THE MEDIATING IMPACT OF ARTIFICIAL INTELLIGENCE IN THE RELATIONSHIP BETWEEN DECISION-MAKING AND CRISIS MANAGEMENT IN PRIVATE BANKS IN YEMEN

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Abstract

This article aimed to identify the mediating impact of artificial intelligence (User- Systems- Devices) in the relationship between decision-making (Quality- Effectiveness- Acceptance) and crisis management (Signal detection- Preparation/prevention- Containment/Damage limitation- Recovery- Learning) in private banks in Yemen. To achieve the objectives of the article, a quantitative approach was employed, utilizing both descriptive and analytical methods. The study population consisted of leaders from private banks in Yemen, specifically those in their main branches in the capital, Sana'a, holding the following administrative positions: General Manager, Assistant General Manager, Sector Manager, and Department Manager. Due to the small size of the study community, the comprehensive survey method was employed, and questionnaires served as the primary tool for data collection. A total of 239 questionnaires were distributed, and 219 valid questionnaires (92% response rate) were collected for analysis. Data were analyzed using appropriate statistical methods within the SPSS v26 software, and structural equation modeling (SEM) was applied using Amos v26. The article concluded the quantitative model achieved a Goodness of Fit Indices (very good) demonstrating the indirect relationship between decision making and crisis management mediated partially by artificial intelligence. The article presented a number of recommendations including the following: Paying attention to decision-making by considering its dimensions (Quality- Effectiveness- Acceptance), with particular emphasis on the quality of decision. Furthermore, giving importance to artificial intelligence due to its significant role in shaping the future and its potential impact on the development and advancement of banks. This is crucial considering the influence of artificial intelligence on all administrative operations and functions, especially given the diverse and numerous crises faced by banks in the unstable Yemeni environment.

Keywords: Artificial Intelligence, Decision Making, Crisis Management, Yemen.

1.0. 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)

A crisis is defined as "a situation that threatens the high-priority goals of the decision-making unit, restricts the amount of time available before the decision is transformed, and surprises the members of the decision-making unit by its occurrence" (Hermann, 2013). Public relations alone will not suffice to manage a crisis; instead, proactive strategies, a culture of prevention, established readiness, and robust systems for identifying and responding to "weak" warning signals are required. According to Pauchant and Mitroff (1988), the term crisis can be defined as "a disruption that physically affects the system as a whole and threatens its basic assumptions, its subjective sense of self, and its existential core."

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 (Davenport, 2012). 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 can 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 can (Prenatt et al., 2015).

In addition, Vroom and Yetton (1973) proposed a leadership model that highlights the social processes involved in decision-making. Their model specifically addresses the leader's decision on the extent and manner of subordinate participation in the decision-making process. This normative model serves as a guide for leaders in making choices that contribute to success within an organizational context, considering the impact of specific develop behavior or leadership style on the organization (Erffmeyer, 1983).

Artificial intelligence is currently experiencing rapid expansion, with recent advancements in technologies such as machine learning, reasoning, planning, and thinking capabilities. It is extensively utilized in many industries, including healthcare, defense, and transportation sectors, where automation plays a crucial role. AI proves to be a valuable tool in managing

both natural and man-made disasters, alongside its applications in other domains. Furthermore, the involvement of AI agents in organizational decision-making is rapidly increasing. These agents offer advantages in decision-making processes due to their objectivity, efficiency, and superior information processing abilities, devoid of human shortcomings like fatigue or self-interest. Employee perception of artificial intelligence leaders within organizations, however, can be less positive because to their perceived lack of fairness and justice.

Based on the foregoing, this paper aims to discover the mediating impact of Artificial Intelligence on the relationship between Decision-making and Crisis Management in private banks in Yemen.

1.1. Statement of the Problem

For Yemeni private organizations, as well as for Yemeni people and the region as a whole, the degradation of the private sector in Yemen due to the impact of the 2011 crisis is considered a significant issue (Brehony, 2015). The private sector in Yemen is reportedly witnessing deterioration, specifically in the employment, large, small and medium-sized enterprises (SMEs), product and food prices, and basic services sectors, which has led to severe consequences. The majority of employees experienced a decrease in income of approximately 20 percent, and unpaid leaves were extended up to 12 weeks. It is estimated that around 15 percent of all private-sector workers and 30 to 40 percent of manufacturing workers lost their jobs (ILO, 2016; UNDP, 2013). Additionally, the United Nations Development Program (UNDP) has reported that since March 2015, more than one-quarter (26%) of all organizations have ceased operations, with the services sector being the most affected, accounting for approximately 35% of the impact. Based on the size of the businesses, it was found 35% of medium-sized businesses and 27% of small, privately held businesses were forced to close their doors, compared to 17% of big businesses and 24% of micro businesses (UNDP, 2015). This stark evidence highlights the significant impact of the crisis and underscores the need for enhanced preparedness, particularly among major private enterprises, to effectively address the crisis.

Economic Studies and Forecasts, a division of the Ministry of Planning and International Cooperation, stated in 2018 the economic losses in Yemen surpass the average losses experienced in conflicts within the region and the worldwide. These losses can be attributed to the war that was accompanied by the closure of some air and land ports, the restriction of foreign trade movement, the faltering of oil and gas production, which represented the lifeblood of the national economy, and the complete abrogation of the country's legal system. Furthermore, there is an acute liquidity crisis in the financial system and the public budget, which has worsened since 2016. This crisis has resulted in most state employees not receiving their paychecks and has also led to the failure of public service initiatives and the interruption of numerous economic projects. According to monthly exchange rate data from the Central Bank of Yemen (2018), the exchange rate of the dollar in the parallel market witnessed a remarkable increase from approximately 215 riyals/dollars in March 2015 to 485 riyals/dollars in April 2018, resulting in a cumulative change rate of 6.125%. This increase was primarily attributed to factors such as restricted flow, depletion of Yemen's foreign exchange reserves,

and the subsequent division of the monetary authority. Exchange rate fluctuations increased by 61% between September 2016 and March 2018, compared to 41% between March 2015 and September 2016, when foreign reserves were exhausted and central bank activities central bank operations were relocated to Aden. While a recent $2 billion deposit played a crucial in stabilizing exchange rate volatility, sustaining the benefits of this deposit necessitates additional donor support, resumption of exports, and the unification of the Central Bank of Yemen.

