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# A Case Study of Crisis Management Training Needs: Saudi Airlines

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by

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Abstract

This dissertation explores crisis management policies, programs, and training in the Kingdom of Saudi Arabia's premier airliners, Saudi Arabian Airlines. Saudi Arabian Airlines is a domestic and international carrier with a major role in the transportation of millions of Muslim pilgrims to the Kingdom during the annual Hajj season. This event places enormous strains on the capacity of the carrier, the airport, ground support systems, and the societal infrastructure of country. There have been tireless efforts by the Airline's staffers to serve millions of visitors including pilgrims in a timely, safe and appropriate manner. Crisis management for Saudi Arabian Airlines includes assessment of natural and man-made risks in the firm's operational environment, the development of a comprehensive response plan that includes training of staff at all levels of the firm, compliance with all relevant legal and regulatory mandates, and the use of effective response tools and systems. Saudi Arabian Airlines is viewed herein as best approached through the theoretical lens of Systems Theory, which speaks to the interdependency that exists within complex, multi-faceted systems. To identify the approach taken by Saudi Arabian Airlines to crisis management and to assess whether or not its response could be enhanced through additional planning, training or other strategies, a case study including review of relevant literature augmented by a survey of a sample of industry employees was undertaken. The survey instrument, coupled with an analysis of relevant crisis management protocols and practices including those recommended by organizations such as the International Air Transport Association was sued. The study identifies a need for additional training of the Airlines' employees for a more effective crisis response system.

# Chapter 1: Introduction

Crisis management and crisis planning are integral elements of the planning and decision-making functions of organizational management. Strategic planning is the setting of broad, long range goals by top management and is ideally supposed to lead to tactical planning in which specific, short range objectives are identified by lower level managers. This in turn gives rise to operational planning and contingency planning with contingency planning consisting of both development of alternative courses of action if a primary plan cannot function appropriately and crisis planning which anticipates sudden changes in the environment (Nickels, McHugh, & McHugh, 2013). Crisis management is a set of skills, tasks, behaviors, and attitudes that all organizations must develop in order to be ready to address crises that for whatever reason cannot be avoided.

Crisis management is understood as a situation-based management system inclusive of defined roles and responsibilities and process related organizational requirements across the entire operational spectrum of an organization (Barton, 2007). Crisis responses can include aspects of: Crisis prevention, crisis assessment, crisis handling and crisis termination. As described by Barton (2007), the focus of any crisis management efforts is pre-crisis preparation via risk assessment, response planning and training, coupled with the capacity to mount a rapid and appropriate response in which the organization and its leaders and members maintain clear lines of reporting and communication. As Barton (2007) suggests, the techniques of crisis management include a number of consequent steps beginning with understanding of the influence of the crisis on the corporation to preventing, alleviating, and overcoming the different types of crises.

Further, a business or organization of any size or focus may run into problems that negatively impacts its normal course of operations. Crises such as a fire, death of a CEO, terrorist attack, data breach, or natural disasters can lead to tangible and intangible costs to a company in terms of lost sales, customers, and a decrease in the net income of the organization. Barton (2007) contends that a business continuity plan is essential if a company is to be able to both address a crisis and mitigate its impact. The process of having a continuity plan in place in the event of a crisis is known as crisis management.

With this in mind, it is imperative for an organization in any sector to deal effectively with crises and to have in place contingency plans identifying who, what, where, when, and why a crisis plan will be put into effect. Companies in the air transportation sector are particularly challenged by developing crisis management plans because of the inherent risks in air travel and transport, the vulnerability of airlines and aircraft to attack or malfunctions, and the need to ensure the public that their interests are being taken seriously (Crisis management, 2007). From economic volatility to threats of sabotage and terrorism to more commonplace seasonal usage variations and operational incidents, crisis management is integral to the day-to-day functioning of airline and airport staff at all levels of such organizations.

The present study considers the case of Saudi Arabian Airlines, commonly called “Saudia”. Saudia began in 1945 when King Abdul Aziz was given a single twin engine DC-3 (Dakota) HZ-AAX by U.S. President Franklin D. Roosevelt (Saudia, 2017a). From this beginning, Saudia has grown to include 141 aircrafts, among which the latest and most advanced wide-bodied jets presently available are to be found. Saudia (2017b, p. 1)

identifies its mission statement as follows: “to enhance the reputation of Saudia and improve its image within the Kingdom and abroad.”

To expand its sphere of influence, Saudia has released an Initial Public Offering with the goal of making the airline profitable by 2020 and eliminating its dependence on the state owned Saudi Arabian Airlines Corporation (Saudi Arabian Airlines planning own IPO, 2016). As part of the Kingdom’s National Transformation Plan (NTP), this move is designed to restructure and expand Saudia. Plans to increase the fleet size to 200 aircraft that are capable of flying 45 million passengers annually by 2020 are integral to this effort.

Operations at Saudia are made more complex because of the annual Hajj, which brings millions of Muslims to the Kingdom each year (Hasan, 2017). The Hajj flights place enormous stresses and strains on Saudia and, for that matter, on the Kingdom as a whole. Moving millions of pilgrims efficiently and speedily into and out of the Kingdom is a massive undertaking which necessitates the involvement of Saudia employees from baggage handlers and customer service representatives to pilots, stewards, air traffic controllers, terminal managers and maintenance personnel, public relations and managerial officials, and top-level executives. The entire process is in and of itself acknowledged as presenting a somewhat prolonged crisis which must be managed effectively (Hasan, 2017). These concerns, plus the day-to-day concerns of operating a major airport and global air carrier, comprise the rationale for undertaking the present study, while Systems Theory (to be explicated further herein) offers the theoretical foundation for examining the case of Saudia and the airports that support its operations.

## Purpose of the Study

The purpose of the present study is to determine what specific kinds of training and planning need to be done to enhance Saudia's capacity for coping effectively with crises. To that end, it should be noted that Saudia received a number of awards for quality at the 2017 Paris Air Show, indicating that the country is moving forward in achieving its goals of modernizing and enhancing its customer service relationships and managerial strategies (Al-Maeena, 2017). While crisis management may not be unacknowledged within Saudi's operational planning, it nevertheless takes on enhanced significance in light of the at times extreme volatility of the current geopolitical environment (Al-Maeena, 2017).

With the task of enhancing services and performance underway at Saudia, the present study offers a unique opportunity to explore cases in which airlines and airport operators dealt with crises and their crisis management policies and procedures and to assess Saudia employees' perceptions of the strengths and weaknesses of current crisis management plans, policies and training initiatives. Using what Babbie (2004) identified as a qualitative research effort involving a Small N case study of different actors in this sector and a survey research effort, the study sought to identify these issues. A limited number of relevant cases as well as an exploration of aspects of Saudia's own crisis management effort is at the center of this research effort.

An analysis of any available crisis management guidelines at Saudia was also conducted. The goal of the study was to produce a deliverable product that can be of benefit to the field of crisis management as well as Saudia itself. The reality of the annual Hajj is such that an organization like Saudia must be prepared to address multiple crises

that includes but are not limited to late or canceled flights, terminal congestion, lost baggage and personal possessions, infrastructure breakdowns and failures, and so on. Preparation via contingency planning as Nickels, et al (2013) point out, is essential if business operations are to continue and, as significantly, if risks are to be minimized and a company's capacity for satisfying its stakeholders is enhanced.

The case study methodology employed herein (to be discussed in greater detail in Chapter Three, Methodology, has been characterized by Creswell (2013) as falling within the broad category of a real life, contemporary context or setting representing a bounded system as well as a strategy of inquiry and a methodology. Creswell (2013, p. 97) states that "case study research is a qualitative approach in which the investigator explores a real life, contemporary bounded system (a case) or multiple bonded systems (cases) over time, through detailed, in-depth data collection involving multiple sources of information (e.g., observations, interviews, audiovisual materials, documents, and reports) and reports a case description and case themes. Case studies are often augmented by survey or interview research to add depth to the analysis; in this instance, a survey developed by the researcher was employed via Google Forms to obtain input from Saudia employees.

This study is a within-site study of Saudia in the Kingdom, specifically looking at the Saudia facility at Jeddah. It offers a unique opportunity to compare and contrast crisis management efforts at similar airports and by similarly situated airlines. As such, it is capable of providing much needed insight into the ways in which individuals respond to crises and their perceptions of the strengths and weaknesses of the existing crisis management plan at the target company. Though limited by sample size and site

specificity, the study nevertheless indicates the key issues that must be addressed to enhance existing Saudia crisis management strategies.

## Background of the Study

The literature on crisis management specifically related to complex organizations tends to underscore the reality confronted by such enterprises which face enormous challenges related to handling the inevitable crises that emerge (Kuzmanova, 2016). Globalization is widely recognized as facilitating the spread of crisis processes at faster rates than ever before, affecting entire industries as well as countries and regions. As a consequence, professionals such as Kuzmanova (2016, p. 256) state that "recent years, issues related to crisis management have become increasingly relevant and important for the survival and progressive development of organizations."

Airports and airlines as described by Taylor (2017) are of special significance when it comes to questions of crisis management. Airport managers must focus on accidents or incidents impacting on or close to the physical facility they must oversee. Airline managers, in contrast, must consider mounting effective responses to incidents, accidents, or crises at every airport where it operates and in every region of the world where its flights may occur. Both airport and airline safety managers and their staff are well aware of the fine line that can exist between an incident and an accident or a minor event creating temporary disequilibrium in business operations and a major crisis negatively affecting the safety of countless individuals on the ground or in the air.

As Taylor (2017, p. 1) put it, "fortunately, accidents are very rare occurrences but this leads to the unfortunate fact that very few managers have had the opportunity of acquiring the knowledge necessary to deal with the kind of crisis likely to develop in the

wake of an accident." Even when a crisis is not related to an accident per se, but rather to such issues as bad weather and its effects, the overcrowding of facilities, short staffing, outbreaks of contagious illness, and so on, crisis management is a necessity. Joseph (2017) points out that managing the effects of a crisis is one of the most critical tasks that must be taken by managers in all sectors including both the public and private spheres.

Understanding the nature of a crisis, identifying a response to its initial and longer term impacts, reassuring stakeholders, and controlling activities in response to the crisis are all part of these tasks (Joseph, 2017). Training for crisis decisionmaking is certainly one of the managerial responsibilities that must be emphasized in any business setting (Sniezek, Wilkins, Wadlington, & Baumann, 2002). Researchers including Bolman and Deal (2013) argue that high performing businesses share a commitment not only to organizational excellence measured as productivity and profitability, they also are entities that have internalized the capacity for coping with the unexpected in a manner that is designed to reduce negative impacts and to position the organization more effectively in its business environment.

What this translates into for a business such as Saudia and the airports in the Kingdom that serve as its home base is recognition of the importance of ensuring that all personnel both in the air and on the ground are fully trained to first identify and ideally prevent a crisis from occurring, and secondly to respond to that problem when it does occur. Saudia (2017a) has been in operation for 72 years since its founding in 1945 with just one airplane given to King Abdul Aziz by U.S. President Franklin D. Roosevelt. Over time, Saudia has expanded significantly not only as a consequence of ongoing

economic development in the Kingdom, but also because of new connections between the Kingdom and its regional and global neighbors.

According to Ahmad Lala (2014), Prince Fahd bin Abdullah, the former president of Saudi Arabia's General Authority of Civil Aviation (which has responsibility for airport management as well), called on Saudia and its various subsidiaries in 2014 to modernize, enhance customer service, and address concerns regarding productivity and profitability. As a consequence of this change in mission, Saudia reported an 11 percent increase in passengers in the first half of 2014, carrying some 14,082,198 passengers as compared to the 12,677,839 passengers reported in the same period of 2013. Lala (2014, p. 1) notes that "remarkably, aviation data monitoring firm FlightStats reported that the carrier achieved above 90 percent on-time performance, well above those of GCC rivals Emirates, Etihad, and Qatar."

That said, Lala (2014) states that when considered in the context of rival GCC carriers, Saudia is ranked well below Emirates, Qatar, and Etihad. Former Director General Khaled Al-Molhem suggested that Saudia was being hampered by its responsibility for serving 27 domestic airports and carrying 15 million passengers on short duration flights in a rough environment on price scales that were fixed by the government. This former Saudia executive argued that excessive engagement with the domestic market which required 50 planes to be solely focused on domestic routes inhibited growth in international flight performance.

In addition, as reported by Lala (2014), former director Al-Molhem took the position that evolving demands for domestic and international flights were placing new strains on the company which needs to seriously consider privatization. Lala (2014, p. 2)

also believes that Leonard Favre, the managing director at 1Blue Horizon Group is of the opinion that “the privatization process of Saudi Arabian Airlines is an example of something that will need to be concluded before we see the full potential of the aviation industry in the Kingdom.” This analyst, said Lala (2014), asserts that privatization in multiple sectors in the Kingdom is needed to improve the capacity of the national economy and to enhance its competitive ability in light of the challenges of regional and international competition.

