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The Impact of Diversification on Crisis and Disaster Management Effectiveness in the Aviation Industry: Evidence from the United Arab Emirates

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Abstract

This study aims to examine the role of diversification in moderating the effectiveness of crisis and disaster management strategies in the UAE's aviation sector, with a specific focus on the COVID-19 pandemic. Using a quantitative research design, data were collected from 357 managers selected through stratified random sampling. The analysis reveals that the interaction between diversification and disaster preparedness has a negative but non-significant effect on organizational effectiveness (β = -0.085, p = .06). Similarly, the interactions between diversification and disaster response, disaster prevention, and disaster recovery also show non-significant effects on organizational effectiveness (β = 0.018, p = .698; β = 0.051, p = .359; β = 0.014, p = .76, respectively). These results suggest that diversification does not significantly moderate the relationship between disaster management strategies and organizational effectiveness. Additionally, the study highlights that perceived ease of use and perceived usefulness are critical factors in adopting technological diversification. Based on these findings, the study recommends that the UAE aviation sector invest in technological innovation and enhance its risk and crisis management capabilities through staff training and the implementation of advanced technologies.

Keywords: Diversification Crisis Management Disaster Management Effectiveness Aviation Industry United Arab Emirates (UAE)

Introduction

The onset of the third decade of the 21st century brought an unprecedented global crisis: the COVID-19 pandemic. Originating in Wuhan, China, in December 2019, the virus was later identified as the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), and the disease it caused was termed COVID-19 (Arora et al., 2021). By March 2020, COVID-19 had spread globally, and the World Health Organization (WHO) declared it a pandemic. By May 31, 2020, over 6 million cases had been reported worldwide, with more than 370,000 deaths, including 33,896 confirmed cases and 262 deaths in the United Arab Emirates (UAE) (Saddik et al., 2020). The number of cases surged dramatically thereafter, and by October 24, 2021, global cases had reached 244,232,748, with 4,961,774 deaths (Worldometer, 2021).

The pandemic has had far-reaching effects on global health, economies, and industries. Governments worldwide implemented stringent measures to curb the virus's spread, including mandatory mask-wearing, social distancing, temperature checks, and, most significantly, travel restrictions and lockdowns. These measures severely impacted businesses, leading to widespread job losses, with the tourism and aviation sectors being among the hardest hit (Serrano & Kazda, 2020; Amankwah-Amoah, 2021; Arora et al., 2021; Choi, 2021). As industries reliant on the movement of people, the tourism and aviation sectors faced immediate declines in demand. The aviation industry, in particular, saw widespread airport closures and the grounding of flights, significantly affecting traffic volume and revenue. For example, the International Air Transport Association (IATA) reported a global decline of 66% in revenue passenger-kilometers (RPKs) and a 57.9% decrease in flight numbers in 2020 compared to 2019 (Arora et al., 2021). This disruption jeopardized over 25 million direct and indirect jobs globally (Arora et al., 2021).

The UAE, a major global tourism hub, was not exempt from the adverse effects of the pandemic. The country's aviation industry, one of the largest and most active in the world, experienced severe disruptions. Emirates Airlines, the UAE's flagship carrier, reported a 58% decline in passenger and cargo capacity, with passenger volume plummeting by nearly 90%. This resulted in a 66% drop in revenue, leading the airline to post a net loss of $5.5 billion for 2020, marking its first loss in over three decades of operation (Associated Press, 2021). Such a downturn had a cascading effect on the broader economy, underlining the importance of effective risk, crisis, and disaster management strategies in the aviation sector.

Risk, crisis, and disaster management (RCDM) strategies are designed to detect, prepare for, mitigate, and control risks and crises (Bhaduri, 2019). In the context of COVID-19, these strategies involved detecting potential outbreaks, implementing preventive measures to limit the virus's spread, and taking responsive actions when cases were detected within the aviation industry. Given the unprecedented nature of the pandemic, evaluating the effectiveness of these strategies is essential.