Based on the aforementioned rationale and considering these circumstances, there is evidence to suggest that organizations that possess crisis management plans and respond effectively to crises are better equipped to withstand crisis situations. Notably, large construction organizations in Greece that implemented crisis management plans experienced fewer adverse effects from the crisis and managed to survive (Sfakianaki, Iliadis, &Zafeiris, 2015). Additionally, as noted by Cronin (2015), organizations in the city center of Bangkok were able to manage the crisis and carry on with everyday operations throughout the political crisis. This success can be attributed to the implementation of emergency crisis management strategies. Additionally, the emergency reaction to the 2004 Madrid bombings and Australia's response to the 2002 Bali bombings are cited as examples of effective crisis management (Eriksson & McConnell, 2011).

According to Bowers, Hall, and Srinivasan (2017) and Wooten & James (2008), crisis management is recognized as a method for containing and minimizing crisis impacts. The primary objective of crisis management is to minimize the disruption caused by unexpected incident to an organization's operations (Herbane, 2013; Spillan, Parnell, & de Canolo, 2011). Additionally, crisis management plays a critical role in preventing financial losses and ensuring the survival of an organization (Sfakianaki et al., 2015).

Despite the increasing number of empirical studies on crisis management, most of them (Mostafa, Sheaff, Morris, and Ingham, 2004; Rousaki and Alcott, 2006; Parnell, Koseoglu, and Spillan, 2010; Ritchie, Bentley, Koruth, and Wang, 2011; Spillan et al., 2011) have focused primarily on the readiness and preparedness phases of crises rather than crisis management as a whole. To the researcher's knowledge, since each step of crisis management identifies the stage at which the crisis is occurring, it highlights the lack of research on crisis management, especially in Yemeni enterprises.

In crisis situation, it is important to understand the variables that can influence crisis management. Bhaduri (2019) argued that transformational leadership style is a critical factor that can enhance crisis management. While their findings can be limited to the context of natural disaster, it is recommended that future research examine the effects of transformational leaders in other types of crises. Academic scholars such as Zhang, Jia, and Gu (2012) have argued that transformational leadership style is the most suitable leadership during the advent of natural disaster. Furthermore, it was recommended by Cho and Tseng (2009) and Celik et al. (2016) that transformative leadership styles can be investigated in future cross-cultural studies of crises. In addition, DuBrin (2013) emphasized that the ideal leadership style for mitigating the effects of a crisis is transformative leadership. It functions effectively during

both the post-crisis and imminent crisis stages. The transformational leadership style has been identified by leadership studies as the most comprehensive and efficient method in a crisis situation. There are various research studies that claim the existence of additional factors in place of those mentioned. Alkhawlani (2020) adopted the crisis management model proposed by Mitroff et al. (1988) and Pearson and Mitroff (1993) to investigate the mediating effect of decision-making on the relationship between transformational leadership style, organizational culture, and crisis management. Additionally, the study explored the influence of crisis communication strategy on crisis management in Yemeni organizations. Other research attempted to enhance existing crisis management models or to suggest alternative approaches.

Successful crisis management, as argued by Fearn-Banks (2016), incorporates crisis communication strategies that can that can mitigate or eliminate the crisis, even elevate the organization's reputation to a higher level than before the crisis occurred. Clear communication is a fundamental objective during the crisis-management process, as it helps to minimize harm to the organization, maintain its operations, and repair damage to its reputation (Coombs, 2007).

Based on the discussion above, the issues of the problem have been explained, and the gaps have been identified. In response to the recommendations of the previous studies, this paper aims to investigate the mediating impact of Artificial Intelligence on the relationship between Decision-making and Crisis Management. Additionally, the study will assess the suitability of the proposed model for enhancing crisis management in private banks in Yemen.

1.2. Questions of the Study

In light of the discussion outlined in the problem statement and previous studies, this paper aimed to address the following questions:

1. **Is there a statistically significant effect of artificial intelligence as a mediating variable in the relationship of decision-making (quality - effectiveness - acceptance) with crisis management in private banks in Yemen? This question investigated through the following sub-questions:**

    a) Is there a statistically significant effect of artificial intelligence as a mediating variable in the relationship of the quality of decision-making with crisis management?

    b) Is there a statistically significant effect of artificial intelligence as a mediating variable in the relationship of the effectiveness of decision-making with crisis management?

    c) Is there a statistically significant effect of artificial intelligence as a mediating variable in the relationship of the acceptance of decision-making with crisis management?

1.3. Objectives of the Paper

The aim of this paper is to test the suitability of the proposed model for enhancing crisis management in private banks in Yemen. The specific objective is verify the impact of artificial intelligence as a mediating variable in the relationship of decision-making (quality - effectiveness - acceptance) and crisis management (signal detection, preparation/prevention, containment/damage limitation, recovery, learning).Validate the study model by examining the relationships between decision-making (quality - effectiveness - acceptance) and crisis management (Signal detection- Preparation/prevention- Containment/Damage limitation- Recovery- Learning) through structural equation modeling and confirmatory factor analysis.

1.4. Hypotheses of the Paper

There are two opposing streams present, according to earlier investigations. While Banerjee et al. (2018) claim that AI agents should be used specifically in emergencies due to the fact that critical decisions require more time to be made by humans and the strength of human decision-making declines when they are in the state of shock, as it is in crisis situations, therefore they assert that AI agents should be used in general. Additionally, Polonski (2018) agrees with the viewpoint asserting that AI is often superior to humans in terms of forecasting (Polonski, 2018). However, Jarrahi (2018) argues to the contrary, stating that while AI excels in complex decision-making, humans still outperform intelligent agents in ambiguous and unpredictable scenarios, which are characteristic of crisis situations. Therefore, Noizet& Weber (2018) found that it is possible to assess the potential use of AI for decision-making processes in crisis management by dividing prospective applications for the short-, medium-, and long-term. It has been found that AI is not now implementable for crisis management decision-making because to issues with regulatory compliance and trust, as well as a lack of crisis data. In light of what has already been mentioned, this research proposed that:

H: There is a Statistically Significant Effect of artificial intelligence as a mediating variable in the relationship of decision-making (quality - effectiveness - acceptance) with crisis management in private banks in Yemen.