Creating a suitable climate for investment may well be a critical task that Saudia and other government owned entities must address going forward (Lala, 2014). These issues were taken quite seriously when a new Director General was appointed in 2014. P.K. Abdul Ghafour (2015) noted that once Saleh bin Nasser Al-Jasser took over at Saudia, some major changes were forthcoming. First, the airline carried 15.7 million passengers domestically in 2014 for an increase of 6.71 percent over the previous year. Overall, Saudia transported a record 27.88 million passengers in 2014, for a 10.49 percent increase (2.46 million passengers) over the previous year.

Additionally, during 2014, Saudia operated 190,123 flights of which domestic flights accounted for 120,248 of the total. The leadership of Al-Jasser began in June of 2014 with his appointment by Prince Fahd bin Abdullah, who was also the chairman of Saudia’s Board of Directors. When Al-Jasser took the helm of Saudia, he was presented with an “airline that was constantly picked apart any the media and by dissatisfied customers in the 1990s and the early part of this millennium. It was the butt of jokes among savvy travelers who preferred to use other carriers when flying in and out of Saudi Arabia (Al-Maeena, 2017, p. 1).” Al-Jasser was tasked with multiple challenges each of

which was focused on improving operations at Saudia while also moving the organization forward, increasing profitability, expanding services, and enhancing the company's reputation.

As noted by Al-Maeena (2017, p. 2), "he began by streamlining operations and opening communication channels". Unlike previous executives, Al-Jasser is said to have delegated responsibilities and replaced an aging fleet with modern aircraft, while enforcing a mission inclusive of improved customer service. Each of these activities ultimately paid off for Saudia as is reflected in its inclusion at the 2017 Paris Air Show's roster of award winning airlines. Not only did Saudia make the list of the world's Top 100 Airlines, it was also named the World's Most Improved Airline, an award reflecting great strides in terms of quality improvement (Al-Maeena, 2017).

Integral to the changes occurring at Saudia under the leadership of Al-Jasser and his new cadre of modern executives and managers was the launching of a new airline subsidiary for domestic travel in the Kingdom as well as Hajj and Umrah pilgrims and the tourists who are now visiting Saudi Arabia. This particular venture is part of Saudia Group's SV 2020 Transformation Strategy that was designed to ensure that the Group's units will be elevated into world class status by 2020. There are also plans to privatize Saudia and its new subsidiary, Flyadeal also by 2020. Other parts of the Saudia Group – cargo, maintenance, training, medical, and real estate units – are also being revamped (Al-Maeena, 2017).

These changes speak to Saudia's (2017b) mission of enhancing the company's reputation and improving its image both at home and abroad. They can be considered efforts to undertake what Bolman and Deal (2013) would characterize as reframing the

organization by examining its structure, its human resources, its political environment, and the symbols that reflect its image and its performance. Integral to these efforts of fostering institutional change is the development of new assumptions about relationships between managers and staff, units within the organization itself, and the importance of linking training to change initiatives.

Douglass C. North (2005) made the case that institutional change depends upon learning as well as acknowledgement of the formal and informal constraints the capacity of the organization and its members to adapt to change. Training becomes a critical element in such a change effort. A failure to understand how training itself affects the organization leads inevitably to a failure to succeed in bringing about change (North, 2005).

In light of the efforts underway at Saudia under the leadership of Al-Jasser, coupled with the volatility of the geopolitical environment and the ongoing ordinary and extraordinary threats to airline and airport security (Henderson, 2007), examining the ways in which Saudia airport staff and managers understand crisis management and perceive the need for improved training takes on enhanced significance (Hassan, 2017; Massey, 2005). The issue is particularly critical for Saudia as it seeks to encourage investors to purchase a stake in Saudia which is needed to move the organization forward under the umbrella of the Kingdom's National Transformation Plan (Saudi Arabian Airlines planning own IPO, 2016). This is the broad overview of the background in which this study is positioned.

**Stakeholders Affected**

When any change initiative is undertaken or proposed, a number of different groups within the organization itself are likely to be affected (North, 2005). At Saudia, the stakeholders include executives, business unit and operational managers, line staff, customers and clients, vendors and suppliers, and related business entities such as the airports that Saudia's fleet uses for its activities. These diverse groups comprise a complex system of interrelated entities and individuals whose activities at any given moment are likely to have an impact upon countless others.

Consequently, Saudia represents what Ludwig von Bertalanffy (1968) would undoubtedly characterize as a complex and multifaceted system. As a system, "Saudia" can be thought of as having both a physical and a psychological existence. It is as von Bertalanffy (1968) might suggest, an open system that is essentially dependent for its existence on order rather than entropy and stability rather than volatility. Here, one finds it essential to acknowledge the overarching importance of crisis management per se and, consequently, the proper training of actors throughout the organization with respect to dealing with a crisis. These stakeholders are invariably concerned with the problem of crisis management response and crisis planning.

However, one of the most significant issues addressed in this study centers on the fact that many stakeholder groups in a typical organization (regardless of industry or focus) are not included in the strategic planning processes of the organization (Bolman & Deal, 2013). All too often, when crisis management or emergency response plans are developed, they are developed by upper level managers and leaders who may not necessarily be involved in all aspects of a crisis response (Taylor, 2017).

Obtaining input from those individuals, both line staff and managers, who will be required to implement the elements of a crisis management plan is a necessity (Watkins, 2002). It is just as significant to ensure that these actors understand their roles as it is to have in place a representative sampling of planning scenarios and a flexible set of response modules. Watkins (2002) argued that the best plans are worthless if they exist only on paper and if they are created without the input of those most likely to be impacted by a crisis within the organization. This tends to underscore the necessity of the present study, which seeks input from a number of key actors at Saudia with respect to their perceptions of the organization's crisis management plan and any unmet training needs that are relevant to crisis management.

With the task of enhancing services and performance underway at Saudia, the present study offers a unique opportunity to identify perceptions of different groups of Saudia personnel as to crisis management strengths and weaknesses and lead to the development of a plan for enhancing this function at the airline. Using what Babbie (2004) identified as a qualitative research effort involving a survey of three different groups of Saudia employees, the study sought to identify these issues. A convenience sample of no more than 25 Saudia workers in each of the following categories was obtained: terminal staff including ticket agents and service managers, managerial workers responsible for various terminal departments and activities, and executive level employees who are involved in strategic planning for crisis management.

A survey developed by the researcher that is employed herein is based on an extensive review of literature that identifies crisis management activities and probes subjects to assess their concerns regarding how Saudia addresses this important issue.

Data analysis via standard descriptive statistical procedures should be sufficient to allow for a comparison of the three groups and to generate sufficient data to develop a crisis management protocol to be offered to Saudia.

**Problem Statement**

Thus, the problem addressed herein can be stated as follows:

> Saudi is poised on the brink of significant transformative changes that will require an enhanced response to both ordinary and extraordinary crises that do occur and undoubtedly will continue to occur in its environment. Consequently, determining how crisis management is addressed at Saudia and similar service providers can provide an opportunity to consider what Saudia can and should do to enhance its capacity for effective crisis management.

The problem addressed in this study emerges from the recognition that major changes in operations at Saudia have taken place since the June 2014 appointment of Al-Jasser as Director General (Abdul Ghafour, 2015). These changes have required Saudia executives and managerial staff as well as line staff to embrace new operating procedures and strategies and to rethink many of the ways in which they go about their daily business. During this time, the organization has been fortunate in that it has not had to address any major operational crises or accidents which would certainly have tested the capacity of the staff to deal with such issues.

However, as Hasan (2017) reported, each year, Saudia faces enormous challenges when the annual Hajj occurs and millions of Muslims from around the world converge on the Kingdom to make pilgrimage that is required of observant Muslims. In the August 2017 Hajj, according to Hasan (2017), there were some problems regarding flights that

needed to be cancelled due less to inclement weather or other aviation related conditions than to the negligence of Hajj agencies that are responsible for ensuring that pilgrims have proper documentation including necessary visas and reservations for accommodations at the many different hotels and Hajj camps that are operated by the Kingdom.

In July 2017, delays in getting visas prevented Saudia and its aviation partner Biman Bangladesh from filling flights because visa permission had not been provided (Hasan, 2017). This cancellation of the 12 flights by Biman and four by Saudia was a crisis in terms of airport operations at the airports from which the pilgrims were departing. It also caused what Hasan (2017) describes as the necessity of rescheduling and reconfiguring the entire roster of flights that the two airlines would operate to meet obligations to pilgrims. Such delays create major stresses for airport as well as airline employees and can indeed be considered a crisis.

In this context, one is certainly tempted to consider such incidents to be a permanent or an annual crisis situation. Yaneer Bar-Yam (2004) points out that in complex situations, problems are more likely to occur simply because there are often so many variables at work that control is impaired. In the case described by Hasan (2017) in which Hajj agencies that broker visa and flight services for pilgrims, it becomes clear that even the most effective airline and airport operations are capable of being disrupted by the actions of external agents. The response of the government of the Kingdom to the 2017 issue included the cancellation of licenses for those Hajj agencies that were derelict in their duties.

The kinds of crises for which organizations such as Saudia must prepare are quite extensive. Massey (2005) has stated that these crises range from the kind of terrorist attack that occurred on 9/11 to less dramatic but equally tragic crises such as those which occur when equipment malfunctions, a crash occurs, or inclement weather leads to major backups in airports. Crisis managers, said Massey (2005) who work in the aviation sector are charged with not only addressing the immediate situation that constitutes a crisis. They must also restore consumer confidence in their organization and respond directly to the immediate and longer terms needs of the individuals and groups affected by the crisis itself.

In order to achieve this, a crisis management plan is essential as is training for an effective response to the crisis (Fairbank, 2001). Most airlines, said Fairbank (2001), decline to discuss their crisis management plans in any detail but they also run practice drills and create extensive crisis response handbooks to prepare for the day when a disaster occurs. Saudia is no exception to this practice and it has a crisis management plan and crisis response training in place. Nevertheless, such plans may well need to be modified or strengthened to reflect the broader scope of activities that Saudia now undertakes. This, therefore, underscores the foregoing problem statement.

**Research Questions**

The primary research question addressed in this study is stated as:

What crisis management training needs are not being met at Saudia at the present time and what specific kinds of crisis management training programs and activities are necessary to ameliorate those needs?

Related questions to be explored herein include the following:

1. What constitutes effective crisis management and crisis training?
2. What specific training and crisis management issues are relevant to the airline and airport sectors?
3. What types of crises are most common in the airline and airport sectors?
4. To what extent do airline and airport managers view crisis management and training for crisis management as critical functions?
5. What does Saudia currently do in terms of crisis management planning and training?
6. What recommendations can be made to Saudi for enhanced crisis management planning and training with respect to airport operations?

**Relevance/Significance of the Topic**

As noted,

> "Crisis management is the task for creating and implementing a business plan that can be implemented quickly in the face of a crisis. Events that would qualify as crises include a wide range of potential threats; natural disasters like hurricanes, earthquakes, tornadoes and floods; terrorist attacks; power blackouts; workplace violence; cyber crimes; product tampering; bomb threats, and the unexpected death or illness of key leaders to name but a few. The speed with which a company recovers after a crisis tomorrow depends upon the plans established today (Crisis Management, 2019, p. 1).

For an air carrier like Saudia, and the airports that are linked to the company and under its aegis, having a crisis management plan in place is just the first step toward achieving meaningful capacity to respond to a crisis. It is the belief of crisis management

professionals that a plan is only as good as the degree to which individuals have been fully trained to prepare for such events (Fung, Boet, Bould, Qosa, Perrier, Tricco, et al, 2015).

Crisis resource management training consists not only of ensuring that staff members and managers are aware of the details of a crisis response plan. It requires using both simulation based training and real-time drills that physically simulate potential crises and appropriate responses. Fung, et al (2015) do state that while computer simulations, role playing, and gaming are strategies that can be used to acculturate responders to the potential crises they may face, it is equally important to ensure that drills are undertaken to affirm that all staff are aware of the roles that they must play during different crises.

In fact, Taylor (2017) makes the case that while accidents (much less terrorist attacks) are very real occurrences, this unfortunately leads to the fact that relatively few managers and airport or airline staff have the opportunity to acquire the knowledge and skills that are necessary to deal with the kinds of crises that may occur. It is not sufficient to know that there is a chapter on crisis management in an employee manual or even a fully developed crisis management plan that tells workers and managers what to do in different situations. As Taylor (2017, p. 1) puts it, “there is a clear need for several key people to be familiar with everything concerned with what is fervently hoped will never happen.”

In his discussion of what elements are required for an effective crisis response plan, Watkins (2002) stated that both a representative set of planning scenarios and a flexible set of response modules were required. However, the plan must match response

modules to scenarios and to do this must have been based upon biannual at the very least training activities and exercises. The question of whether or not an organization possesses these elements is of significance when one attempts to assess its capacity for responding to any of the myriad crises that can impact upon it.