A critical issue that remains underexplored is the role of diversification in enhancing the effectiveness of crisis management strategies in the aviation sector. Diversification, in this context, refers to the adoption of innovative technological solutions to combat the challenges posed by the pandemic, such as digital health checks, touchless technologies, and automated systems to reduce physical contact (Al Jasmi, Udin, & Siam, 2021; Amankwah-Amoah, 2021). However, there is a lack of empirical studies examining whether the level of diversification in

the aviation sector moderates the effectiveness of crisis, risk, and disaster management strategies.

This research aims to fill this gap by exploring the moderating effect of diversification on the effectiveness of crisis, risk, and disaster management strategies in the UAE's aviation industry during the COVID-19 pandemic. While previous studies have suggested that technological diversification can enhance crisis management effectiveness (Al Jasmi, Udin, & Siam, 2021; Amankwah-Amoah, 2021), there has been no empirical investigation of its impact in the aviation industry.

The findings of this research are expected to provide insights into the relationship between diversification and the efficacy of crisis management strategies. The study will also contribute to understanding the vulnerabilities of the aviation industry to crises and offer recommendations for improving future preparedness, response, and recovery efforts. By empirically evaluating the success of the strategies implemented by the UAE's aviation stakeholders, this research will offer valuable insights into the role of technological innovation in strengthening crisis management capabilities.

Literature Review

The UAE as a hub of tourism in the world and with one of the most active aviation industry in the world is highly vulnerable to COVID-19 (Shabib and Moonesar, 2020). Like the other countries, the UAE aviation industry also implemented the mentioned risk, crisis, and disaster management strategies to curtail the impact of the pandemic on the sector. However, the effectiveness of these strategies in the UAE aviation industry has not been empirically evaluated. The COVID-19 pandemic has exposed the hidden vulnerabilities to crisis, risk and disaster of the aviation industry (Arora *et al.*, 2021; Yu and Chen, 2021). Therefore, assessing the effectiveness of the adopted crisis, risk and disaster management strategies by the aviation industry stakeholders will shed more light on the preparedness of the industry against future unforeseen crisis situations. However, there is very limited literature on the risk management strategies in the UAE aviation industry. The available literature in UAE either focuses generally on COVID-19 and other industries or risk management in airports. None of the previous literature specifically narrows down the scope of the work to risk and crisis management in aviation industry in relation to COVID-19 pandemic.

Example of related literature in UAE include that of Al-qasem (2021) who evaluated the impact of COVID-19 on UAE tourism industry. The study highlighted the tourism industry's response and recovery strategies against COVID-19. Though the study highlighted some risk management strategies, they are by no means exhaustive. Additionally, the strategies were limited to tourism industry and therefore may not be applicable to aviation industry. Another limitation of the study is it did not assess the effectiveness of the implemented strategies. Kamil (2020) explored COVID-19 crisis management through public relations. The study address crisis management issue generally without specific reference to the aviation industry, nor emphasis on risk management strategies effectiveness.

Another relevant study in UAE is that of Almohtaseb et al. (2021) who explored COVID-19 not from the crisis management prism but leadership and general job satisfaction. Alqutob et al. (2020) explored the general health strategies against COVID-19 in the UAE. The

strategies are general without specific reference to the aviation industry. Shabib and Moonesar (2020) conducted a policy review of COVID-19 rapid response in Dubai, UAE. The review is limited to health authority's response to COVID-19. It did not address the risk management in the aviation sector. Alshahrani et al. (2020) assessed the compliance of the Gulf cooperation countries including UAE's airlines with COVID-19 mitigation measures. Though the study is related, it is not exhaustive as it did not evaluate the effectiveness of the adopted measures. Saddik et al. (2020) also assessed the COVID-19 situation in UAE but did not address the risk management aspect of it. Almarshoodi et al. (2021) explored the crisis management in UAE from police reputation angle. The study did not consider crisis management from the aviation industry perspective. Another UAE study that explore crisis management in aviation industry is that of Al Jasmi et al. (2021) who investigated the impact of awareness, readiness, control, response, and technology usage on crisis management of drones threats in Dubai International Airport. The paper was limited to drone threats but did not address a pandemic scenario. The findings of the work may not be generalizable within the context of COVID-19 pandemic. From the review of related literatures in UAE, it is evident that no previous study empirically assess the effectiveness of the crisis, risk, and disaster management in aviation industry in the midst of COVID-19 pandemic. Thus, this research will fill this important gap in literature.