Ha: Artificial intelligence mediates the relationship between the quality of decision-making and crisis management.

Hb: Artificial intelligence mediates the relationship between the effectiveness of decision-making and crisis management.

Hc: Artificial intelligence mediates the relationship between the acceptance of decision-making and crisis management.

1.5. Significance of the Paper

The study's contribution encompasses both theoretical and practical perspectives. From a theoretical standpoint, this research adds to the existing corpus of knowledge for a number of reasons. Firstly, it proposes a crisis management model consisting of five phases (Signal detection, preparation, prevention, containment, damage limitation, recovery, and learning) for private banks in Yemen. Secondly, it examines the significant impact of crisis management on

decision-making. Moreover, this study investigates how private banks in Yemen handle administrative choices (quality, effectiveness, and acceptability) and crises (signal detection, preparation, prevention, containment, damage limitation, recovery, and learning).

On the other hand, from the practical perspective, the study will assist private banks in Yemen in promptly manage crisis. Moreover, decision-makers will utilize the information of the study to implement appropriate communication structures and conduct routine drills. The personnel team in charge of crisis management will be well-informed and prepared to handle crises on all fronts.

1.6. Definitions of Terms

1.6.1. Decision-Making: It is the learned habitual response pattern exhibited by an individual when confronted with a decision situation; it is not a personality trait, but a habit-based propensity to react in a certain way. (Scott and Bruce, 1995)

Operational Definition: It is the selection of the appropriate alternative, and its implementation in a timely manner, taking into account the acceptance of those concerned with this decision through their conscious awareness of the importance of this decision.

1.6.2. Crisis Management: It is an ongoing, integrated, and thorough effort implemented by organizations with the goal of understanding, preventing, and managing crises with the utmost efficiency while taking into account the interests of their stakeholders at every stage of their planning and training activities (Santana, 2004).

Operational Definition: It is an intentional administrative process based on Signal detection, Preparation/prevention, Containment/Damage limitation, Recovery, and Learning, by identifying its internal and external causes, and identifying the actors and influencers in it, to improve methods of dealing with crises in the future.

1.6.3. Artificial intelligence: Russel and Norvig (2016) defined AI as the art of building robots that carry out tasks that, when carried out by people, need intelligence.

Operational definition: it is the practice of designing machines to carry out tasks requiring intelligence as reflected by the systems, people, and tools that are employed.

1.7. Literature Review

1.7.1. Crisis management CM

The phrase "CM" is frequently used to describe how an organization handles a crisis. The definitions of CM that have been presented in the literature on crises and disasters have multiplied over time and differ substantially in their language use, breadth, and focus (Houben, 2005). JF Kennedy, the president of the United States of America, used the same phrase to characterize an unprecedented and dangerous scenario in politics during the Cuban Crisis of 1962 (Gleaser, 2006). The field of CM was formally created in 1982 following the successful treatment of the Johnson and Johnson disaster, which revealed lethal cyanide in the painkiller Tylenol Extra Strength (Pines, 2000).

Ineffective crisis management can result in serious harm to stakeholders, financial losses for an organization, or possibly the failure of that institution (Coombs, 2007). In a similar vein, crisis management (CM) tries to assist businesses in managing crises and reducing their detrimental effects (Jaques, 2007; Sfakianaki, Iliadis, &Zafeiris, 2015; Spillan, Parnell, & de Mayolo, 2011).

Over the past three decades, CM has been extensively studied and described by a wide range of authors. The term "CM" does not have a single, accepted definition. The definitions that follow, however, can help one understands what CM is. Gigliotti and Jason (1991) have described CM as an organization's capacity to respond to emergency situations promptly, effectively, and efficiently with the goal of minimizing risks to human health and safety, property loss for the general public or for businesses, and harm to existing or future regular operations.CM, on the other hand, has been described by Bauchant and Mitroff (1992) as a dynamic and organized process that comprises stages of prevention, mitigation, readiness, reaction, and recovery. Similar to this, Kash and Darling (1998) describe crisis management (CM) as a set of activities or procedures for detecting, analyzing, and forecasting difficulties related to crises as well as for creating particular strategies that would enable an organization to avert or manage a crisis. Some authors have described crisis management (CM) as an integrated, all-encompassing, ongoing effort that organizations actively make in an effort to first and foremost understand and prevent crises, as well as to successfully manage those that do occur, while taking into account planning and training at every stage and the interests of stakeholders (Santana, 2004). CM is a dynamic, ongoing process that comprises both proactive and reactive measures, according to Ocal, Oral, and Erdis (2006). The goal is to recognize the issue, react to it, face the situation, and address it.

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.

There are many studies that cast a light on this topic from different directions. Tawwaf and Alarshani (2021), aimed to identify the importance of crisis management in improving the effectiveness of administrative decisions by applying to decision-makers in the public Electricity Corporation. The study employed a descriptive analytical approach, and due to the small size of the study community, a comprehensive survey method was utilized. The primary tool for data collection was a questionnaire, and the collected data were analyzed using appropriate statistical methods within the SPSS program. The study revealed a significant and strong direct relationship between crisis management and the effectiveness of administrative decisions. Alkhawlani (2020) looked examined the influence of decision-making on the relationship between transformational leadership style, organizational culture, and crisis management as well as the impact of crisis communication strategy in Yemeni firms. The study used a self-administered questionnaire as its study method and utilized the crisis management model developed by Mitroff et al. (1988); Peason, Mitroff (1993) and Amos v25's structural equation modeling analysis of the survey. The results showed that crisis management was

significantly influenced by decision-making, crisis communication approach, and transformational leadership style. The outcome also showed that corporate culture and transformational leadership style both significantly impacted decision-making. Furthermore, the results showed that decision-making mediated the association between transformational leadership style, organizational culture and 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.

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.