The issue is further significant according to Henderson (2007, p. 125) because "the travel and tourism industry is expanding rapidly, but it has proved itself susceptible to crises which have both internal and external causes." Outside threats impacting upon the aviation sector both in the air and on the ground originate in the political, environmental, economic, and socio-cultural domains. Internally, organizations in this sector face challenges in managing complex schedules, the needs of diverse stakeholder groups, and multiple variables which can impact upon organizational performance. Henderson (2007) cautions that while travel and tourism crises are found to share features that are common to all crises, they possess certain distinctive qualities due to the nature of the product and the industry. In the airport and aviation sectors, they "often evolve with speed and can have far reaching commercial reverberations. There is a possibility of personal injury and high fatalities (Henderson, 2007, p. 126)." For all of these reasons, therefore, it is essential to examine the ways in which those stakeholders within Saudia who are likely to be charged with dealing directly with various crises perceive their readiness to do so, their training and other needs, and the response of their organization to various crises.

Snizek, et al (2002) note that crisis management is a highly complex skill that is difficult to acquire for many reasons. Crises are by definition rare which makes it difficult to acquire direct experience in the management of any crisis. Experience is not

always a good teacher because “the highly uncertain and complex environment of a crisis can be a poor place to try to discern cause-effect relations (Snizek, et al, 2002, p. 149).” When a crisis occurs, conditions are not conducive for training which must occur before the crisis unfolds. Since crisis management skills do not generalize well across crises and each crisis is unique, training is inherently complex. Gaining enhanced insight into crisis management at an organization and training can help to reduce the negative effects of such incidents.

**Brief Overview of Theoretical Foundations of the Study**

Two discrete sets of theories are integral to the present study. First, as noted above, General System Theory as described by Von Bertalanffy (1968) and articulated further by Meadows (2008) and Miller and Page (2007) is applicable. General System Theory proceeds from the assertion that systems exist everywhere in the environment and that a systems approach to understanding relationships, incidents, interactions, problem resolution, and so on is essential. Von Bertalanffy (1968) asserts that while systems have been studied for centuries, today, General System Theory is being applied in many different disciplines to make sense of the interactivity observed in the environment.

The goal of this particular theory includes acknowledging the general tendency toward integration in the various sciences, both natural and social and developing “unifying principles running vertically through the universe of the individual sciences (von Bertalanffy, 1968, p. 38).” Theorists in this area make note of the fact that there are both open and closed systems which refers to the extent to which a particular system is internally oriented or externally oriented. Additionally, theorists such as Miller and Page (2007) argue that there is an inherent complexity in social worlds which must be

understood if one is to make sense of those worlds which are essentially systems possessed of various degrees of both autonomy and integration with other systems.

Thinking in systems according to Meadows (2008) leads one to an enhanced understanding of the whole with systems understood as "a set of elements or part that is coherently organized and interconnected in a pattern or structure that produces a characteristic set of behaviors, often classified as its function or purpose (p. 188)." Given that Saudia is quite clearly a complex system containing multiple integrated parts (some of which can be identified as distinct business units), the use of this particular theory herein is appropriate.

The second theory or set of theories to be explicated herein relates to crisis management itself. Christensen and Laegreid (2016) state that a general theory of how crises should be managed and by what type of organization does not exist. The theories that have been proposed tend to be based on causes, nature of the crisis, environment in which the crisis occurs, and the kind of systems which operate in that environment. Broadly, crisis management theory addresses all of the processes by which an organization deals with a crisis before, during, and after it has occurred. These processes therefore involve identifying, assessing, understanding, and coping with a crisis.

Christensen and Laegreid (2016) note that the literature on crisis management tends to be primarily descriptive, oriented toward single events and specific sectors and/or organizations or devoted to ex-post evaluation of responses to specific crises. Crisis research tends to concentrate on the technical and managerial or strategic and political security perspectives. Herein, it is asserted that the work of Faulkner (2001) is

perhaps most applicable because it focuses on the broad tourism/hospitality/ transportation sectors and offers a model for managing disasters at destinations.

Faulkner (2001), like others in the field of crisis management, identifies specific phases, responses, and strategies that must be addressed if a crisis is to be successfully navigated. Training is significant in this model as part of the response to both pre-event, warning, and event stages and is integrated into both preparation and readiness. This issue will be addressed in greater detail in Chapter Two, below.

Finally, it should be noted that there is a high degree of synergy between General System Theory and Crisis Management Theory (Christensen & Laegreid, 2016). Crisis management theory acknowledges that in the event of a crisis, multiple systems will come into play. These two sets of theories, therefore, are compatible. This adds to their value and utility herein.

**Conclusion to the Chapter**

This introductory chapter of the dissertation presents a brief exposition of the context and background of the problem of mounting a successful response to the kinds of crises that can and may very well actually occur at Saudi Arabian Airlines, specifically at receiving airports in the Kingdom. Stakeholders are identified as is the significance of the problem, the central research questions to be addressed, and the methodology selected for the study. A brief overview of relevant theories is presented herein leading to the development of both a problem and purpose statement. Essentially, Chapter One serves as the broad overview of the study.

Chapter Two offers a comprehensive review of relevant literature including a discussion of the theoretical underpinnings of the work. Chapter Three presents the

selected qualitative research methodology including data collection techniques, instrumentation, and data analysis strategies. Chapter Four delineates results and findings. The final two chapters, Chapter Five and the conclusion in Chapter Six, consider the significance of the study, discusses its implications, offers conclusions, and present recommendations for further research that could be useful in extending or amplifying the findings of the work.

# Chapter 2: Review of Literature

## Introduction

This chapter of the dissertation identifies the theoretical underpinnings of the research problem. It specifically focuses on dynamical or general systems theory and the theories that are related to the field of crisis management which entails, to some extent, risk reduction as an ongoing set of activities that any organization must undertake if it is to succeed (Nickels, et al, 2013). Next, the chapter discusses crisis management as a unique set of activities and the relationship of risk assessment and reduction to crisis management per se. Third, again drawing upon the previously published literature, the review considers crisis management unique to the air transportation and airport management sectors. Fourth, brief cases studies of crisis management efforts at other firms are presented. Fifth, a more extensive assessment of how airports and airlines in the United States have enhanced their capacity for dealing with crises of various types is presented. Sixth, issues related to crisis management specific to the Kingdom of Saudi Arabia and Saudia Airlines are discussed. Finally, the chapter concludes by identifying gaps in the literature that gave rise to the present study and facilitated the identification of key research questions requiring an answer.

## Theoretical Underpinning of the Study

As noted above, two discrete sets of theories are important herein. The first consists of Systems Theory which has also been identified as encompassing Dynamical Systems Theory (DST) and modern offshoot, chaos theory (Luenberger, 1979; Meadows, 2008; Thelen & Bates, 2003). Next, this section identifies some of the key theoretical constructs that are related to crisis management and risk reduction. As Faulkner (2001)

has pointed out, the importance of crisis management, disaster management, and risk reduction within the tourism industry as a whole cannot be overemphasized. Whether one's focus is on airline safety, airport security and management, ground transport, sea transport, or land safety at tourist sites or during critical events such as the annual Hajj, it is quite apparent according to Faulkner (2001) that actors in the tourism sector must have an effective crisis management response plan in place if these businesses are to meet their obligations to various stakeholder groups.

**Systems Theory**

Systems as defined by Meadows (2008, p. 12) consists of "an interconnected set of elements that is coherently organized in a way that achieves something." The fundamental components of any system are elements, interconnections, and a function or a purpose. Each of these elements must work in tandem with the other elements if the entire system is to be capable of meeting its goals and objectives. As Meadows (2008) does point out, the purposes or functions of a system are often taken for granted while the elements and the interconnections are given primacy in planning activities leading to performance.

Systems Theory in the form of General Systems Theory as described by Von Bertalanffy (1969) represents recognition that it is difficult at best and impossible at worst to single out any particular element within a system that operates independently or autonomously. The system concept advanced by Von Bertalanffy (1969) also identifies the complexity of the elements within a system as distinguished by number, species, and the relations of elements. GST proposes that there is a general tendency towards integration not only in the various sciences but also in real world organizations

functioning in real time. GST allows for the development of unifying principles that in turn enhance understanding of how living organisms as well as organizations maintain themselves "in a continuous inflow and outflow, a building up and breaking down of components… maintained in a so called steady state (Von Bertalanffy, 1969, p. 39)."

Most systems in the view of Von Bertalanffy (1969) are open systems. Open systems are those which maintain equilibrium or a steady state by constant change and adaptation to change. While much of the discussion of GST provided by Von Bertalanffy (1969) appears most applicable to mathematics, physics, biology, and mechanics, GST is also useful in the so called "sciences of man" which include the development of complex organizations.

Many contemporary organizations are widely regarded by theorists such as Miller and Page (2007) as complex adaptive systems (CAS). CAS arise when the elements that comprise a system become overly dependent upon one another. In such a system, Miller and Page (2007, p. 9) state that "removing one such element destroys system behavior to an extent that goes well beyond what is embodied by the particular element that is removed." Complexity emerges as a deep property embedded within a system. Complex systems can be relatively fragile even though they are designed to be capable of functioning under crisis situations. Such systems when created by human beings are the result of what Miller and Page (2007) characterize as mindful efforts including right views, intentions, speech, actions, concentration, effort, and livelihood.

In his discussion of complexity theory and systems, Johnson (2010) commented that in complex systems, emergent phenomenon "can arise without the need for an invisible hand. Instead, the collection of objects is able to self-organize itself in such a

way that the phenomenon appears all by itself, as if by magic (p. 5).” In other words, in any real world system, whether it is organic or manmade, a collection of objects are always in competition for some type of limited resource. Within a business organization such as that of an airline or an individual airport, competition for limited resources will include rivalry for enhanced budgets, staffing, technological access, power, and decisionmaking autonomy.

Johnson (2010) notes that in complex organizations, there are systems known as traffic networks. This term refers to the path along which information flows, through decisions are made and communicated, and through which responses to internal and external information or influences occur. The complex patterns that arise in complex organizations as described by Johnson (2010, p. 130) can be metaphorically viewed as a highway on which multiple automotive vehicles traveling to different points for different reasons by different drivers at different speeds all converge. The complex patterns arising on highways result from interactions between the cars and these “interactions between the cars arise from the decisions and actions of their drivers. Drivers tend to make decisions based on the feedback of information that they are receiving. As a result of this feedback, emergent phenomena such as traffic jams can often appear out of thin air without any obvious cause (Johnson, 2010, p. 130).”

Viewing the business organization as a complex system also leads to recognition that such systems are inherently characterized by diversity (Page, 2011). Diversity entails more responsiveness but Page (2011, p. 230) points out that “it increases the odds that the failure of any one entity could cause the system to collapse.” Essentially, complex systems that are diverse and home to multiple actors often with different skill sets, goals

and objectives, responsibility, and authority are vulnerable to conflict when responses to emergent phenomena require a coordinated, cohesive interaction.

DST as described by Luenberger (1979) emerges from the discipline of mathematics but is also useful in explaining behaviors found in complex systems. It is related as well to chaos theory which is employed in describing behaviors of dynamical systems in which the system state evolves over time. Such systems are very sensitive to what is known as the Butterfly Effect, which Gleick (1987) describes as sensitive dependence on initial conditions. Even small perturbations in a system could and often do exert significant and quite dramatic impacts upon the whole. In essence, the Butterfly Effect proposes that what appears to be a fairly random and insignificant shift or change or act can have consequences that are far more substantial than one might have anticipated. This gives rise to chaos (Gleick, 1987; Luenberger, 1979).

In the social, political, and organizational sciences, DST, GST, and chaos theory are considered to be viable lenses through which it is possible to identify system vulnerabilities (or to assess risk) and to ultimately develop strategies for mitigating, minimizing, or even eliminating such risks. These theories are based upon a number of assumptions which Luenberger (1979) identified as including the following:

- All interactions between elements in a system can evoke change that is stabilizing or destabilizing.
- When two or more elements in the system interact, there is no guarantee of what kind of outcome will be forthcoming.

- The theories offer mechanisms that are useful in identifying how such interactions occur and how they can be shaped to reduce uncertainty, eliminate risk, return an organization to equilibrium, and respond to a crisis.
- The theories provide unique opportunities to examine entire systems (such as Saudia) by delving beneath the surface and moving from the immediate to the normative.

It is apparent that DST in all of its various forms mandates recognition of the fact that past behaviors have the potential to shape future choices (Luenberger, 1979). Because any change in any element of a system has the potential affect other components of the system, Thelen and Bates (2003) as well as Gleick (1987) make the case that this particular theory is apt when one is considering complex systems.

As described by Mengersen, Campbell, Johnson, Wu, Farr, and Pitchforth, et al (2017), airports and airlines are complex systems characterized by complex interdependencies between different parts and different aspects of operations. Saudia operates both airports and airlines and has multiple stakeholders in both of these business units as well as among external actors such as government agencies and retailers. Airports are complex systems as well because they are also confronted with potentially conflicting operational objectives including safety and security on the one hand and efficiency and passenger experience on the other. Because this is the case, "the emergent behavior of the airport system as a whole cannot be inferred from an examination of the individual components of the system (Mengersen, et al, 2017, p. 1)."