In addition to the dearth of literature on the effectiveness of risk management strategies in the aviation sector against COVID-19, the general literature on the subject matter was explored to identify whether the issue has been thoroughly investigated in other countries. A study by (Blištanova, Tirpáková and Brunová, 2021) review the measures taken at airports against the COVID-19 pandemic. The paper tried to identify the effectiveness of the adopted measures. The review was based on simulation models. The result of the study may not be generalizable within the context of UAE aviation industry. Bielecki et al. (2020) contended that there scantly literatures that evaluate the effectiveness of protective measures in the aviation industry against COVID-19. Similarly, the crisis management response adopted by the aviation industry against COVID-19 is mostly ineffective and there is the limited scholarship on crisis management in the aviation industry (Suk and Kim, 2021; Kim and Sohn, 2022). Yu and Chen (2021) pointed out that there is still lack of empirical understanding of the effectiveness of the implemented crisis management strategies in the aviation industry against COVID-19. This shows that there is global gap in literature on crisis management in the aviation industry within the context of COVID-19 pandemic. This research will therefore be very important in filling this important vacuum in empirical literature on aviation industry risk management strategies against pandemics.

Risk, Crisis and Disaster Management

Crisis, risk and disaster management are the act of control and condition of activities to detect, prepare against risk, mitigate, minimise, respond and control crisis, risks and disaster (Bhaduri, 2019). In the case of COVID-19 therefore risk, crisis and disaster management are the measures taken to identify suspected cases, preparations made to avoid the spread of the diseases and the control of the disease if it eventually occurs. Overall, the risk, crisis and disaster management strategies include detection, preparedness, mitigation, response, and recovery, including learning (Alkhawlani et al., 2016; Bhaduri, 2019)

Previous studies considered risk and disaster management for different segments of the universe. For instance, there were works on smart city as a panacea to urban risks, crises and disasters. A smart city has three main pillars, including technology, people and institution. Using technology in crises management requires technology deployment along with empowering and engaging people through institutions (Anthopoulos and Tsoukalas 2006). The efficiency of the smart city approach is highly advocated by researchers, planners, and practitioners (Sharifi, 2020; Sharifi, 2019). Indeed, empirical studies have shown that smart technologies have been massively used in crises management. Specifically, smart city solutions are increasingly considered essential for enhancing the well-being of residents and communities in urbanized countries (Ylipulli, and Luusua, 2020). The pillars of smart city can equally be useful in COVID-19 risk management. Since the emergence of COVID-19, the necessity of deploying technology to improve community wellbeing and maintain urban functions has increased (Sharifi, 2021; Sharifi, 2020).

As earlier noted, the COVID-19 pandemic has hit the world disastrously. Governments world over struggled to eradicate the virus completely but to no avail. Like in the other countries, the UAE also struggle with the virus and implemented many measures to control the virus (Saddik et al., 2020). So many short term measures have been taken to minimise the spread of the virus with varying degree of success. These measures include amongst others the wearing of face mask in public places, social and physical distancing, banning of social gatherings, travel restrictions, quarantine and ultimately the lockdowns (Alqutob et al., 2020; Saddik et al., 2020).

Broadly, risk, crisis and disaster management are classified into four main strategies. These strategies are: prevention, preparedness, response, and recovery. The strategies are discussed in the following subsections.