Despite the growing number of empirical studies in crisis management, most of those studies have focused on the crisis readiness and preparedness phases rather than crisis management over all (Mostafa, Sheaff, Morris, and Ingham, 2004; Rousaki andAlcott,2006; Parnell, Koseoglu, and Spillan, 2010; Ritchie, Bentley, Koruth, andWang, 2011; Spillan et al., 2011), to the researcher's knowledge, only a few studies have been conducted to examine all crisis management stage ((Bundy, Pfarrer, Short, &Coombs, 2017; Wilson, Abaja, and Waiganjo, 2012; Zhang and Myers, 2010). Since all stages of crisis management only describe the stage the crisis is going through, but they do not tell us how to manage the crisis, this limitation supported the need for further studies in crisis management by (planning - organizing - directing - following up) that describe how to manage the crisis and shedding light on the lack of research in crisis management, especially in Yemeni organizations.

1.7.2. Decision Making DM

Mintzberg (1973) defined decision making as a commitment to action. It can also be seen as the process of deciding between a numbers of options and choosing one course of action over another (Marakas, 2003; Saaty, 1982). According to Paradice (1991), DM is the end result of mental processes that choose a plan of action from a large number of possibilities before making a final decision. Every function at all levels engages in DM, which is a crucial

component of management. DM is typically used when there is uncertainty, conflicting goals, a value preference, and a risk-taking mindset.

Making choices is a manager's most crucial task. It is also the most hazardous and difficult. A poor judgment may irreparably harm a firm and a career since decisions are worth millions of dollars (Forrester, 2003) (Hammond et al., 2006). More judgments than ever before are demanded of decision makers today, frequently with little guidance and little time (Capgemini, 2004). The problem of establishing DM capabilities continues to be difficult as DM complexity rises (Papamichail & Rajarm, 2007).

The five types of DM, according to Scott and Bruce (1995), are logical, intuitive, avoidant, reliant, and spontaneous. Decisions that are rationally connected to goals or ends are considered rational. An impartial observer with extensive expertise would also find the chosen option to be reasonable. To pick the most efficient way of achieving the goals, rationality involves thought and the weighing of alternatives (Hablemitoglu & Yildirim, 2008). The rational DM approach places a strong emphasis on the use of models, analytical tools, and decision support systems. According to Highhouse, et al. (2013), intuitive DM is a synonym for decisiveness. People who make judgments intuitively do not evaluate all the possibilities and outcomes that might occur. According to Hosseinzadeh et al. (2014), the dependent style is a sign that DM lacks both intellectual and practical independence as well as direction on how to defend and assist others while making decisions. The avoidant DM style is distinguished by a propensity to withdraw DM or a reluctance to make judgments (Scott & Bruce, 1995). The inclination to put off making decisions is referred to as an avoidant style (Thunholm, 2004). According to Scott and Bruce (1995), the spontaneous DM style is characterized by a propensity to make judgments without taking the time to carefully consider all of the available options.

Lucian L. Visinescu (2013) aimed to analyze the quality of decisions made using business intelligence (The effect of business intelligence components on the quality of decision making). The degree of business intelligence utilization, the quality of the information, and the complexity of the issue area were considered as independent factors. The dependent variable, captured as decision quality, represents the self-satisfaction of users with a decision made in a business intelligence environment. A survey of business intelligence users, whose names were supplied by a marketing firm, was used to test the research methodology. The study discovered that the concept of business intelligence user experience is more intricate than previously believed.

Al-Amery, "Credit Information System Development to Rationalize Decision-Making Field Study: Sample of Yemeni Commercial Banks, 2022" aimed to identify the level of application of the credit information system factors (the customer, the employees' possession of credit analysis capabilities, the employees' application of financial analysis tools), the level of rationalization for decision-making process, and the development of a "proposed vision for the development of the credit information system to rationalize the decision-making process in Yemeni commercial banks". Both sorts of descriptive approaches (survey and development) were employed in the study, along with a variety of instruments. Due to the questionnaire's constraints, the research population, which consisted of (51), was disseminated via a complete

enumeration approach to every participant. According to the study, there is a significant direct correlation between the extent to which Yemeni commercial banks implement the components of the credit information system as a whole and the rationalization of the decision-making process.

Al-Ghabri's study (The Impact of Information Technology on Improving Managerial Decision-Making: A Field Study at Banks Operating in Hodeida, 2020) also sought to ascertain how information technology affected management choices in the commercial banking industry. The research community's members' responses to a questionnaire were utilized to collect data as part of the descriptive analytical technique (124). According to the study, information technology has a considerable influence on managerial decision-making.

Manuel Edmund Shank supported the connection between decision-making process maturity and decision-making effectiveness (The Impact of decision making process maturity on decision making efficiency, 2018). The goal of the theoretical framework and the empirical results is to develop both the theory and the practice of decision-making. The factors included internal corporate determinants, decision-making efficiency, and the maturity of the decision-making process. The research looked at how internal company issues impacted the process of choosing strategic suppliers. The main findings of this study are consistent with the core tenet that the decision-making process maturity has a considerable impact on the strategic supplier selection process decision-making efficiency. The statistical techniques employed provide compelling evidence in favor of this assertion: the laboratory experiment shows a considerable association between the maturity of the decision-making process and the economic effectiveness of the decision-making process, as well as a highly significant relationship between these two factors. The field study also demonstrates a highly significant association between the socio-psychological and financial efficiency of the decision-making process and the maturity of the decision-making process. Surprisingly, the company-internal factors that were examined such as the manager's education, work history, and incentive programs, did not have a significant impact on the strategic supplier selection process.

In addition, Amer, Enterprise the Importance of Strategic Vigilance in the Making of Strategic Decisions in the Yemen Bank for Reconstruction and Development, (2018), seeks to define the relationship between the strategic vigilance dimensions and strategic decision making as well as pinpoint the function of strategic vigilance dimensions in that process. The questionnaire was chosen as the data collection tool provided the basis for the descriptive approach. All of the personnel in executive positions at the corporate headquarters and all of the (YBRD) offices in Sana'a were a part of the study community. The study's findings revealed a significant positive association between strategic decision-making and the combined strategic vigilance aspects.