Additionally, Mengersen, et al (2017) have pointed out that the characteristics of both airports and airlines tend to violate some of the key assumptions required by

traditional systems engineering. These organizations are possessed of complex patterns, multi-scale processes, and a need to balance the competing imperatives of security, efficiency, economic viability, emergency response, and customer satisfaction. Recognizing these businesses as requiring constant performance management is one aspect of overall supervision that is needed in the field.

One should also include Structural-Functional Systems Theory at this juncture. This particular theory focuses on identifying both the intricacies of information networks and the command chain and its levels within an organizational communication system. The theory serves to identify information in organizations as flowing via networks that consist of members or stakeholders with a vested interest in the crisis and its resolution (Infante, Rancer, & Womack, 1997). These networks may be inclusive of all actors in a particular business unit, a service shift, or the entire organization. Recognizing that communication during a crisis calls for engagement of each of the elements in a system likely to be impacted by some aspect of the crisis is essential.

As this somewhat brief discussion indicates, variants of GST, DST, complexity, and chaos are all applicable in the present study. Acknowledging that Saudia – a multi-unit business entity in which many activities all coalesce within the airport as a locus of activity – represents a complex system, leads one to further acknowledgement of the importance of studying crisis response and management from the perspective of systems thinking. Systems thinking, said Meadows (2008), necessitates acknowledgment of the likelihood that conflict is endemic in all organizations and crises are inevitable; thus, when a crisis occurs conflict itself is perhaps to some extent inevitable. It is therefore

incumbent upon the organization to devise effective strategies for managing both crises and the conflicts they may engender.

**Theories of Crisis Management**

Just as systems theory is useful in understanding crisis management and the ways in which organizations of all kinds function, so are any number of other theories relevant to this issue. Some of these theories are embedded in communication theory (Infante, et al, 1997). Others are derived in large measure from leadership theories, risk management and contingency planning, Diffusion of Innovation Theory and even unequal human capital theory (James & James, 2008; James & Wooten, 2010). Identifying a single or dominant theory of crisis management is in and of itself quite challenging because many different theoretical approaches to understanding how organizations should function in terms of a crisis appear to be applicable (Mitoff, Pauchant, & Shrivastava, 1988).

A discussion by Mika and Ondrusek (2010) stated that there is a need to actualize a theory of crisis management that stands alone while deriving much of its reliability and validity from other theoretical perspectives. These researchers state that “management and crisis management are from the point of theory, content, and methodology ambiguously defined disciplines (Mika & Ondrusek, 2010, p. 2).” Crisis management theory continues to struggle with developing generalized principles and rules that will be valid given the variable nature of the systems and organizations that are either threatened or affected by crises. The fundamental problem of crisis management theory as articulated by Mika and Ondrusek (2010) is that there are so many different theoretical lenses that are potentially applicable when one examines social systems and networks.

Some researchers including Drennan and McConnell (2007) suggest that to understand what crisis management entails and how one can theoretically approach it, one must identify the perspectives as to what constitutes a crisis. According to these researchers, one can identify crises as falling one of the following four broad categories:

- The crisis as an objective phenomenon that is characterized by the existence of a serious threat with substantial impacts and a high level of uncertainty demanding urgent action.
- The crisis as a social construction.
- The crisis as a self-evident phenomenon such as a natural disaster or a terrorist attack.
- A crisis as a potential or risk that is not realized fully but which has the capacity to negatively impact upon system or organization function (Drennan & McConnell, 2007).

Considering crisis management as broadly divided into two different categories – natural disasters such as earthquakes, hurricanes, floods, and so on – and manmade crises such as terrorist attacks, sabotage of a business or product, financial malfeasance may be useful (Mitroff, et al, 1988). Early research by Mitroff, et al (1988) suggested that most organizational crises can be segmented into one of these two broad categories. In terms of natural disasters negatively affecting organizations, risk assessment and preparation for a response may be relatively straightforward. Manmade organizational crises, in contrast, may require a stronger focus on ongoing risk assessment and scenario planning to address a wide range of possibilities.

Researchers including Mika and Ondrusek (2010) maintain that crisis management should be theorized and practiced as both a system and a process reflecting principles, regulations, and knowledge of the interactions and dependencies of different units within a system or organization. Achieving a strategy for addressing each and every one of the potential crises that can occur is difficult at best but it is a necessity.

It is important to acknowledge that leadership during a crisis is essential; this brings leadership theory into play when discussing crisis management. Sebastian (2010) says that leadership must be exercised in order to ensure that an organization recognizes the kinds of crises that it may very well face and is proactive in terms of developing the proper communication channels to address the crisis. Sebastian (2010) said that the development of leadership skills that are relevant to crisis management is critical. Lacking leadership, an organization addressing a crisis will undoubtedly fail to succeed in ameliorating its worst effects.

Crisis management today has been extended both practically and theoretically to address new dimensions in which crises are positioned (Pearson & Clair, 2008). Theoretically, contemporary crisis management is meant to examine the ways in which social systems are threatened and to identify those phases of system management that can be strengthened to prevent or prepare for a crisis and manage it during its lifespan. Crisis management also becomes specific to organizations. It involves contingency planning which is itself a theoretical orientation to managing organizational systems.

Coombs (2007) notes that crisis management strategy or CMS is a corporate development strategy that is focused on prevention. It involves scenario planning and projecting future threats to the organization. It further involves the constant monitoring of

internal and external environments as well as the implementation of a crisis prevention and response strategy. Like the crisis management model (CMM), this approach stresses diagnosis of possible crises, the identification of possible responses to the crisis, and implementation of the response.

To some extent, this set of theories also speaks to business continuity planning or contingency planning (Starzee, 2008). Business continuity planning is a specialty area within disaster recovery planning. It is now focused on the creation of effective responses to other types of crises than those that are linked to technology issues as was originally continuity planning can and does address both natural disasters and crises and manmade crises. Such plans acknowledge, said Starzee (2008), that businesses, regardless of their focus of activity, are vulnerable to a wide range and variety of destructive influences. This mandates advanced business modeling to assess risk tolerance and to devise those strategies that will reduce risk impacts (Erlanger, 2006).

In terms of its theoretical underpinnings, business continuity planning relates to crisis management both directly and indirectly (Erlanger, 2006). It calls for strategic plan development that can be automatically put into play when a crisis occurs. Traditional business continuity planning is intended to ensure that a business confronted with a crisis will be able first to respond to the crisis and secondly, to continue operations at some level as soon as possible once the crisis ends.

Morganti (2002) reported that business continuity plans are integral elements of crisis management because such plans are meant to identify all of the possible risks that any business faces and to create strategic responses that will result in as rapid a return to normalcy as is possible. While business continuity planning calls for coordinating

internal corporate responses with those of key external actors, it also acknowledges the importance of training (Whitworth, 2006). Whitworth (2006) says that business continuity planning or disaster recovery plans must include both strategic and tactical plans. Theoretically, as both Whitworth (2006) and Morganti (2002) note, these plans are grounded in the theories of risk management and reduction, which address those practices that are linked to reducing the negative effects of any kind of crisis that the business may experience.

In discussing business continuity planning and its relationship to crisis management, IBM Services (2019, p. 1) offered the following:

> A business continuity plan is a document that outlines how a business will continue operating during an unplanned disruption in service. It's more comprehensive than a disaster recovery plan and contains contingencies for business processes, assets, human resources and business partners – every aspect of the business that might be affected.
>
> Plans typically contain a checklist that includes supplies and equipment, data backups and backup site locations. Plans can also identify plan administrators and include contact information for emergency responders, key personnel and backup site providers. Plans may provide detailed strategies on how business operations can be maintained for both short-term and long-term outages.
>
> A key component of a business continuity plan is a disaster recovery plan that contains strategies for handling IT disruptions to networks, servers, personal computers and mobile devices. The plan should cover how to reestablish office productivity and enterprise software so that key business needs can be met.

Manual workarounds should be outlined in the plan, so operations can continue until computer systems can be restored.

Further, business continuity planning is directly linked to crisis management. For example, the following steps are recommended for effective planning for continuity after a crisis:

1. Carefully assess how your company functions, both internally and externally, to determine which staff, materials, procedures, and equipment are absolutely necessary to keep the business operating.
2. Identify your suppliers, shippers, resources, and other businesses you must interact with on a daily basis. Develop relationships with more than one company to use in case your primary contractor cannot service your needs or supply essential materials. A disaster that shuts down a key supplier can be devastating to your business. Create a contact list for existing critical business contractors and others you plan to use in an emergency. Keep this list with other important documents.
3. Plan what you will do if your building, plant, or store is not accessible. This type of planning is often referred to as a continuity of operations plan, or COOP, and includes all facets of your business.
4. Plan for payroll continuity.
5. Specify exactly who will be responsible for each area of the business.
6. Coordinate with others by meeting with businesses in your building or industrial complex. Talk with first responders, emergency managers, community organizations, and utility providers. Plan with your suppliers, shippers, and others

you regularly do business with. Share your plans and encourage other businesses to set in motion their own continuity planning and offer to help others.

7. Review and update your crisis management plan annually (Crisis Management, 2019, p. 2).

Finally, in terms of business continuity planning, Erlanger (2006) argues that advanced business modeling is critical as is coordinated action across organizational business units or networks. In theory as well as in practice, what matters is ensuring that a plan delineating what efforts must be made by personnel to respond to a crisis is available. Addressing the human factor, said Erlanger (2006), cannot be overlooked. Any crisis experienced by a business will undoubtedly have a negative impact on individuals within the organization and in the general public. Crisis management theory proposes that knowledge of likely stakeholders and their vulnerabilities is critical (Taylor, 2017).

Of course, as Drennan and McConnell (2007) suggest, there are other theories that are important in terms of crisis management. Even Diffusion of Innovation Theory can be applicable because it speaks to the question of how rapidly or thoroughly actors in an organization have accepted innovative processes and technologies. This theory, coupled with an understanding of the role of public relations in managing crises, can be useful in adding perspective to any analysis of how an organization should position itself with respect to crises. As will be discussed in subsequent sections of this literature review, crisis communications are essential elements in responding to any crisis.

Research on responding to crises of all kinds affirms many of the comments above. Jonathan Bernstein (2008) identified 10 specific steps to be taken when a real or potential crisis is recognized. First, a small team of senior executives led by the CEO is

assembled as a crisis communications team. Next, spokespersons are identified. Third, the spokesperson is trained to speak appropriately and competently to the media. Fourth, a notification system to communicate internally and externally must be established. Fifth, one must identify the internal and external stakeholders that matter to the organization. Sixth, the crisis communication team should anticipate all possible crises and gather information that is relevant to what could occur or what has occurred. Seventh, one must develop holding statements or messages that are designed for use immediately after a crisis occurs. These can be developed in advance based on the assessment conducted in anticipating crises.

The eighth step is to assess the crisis situation. Ninth, one identifies key messages that are specific to the crisis and which are limited to no more than three main messages for all stakeholders and a limited number of audience-specific messages for individual stakeholder groups. Tenth, one must ride out the storm according to Bernstein (2008), by determining the reaction to the crisis and developing any subsequent communication efforts needed to affirm the response of the organization to the crisis and to continue presenting to the public a calm, competent image that is designed to reassure the public that steps have been taken to mitigate the crisis.

Some of these steps can be compressed, but Bernstein (2008) asserts that long before a crisis is recognized, communications professionals should be prepared to act by having a basic plan for dealing with the public in place. Prior planning can be useful in diffusing the effect of a crisis.

The ways in which a crisis is managed and the degree to which a company takes responsibility during a crisis often have a dramatic impact on the perceptions of publics

as to the integrity of the company facing a crisis. Perhaps the most compelling case of good crisis management is that of Tylenol, a product that had been subject to tampering which led to the deaths of three consumers. Tylenol's parent company, Johnson & Johnson, immediately moved to identify their response to the crisis, recalled products, and offered refunds to consumers, and communicated consistently with the public as to what steps the organization took to ensure that all subsequent product releases would be safe. New packaging was introduced and discount coupons were distributed through newspaper and magazine advertisements. As noted by Seitel (2000), this strategy was quite effective and Johnson & Johnson did not lose market share but in fact retained its ranking as one of the top providers of over the counter pharmaceuticals.

A case in which an organization failed to take responsibility occurred when Exxon's tanker named the Valdez spilled millions of gallons of crude oil into the Prince William Sound. In this instance, the CEO of Exxon refused to go to the site of the spill. However, Exxon did not create media centers in key markets other than at the spill site and it took the CEO a full week to make any public comment on the spill. The impression persisted that Exxon was not responding vigorously enough (Seitel, 2000).