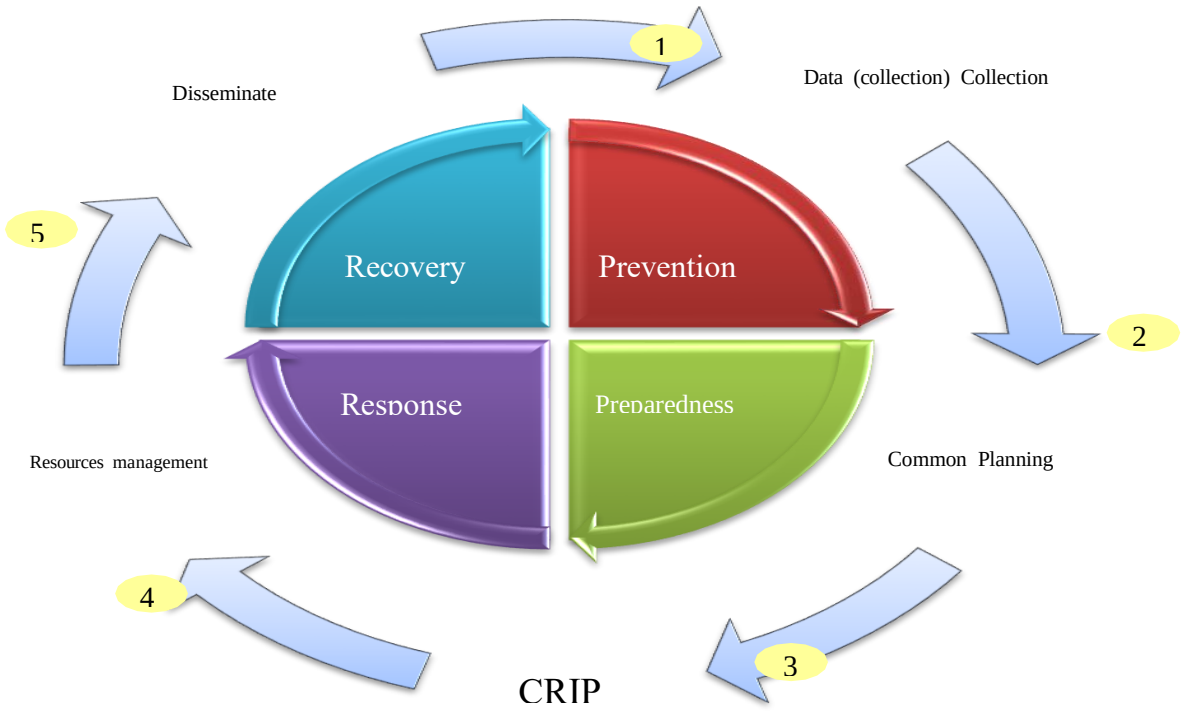
Prevention is the strategy is also called mitigation or reduction. It focuses on lessening and eradicating the chances or the repercussions of danger. The measures used in mitigation are aimed at treating the threat to prevent the impacts it might have on the society. It involves both necessary steps and non-structural actions (Waugh, 2015). Preparedness are measures taken to prevent the occurrence of even in the first instance. This is the preparation and prevention stage in risk, crisis and disaster management. It involves the “systematic planning to prepare the organization to manage a crisis event, explicating critical personnel, resources, and actions to be allocated during a crisis situation” (Bhaduri, 2019). The stage involves detecting risk, crisis and disaster signals. Risk, crisis and disaster normally give sign before they occur. This stage therefore involves risk identification to assess the magnitude so as to prepare for the eventualities.

At this stage, it involves all the institutions that provide support to the communities that have been hit by emergencies or disasters so that the affected people will be able to maximize their rate of survival and reduce different losses (World Health Organization, 2016). Since many stakeholders take part in this phase, there exist some fundamental elements that have been outlined to ensure this phase mainly focuses on outcomes (Lin et al., 2016). Furthermore, this phase is paramount in helping the communities and the organizations that are involved in preparation in case of an emergency (Lin et al., 2016). Moreover, it is used as

a determinant of what occurs in the response phase. Therefore, an inadequate preparedness phase leads to an inadequate emergency response (Lundgren et al., 2018).

Response it entails the steps taken to ease or eradicate the consequences of the disasters that either occurred in the past or are currently occurring to hamper more damage on the financial status of the community or result in any other losses. In the case of international emergency management, relief is frequently used as one of the elements of the response. This phase necessitates skills, as well as expertise due to the amount of danger and risk associated with it. (Bullock et al., 2017). Recovery it happens after the disaster has occurred, and its effect and aftermath are being felt. In this phase, the organization is responsible for returning the lives of those who were affected back to its initial stage before the disaster. Often, this phase starts immediately, and the response has been concluded because it happens over a long period. (Bullock et al., 2017).