Cliff Thomas' an examination of decision making during organizational crisis: a case study of the 2017 Northern California firestorm, (2019) set out to investigate a phenomenon that is crucial to reducing crisis-related harm: decision-making. Thomas looked at the interactions between decision factors and how they affect behaviors and decision-making during crises. Organizational crises, contextual decision factors, frameworks for making sense of things,

decision-making techniques, and decision outcomes were the variables. To give a thorough and detailed description of the main phenomena, the study used a qualitative technique. Findings from the study suggest that, under some circumstances, organizational crisis decision-making can be correctly described as a complex adaptive system. The data also indicate a variety of decision-related factors, such as past experiences, temporal implications, situational control, group member trust, and decision-maker self-perceptions. The vast majority of the choice components examined, including the decision-makers beliefs of themselves that were shown to be relevant. Some of the variables used in the study included academic quality, professors' connections to industry, student enrollment, research and development, student satisfaction, position among competitors, new educational technologies, facilities, good services, the best educational technology, and finances. A qualitative phenomenological exploratory method was employed in the investigation. The study identified various director behaviors linked to ambidexterity and risk in DM, and these behaviors are connected to strategy, organizational performance, and the use of dynamic abilities.

1.7.3. Artificial Intelligence

Artificial intelligence is one of the most recent branches of science and engineering. The phrase was first used in 1956, when activity started to pick up after World War II. AI is the topic that is regularly brought up today as the "field I would like to be in" by scientists from various fields, along with molecular biology. A physics student would fairly believe that Galileo, Newton, Einstein, and the rest had already claimed all the best concepts. On the other hand, there are still a few full-time Einstein's and Edison's available in AI. Today, a wide range of subfields are included under the umbrella term "AI," from the general (learning and perception) to the specific (playing chess, proving mathematical theorems, writing poetry, navigating a crowded street, and diagnosing diseases). The early years of artificial intelligence saw several minor triumphs. It was astounding anytime a computer accomplished anything remotely brilliant, given the archaic machines and programming tools of the period and the fact that only a few years previously computers were considered to be entities that could perform arithmetic sums and nothing more (Russell and Norvig, 2010).

Although the phrase "artificial intelligence" (AI) was first used more than 60 years ago (Pan, 2016), the literature lacks a consensus definition of the concept. The word was first used in 1956 by John McCarthy and other academics to describe "the ability of machines to understand, think, and learn in a similar way to human beings, indicating the possibility of using computers to simulate human intelligence" (Russel and Norvig, 2010). The capacity to learn from experience and adapt to new data are included to this description in more recently published research (Duan et al., 2019), and algorithms are referred to as the heart of AI (Burgess, 2018). Over the past 60 years, AI has overcome multiple "winters" (Pan, 2016). The commercialization of AI is accelerating due to advances in big data, including low-cost, improved storage, and quick data processing capabilities (Duan et al., 2019; Burgess, 2018), the significant number of mergers and acquisitions in this space, and the increased demand outside of academic curiosity brought on by new business goals like intelligent cities or smart products that require AI (Pan, 2016).

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 were perceptions of justice and trust. Testimonials about trust and justice can be manipulated. 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.

Malin Eriksson and Camran Djoweins' '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.

Syed Asad A. Bokhari and Seunghwan Myeong sought to examine the direct and indirect connections between artificial intelligence (AI), social innovation (SI), and smart decision-making (SDM) in their 2022 article, "Use of Artificial Intelligence in Smart Cities for Smart Decision-Making: A Social Innovation Perspective." Cross-sectional data from South Korea and Pakistan were gathered for this study utilizing a survey design and survey questionnaires. Using SPSS multiple regression, 460 respondents from the public and private sectors were gathered and empirically examined. As expected, the study found that SI had a significant and beneficial mediating influence on the connection between AI and SDM. Some of the factors that affect decision-making have already been the topic of research. This study adds to the body of social science literature by examining the impact of a mediating factor on decision-making. Because smart decision-making would share the information gathered with entrepreneurs, businesses, and industries and be advantageous to society and all relevant stakeholders, including such social innovators, the study's findings will assist local government in developing smart cities so that social innovations should be taken into account in decision-making. Pia Weber and Guillaume Noizet (artificial intelligence an approach for decision-making in crisis management, 2018) aimed: finding out what matters most in crisis management decision-making processes, determining the capabilities and constraints of human and artificial intelligences, and determining how artificial intelligence can influence key decision-making features are the first three goals. Decision-making procedures in an unpredictably brief amount of time. An interpretivist qualitative method has been used to direct these efforts. Interviews were conducted with crisis management and consulting professionals as well as AI researchers

and engineers. Additionally, notes at a symposium on artificial intelligence were collected. As a result, it has been discovered that making judgments in emergency situations requires both thoroughness and quickness. The two decision parameters short- and long-term impacts also required to be included, as evidenced by the empirical findings, because decision-making is not only about the decision-making process itself, but also about the viability and long-term implications of judgments made. We established the functions of intuition and reason, as well as the capabilities and bounds of both human and artificial intelligence. A model for "successful decision-making in crisis situations" could then be constructed. Finally, the findings demonstrate that using AI in crisis management has several advantages, creating a high likelihood that AI will materially alter the situation.

2.0. METHODOLOGY

2.1. Study Design

The purpose of this paper is to investigate the mediating impact of artificial intelligence on the relationship between decision-making and 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.

2.2. 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			

2.3. Instrument of the Study

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 paper's questionnaire were evaluated. The survey asked about decision making, crises management, and artificial intelligence. The questionnaire was divided into four 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 third section is measuring decision making that includes **quality, effectiveness, and acceptance**. The last section is measuring artificial intelligence that includes **user, systems, and devices**. All of the measuring items used in the current paper were taken from 70-item investigations. This paper, however, adopts questions that have gained a lot of confirmation from other studies.

3.0. FINDINGS AND DISCUSSION

3.1. Respondent Profile

According to **Respondent profile**, the majority of private banks managers were males with total number of 182 out of 219 accounting for approximately 83.1% while the rest were female with only (16.9%). The most common age of the respondents was between 30 and 39 years, accounting for 51.1% of the participants. This was followed by respondents aged 45 years and over, which represented 27.9% of the sample. The highest educational level held by top management of private banks were bachelor degrees, accounting for 64.4% of the individuals. This was followed by master degrees, (which represented 23.7% of the group. The majority of respondents have occupations other than those specified. Among these occupations, Department Manager is the most common, with 173 respondents, representing 79.0% of the sample. This is followed by Sector Manager, with 26 respondents, representing 11.9%. Among the respondents who are top managers, the majority of participants (53.40%) have more than 15 years of experience in the banking sector. Additionally, 23.7% of the respondents have served between 11 and 15 years. This shows that the majority of survey respondents have employment history and could be considered experienced with crisis situations. According to workplace affiliation, the most common respondents were from Cooperative and Agricultural Credit Bank representing 39 respondents or 17.8% of the sample. They were followed by 30 respondents working at International Bank of Yemen representing 13.7%.