These two cases illustrate the importance of a rapid response to a crisis and the ways in which a rapid response in which the firm takes responsibility can reassure the public. Johnson & Johnson acknowledged responsibility immediately whereas Exxon delayed making an apology until 10 days after the crisis occurred. Taking responsibility is therefore a significant step in managing a crisis.

Responding to both the immediate and long-term effects of a crisis is essential (Pearson & Clair, 2008). The theories that have been discussed herein serve as a general

background to the question of what Saudia needs to do in order to improve its current response to the kinds of different crises that may impact upon it. The next section of this literature review will consider the kinds of crises that any organization may be subjected to as well as those crises that are specific to companies such as Saudia in the air transportation and airport sectors.

## Crises Typologies

### Common Crises

There are many different types of crises that have the potential to disrupt business activities regardless of the kind of industry or business in which one is engaged. According to Coombs (2007), it is essential that one identify the types of crises that are likely to affect business in general versus a particular business. All businesses can be disrupted by different types of crises which have been categorized by various researchers including Coombs (2007) as well as Lerbinger (1997) as falling into one of the following categories:

- Organizational misdeeds/malfeasance.
- Workplace violence.
- Malevolence.
- Rumors.
- Terrorist attacks and other manmade crises.
- Confrontations.
- Technological crises or technological system failures.
- Natural disasters.

Each of these crisis categories are relatively easy to describe. Obviously, natural disasters are beyond the specific control of any organization. Earthquakes, tornadoes, floods, violent storms and hurricanes, droughts, and landslides cannot be controlled by any manmade organization, but this does not mean that such businesses cannot prepare for such crises through business continuity planning (Coombs, 2007).

Technological crises are linked to human applications or use of science and technology; these crises are likely to occur as technology itself becomes more and more complex, leading to human errors (Coombs, 1999; Lerbinger, 1997). Technology is linked not only to such mega damage events as the Exxon Valdez oil spill but also the nuclear disaster at Chernobyl and hacking attacks on private data systems.

Confrontation crises are linked to crises of malevolence as well as workplace violence (Coombs, 1999). These crises can take the form of a direct assault on an organization by its opponents, an attack on individuals in an organization by a disgruntled employee or other individual, and crises such as those brought about when an individual targets a company and its internal and external stakeholders for some kind of assault as was the case in the 1982 Chicago Tylenol murders (Kuzmanova, 2016; Lerbinger, 1997).

Researchers including Coombs (1999) and Lerbinger (1997) both point out that there are multiple crises falling under the general rubric of organizational misdeeds. For example, some crises occur because management lacks the appropriate value and behaves in a way that damages internal and external stakeholders. A crisis of managerial misconduct such as occurred in the case of Enron is linked to a deliberate attempt on the part of management to deceive stakeholders and to behave in a manner that is inherently illegal. These crises all often occur in stages moving from what James and James (2008)

identified as a pre-crisis situation to an acute stage which can be transformed into a chronic stage and concluded via conflict resolution.

Broadly, James (2007) says that there are two general categories that can be used to identify organizational crises. Organizations are vulnerable to sudden crises that emerge when an organization is impacted by factors that it cannot control and generally without warning. They are also vulnerable to so called smoldering crises which begin as relatively minor issues that are not properly addressed and which then over time develop into full blown crises. James (2007) points out that the sudden crisis may not be considered to be the fault of management but the smoldering crisis that lingers and evolves into a significant problem for the organization is more often than not directly attributable to some type of inappropriate or inadequate managerial behavior.

In discussing crises, James (2007) said that there are five stages in any crisis that at least in retrospect can be identified. Most crises send out signals long before they are actually detected. Many leaders do not recognize these warning signs and fail consequently to prepare for their onset or develop prevention strategies which could contain them. The third stage of a crisis focuses on damage control or containment and it is during this stage that the organization is most vulnerable to a failure to act appropriately. The fourth stage identified by James (2007) consists of business recovery and it is here that business continuity planning comes into play. The final stage is one in which organizations learn from their experiences and mistakes and ideally put into play the kind of plans, processes, policies, and strategies that will either prevent further crises from occurring or facilitate an enhanced response.

These, then, are the fundamental characteristics of the various crises that can and do impact upon organizations of all kinds. Christensen and Laegreid (2016) make the case that both structural features and cultural context as well as the nature of the crisis matter in terms of how well or poorly an organization will do when a crisis occurs. Certainly, there are crises that one can view as specific to the air transportation and airport operations sector in which Saudia is positioned. It is these crises that will be considered below.

**Crises Affecting Airlines and Airports**

Airlines and airport facilities are clearly complex interdependent systems that are home to multiple stakeholders with competing or conflicting interests and imperatives (Mengersen, et al, 2017). Determining what airlines and airports face in terms of potential crises requires a recognition that this particular industry is affected by the full range of operating issues discussed above as well as unique stressors. Henderson (2007) notes that businesses engaged in the travel and tourism industry face unique challenges including signal detection, preparation, prevention, containment, recovery, and learning.This is true whether or not the particular threat is related to internal or external influences.

Airlines and airports alike are vulnerable to terrorist attacks in the air and on the ground, carrier crashes and malfunctions, prolonged delays in landing or taking off, workplace violence, technology failures and system shutdowns, weather, overcrowding, excessive traffic, and plane hijacking (Henderson, 2007). Henderson (2007, p. 126) states that “travel and tourism crises are found to share features common to all crises, but also to possess certain distinctive qualities due to the nature of the product and industry.”

These distinctive qualities include the following:

- Such crises tend to evolve with speed and to have far reaching commercial effects.
- There is a possibility of personal injury and high fatalities.
- Sector crises may be the result of economic pressures that are separate from or even linked to terrorism.
- Airports and air carriers are a major target of terrorist activities on the ground and in the air.
- When a crisis impacts upon one air carrier or airports, the effects are often felt by others in these sectors, creating multiple crises.
- Natural disasters have a direct impact upon air carriers and airport facilities by delaying or preventing flights from occurring, creating traffic logjams and facility overcrowding.

These issues, according to Henderson (2007), speak to the unique situation of airports and airlines which are also negatively affected by political instability as well as natural and manmade disasters. This particular analyst agrees that even in this sector, crises unfold in a set of steps from the pre-crisis stage through the crisis and post-crisis evaluation. The specific tasks that management must address to achieve a return to normality and to restore equilibrium includes signal detection, preparation, prevention, containment, recovery, and learning. Looking ahead, Henderson (2007, p. 133) states that "a future of intense security and the persistence of terrorist alarms and outrages can be envisaged."

What this means in the view of Henderson (2007, p. 133) is that "flying may come to be widely viewed as excessively arduous for all but the most unavoidable of

journeys." Travelers are already encountering the necessity of arriving at airports hours before they are actually scheduled to take off. In addition, travelers are being scrutinized more intimately and intensely than ever before, leading to legitimate concerns about privacy rights. Passengers are also being challenged with respect to the kid of items that they are allowed to bring onboard airplanes and to refrain from bringing or using laptops and other devices while in flight. These are issues that are quite significant for air carriers as well as airport managers because "passengers and airlines could be approaching a threshold of acceptability and tolerance regarding official air security regimes which they may be reluctant to cross. Crises expose the often competing demands of security, passenger comfort and convenience, and commercial realities (Henderson, 2007, p. 133)."

Indeed, Vormer, Marsden, and Buong (2010) note that airport performance monitoring has become an important element in current efforts to modify this particular element of the air transportation system. There is no general consensus at the present time as to how performance during a crisis or before it occurs is to be measured especially in terms of flexibility, predictability, and efficiency. All too often, Vormer, et al (2010) argue that when airports are assessed with respect to performance metrics, crisis management, and other critical issues, the assessment occurs by studying subsystems separately. This means that there are likely to be some difficulties encountered when one attempts to integrate these results.

Of course, it is widely recognized that in the United States and elsewhere, airport security has been directly impacted by terrorism and the threat of terrorism (Kosatka, 2011; Thackeray, 2011). This is certainly true in the United States in the aftermath of the

terrorist attacks of 9/11, but it is also true in other locations as well. Kosatka (2011) said that security improvements are costly and have resulted in many airport operators investing substantially in physical infrastructure that is not always conducive to efficient operations. Such provisions as enhanced passenger and baggage screening also are linked to the time constraints that are placed on passengers and in some instances revenue declines because is dedicated to security infrastructure rather than revenue producing activities.

Despite this, Thackeray (2011) makes the case that it is necessary for airports across the globe to become more proactive in developing responses to potential crises including the threat of terrorism. Addressing this issue is critical. There are analysts who are convinced that "terrorism is unfortunately likely to be a cause of more crises for the travel and tourism sector in the years ahead, alongside other forces and managers and officials cannot afford to ignore the hazards and the imperatives of anticipating scenarios and preparing for them (Henderson, 2007, p. 134)."

Terrorism alone presents a formidable challenge to the air transportation and ground operations sectors. The next section of this review of literature will consider a number of cases in which airports and airlines have been confronted with the challenges of addressing these and other crises. The literature on this issue will support the argument advanced in this study that crisis management preparation and training are critical activities for airport operators.

**Airport/Air Transport Crises: Cases**

As Taylor (2017) has pointed out, airport and airline safety managers are extremely cognizant of the very fine line between an incident and a major accident. They

are also usually aware of the advantages of having established emergency procedures to minimize the social, financial, and other effects of an incident or accident should one occur. While that may be a readily apparent truth in the airport and airline sector, Taylor (2017) does note that many such organizations find themselves challenged when an incident or accident occurs to mount a viable response that minimizes harmful effects and returns the organization to an efficient operating state.

The literature is filled with a number of different comments on the management of crises that affect airlines and airports. It is beyond the scope of this research to consider each of the possible cases that are applicable herein. However, a few such cases will serve to illustrate the effective and ineffective strategies that are in place in today's often volatile and tense airport and airline sectors.

One of the most common types of crisis confronted by airlines and airport operators centers on the effects of poor weather conditions which delay flights, create congestion in airports, and otherwise disrupt the smooth functioning of these organizations. In 2007, on Valentine's Day, New York's John F. Kennedy International Airport experienced an ongoing and somewhat prolonged crisis. Poor weather conditions including thunderstorms caused JetBlue to experience a total meltdown. Jetliners were actually scheduled for takeoff during an ice storm which many crew members and airport personnel including those in the air traffic controller's division called upon JetBlue executives to postpone the flights (Crisis management says about an airlin, 2007). Some fliers, however, were stuck for three or more hours on planes on tarmacs and it was only after multiple complaints were heard that the company apologized for its behavior and offered passengers vouchers for future flights.

Similarly, American and United Airlines both faced airport crises that were related to weather conditions in 2006 and 2007. American left a planeload of passengers trapped on a tarmac in Austin, Texas for eight hours in December of 2006 after a plane had been diverted because of thunderstorms. United dealt with the fallout from passengers whose Denver bound United Express flights were diverted to Cheyenne, Wyoming on December 20, 2006. The passengers were left in Cheyenne the following day and were not provided with bus service to Denver until December 22 and were only given reimbursement for hotel and meal expenses after the story went viral on broadcast, cable, and print news (Crisis management says a lot about an airline, 2007).

What these two examples of relatively minor but nevertheless damaging crises demonstrate is that airlines and their airport affiliates have an obligation to create protocols and responses for dealing with weather linked crises and other flight delays or cancellations. Taylor (2017) stated that these are the types of incidents that are most common and which do place enormous strains not only on airlines but also on the airports that service them. While these two incidents did not rise to the level of a major crisis, they did create real challenges for airport personnel who were inevitably confronted with the necessity of dealing with irate passengers.

Lucas (2017) described the response of a British Airways captain named Peter Bristow to problems on a flight from Vienna to London in May of 2017. The flight was significantly delayed, had run out of food and beverages for passengers, and was likely to be even later because of a systems meltdown in London. While ground crews in London rushed to restore order and return the airport to full service status, Captain Bristow addressed the annoyance of his passengers directly and apologetically. Said Lucas (2017,

p. 22), “he was plainly exasperated and embarrassed by the systems meltdown in London. He was apologetic, sympathetic, and frank, and spoke with unselfconscious, self-deprecating humor…. All he could promise that once he knew anything, he would tell us.”

In this instance, the man on the scene defused a potential crisis by being accessible and empathetic. In contrast, CEO Alex Cruz, the head of British Airways, appeared to be either unable or unwilling to address the problems occurring on the ground in London (Lucas, 2017). This case illustrates two very different strategies for dealing with communication during a crisis. It serves to demonstrate the importance of open, transparent communication. This is certainly something that Taylor (2017) emphasizes in his analysis of best crisis management practices.

Maben (2017) reported on a more recent incident in which United Airlines mismanaged a crisis that occurred on an airplane when a passenger was asked to give up his seat for a United employee and resisted the request. The 69 year-old passenger was literally dragged screaming from his airplane seat by security in Spokane, Washington. United’s initial response was to blame the victim. The result was that United was widely criticized as cellphone videos of a distraught and bloody passenger were posted on social media. The company’s stock tumbled in response to the incident which ultimately led to an apology from United.