Preparedness are measures taken to prevent the occurrence of event in the first instance. This is the preparation and prevention stage in risk, crisis and disaster management. It involves the "systematic planning to prepare the organization to manage a crisis event, explicating critical personnel, resources, and actions to be allocated during a crisis situation" (Bhaduri, 2019). The stage involves detecting risk, crisis and disaster signals. Risk, crisis and disaster normally give sign before they occur. This stage therefore involves risk identification to assess the magnitude so as to prepare for the eventualities. Similarly, Mohamed (2017) presented a risk, crisis and disaster management cycle. The cycle showed that risk, crisis and disaster management begins with risk/crisis/disaster prevention to prevent completely or mitigate the possible impact of the disaster. Where the disaster is eminent, the next strategy is risk/crisis/disaster preparedness to prepare adequately for the disaster. The next stage in the cycle is the response used to control the disaster when it occurs. The final stage in the cycle is the recovery which involves rehabilitations, reconstruction to return to pre-disaster normalcy. The cycle is presented in figure 1.



Diversification

The dynamism of todays' business environment has called for diversification as a catalyst for achieving competitive advantages and the performance of firm. Advancement of technology coupled with the increasingly fierce competitive business atmosphere, which instigated companies to diversify their operations for risks reduction (Le, 2019). The performance of business organization's risk and crises management means a lot to the existence of the firm. Diversification is a viable strategy to balance risk and reward and enhance the efficiency of resource allocation when investing with homogeneous risks (Joshi & Lambert, 2011). Strategy as the cause of action chosen by organization define the direction the business takes for success and competition. Quite a number of evidences assert that firms diversify in situations where there are valuable resources across industries, which are sometimes complementary in other industries that are difficult to copy (Manrai, Rameshwar & Nangia, 2014). Organizations diversify to survive the dynamics of business environment (Nyangiri & Ogollah, 2015). Diversification strategy could therefore, be viewed as means deployed by firms to find ways out of difficulty or to explore opportunity for growth.

However, it might not be easy to estimate firm's level of risk exposure. Recent technological advancement has taken care of the issue of risk estimation. According to Cumming and Hirtle (2001), technology advancement has reduce fixed information costs, as such made it possible for firms to take better advantage of diversification benefits, which accelerate the scale at which certain businesses are conducted. Diversification is one of the major components of investment decision-making under risk or uncertainty (Koumou, 2020).

On the other hand, Rumelt (1974), research on corporate and believes that different people define different diversity based on different research purposes, and he believes that diversity is through limited resources and Strength, carry out new activities related to the original activities. From this we can see that Rumelt's point of view is that new activities that are related to the original related activities are diversified.Industrial organization economics believes that diversified enterprises benefit from multiple types of coordination effects, such as the scope economy and economies of scale formed by the implementation of diversification strategies, the superiority of obtaining information from multiple product markets, and the obtaining of stable market returns as well as the way to find more efficient use of internal resources and sharing of knowledge and skills across business units (Zhou, Xie & Liu, 2014)

From the foregoing, it can be seen that most literature on diversification are on overall organisational performance with little exploring disaster management diversification. Diversification in this research refers to the change from status quo to the use of technology in combating COVID-19 at airports. The adoption of novel technology aids crisis, risk and disaster management effectiveness (Al Jasmi et al., 2021; Amankwah-amoah, 2021). The COVID-19 pandemic has driven the aviation industry to embrace innovations and the use of new technologies at the airports and planes such as contactless payment systems, remote workings, telemedicine and others which (Amankwah-amoah, 2021) termed as "CoviNovation". This is because crisis situations incentivize organisations to innovate to enable them weather the crisis effectively and efficiently.

RC&D Management Effectiveness and Diversification

Today's economic environment is dynamic and changes rapidly. Such dynamism require diversification to achieve competitive advantage and performance. The changes in technology also require organisations to diversify their operations to control and manage risks, crisis and disaster (Le, 2019). The performance of business organization's risk and crises management means a lot to the existence of the firm. Diversification is a viable strategy to balance risk and reward and enhance the efficiency of resource allocation when investing with homogeneous risks (Joshi & Lambert, 2011). Risk of any nature affects the undertakings of business organizations. It is an important aspect of the business that must not be ignored because of its correlation with firm success. A Systematic risk is argued to be influenced by diversification, which generate a lot of prominence to industry players as well as scholars. It is observed that as a company becomes over levered, it causes changes in the firms' risk profile that directly affects its profitability (Manrai et al., 2014). Most of the work on diversification are on business risk with very little on disaster risk. However, insights can be deduced for the disaster risk from the business risk.