Table 3: 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

3.2. 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 4 displays the Cronbach's Alpha coefficient for each of the variables that were assessed.

Table 4: Summary Statistics of Reliability Analysis

Constructs	Cronbach's Alpha
Crisis management	0.982
Decision making	0.968
Artificial intelligence	0.953

As explained above in table 4, 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 5 shows the results of the correlation coefficients between dimensions and variables.

Table 5: 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 Decision-making				
Dimensions	Quality	Effectiveness	Acceptance	Decision-making
Quality	1	.785**	.861**	.933**
Effectiveness	.785**	1	.852**	.931**
Acceptance	.861**	.852**	1	.963**
decision-making	.933**	.931**	.963**	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.

3.3. Descriptive Analysis

The researcher can have a thorough understanding of how the survey respondents replied to the questionnaire items by using the descriptive statistic of variable mean and standard deviation (Sekaran & Bougie, 2010). The predicted range is not exceeded by the values of mean or standard deviation (Sekaran & Bougie, 2010). The researcher can get a clear sense of how survey respondents have answered to the survey's questions using the descriptive statistic of

variable through mean and standard deviation (Sekaran & Bougie, 2010). The descriptive statistic was used to make sure that the mean and standard deviation of the data was usually as predicted and that no entries were outside the expected range. To determine the alternatives to the seven-point Likert scale (lower and upper limits) used in the tool, the range was calculated through the following:

Range = the difference between the highest value and the lowest value = (7 - 1 = 6)

Then divide the range by the number of alternatives to get the longest category = 6/7 = 0.86

After that, this value of 0.86 is added to the lowest value in the scale (the correct one) to determine the upper limit for this category. As a result, the length of the categories is adjusted accordingly, as shown in the following table.

Table 6: The Length of Categories

Alternative value	True limits of the arithmetic mean		Verbal indication
	Min	Max	
1	1	1.85	Low**
2	1.86	2.70	Low*
3	2.71	3.55	Low
4	3.56	4.40	Middle
5	4.41	5.25	Strong
6	5.26	6.1	Strong*
7	6.11	7	Strong**

After determining the upper limit for this category and adjusting the length of the categories accordingly, Table 7 presents the result of descriptive statistics.

Table 7: The Result of Descriptive Statistics

Variables	N	Mean	Std. Deviation
Signal detection	219	5.0	1.29
Preparation/prevention	219	5.06	1.27
Containment/Damage limitation	219	5.01	1.33
Recovery	219	5.14	1.32
Learning	219	5.01	1.33
CM	219	5.04	1.24
Quality	219	5.13	1.26
Effectiveness	219	5.21	1.29
Acceptance	219	5.087	1.29
DM	219	5.14	1.24
User	219	5.17	1.27
Systems	219	4.97	1.25
Devices	219	5.38	1.44
AI	219	5.17	1.24

According to the results shown in Table 7, all Variables had high means. The AI variable had the highest mean with a value of 5.17, amongst all other factors and value of 1.24, for standard deviation. This result of mean suggested that top management of the private banks in Yemen have highly emphasized and given more attention to the AI. The standard deviation for the AI variable was 1.24, indicating that the respondents' ratings of AI had relatively no spread or dispersion to a certain extent. According to the dimensions of AI, the devices dimension had the highest mean with a value of 5.38, amongst all other dimensions and value of 1.44, for standard deviation. On the other hand, the Systems dimension had the lowest mean with a value of 4.97, above the mid-point of 4.40 amongst all other dimensions and values of 1.24, for standard deviation.

The next highly rated factor from the perspective of top managers in private banks in Yemen was DM, with a mean value of 5.14 and a standard deviation value of 1.24. These results show that mean values of the DM stands is a second highly rated factor acceding the average of seven-point Likert scale. The standard deviation of the DM was 1.24, which was considered low value, therefore no spread or dispersion of data. According to the dimensions of DM, the effectiveness dimension had the highest mean with a value of 5.21, amongst all other dimensions and value of 1.29, for standard deviation. On the other hand, the acceptance dimension had the lowest mean with a value of 5.087, amongst all other dimension and value of 1.29, for standard deviation.

CM exhibits a satisfactory rating index, with mean values of 5.04, and standard deviation of 1.24, as indicated by the statistical results presented in Table 7. The result revealed that the mean value for this factor suggests that top managers in private banks in Yemen considered the dimensions of CM crucial to respond to the crisis. In addition, this result indicates that the senior management of private banks in Yemen has focused heavily and given more attention to the stages of CM to control the crisis. According to the dimensions of crisis management, the recovery dimension had the highest mean with a value of 5.14, amongst all other dimensions and value of 1.32, for standard deviation. However, the Containment/Damage limitation and learning dimensions had the lowest mean with a value of 5.01, amongst all other dimension and value of 1.33, for standard deviation.

In conclusion, the results indicated that the participants' evaluation of the variables of the current study was above average, indicating positive perceptions of the measures being examined. Furthermore, the outcome demonstrated that all of the standard deviation values for the variables were adequate. The sample data is more reliable, in particular, if the standard deviation is smaller than the mean values (Sekaran & Bougie, 2010). The sample data is therefore significant for achieving the objectives of the current investigation.

3.4. Structural Equation Modeling (SEM)

The structural equation modeling (SEM) technique, as described by Hair et al. (2010), enables the examination of distinct relationships for each dependent variable within a given set. According to Byrne (2013), SEM is a multivariate statistical technique used to examine the direct and indirect routes among exogenous and endogenous latent variables. Many statisticians

and researchers, like Hair et al. (2010) and Kline (2015), have shown that SEM outperformed regression when determining the mediating effect of a study variable. Khine (2013) further has shown how SEM offers explicit estimations of the factors governing error variance. Measurement error cannot be evaluated or corrected using other multivariate approaches. Additionally, SEM techniques include both observable and latent (unobserved) variables. Additionally, SEM can estimate the direct and indirect impacts of study variables and test models with multivariate linkages (Hair et al., 2010). Moreover, structural equation modeling (SEM) is becoming a method of preference for theory creation and testing (Hair et al., 2014). There seems to be consensus in the SEM literature among practitioners and theorists that there are processes involved in testing SEM models. According to Hair et al. (2018), these processes are model formulation, identification, estimating, evaluation, and revision.

