial intelligence can also mine parametric data such as past start and end dates, which can be used to estimate accurate timelines for future projects. Several artificial intelligence (AI) tools have been developed to learn data in an effort to determine the linkages between causes and effects to estimate the probability that a failure will occur and to assess the severity of the risk both qualitatively and quantitatively. These technologies include neural networks, fuzzy logic and machine learning. In terms of protection, quality, efficiency and cost, when faced with ambiguity, artificial intelligence is able to track, detect, analyse and anticipate potential risk with a range of teams and work scenarios. In this regard, the main applications of AI have been risk detection, appraisal and prioritisation. Moreover, AI-based risk analysis can evaluate and adapt insights on risky difficulties, which enables project managers to manage impending risks and choose proactive steps instead of risk mitigation, such as automating operational processes on the job, reorganising the staff, and monitoring projects' progress on time and within budget (F. Afzal, S. Y unfei, M. Nazir, S.M. Bhatti, 2019).

A number of studies on artificial intelligence and crisis management have been published in the literature. For example, Noizet & Weber (2018) concluded that using AI to crisis management has several advantages, creating a high likelihood that AI will significantly alter the situation. Therefore, this study hypothesized that:

H: There is a statistically significant impact of artificial intelligence on crisis management in private banks in Yemen.

Ha: There is a statistically significant impact of the user of artificial intelligence on crisis management in private banks in Yemen.

Hb: There is a statistically significant impact of the systems of artificial intelligence on crisis management in private banks in Yemen.

Hc: There is a statistically significant impact of the devices of artificial intelligence on crisis management in private banks in Yemen.

8. Methodology

In order to determine if the suggested model is suitable for enhancing crisis management in Yemen's private banks, this study used quantitative data and employed a descriptive and analytical approach. The aim of descriptive research is to collect data that characterizes the matter of interest. In order to learn more about the characteristics of objects (such as individuals, groups, businesses, or brands), events, or circumstances, descriptive studies are routinely conducted. In descriptive research, either quantitative or qualitative methodologies are applied. It could require obtaining qualitative data as well as quantitative data, such as customer satisfaction ratings, production statistics, sales numbers, or demographic data (Sekaran & Bougie, 2016). This study is limited to examine the impact of artificial intelligence on crisis management in private banks in Yemen, Crisis management is considered as the dependent variable. The Artificial intelligence, then, is considered as the independent variable.

The targeted respondents are employees working 16 private banks located in Sana'a. The survey method will be used to gather comprehensive data. The decision has been made to solely collect responses from employees of private banks, as this study focuses on the relationship between decision-making and crisis management in private banks. Respondents will be selected from top managers, middle managers, and first line managers. The specific banks included in this study are listed in the following Table 2.

Table 1 private banks in Yemen

M	Bank's Name	Establishment Date
1	National Bank of Yemen	1969
2	United Bank Limited	1972
3	Yemen Commercial Bank	1993
4	Arab Bank	1972
5	Rafidain Bank	1982
6	Al-Amal Microfinance Bank	2008
7	Saba Islamic Bank	1997
8	Yemen Islamic Bank	1995
9	Shamil Bank of Yemen & Bahrain	2002
10	Al-Kuraimi Microfinance Bank	2010

11	Cooperative and Agricultural Credit Bank	1982
12	Yemen Bank for Reconstruction and Development	1962
13	Qatar National Bank	2007
14	Yemen Kuwait Bank	1979
15	International Bank of Yemen	1979
16	Tadhamon Bank	1996

Source: Yemeni Banks Association, <https://yemen-yba.com/>

Additionally, a survey questionnaire was conducted to collect the data. A questionnaire is a revised set of inquiries that participants must answer in writing, frequently from a limited set of possibilities. Typically, questionnaires are designed to collect a lot of quantitative information. They might be delivered to the respondents through mail, email, or physical delivery. Compared to surveys, interviews and observations are frequently more expensive and time-consuming, but they also have a far larger chance of non-response and non-response inaccuracy, Sekaran and Bougie (2016). On a seven-point Likert scale, these questions in the study's questionnaire were evaluated. The questionnaire was divided into three sections which each section of the questionnaire has its items. The first section focuses on demographic and related information about respondents consisting of six items including, gender, age, educational qualification, years of service, job title, and workplace bank. The second section is measuring crisis management including Signal detection, Preparation/prevention, Containment/Damage limitation, Recovery, and Learning, while the last section is measuring artificial intelligence which includes User, Systems, and Devices.