Diversification in this research refers to the change from status quo to the use of technology in combating COVID-19 at airports. The adoption of novel technology aids crisis, risk and disaster management effectiveness (Al Jasmi et al., 2021; Amankwah-amoah, 2021). The COVID-19 pandemic has driven the aviation industry to embrace innovations and the use of new technologies at the airports and planes such as contactless payment systems, remote workings, telemedicine and others which (Amankwah-amoah, 2021) termed as "CoviNovation". This is because crisis situations incentivize organisations to innovate to enable them weather the crisis effectively and efficiently. Thus, innovation is the instrument through which an organisation creates new products, process, or services different from the traditional norm to improve performance. Thus, innovation entails the diversification of processes and products to weather the COVID-19 crisis in the aviation industry. Since airports operations traditionally involved close contacts and touch points between personnel and passengers which increase the risk of transmission, technologies helps with no touch options including robots. Such innovations are not only used to eradicate touch points or virus cells, but also to aggressively identify infected persons (Yu & Chen, 2021). It is therefore hypothesized:

H2: *Diversification significantly moderates the relationship between risk, crisis and disaster management strategies and organisational effectiveness in the UAE aviation industry.*

Methodology

This study had a deductive approach with quantitative method. 357 managers were selected randomly to fill out the questionnaire. The stratified random sampling, on the other hand, is the sampling method that partition the population into strata of relative homogeneity. The technique is used when the characteristics of the population is heterogeneous. The essence of this technique is to ensure no member of the population is disadvantaged. Creswell (2014) recommended the use of stratified random sampling when the population is not uniform in characteristics. This research used close-ended questionnaires to be self-administered to the respondents. However, with the COVID-19 pandemic and the reduction of face to face contact, the questionnaires will also be administered to the respondents online. The process of developing and designing questionnaire is very important and sensitive to obtain data relevant to research objectives. Questions will be organized logically and accurately into

appropriate sections. It will be distributed in an organized manner to the participants. The questionnaire will contain various questions and will be made easy to understand in order to obtain responses on the level of RC&D management strategies, effectiveness, diversification and leadership.

Data analysis

In order to achieve the research aim, the research first analyzed the descriptive data by using SPSS to show the levels of the research constructs. The descriptive techniques enable the sorting, organising and summarising data into meaningful result. The Partial Least Squares – Structural Equation Modelling (PLS-SEM) also to test the research hypothesis.

Findings

H2: *Diversification significantly moderates the relationship between risk, crisis and disaster management strategies and organisational effectiveness in the UAE aviation industry.*

The study hypothesised that diversification significantly moderates the relationship between risk, crisis and disaster management strategies and organisational effectiveness in the UAE aviation industry. The findings shown on Table 17 and Figure 4 that moderating effect of diversification on the relationship between various disaster management strategies (disaster preparedness, disaster response, disaster prevention, and disaster recovery) and organizational effectiveness in the UAE aviation industry. The results show that the interaction between diversification and disaster preparedness has a negative but non-significant effect on organizational effectiveness (β = -0.085, p = .06).

Similarly, the interactions between diversification and the other three disaster management strategies (disaster response, disaster prevention, and disaster recovery) all have non-significant effects on organizational effectiveness (β = 0.018, p = .698; β = 0.051, p = .359; β = 0.014, p = .76, respectively). This suggests that diversification does not significantly moderate the relationships between these disaster management strategies and organizational effectiveness.