Maben (2017) says that United failed to deal effectively with this situation and immediately became defensive while also failing to recognize that social media would come into play in a manner that was unfavorable to the company. Whether or not United’s policy of providing preferential seating to its employees is or is not acceptable is

not the issue. As Maben (2017) notes, the passenger himself was disruptive and belligerent but United's actions simply made a bad situation worse because of a failure to recognize the organization's vulnerability to criticism.

A more serious case of crisis management was discussed by Fairbank (2001) who focused on crash of American Airlines' Airbus A300 in 2001. A total of 260 people on Flight 587 were on this plane. American immediately put into place a crisis management plan that it had practiced for decades through practice drills and training. Less than three hours after the crash, the company's CEO was meeting with reporters in the company cafeteria at its headquarters and then went to New York to meet with the families of the victims.

The lesson learned after two 1996 crashes (TWA Flight 800 and ValuJet Flight 592) was that it is essential for an airline's leaders to become the public face of the organization and to be extremely proactive in responding to public concerns. Fairbank (2001) also said that airlines are including new communication strategies and channels in their crisis management plans to ensure that the news is managed in a way that allays fears and reassures stakeholders while protecting the reputation of the company itself.

This issue was discussed by Taylor (2017) who says that while accidents are a rare occurrence there is a need for several key people to be familiar with everything concerned with such crises. The airport and the airline must work together and clear-cut communication channels between these actors and such external organizations as the National Transportation Safety Board must be in place.

One famous crisis of recent times involved Malaysia Airlines Flight MH17 on July 17, 2014 – an event preceded by the mysterious disappearance on March 8, 2014 of

the same company's Flight MH370. With respect to the latter accident, Braud (2014) stated that the flight simply disappeared without warning, evoking a rapid response from company officials that was nevertheless ineffective at best and critically inhumane at worst. The company sent out a text message stating that "it is with deep sadness that Malaysia Airlines earlier this evening had to confirm to the families of those aboard Flight 370 that it must not be assumed that the flight must be lost (Braud, 2014, p. 1)."

This text confirming the loss of the flight was not issued until 17 days after it vanished. During that time period, investigations were ongoing and the company did both meet with and call family members to keep them generally apprised of the situation (Braud, 2014). What the airline did not do was to create a comprehensive strategy for communication and bring together family members at a central location where they could be provided with grief counseling and other services. Nor, said Braud (2014), did the company mount an effective public response to the speculations that surrounded the loss of the aircraft as contradictory information became public. This underscores the necessity of training representatives for such crises and having a crisis communication plan in place long before it is necessary.

A few months later, Malaysia Airlines was required to deal with the crash of Flight MH 17 in Kuala Lampur on July 22, 2014. Nearly 300 people were onboard when the plane was downed over Ukraine. This flight was shot down apparently by Russia or its allies which nevertheless denied its involvement in the crash (Malaysian Airlines Flight MH 17, 2014). The company worked quickly to retrieve the bodies of the passengers and crew in eastern Ukraine and transported the corpses to the Netherlands for identification. However, the airline had experienced two major mishaps that were said to

create a minimum of a $80 million hole in the firm's already shaky finances, even after offering $5,000 in assistance to the victim's families in any assuage the anger and frustration of the victim's families.

The case of Malaysian Airlines Flight MH 17 is somewhat unique. It appears that the flight was targeted for attack by Ukrainian separatists who were working closely with Russia (Malaysian Airlines Flight 17, 2014). Under ordinary circumstances one would have expected a response of a military nature. This did not occur. Taylor (2017) suggests that it is difficult at best to prepare for this kind of crisis, which places the airline itself in the position of a victim. All that the organization can do is to communicate openly and factually and in a timely manner.

**Terrorism and the US Response**

Terrorism is quite clearly the single most critical kind of crisis that airlines and airport operators face today – even in consideration of the vulnerability of airlines and aircraft with respect to equipment malfunctions or weather generated incidents. How companies deal with this threat is particularly challenging. Indeed, Taylor (2017) claims that it may very well be impossible to anticipate all such attacks or to simulate a viable response to an attack. In the United States, the aftermath of the terrorist attacks on 9/11/01 saw a dramatic shift in the approaches taken by actors in the aviation sector to crisis management.

The terrorist attack on the United States on September 11, 2001 served to energize United States government and citizens alike with respect to the vulnerability of the entire air transport sector. A number of key actors (i.e., airport authorities and operators, airlines, air cargo companies, citizens' groups, and elected officials) joined together in an

effort to create a comprehensive strategy designed to improve the security of airport facilities and operations and aircraft themselves. The government created the Transportation Security Administration (TSA) under the aegis of the Aviation and Transportation Security Act, placing federal agencies and employees in charge of critical functions such as airport security and screening (Bajoria, 2010).

Equally significant in the governmental effort to improve airport and aircraft security were the Aviation and Transportation Security Act (ATSA) and the USA PATRIOT Act. Such legislative efforts and ongoing empowerment of the TSA introduced in the United States both opportunities and challenges vis-à-vis ensuring the security of the air transportation sector. There are those who have charged that some of the procedures used by TSA in screening passengers and cargo represent invasions of personal privacy (Cole & Maurer, 2014). Others argue that efforts by the TSA and airport operators themselves have not been sufficient to prevent any and all possible security breaches. This is particularly true with respect to the fact that some states – not all – permit passengers to pack certain unloaded weapons their checked baggage.

The 9/11 attacks on the United States revealed the vulnerabilities of the air transportation sector, vulnerabilities that had been better understood in other countries across the globe where such attacks were hardly unknown (Elias, 2007). Responsibility for the oversight of airport security operations, particularly with respect to the screening of passengers and cargo, was placed in federal hands when TSA was formed (Airport security, 2013). All domestic airports were required to develop a capacity for screening 100 percent of all checked baggage and passengers were subjected to enhanced screening procedures that continued to evolve. The government developed watch lists with the

intent of identifying individuals who for some reason or another were suspected of potentially having the capacity for threatening domestic security (Cole & Maurer, 2014).

An essentially layered approach to airport and aircraft security has developed over time. This approach has seen the use of innovative technologies proliferate in airports and cargo operations. Such technologies include intelligent video surveillance systems that employ biometrics as well as other identification systems, physical barriers that prevent or inhibit unauthorized access to portions of airports, intensified personal screening with tools that can identify concealed weapons and other potentially harmful devices, and the use of the new RFID chips embedded in cargo to facilitate the tracking of cargo content (Elias, 2007, 2008).

TSA rules have given the government via such mechanisms as the PATRIOT Act the capacity to impose screening requirements on airport operators. Additionally, as Elias (2007) points out, many flights are now accompanied by security agents who monitor inflight activity in order to prevent any untoward actions from occurring while planes are in the air. The threats that must be addressed at commercial airports are extensive. As Nie, Batta, Drury, and Lin (2009) note, these threats mandate intensified passenger and baggage screening, cargo inspection and tracking, and the control of ingress and egress portals. Further, airport communication and IT systems are vulnerable to cyber-attacks and system sabotage is an ongoing concern for airport security personnel.

Simbro (2014) has pointed out that imaging technologies are particularly significant in terms of airport security because such technologies including laser based molecular scanners help airport operators to prevent weapons and explosives from circumventing airport security. Making sure that airport operations and flight itself are

safe is an economic necessity in addition to being a safety issue. Simbro (2014) also noted that these new technologies which do have some implications with respect to privacy rights represent important first line defenses in the effort to prevent another terrorist attack similar to that of 9/11 from occurring.

With this in mind, it is important to examine the literature with respect to the independent variable of loopholes in current laws and regulations impacting on airport security and the dependent variable of the safety and security of people in such facilities. Possession of guns (unloaded) inside the terminals is recognized herein as an intervening or extraneous variable.

Finkel (2017) pointed out that airport administrators and Transportation Safety Administration (TSA) officials recognize that there is a balance between maintaining public safety and giving passengers the respect they require and following existing regulations regarding weapons possession. There are efforts underway to ensure, for example, that adequate screening of passenger baggage (both checked and carry on) is undertaken to ensure that any guns or other weapons are not loaded or maintained in a manner that they can be easily accessed and used. Protecting public areas, said Finkel (2017) is one of the biggest challenges that airport administrators face.

The problem of guns in carryon bags is significant. Shine (2017) reported that the TSA found 3,391guns in carryon bags in 2016, an indication that the number of people attempting to board a flight with a weapon in a carryon bag is rising or they are being caught more frequently. Of the guns discovered in carry ons in 2016, the TSA reported that 83 percent were loaded. The forbidden carry ons are not limited to guns. Shine (2017) said that the TSA reported that it seized containers of gun powder, inert grenades,

sword canes, a variety of hidden knives, metal throwing stars, and even other Asian martial arts weapons.

Passengers are allowed to transport firearms in checked baggage if the weapons are unloaded, locked in a hard- sided case, and declared to the airline (Shine, 2017). As a general rule, other than under these conditions, firearms are not allowed at airports. Under the US Code, there are a number of civil and/or criminal provisions for attempting to enter a controlled area of an airport or aircraft with a firearm or other restricted device. State laws do vary (Gun laws by state, 2017).

Thomson (2017) did report that in 41 states, it is legal to carry weapons into a terminal under the conditions described above. It is only illegal in six states (Florida, Arkansas, Oklahoma, North Dakota, Illinois, and Virginia. Open carry is required in Ohio, Mississippi, and Nevada.

A study of the impact of firearm laws on airports by Thomas (2016) revealed that the right to carry guns at airports is subject to the U.S. Constitution, federal and state legislation, and judicial decisions. Commercial airports across the country are impacted by these laws and regulations, particularly because there is increased evidence that so called open carry laws have led many gun owners to assume that they are legally allowed to carry their weapons in public virtually anywhere.

Not all states in the US use the same criteria for licensing individuals for gun ownership. Under federal law, individuals except those who are authorized by law are prohibited from carrying firearms and other weapons or explosive devices in the sterile area of an airport, consisting of those areas where passengers access aircraft and access is controlled by the TSA or its designated representatives. These sterile areas are the focus

as well of state and local laws but the TSA has authority over each of the states and can supersede existing regulations when it feels that this would be necessary.

Cole and Maurer (2014) certainly affirm that new security measures including scenario analysis and structural complexity management are being used to facilitate enhanced security at airports across the United States. However, these analysts do make note of the fact that it is challenging at best to create the kind of checkpoint screening strategies that will in all situations prevent a risk from becoming a reality. The problem is that even a permit issued by an airline allowing a passenger to properly stow a firearm in carryon baggage does not guarantee that the weapon is not loaded or that the passenger is not carrying bullets that could be inserted into the weapon during flight.

McLay, Lee, and Jacobson (2010) stated that one of the problems with the laws and regulations impacting on airport security is that many of these strictures were reactive after 9/11 and were compiled in a piecemeal manner. Changes in passenger screening policies are evolving to this day as TSA officials and policymakers identify more risks. Passengers now find it impossible to board a plane with baggage containing certain gels or aerosol items. Screening of every passenger and every bag is costly and would create enormous barriers to the speedy movement of passengers through terminals and onto aircraft.

Selective screening according to McLay, et al (2010) can be discriminatory because perceptions of what constitutes high risk vary from one TSA agent to another. Prescreening is also accompanied by risk but many airports employ a program called Secure Flight which matches passenger information against a consolidated federal terrorist watch list. Many airports also use the Computer-Aided Passenger Prescreening

System (CAPPS) which partitions passengers into selectees and non-selectees where selectees are then subjected to more comprehensive screening and checking of themselves, checked baggage, and carryon baggage. TSA according to McLay, et al (2010) has characterized prescreening systems as a critical component in a layered system for aviation security, which includes reinforced cockpit doors, bomb sniffing dogs, and the deployment of federal air marshals on numerous flights.

At the same time, McLay, et al (2010) argue that even in CAPPS the system can be gamed through extensive trial and error sampling by a variety of passengers passing through the system. Prescreening systems may well need to transition from a security centerpiece to one of many components in future aviation security strategies. This is clearly an evolving field.

Multiple strategies for enhancing airport and aircraft security have been developed and deployed since 9/11. Kosatka (2011) pointed out that security requirements are constantly being changed while costs for responding to these mandates are also escalating. IT systems are costly. McCullagh (2006) identified chemical scanners and a variety of biometric devices as well as radio frequency chips as being used to track cargo and baggage, and in the case of RFID chips, to track individual movement by embedding such chips in United States' passports, state IDs, drivers' licenses, as well as credit and debit cards.

X-ray backscatter or millimeter wave radiation machines are common in many airports while cargo container radiation scanning covers 99 percent of all cargo entering the United States (King, 2011). Additionally, new hand held computerized biological weapons detection systems including the Bio-Seeq Plus are being used to identify

biological weapons. Biometric face recognition systems are scanning passengers and terminal visitors and comparing facial features or retinas to a growing international database containing known or suspected terrorists (King, 2011). Explosive trace detectors called “puffers” were used in a number of American airports to screen airline baggage but their high maintenance costs led the TSA to phase them out as of 2008 (King, 2011).