9. Applied study

9.1. Study design

The purpose of this paper is to investigate the mediating impact of artificial intelligence on crisis management in Yemeni private banks, with a focus on the interaction between exogenous and endogenous variables. Therefore, the quantitative research is the best technique to explain the connections between measurably different variables (Sekaran & Bougie, 2016). The quantitative method entails gathering, analyzing, and interpreting data in order to relate factors brought up by the questions or hypotheses. More crucially, the quantitative research technique employs accepted methodologies for statistical testing, validity testing, and reliability testing (Creswell, 2014). Therefore, this paper applied the quantitative approach because by using the quantitative approach, studies can examine the significance among and between the study's variables and are able to generalize the results to the whole population.

9.2. Population and sample of the study

The targeted respondents are the employees who are working in private banks in Sana'a which are 17 banks. These banks are as shown in the next table.

Table 1 private banks in Yemen

NO.	Bank's Name	Establishment Date
1	Saba Islamic Bank	1997
2	Yemen Commercial Bank	1993
3	Arab Bank	1972
4	Rafidain Bank	1982
5	Al-Amal Microfinance Bank	2008
6	Yemen Islamic Bank	1995
7	Shamil Bank of Yemen & Bahrain	2002
8	Al-Kuraimi Microfinance Bank	2010
9	Cooperative and Agricultural Credit Bank	1982
10	Qatar National Bank	2007
11	International Bank of Yemen	1979
12	Tadhamon Bank	1996
13	Yemen and Gulf Bank	2000
14	Yemen Bank for Reconstruction and Development	1962
15	National Bank of Yemen	1969
16	Yemen Kuwait Bank	1979
17	United Bank Limited	1972

Source: Yemeni Banks Association, <https://yemen-yba.com/>

The National Bank of Yemen, and Yemen Kuwait Bank refused to cooperate with the researchers. United Bank Limited does not exist today because it was relocated outside the capital, Sana'a. The decision was made to solicit responses only from employees of private banks since this study is concerned with the decision-making that is related to crisis management in the private banks. Respondents were selected from (General Manager-Assistant General Manager- Sector Manager-Department Manager).

In the present research, the Comprehensive survey, also known as the Census, was conducted with a total of 239

participants. As a result, this study followed the recommendation of Byrne (2013) and Hair et al. (2018), who stated that a sample size of 200 is sufficient for conducting SEM.

To have a proper distribution for sample size, the following table shows the number of employees occupying the following positions such as General Manager, Assistant General Manager, Sector Manager and Department Manager in the main branches of private banks in Sana'a, depending on the banks themselves.

Table 2 number of employees in private banks in Yemen

NO.	Banks	General Manager	Assistant General Manager	Sector Manager	Department Manager
1	National Bank of Yemen	-	-	-	-
2	United Bank Limited	-	-	-	-
3	Yemen Commercial Bank	1	2	-	12
4	Arab Bank	1	1	12	-
5	Rafidain Bank	1	-	-	4
6	Al-Amal Microfinance Bank	1	2	-	12
7	Saba Islamic Bank	1	2	2	17
8	Yemen Islamic Bank	1	-	-	7
9	Shamil Bank of Yemen & Bahrain	1	2	2	14
10	Al-Kuraimi Microfinance Bank	1	2	-	12
11	Cooperative and Agricultural Credit Bank	1	2	7	33
12	Yemen Bank for Reconstruction and Development	1	2	2	11
13	Qatar National Bank	1	-	-	5
14	Yemen Kuwait Bank	-	-	-	-
15	International Bank of Yemen	1	2	-	27
16	Tadhamon Bank	1	2	2	9
17	Yemen and Gulf Bank	1	1	-	9
Total		14	18	15	184
Total summation		231			