Table 1

Moderating Effect of Diversification on the Relationship between Disaster Management Strategies and Organizational Effectiveness in the UAE Aviation Industry

	β	**STDEV**	**T statistics**	**P values**
Diversification x Disaster Preparedness -> Organisational_Effectiveness	-0.085	0.045	1.878	0.06
Diversification x Disaster Response -> Organisational_Effectiveness	0.018	0.046	0.388	0.698
Diversification x Disaster Prevention -> Organisational_Effectiveness	0.051	0.056	0.917	0.359
Diversification x Disaster Recovery -> Organisational_Effectiveness	0.014	0.046	0.305	0.76

Discussion

This study aimed to explore the moderating effect of diversification specifically technology driven diversification on the relationship between risk, crisis, and disaster management strategies, and organizational effectiveness within the UAE aviation industry. However, the findings did not provide sufficient evidence to support the hypothesis that diversification significantly moderates these relationships. This outcome contradicts the findings of prior research, such as Al Jasmi et al. (2021) and Amankwah-Amoah (2021), who suggested that technological diversification could enhance crisis management outcomes by improving organizational resilience and mitigating risks.

Despite the lack of significant moderation effects, the study revealed important insights regarding the role of technology adoption. Specifically, it underscored the critical importance of perceived ease of use and perceived usefulness in the successful adoption of technological innovations. These factors, as defined in the Technology Acceptance Model (TAM), are pivotal in determining whether new technologies are embraced by organizations, and whether these technologies can effectively enhance disaster management strategies. In the context of the UAE aviation sector, where operational efficiency and safety are paramount, understanding these dimensions is crucial for improving crisis management practices.

The study's findings also highlight the need for a deeper exploration of how other factors such as organizational culture, leadership, and industry-specific challenges may interact with technological diversification to influence crisis management effectiveness. While the focus here was on the UAE aviation sector, further research could explore these dimensions in other industries, offering a more comprehensive view of the potential role of diversification in crisis contexts. Based on these insights, it is recommended that the UAE aviation sector make targeted investments in technological innovation, ensuring that new systems are not only adopted but also effectively implemented through strategic training programs. Fostering a culture of innovation and providing employees with the necessary tools and knowledge to leverage technology will strengthen both organizational resilience and operational effectiveness in the face of future crises.

Conclusion

This study provides valuable insights into the relationship between diversification and disaster management strategies in the UAE aviation sector during the COVID-19 pandemic. While the results indicate that technological diversification did not significantly moderate the effectiveness of disaster preparedness, response, prevention, and recovery strategies, the study highlights the importance of perceived ease of use and perceived usefulness as critical factors in the successful adoption of new technologies. These findings emphasize the need for strategic investments in technology and comprehensive training programs to optimize risk and crisis management practices. By addressing a gap in the literature, this research contributes to a better understanding of how technological diversification can enhance organizational resilience and crisis management in the aviation industry. The lessons learned from this study are not only relevant for the UAE but can also inform other global industries facing similar crises.

Theoretical and Contextual Contribution

This research makes significant contributions to both theoretical and contextual knowledge in the fields of crisis management and organizational resilience. Theoretically, the study expands the existing literature by empirically investigating the role of diversification, specifically technology-driven diversification, in moderating crisis and disaster management strategies in the aviation industry. While diversification has been recognized in the broader context of crisis management, the specific role of technological diversification within the aviation sector especially during a global crisis like COVID-19 has not been thoroughly examined in previous research. By filling this gap, the study provides a novel perspective on the intersection of technology, crisis management, and organizational effectiveness.

Contextually, the study offers valuable insights into the unique challenges faced by the UAE aviation sector, one of the world's leading hubs for tourism and air travel. The research highlights the vulnerabilities exposed by the COVID-19 crisis and provides actionable recommendations for enhancing disaster preparedness, response, and recovery strategies tailored to the specific needs of the UAE's aviation industry. Furthermore, the study presents a framework that can be adapted by other industries and regions grappling with similar crises. By emphasizing the importance of technological innovation in crisis management, the research contributes to global discussions on how industries can leverage new technologies to manage and mitigate complex, industry-specific challenges. Collectively, these contributions enrich the body of knowledge on crisis management, offering both theoretical advancements and practical insights. The research not only informs aviation stakeholders in the UAE but also provides a replicable framework for other industries and regions, contributing to the broader understanding of how diversification especially technological diversification can play a pivotal role in navigating and overcoming global crises.

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