The confirmatory factor analysis is used to determine latent variables in the model specification, which is the first stage. Identifying the causal connections between the latent variables is followed by the definition of the measurement and structural models. The suggested model, which consists of one exogenous construct (DM) and two endogenous constructs (CM and AI), served as the basis for the model specification. DM is formulated as an exogenous construct, while CM and AI are formulated as endogenous constructs. The use of structural relationships is required to specify the structural model based on the measurement model, which calls for the use of single-headed arrows for the predicted causal linkages between the external constructs (DM) and the endogenous constructs (CM and AI). Quality, efficacy, and acceptability are the three variables used to evaluate the exogenous concept DM. The three dimensions of users, systems, and devices are used to quantify the endogenous construct AI, which serves as a mediator variable. Five dimensions are used to quantify the second endogenous construct, CM, which stands for signal detection, preparation, damage containment, recovery, and learning.

3.5. Testing the Validity of the Hypothesis

The hypothesis (H) states that there is a statistically significant effect of artificial intelligence as a mediating variable in the relationship of decision-making quality, effectiveness, and acceptance with crisis management in private banks in Yemen. The hypothesis has three sub-hypotheses which are:

H4a: Artificial intelligence mediates the relationship of the quality of decision-making with crisis management.

H4b: Artificial intelligence mediates the relationship of the effectiveness of decision-making with crisis management.

H4c: Artificial intelligence mediates the relationship of the acceptance of decision-making with crisis management.

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 8, 9 explains that:
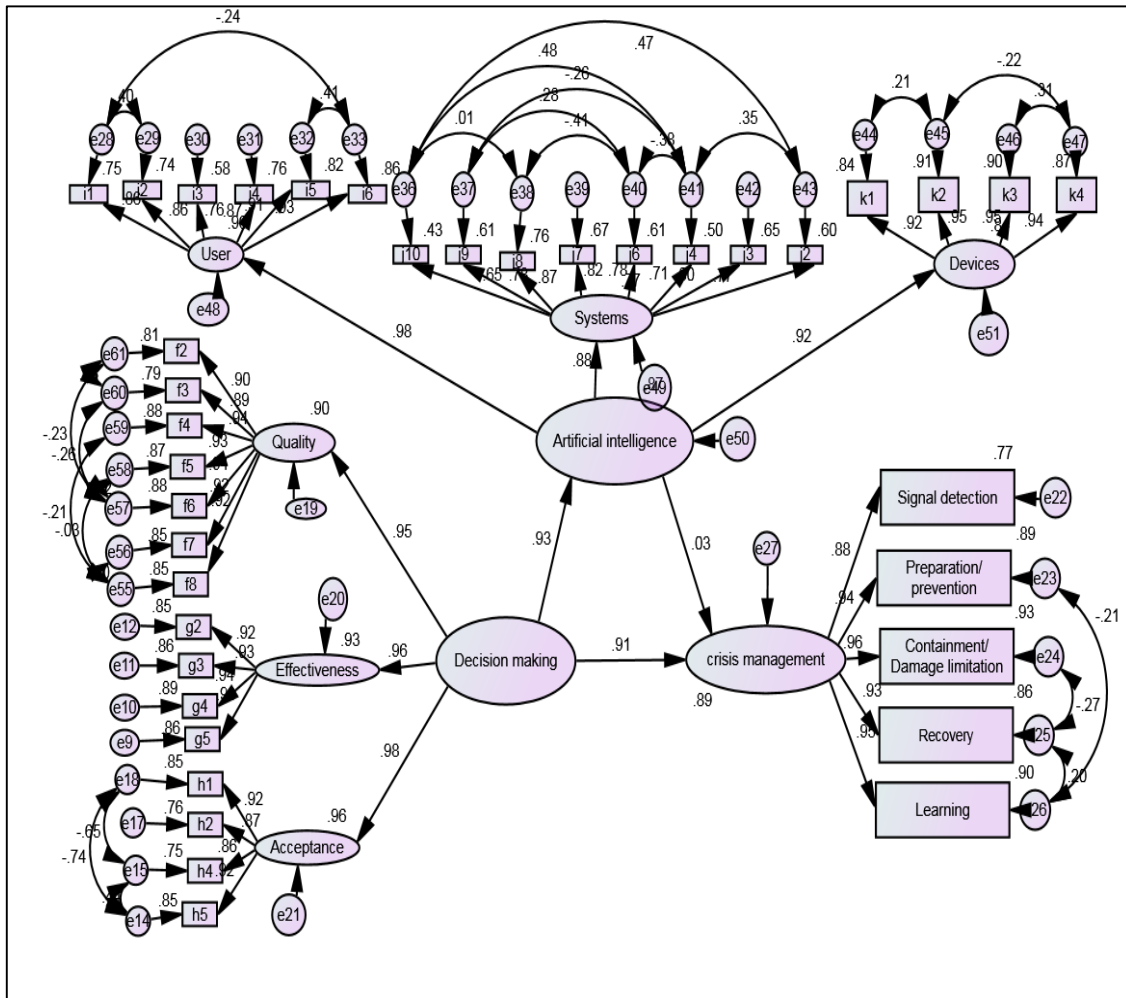
Figure 1: The Mediating Model of AI between DM and CM

Table 8: The Fit Result of the Mediating Model of AI between DM 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	2.2	.076	.752	.708	.933	.884	.933	.925

Table 9: Pathways Testing the Mediating Model of AI between DM and CM

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

IDV		D.V	Estimate ß	S.E	C.R	P	Result
DM	---->	AI	0.827	.083	9.99	***	Sig
DM	---->	CM	0.958	.113	8.5	***	Sig
AI	---->	CM	.971	.088	11.1	***	Sig

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 decision-making on crisis management in private banks in Yemen, where the value of (ß) (0.958), the critical ratio (CR) shown in Table 9 has a value of (8.461), which is a significant value at the level of significance (***), and this confirms that the effect is statistically significant.