9.3. Instrument of the study

In this research, the main tool used for data collection was a survey questionnaire. Questionnaire: This is a set of standardized questions that provide written answers (typically within a predetermined set of response options) and are widely used for quantitative data collection (Sekaran & Bougie, 2016). The questionnaire in this study was measured by using a seven-point Likert scale to assess respondents' perceptions regarding artificial intelligence and crisis management. This is broken down into three different sections. The initial segment comprised 6 items that gathered demographic and other relevant information (i.e. gender, age, educational qualification, years of service, job designation and workplace bank). The second part assessed crisis management on five dimensions: signal detection, preparation/prevention, containment/damage

limitation, recovery and learning. The third section assessed artificial intelligence across three dimensions: users, systems and devices. This study adopts measurement items from 52-item instruments and these are widely used and validated in previous studies.

10. Findings and discussion

10.1. Respondent profile

The respondent profile indicates that the majority of private bank managers were male, with 182 out of 219 respondents, representing approximately 83.1% of the sample, while female respondents accounted for 16.9%. Regarding age, respondents between 30 and 39 years constituted the largest group, accounting for 51.1% of the participants, followed by those aged 45 years and above, who represented 27.9% of the sample. In terms of educational qualification,

bachelor's degree holders constituted the largest proportion of respondents at 64.4%, followed by those holding master's degrees at 23.7%. With respect to occupational position, Department Managers represented the largest group, with 173 respondents (79.0%), followed by Sector Managers, with 26 respondents (11.9%). Concerning work experience, 53.4% of the respondents had more than 15 years of experience in the banking sector, while 23.7% had between 11 and 15 years of experience. This indicates that

a substantial proportion of the respondents had considerable professional experience and were therefore likely to possess relevant knowledge and experience regarding crisis situations in the banking sector. Regarding workplace affiliation, the Cooperative and Agricultural Credit Bank had the highest representation, with 39 respondents (17.8%), followed by the International Bank of Yemen, with 30 respondents (13.7%).

Table 2 shows demographic characteristics of the respondents

Variables	Items	Frequency	Percentage
Gender	Male	182	83.1
	Female	37	16.9
	Total	219	100.0
Age	Less than 25 years	4	1.8
	25- to 34 years	42	19.2
	35 to 44 years	112	51.1
	45 years and over	61	27.9
	Total	219	100.0
Academic qualification	Diploma or less	19	8.7
	Bachelor's	141	64.4
	M.A.	52	23.7
	Ph.D.	7	3.2
	Total	219	100.0
Years of service in the banking sector	5 years and less	26	11.9
	From 6 to 10 years	24	11.0
	From 11 to 15 years	52	23.7
	More than 15 years	117	53.4
	Total	219	100.0
Job title	General Manager	3	1.4
	Assistant General Manager	17	7.8
	Sector Manager	26	11.9
	Department Manager	173	79.0
	Total	219	100.0
Workplace bank	Yemen Islamic Bank	8	3.7
	Yemen Commercial Bank	14	6.4
	Arab Bank	14	6.4
	Yemen and Gulf Bank	10	4.6
	Al-Amal Microfinance Bank	14	6.4
	Yemen Bank for Reconstruction and Development	14.0	6.4
	Tadhamon Bank	14	6.4
	Al-Kuraimi Microfinance Bank	13	5.9
	International Bank of Yemen	30	13.7
	Saba Islamic Bank	22	10.0
	Qatar National Bank	5	2.3
	Cooperative and Agricultural Credit Bank	39	17.8
	Rafidain Bank	5	2.3
	Shamil Bank of Yemen & Bahrain	17	7.8
	Total	219	100.0

10.2. Alpha Cronbach's (Reliability analysis) for Questionnaire Items:

The most popular approach, Cronbach's Alpha coefficient, was employed to determine internal consistency (Sekaran, 2003). Cronbach's Alpha values range from 0 to 1, and a value of 0.6 or below often denotes internal consistency dependability that is less than excellent (Hair et al., 2018). Table 3 displays the Cronbach's Alpha coefficient for each of the variables that were assessed.