Advanced Imaging Technology (AIT) units are commonplace throughout the sector. They are said to be capable of detecting explosive devices but also are known to generate false positives (Airport security, 2013). Other technologies that are used in the anti-terrorism effort are:

- Global positioning system (GPS) devices that monitor all vehicles traveling in secure airport areas.
- Ethernet network technology and Wi-Fi systems to facilitate communication among security personnel.
- Computerized kiosks that function in a manner similar to advanced polygraphs, scanning individuals passing through customs to detect and assess body temperature and other indicators of anxiety.
- Biometrics such as palm prints, facial recognition technology, retinal iris scans, brain printing, and ear matching.
- Camera and point technologies that scan airport traffic continuously and employ closed circuit television systems (Jarvis, 2009; Purvis, 2011; Verton, 2002).

The TSA (2016) reported that it uses both millimeter wave advanced imaging technology and walk through metal detectors to screen passengers. Passengers who undergo screening may be required to submit to both AIT and pat down screening if they

are selected for enhanced screening. TSA (2016) argues that its AIT is safe and meets national health and safety standards, using non-ionizing radio frequency energy in the millimeter spectrum with no known adverse health effects. These technologies, taken as a whole, reflect a broad assortment of strategies that are designed to improve security throughout airport operations and to prevent an attack either on the ground or in the air.

Other countries have employed technology to good effect. The European Commission (2013) developed a multi-level surveillance and intelligence system that is capable of monitoring an entire airport. This system integrates and fuses data from a number of real time sensors and subsystems that are dependent upon both fixed and mobile modes. It categorizes airport activities into facilities, people, vehicle, baggage, cargo, and airplanes/airport, as consisting of space access, environment, and cyberspace. Multiple IT systems are involved and the European Commission (2013) acknowledges that this system is costly yet necessary in light of the current security environment.

Thus, the IT sector contributes greatly to airport and aircraft security in the global community. With the new RFID chip being embedded in identifying documents or cargo, TSA is gaining enhanced capacity for tracking the activities of individuals or groups who may be on a watch list. However, as Nixon (2015) notes, there are still concerns regarding these chips.

Parayitam, Desai, Desai, and Eason (2009) described FISHBONE, a diagram that can be used to identify categories of possible causes of how a passenger can board a plane with a weapon. Primarily a teaching tool, FISHBONE helps to emphasize the changing nature of airport security and the very real challenges that security personnel face in attempting to eliminate all possible risks and to identify those passengers who

may present very specific risks. These, then, are the kinds of tools used in the United States and elsewhere as a response to the potential threat of terrorism.

**International Air Transportation Association Training**

The International Air Transportation Association (IATA) (2018) offers crisis management, risk reduction, and emergency planning and response training to both airlines and to operators of airports. IATA (2018) provides multiple courses that include classroom and online offerings. These programs are available at IATA Training Centers, locations that are managed by Regional Training Partners, and via on demand in-company training. Companies such as Saudia use IATA training to good effect as do airport managers in Jeddah, Riyadh, and elsewhere in the Kingdom.

The IATA (2018) Security Risk and Crisis Management five-day classroom program focuses on such tasks as:

- Analysis of emerging trends in attacks against civil aviation.
- Preparation of risk assessments for the organization.
- Identification of areas of vulnerability in the organization and its various physical facilities.
- Reporting and recommending security countermeasures.
- Developing a crisis management plan tailored to the needs of the organization.
- Improving the communication skills of crisis managers internally and externally during a crisis.

Other programs offered by IATA (2018) include Emergency Planning and Response for Airlines. IATA (2018) describes this program as a three-day classroom effort that focuses on training of staff for emergency responses or other crisis situations and identifying all

of the components of an effective emergency plan that engages key actors within the organization. It is important to recognize that IATA (2018) annually trains more than 10,000 aviation professionals through its global network of IATA Training Centers, Regional Training Partners, and through private in-company sessions.

Many different actors in the air transportation sector, including those who operate airlines and those who manage airports, have found IATA courses to be particularly useful (Kuzmanova, 2016). The case study proposed in this research effort will focus on crisis management planning, programming, and training at Saudia and at the Jeddah Airport and other airports in the Kingdom. The final project will present a more comprehensive analysis of IATA programs as well as those at Saudia and at Jeddah.

**Issues Specific to Saudia and the Kingdom of Saudi Arabia**

Saudia is under the general authority of the Kingdom's General Authority of Civil Aviation (GACA) (2018a) which has as its mission becoming a main contributor to the gross domestic product (GDP) of Saudi Arabia while simultaneously growing its aviation sector. GACA (2018a) states that over the past decades, unprecedented growth as occurred in Saudi Arabia as a whole and corresponding advances in civil aviation including passenger transport, air cargo, airport construction, air navigation and control, and airline/air carrier development. GACA (2018a) oversees economic and safety regulations, air navigation services, and all operations of Saudi Arabia's 27 airports which includes five international, nine regional, and 13 domestic airports that have served more than 75 million travelers each year.

GACA (2018b) operates under Royal Decree No. M/44, 18 Rajab 1426H, promulgated on August 23, 2005. It is charged with implementing all laws and

instructions and necessary measures to maintain security in airports and aircraft and navigational support in the Kingdom. Its safety management systems speak not only to commercial and noncommercial ground and air activities, but also to safety risk management, assurance, and promotion via training. To that end, GACA (2018b) establishes rules and regulations that must be followed by all actors in the aviation sector. It requires annual needs assessments, training updates, and risk assessments that are designed to identify the most critical risks facing actors in the sector and the development of crisis management responses that address these issues.

Consequently, it is under the aegis of GACA (2018a) that organizations such as Saudia have become focused on employing new technologies in order to address these issues. Cheikh (2018) noted that the aviation sector needs more control and predictability particularly with respect to addressing service disruptions due to any of the crises that have been discussed above. With that in mind, airlines like Saudia have begun discussing the uses of artificial intelligence (AI) to reduce disruptions and to enhance safety. AI as described by Cheikh (2018, p. 2), "embraces the disciplines of machine learning, machine vision, natural language processing, and robotics…. AI is one of the emerging technologies offering future strategic and operational benefits."

Cheikh (2018, p. 2) offered the following breakdown of how airlines are addressing AI:

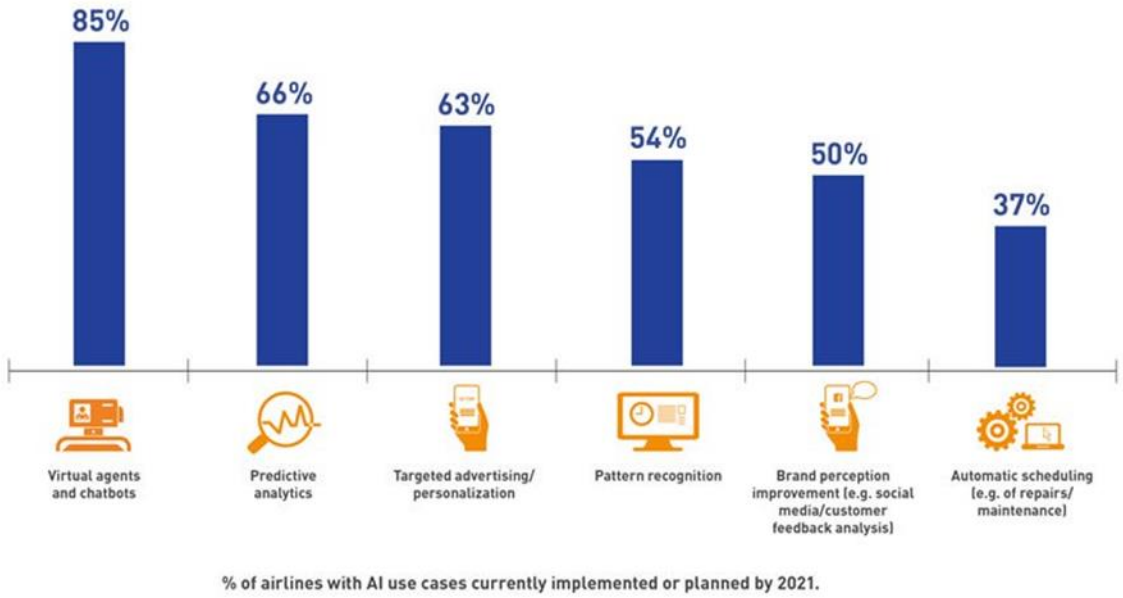



*Figure 1*. Percentage of airlines with AI use cases currently implemented or planned by 2021

In his view, SITA (the *Societe Internationale de Telecommunications Aeronautiques*) has become one of the leading proponents of AI in aviation and, simultaneously, an organization that many airlines, airports, and aviation authorities are working with the enhance their use of technology.

Cheikh (2018) pointed out that recent figures show that the average flight delay time is 51 minutes – contributing to unnecessary costs of as much as $25 billion annually and leading to a very real need to address disruptions as one of the more common crises faced by airlines and airports. It is because IATA estimates “an average on-time performance of 76 percent for the 26 million flights globally each year (Chiekh, 2018, p. 2)” that airlines and airports are turning to AI in their search for greater control and predictability.

AI offers the ability to not only monitor flight disruptions but also to identify issues before they happen and drive better on-time performance. As significantly,

Schellenberg (2018) reported that SITA's new Air Transport Cybersecurity programming is providing new systems for assisting airline and airport managers in identifying risk and developing programs to address those risks. This analyst states that over 44 percent of all airlines and airports have a formal Information Security Strategy but while the majority of these organizations are conducting formal risk assessments, there is a missing link between business processes and the implementation of IT systems.

Both airlines and airports have indicated that the disruption of operations is their biggest concerns, but relatively few of these organizations have moved beyond what Schellenberg (2018) identified as core safeguards to the creation of an in-house Security Operations Center. What is needed at this juncture in the view of Schellenberg (2018), who is the Director of Integration and Services at SITA, is a more aggressive move toward proactive protection that links any and all IT systems used by an airline and the airports that it operates from.

To that end, SITA is working with a number of organizations including Saudia and GACA. SITA (2018) reported that GACA selected SITA to support the modernization of the country's airports and to implement "a sweeping transformation of airport and communication technology across 26 airports (p. 2)." Working not only with all 26 GACA monitored airports in the Kingdom, SITA is also working with airlines like Saudia to deliver a smooth self-service experience to passengers from check-in to boarding. From baggage management solutions to real time displays of flight traffic and passenger processing, GACA has contracted with SITA to enhance system infrastructure across Saudi Arabia while supporting the objectives of Saudi Vision 2030 which includes the development of the national airport and aviation infrastructure.

Thus, it would appear that GACA (2018b) has embraced a safety strategy and crisis management approach that will capitalize upon emerging IT solutions and AI. The purpose of this is to reduce crises including the most common crises which include flight disruptions and delays. Overall, GACA (2018a) is committed to the improvement of the capacity of its airport and aviation operators to respond more effectively and efficiently to such challenges. Additionally, the ability of AI systems to enhance other aspects of crisis management is becoming increasingly clear.

**Gaps in the Literature**

This review of literature has examined a number of the critical issues that are related to crisis management as a field of study and a set of activities, positioned this discussion within the context of Systems Theory, examined the kind of crises that airlines and other actors in the aviation sector routinely face, and considered training programs that speak to these concerns. Unfortunately, while Saudia (2018a) has an in-house crisis management program related to workplace safety, the elements that comprise this program are considered by the airline to be proprietary and therefore not available to this or any other researcher.

Certainly, under the rules and regulations of GACA (2018a), Saudia must have such a program in place and accessible to the national aviation sector authority. The present study seeks to add insight into the public's understanding of what Saudia employees themselves consider to be the most pressing training needs related to crisis management. No such study has, to the knowledge of this researcher, been conducted specifically with respect to Saudia. It is this gap in the literature that the study seeks to fulfill.

# Chapter 3: Methodology

## Research Methodology

A case study methodology – a qualitative form of research - was employed in the proposed study. Specifically, Small N methods were used, focused on a single case, that of crisis management planning, training and programming at Saudia Airlines. Small N comparative research is "an inquiry investigating a contemporary phenomenon within its real-life context, when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used (Dooley, 2002, p. 338)." Small N comparative methodology uses a relatively small sample of cases rather than either a single case or a larger sample of cases. Within this context, small N comparative methodology is not driven by generalization or prediction, but rather, "emphasizes a specific interest and wishes to understand it completely by observing all of the variables and their interacting relationships (Dooley, 2002, p. 336)."