3. There is a positive impact of decision-making on artificial intelligence in private banks in Yemen, where the value of (ß) (.827), the critical ratio (CR) shown in Table 9 has a value of (9.986), which is a significant value at the level of significance (***), and this confirms that the effect is statistically significant.

4. There is a positive impact of artificial intelligence on crisis management in private banks in Yemen, where the value of (ß) (.971), the critical ratio (CR) shown in Table 9 has a value of (11.098), which is a significant value at the level of significance (***), and this confirms that the effect is statistically significant.

To find out the direct and indirect influence between decision-making, crisis management and artificial intelligence, path analysis was used using the Amos 26v, as shown in the following figure and table.
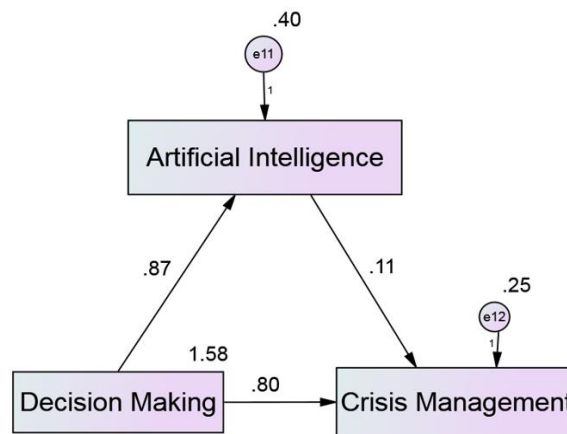

Figure 2: Path Analysis Testing the Impact of DM on CM Mediating of AI

Table 10: Results of the Direct and Indirect Effects of Decision-Making in Crisis Management Mediated by Artificial Intelligence using Path Analysis

IDV	DV	Direct Effects	Indirect Effects	Total Effects
Decision making	Artificial intelligence	.868	.000	.868
Decision making	Crisis management	.804	.099	.903
Artificial intelligence	Crisis management	.114	.000	.114

Based on the preceding table and figure, it is evident that there is a significant effect of decision-making on crisis management. The effect size increased from .804 to .903, indicating a substantial increase of .099. This increase in effect can be attributed to the indirect influence of decision-making on crisis management, mediated by artificial intelligence. Through what is shown in Figures (1 and 2) and Tables (8, 9, 10), a quantitative model with Goodness of Fit Indices (very good) was reached that expresses the indirect relationship between decision-making and crisis management through the partial mediation of artificial intelligence.

Therefore, a quantitative model with Goodness of Fit Indices (very good) was reached that expresses the indirect relationship between decision-making and crisis management through a partial mediation of artificial intelligence. This confirms that the effect is statistically significant, and the hypothesis H is accepted.

The results of this study supported the findings of Banerjee et al. (2018), who suggested that AI agents should be used specifically in critical situations because "critical decisions need more time to be made by human" and "decline in the strength of decisions making in humans when they are in the state of shock" (Banerjee et al., 2018, p. 210). This is because it holds true in crisis situations. Additionally, Polonski (2018) agrees with this viewpoint, asserting that AI often outperforms humans in forecasting (Polonski, 2018). Conversely, Jarrahi (2018) argues that while AI excels in complex decision-making, human beings still outperform smart agents in ambiguous and uncertain scenarios since, by definition, the human brain is still superior than AI in these circumstances. Therefore, Noizet & Weber (2018) discovered that by separating prospective applications for the short-, medium-, and long-term, it is feasible to estimate the potential use of AI for decision-making processes in crisis management. Due to concerns regarding trust and regulation, as well as a lack of crisis data, it has been determined that the implementation of AI for decision-making in crisis management is not currently feasible.

4.0. RECOMMENDATIONS AND SUGGESTIONS

All the objectives of the current study have been successfully achieved. However, like any other study, this research is not without limitations. Several limitations of this study are explained below.

Firstly, in terms of the study's scope, this research focused on analyzing the conceptual framework for crisis management in private banks in Yemen specifically during the ongoing crisis. To enhance the generalizability of this study, future research could consider including individual private banks as separate entities within the study. Furthermore, it is important to acknowledge that, decision-making, artificial intelligence and crisis management might be perceived differently within each individual private bank, as these factors can vary across different organizations. Moreover, the results of this study cannot be generalized in a wider context across the organizations in Yemen or in the other countries since the data collected for this study were limited to private banks in Yemen. Different cultures and different educational environments may furnish different impact of exogenous to endogenous variables. A highly recommended avenue for further study, particularly within the same sector as this study, would

be to investigate the same variables from the perspective of subordinates' opinions. This approach could yield additional insights and potentially uncover different results.

Secondly, in terms of methodology, this study adopted a cross-sectional design. It is important to note that a cross-sectional approach captures a snapshot of the research variables at a specific point in time. However, changes in crisis management practices and experiences may vary over time as leaders accumulate crisis-related knowledge and experience. Moreover, the questionnaires do not contain qualitative data hence; the interviews of the sampled managers in the organizations would have improved the study quality to achieve a more comprehensive overview of the assessed interactions in this research, future research studies should include both quantitative and qualitative information. This will provide a more holistic understanding of the topic.

Thirdly, in the context of examining the mediator, this study solely focused on artificial intelligence as a mediator. It is important to note that other organizational factors or contingency factors would also play significant mediating roles in the relationship between decision making and crisis management. Hence, future studies should consider incorporating other factors as mediators or moderators, such as crisis management strategy or crisis management communication, in order to provide a more comprehensive analysis. In addition, studying decision making using Vroom's model with leadership may not yield distinct results, as Vroom's model already incorporates leadership through the decision making itself. Also, artificial intelligence was reported to have no indirect effect on crisis management, therefore, it is recommended to examine artificial intelligence as independent variable which will enhance knowledge in crisis management field.

Finally, regarding the R-Squared value, the predictors in the study model accounted for 40% of the total variance in crisis management as an endogenous variable. This implies that the model can explain 40% of the variance, while the remaining 60% could be attributed to other factors. Therefore, future studies could consider this recommendation for further exploration.

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