Table 3 Summary Statistics of Reliability Analysis

Constructs	Cronbach's Alpha
Crisis management	0.982
Artificial intelligence	0.953

As explained above in table 3, the result of Cronbach's Alpha is ranged between 0.953 and 0.982 which are within the recommended value of reliability, according to (Hair et al., 2018). In addition, the study used correlation coefficients between dimensions and variables, and between each item of the questionnaire and its variable. For more, the following table 4 shows the results of the correlation coefficients between dimensions and variables.

Table 4 correlation coefficients between dimensions and variables

Correlation of Crisis management						
Dimensions	signal detection	preparation/prevention	damage containment	recovery	learning	Crisis management
signal detection	1	.885**	.867**	.801**	.744**	.916**
preparation/prevention	.885**	1	.960**	.841**	.921**	.979**
damage containment	.867**	.960**	1	.826**	.896**	.967**
Recovery	.801**	.841**	.826**	1	.852**	.914**
Learning	.744**	.921**	.896**	.852**	1	.934**
Crisis management	.916**	.979**	.967**	.914**	.934**	1
Correlation of Artificial intelligence						
Dimensions	user	systems	devices	artificial intelligence		
User	1	.824**	.775**	.939**		
Systems	.824**	1	.634**	.896**		
Devices	.775**	.634**	1	.896**		
artificial intelligence	.939**	.896**	.896**	1		

The above table shows that the correlation values between dimensions and variables were at high values, and all the correlation coefficients of each dimension with its variable are statistically significant at the level of significance (0.005). This indicates that there is an internal consistency of the study tool and its validity to measure what it was prepared for.

10.3. Testing the validity of the hypothesis:

The hypothesis states that there is a statistically significant impact of artificial intelligence on crisis management in private banks in Yemen. The hypothesis has three sub-hypotheses which are:

Ha: There is a statistically significant impact of the user of artificial intelligence on crisis management in private banks in Yemen.

Hb: There is a statistically significant impact of the systems of artificial intelligence on crisis management in private banks in Yemen.

Hc: There is a statistically significant impact of the devices of artificial intelligence on crisis management in private banks in Yemen.

To verify the validity of the hypothesis, a structural model was made for the relationship between decision-making and artificial intelligence. Figure 1 and tables 5,6 explains that:

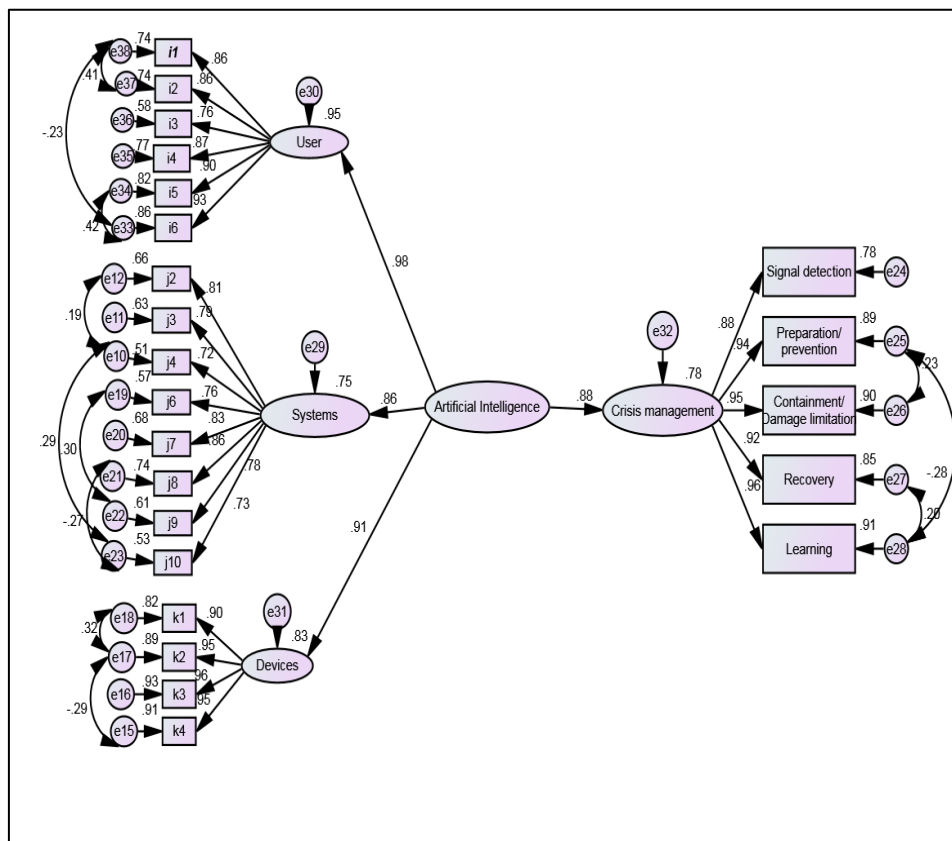


Figure 1 the relationship model between AI and CM

Table 5 the fit result of the relationship between AI and CM

Measurement indicators	CMIN/df	RMSEA	GFI	AGFI	CFI	NFI	IFI	TLI
Level of Acceptable	< 5	0.05 to 0.08	(1.0)	(1.0)	(1.0)	(1.0)	(1.0)	(1.0)
Level of Excellence	< 2	≤ 0.05	≥ 0.90	≥ 0.80	≥ 0.90	≥ 0.90	≥ 0.90	≥ 0.90
Index Value	2.4	.084	.827	.776	.948	.915	.949	.939

Table 6 Pathways testing the impact of AI on CM

(***) Statistically significant at a level of significance less than (0.001)

IDV		D.V	Estimate β	S.E	C.R	P	Result
AI	---->	CM	.971	.088	11.098	***	strong

From the previous figure and tables, it is conformed that:

1. All indicators of conformity came close to the excellent values, which indicate the acceptance of the model of the relationship between artificial intelligence and crisis management.
2. There is a positive impact of artificial intelligence on crisis management in private banks in Yemen, where the value of (β) (.971), the critical ratio (CR) shown in Table (4.13) has a value of (11.098), which is a significant value at the level of significance less than (0.001), and this confirms that the effect is statistically significant.

According to that, the artificial intelligence coefficient

(.971), which indicates that an increase of (.971) units in artificial intelligence contributes to an increase of (.971) units in crisis management.

11. Discussion

The findings of the most previous studies suggested that artificial intelligence could enhance crisis management success, such as Noizet & Weber (2018). Therefore, the third study objective of the current study is to examine the effect of artificial intelligence on crisis management in private banks in Yemen.

The result that obtained from applying structural equation modeling (SEM) using Amos v26 demonstrated that

artificial intelligence, in terms of user, systems, and devices, had a significant impact on crisis management. This finding is supported by the results presented in table 4. Therefore, objective one of the studies has been successfully achieved.

The result of this study confirmed that there is a positive impact of artificial intelligence on crisis management in private banks in Yemen, where the value of (β) (.971), the critical ratio (CR) shown in Table (4.13) has a value of (11.098), which is a significant value at the level of significance less than (0.001). This confirms that the effect is statistically significant, and the hypothesis H3 is accepted.

A specific sector expected to benefit greatly from the implementation of AI is crisis management. AI has the capability to identify correlations in data that may not be readily apparent, even to the most experienced human observer. Project managers may find value and solutions using AI, for instance, for issues like risk estimation and management. Contrarily, risk management includes identifying risks, analyzing them, preparing for them, monitoring them, controlling them, and communicating about them. Artificial intelligence is able to extract kinematic data, such as start and end dates from previous projects, which can be used to forecast exact durations for future projects. Several AI technologies have been developed to analyze data and identify the relationships between causes and effects. These technologies also estimate the probability of failure and assess the severity of risks, both qualitatively and quantitatively. They include neural networks, fuzzy logic, and machine learning. AI can track, detect, analyze, and forecast potential risks in terms of protection, quality, efficiency, and cost using a variety of teams and work situations, when faced with uncertainty. In most cases, this particular skill has been employed to identify, rank, and prioritize risks (Afzal, et al, 2019).

The outcomes of this study corroborated those of Noizet & Weber (2018), who concluded that using AI to crisis management has several advantages and has a high likelihood of radically altering the situation.

12. Results:

This research highlights the favourable influence of artificial intelligence (User- Systems- Devices) on crisis management (Signal detection- Preparation/prevention- Containment/Damage limitation- Recovery- Learning) in private banks in Yemen. The paper also presented a number of recommendations which are: Focusing on artificial intelligence due to its prominent role in the future life and its impact on the development and excellence of banks, and because of its impact on all administrative operations and their functions, especially in light of the multiple and

various crises facing banks in light of the instability of the Yemeni environment.

13. Recommendations and suggestions

This work gives more theoretical implications of crisis management theory. The aspect namely artificial intelligence has been confirmed to be relevant to crisis management in private banks in Yemen current crises. Given the constraints of the study in the area of crisis management, this result is regarded an extension of the theory.

Theoretical implication of this work is confirming the crucial role of artificial intelligences that would appraise the private banks in Yemen to prevent crisis impacts. The result of the present study approved the relationship between artificial intelligences and crisis management which is considered a confirmation to the argument made by Noizet & Weber (2018) who stated that the selection of artificial intelligences is important to confront the crisis situation and to protect the continuity of organisations. Therefore, this study contributes to the body of knowledge in the area of crisis management, by providing perspectives on the important role of artificial intelligences in crisis management in private banks in Yemen as a beneficial theoretical contribution.

In particular, the study framework is developed to assess crisis management in private banks in Yemen. The private banks and private sector in Yemen as a whole are considered crucial drivers of economic growth in Yemen, directly impacting job creation and reducing unemployment (AGSIW, 2016). However, during crisis situations, it becomes vital for leaders in the private banks in Yemen to understand the factors that influence crisis management and leverage them effectively to prevent or mitigate the consequences of the crisis. Hence, this study offers practical contributions and several implications for practice.

The results of this study suggest that the adoption of artificial intelligence is extremely important, particularly in the context of crisis situations. The utilization of artificial intelligence in term of users, systems, and devices has been found to have a positive relationship with crisis management in private banks in Yemen. Thus, stakeholders should take note of the significant implications of using artificial intelligence, particularly in terms of Signal detection and learning from previous crises. This can greatly assist in containing the damage caused by crisis in Yemen banks and, as a result, safeguard their reputation. In simple terms, artificial intelligence plays a vital role in enhancing and shaping decision-making processes for successful crisis management. This implies that the effectiveness of decision-making is crucial for promoting

crisis management, as it is directly linked to the quality and acceptance of decisions. Without effective decision-making, crisis management cannot be achieved in an optimal manner. Additionally, employing artificial intelligence applications to streamline business procedures and decision-making in Yemeni private banks, guided by the expertise of banking and credit professionals, and providing training to credit staff on utilizing these systems, all contribute to making more accurate decisions while also reducing costs, effort, and time for the banks.

Overall, the ongoing crisis in Yemen is leading to a practical deterioration in the economy practically, particularly impacting private banks as reported by both government and non-government organizations. Thus, this study has developed a framework that includes the important factors that approved to have a relationship with crisis management and hence, assist the private banks in Yemen cope with the crisis. In practice, private banks in Yemen are in need of implementing sound decisions and advancing the integration of artificial intelligence. This can serve as a platform for successful crisis management within private banks. Significantly, the adoption of this knowledge is likely to play a significant role in mitigating the consequences of crisis situations in Yemeni private banks.

Disclaimer

The article has not been previously presented or published and is not part of a thesis project.

Conflict of Interest

There are no financial, personal, or professional conflicts of interest to declare.

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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