This approach allows for the use of both primary and secondary source material. Dooley (2002) conceives small N comparative-historical methods as expanding insight into diverse social phenomena and notes that this particular approach allows social scientists to analyze and offer important insight into often perplexing social issues that emerge in a climate that is increasingly characterized by change and volatility. In this study, small N comparative historic research strategies were employed, focusing on the cases of the crisis management strategies and practices, as well as related training issues, operating at Saudia Airlines and at the airports used by Saudia in the Kingdom of Saudi Arabia. Additionally, a researcher-developed survey was made available to Saudia employees (see sample selection below) online through Google Forms.

Comparative-historical small N strategies do facilitate the generation of conclusions derived from comparisons of cases that share some similar characteristics. Typically, interpretive work attempts to account for specific historical outcomes or sets of comparable outcomes or processes chosen for study because of their significance for current institutional arrangements or for social life in general. Small N studies employ systematic analysis of similarities and differences. When causal arguments are combinational, it is not the number of cases but their limited variety that imposes constraints on vigor. Small N case studies employ some of the characteristics and techniques associated with quantitative analysis, but the emphasis is on descriptive rather than inferential statistical analysis (Dooley, 2002).

As significantly, Lieberson (1991) noted that small N studies assume a deterministic rather than a probabilistic approach. Further, such studies assume that no errors in measurement occur and that there is not only a single cause operating in the case or cases. They assume the absence of interaction effects. Such assumptions follow from Mill's causal analysis based on small Ns. Since Small N studies are more deterministic than probabilistic, the concepts and theories are well explored to effectively answer the "why" and "how" and "when" questions (Boblin, Ireland, Kirkpatrick, & Robertson, 2003). Yin (2003, p. 47) found that "multiple case studies can be used to either, "(a) predicts similar results (a literal replication) or (b) predicts contrasting results but for predictable reasons (a theoretical replication)."

Pamela Baxter and Susan Jack (2008) found that case study design should be considered when: (a) the focus of the study is to answer "how" and "why" questions; (b) you cannot manipulate the behavior of those involved in the study; (c) you want to cover

contextual conditions because you believe they are relevant to the phenomenon under study; or (d) the boundaries are not clear between the phenomenon and context." The methodology therefore facilitates understanding causes (why).

**Data: Collection and Analysis**

Broadly, primary data are "new" data obtained from a research effort that enable a researcher to formulate generalizations about a set of respondents in a survey or the particulars of a case. Its advantages include facilitating predictions and revealing information that may not be obtained from secondary data. The primary data includes television and documentaries as well as survey or interview results and secondary data includes selected academic journals, reports from international organizations and government, newspaper articles and books. The collection and comparison of this data enhances data quality based on the principles of idea convergence and the confirmation of findings. The dissertation uses both primary and secondary data to provide an understanding of the cases from multiple perspectives. The case in this dissertation are relevant to testing hypothesis, theory development, potential for achieving conceptual validity, strong procedure for fostering new hypothesis, examining hypothesis role in casual mechanism and the capacity to address casual complexity (Babbie, 2004).

Gathering primary data is expensive and costly in terms of time and resources; such data gathering may be subject to errors linked to reliability and validity. Babbie (2004) pointed out that secondary data are based on information gleaned from studies previously performed by any other actor – government agencies, research institutions or scholars, trade associations, and so on. Though less costly and more accessible than

primary data, secondary data rarely fits the framework of a research study perfectly; it may require additional manipulation. It is also not necessarily reliable.

The data to be employed in the proposed study consists of an extensive selection of crisis management materials employed by airline and airport operators. These materials will be analyzed and will serve as the foundation of the "case" to be explored in the final study. In addition to these primary data, secondary commentary on crisis management will be explored, particularly with respect to the perceived efficacy of aviation sector crisis management efforts and training.

As Babbie (2004) points out, a case study as a qualitative research study is exploratory and can lead to the development of recommendations as to strengths and weaknesses that are relevant to a particular situation. Using what amounts to a content analysis, the materials identified above will be scrutinized to determine the extent to which they address fundamental concerns subsumed within the field of crisis management.

Thematic analysis of these materials will be employed to identify key constructs, concerns and issues addressed via crisis management programming. Babbie (2004) noted that when researchers are working with normative texts or documents, identification of central themes in any models or strategies addressed by the texts is useful. Such an analysis allows the researcher to identify the relative strengths and weaknesses of approaches to the phenomenon under investigation. It also facilitates identification of any gaps in programming that may have a negative impact upon performance.

Manual coding and analysis was employed. The researcher developed categories of activities, strategies, programs and policies that are derived from a broad assortment of

relevant in-house materials employed at Saudia. The comparison of Saudia's approach to the approaches identified in the literature will be provided as well.

The purpose of the case study is to provide answers to the research questions delineated above. It is anticipated that new statistical data will be generated by the study that is relevant to the research questions presented above. It is further anticipated that completion of the study will provide for the development of a set of recommendations as to how training for crisis management at Saudia can be improved.

It has been noted that good secondary data can assist researchers in conducting a thorough situational analysis and in formulating unanswered questions with the goal of developing a strategy for obtaining primary data to solve the particular problem under investigation. Secondary data can provide basic insight into research questions, but primary data are current and directly on topic (Creswell, 2013).

Survey research is the most popular technique for gathering primary data. It is relatively low cost, slower than certain other research strategies, facilitates the identification of viable samples, and allows a researcher to structure a questionnaire or instrument to obtain narrowly defined information. The research design proposed herein, therefore, includes both an extensive review of literature along with a survey developed by the researcher with the intent of generating primary data to support answers to research questions.

**Sampling and Survey Data Collection**

Augmenting the foregoing data will be data collected from a survey of a sample of no fewer than a total of 75 Saudia and other five national airlines' and ground services

employees at the Jeddah and other cities' Airports. A convenience sample of no more than 25 workers in each of the following categories will be obtained:

- Terminal staff including ticket agents and service managers.
- Managerial workers responsible for various terminal /airline departments and activities
- Executive level employees who are involved in strategic planning for crisis management.

Using a listing of Saudia and other national airlines' employees in each of these three categories, the researcher will randomly select 25 individuals from each job category and forward a letter by email explaining the purpose of the research, extending a guarantee of both anonymity and confidentiality, requesting their participation, and directing them to the Google Forms site. Previously the researcher will have entered into an agreement with Google Forms to use the site and its data collection and analysis services. What Babbie (2004) and Cresswell (2013) both describe as the *1 kth* method of randomization will be employed until a total of 25 subjects in each of the three categories has been obtained. If no more than 15 to 20 subjects in each category have completed the survey by the end of a three-week period, the sample will be constructed of the existing completed surveys and no further sampling will be done due to time constraints.

**Survey Data Analysis**

One reason for the use of Google Forms as the delivery mechanism for the survey is that the software programs of this site provide researchers with a wide range and variety of descriptive and inferential statistics. Demographic and other data were subject to descriptive statistical analysis. Correlation will be employed to see what links might

exist between attitudes toward crises and crisis planning or training at Saudia are associated with a particular occupational position. Babbie (2004) and Cresswell (2013) point out that these basic statistics can help to identify the particulars of a sample and provide broad assessments of the frequency of a particular attitude.

Inferential statistics such as Analysis of Variance (ANOVA) were employed as well. One-way ANOVA, said Babbie (2004), is sufficient in light of the small number of groups involved in the research. Tests of significance were included as indicated.
Al data will be depicted in appropriate tables, figures and charts. Google Forms assists researchers by providing such materials.

**Instrumentation**

Presented as Appendix As a survey instrument designed by the researcher. As a new instrument, its first use may be viewed as a pilot effort. This kind of preliminary or pilot instrument test is useful, according to Babbie (2004), because it provides a much-needed opportunity to fine tune a research effort in order to ensure that the instrument is capable of providing the kind of data that will foster later hypothesis testing and developing answers to research questions in tandem with previously published literature.

The questions and items contained in the attached survey instrument, therefore, were derived from a close reading of a number of the qualitative and empirical studies found in the published literature (See Almutairi & Mourshed, 2018). Additionally, similar surveys found on Survey Monkey that also focused on gaining insight into attitudes of citizens and government officials toward foreign policy issues and programs were also useful in creating the present survey instrument.

Utilization of many of the same items that were emphasized in studies described above was deliberately undertaken in order to facilitate comparison of the results of this study to those of other researchers. Given the issues of reliability and validity that are inevitably raised when a new instrument is being employed, this technique was chosen to reduce such limitations (See Almutairi & Mourshed, 2018).

The instrument presented as Appendix A employs several different strategies for obtaining data. It includes a number of demographic items such as age, city and number of years in the aviation industry. These items represent potentially intervening variables and are likely to be correlated with dependent variables shaped by occupational role or length of employment.

The items focused on attitudes were designed to be answered via scaled responses. This strategy has been characterized by Babbie (2004) as useful in such surveys. Scaled Likert type responses are seen by researchers such as Babbie (2004) as particularly useful in clarifying the extent to which views or issues are perceived by respondents as significant.

This further allows for a determination of construct reliability and content validity. Babbie (2004) notes that in assessing validity and reliability it is important to acknowledge the inherent or implicit limitations of a study with respect to its design and its instrumentation. However, it should be acknowledged that there are limits to generalizing results when using an untested instrument and a non-probability convenience sample.

## Ethical Issues

While human subjects participated in the online survey provided via Google Forms, their participation will be anonymous and their comments held in confidence. No personally identifying information such as the subject's name or employee identification number were captured in the study. The study does not contain any experimental elements; no interventions or treatment will be provided to participants. Participation is voluntary and not compensated. Consequently, no ethical issues emerge that need to be addressed.

Table 1

*Timeline*

| | |
|---|---|
| Spring 2018 | Complete Dissertation Proposal |
| | Submit Proposal for Review |
| | Modify Proposal as Required by Doctoral Committee |
| Summer 2018 | Expand Review of Literature as Needed |
| | Conduct Thematic Analysis of Crisis Management Documents |
| | Conduct survey of Saudia employees via Google Forms |
| Fall 2018 | Analyze/interpret survey data |
| | Complete Chapters 4 and 5 |
| | Submit Chapters 4 and 5 for Committee Review |
| | Revise as Needed |
| Spring 2019 | Complete Chapter 6 |
| | Revise project as needed |
| | Present Dissertation |
| | Defend Dissertation |

## Summary of Chapter

This chapter of the proposal described the research methods to be employed in analyzing the crisis management approaches and programs used by Saudi Airlines. Using crisis management materials obtained from multiple sources, and results of a survey conducted by the researcher, a Small N case study will be conducted via thematic analysis. Results and findings are reported in Chapter 4 of the dissertation. Chapter 5 of

the final document offers a discussion of these findings, their significance and implications. Chapter 6 concludes the study will a summary and recommendations for both changes to crisis management planning and training at Saudia and further research.

# Chapter 4: Results

## Introduction

The survey designed by the researcher to provide insight into crisis management needs and perceived training issues at Saudia Airlines was uploaded to Google Forms as intended. A total of 46 completed surveys were obtained in a three-week period. After receiving these surveys' responses, it was determined that sufficient input had been acquired to terminate the survey effort. Babbie (2013) makes notes of the fact that in an exploratory study, a relatively small convenience sample is acceptable as a source of insight into a particular phenomenon.

This chapter of the dissertation first presents demographic data identifying the 46 employees of Saudia Airlines and other airlines in Saudi Arabia who elected to voluntarily participate in the research. Next, it describes results of the balance of the survey instrument. The survey focused on attitudinal and perception issues related to the kind of crises experienced during the course of work, need for training and/or a more comprehensive crisis management plan, and related issues. Where indicated, figures, tables and charts or graphic images generated by Google Forms were included. Additional graphics are found in the Appendices.

Finally, the chapter examines the literature describing crisis management training programs. Some of these programs are offered under the aegis of IATA; others are available through for-profit companies. These programs are included as a background for examining the responses of participants in the survey. A discussion of the rules and regulations of the Saudi Arabian aviation authority completes the chapter.

## Survey Results

### Demographic Data

A total of 46 completed survey instruments were generated by the study. Each of the 46 respondents was employed by Saudia Airlines or an affiliate or company with a strong presence at the airport at the time of the survey. All respondents identified themselves as citizens of the Kingdom of Saudi Arabia.

The sample consisted of individuals with between 1 and 40 years of service in the airline industry. Figure 1, below, depicts this data.

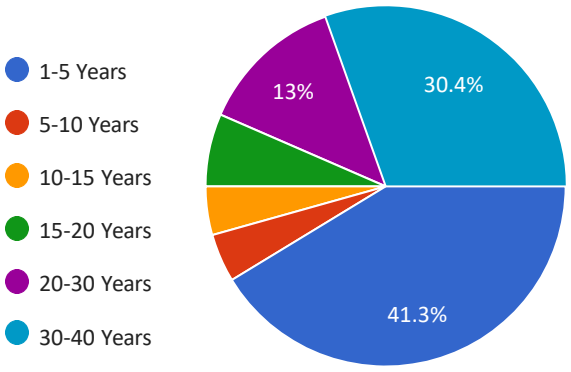



*Figure 2*. Demographic Data

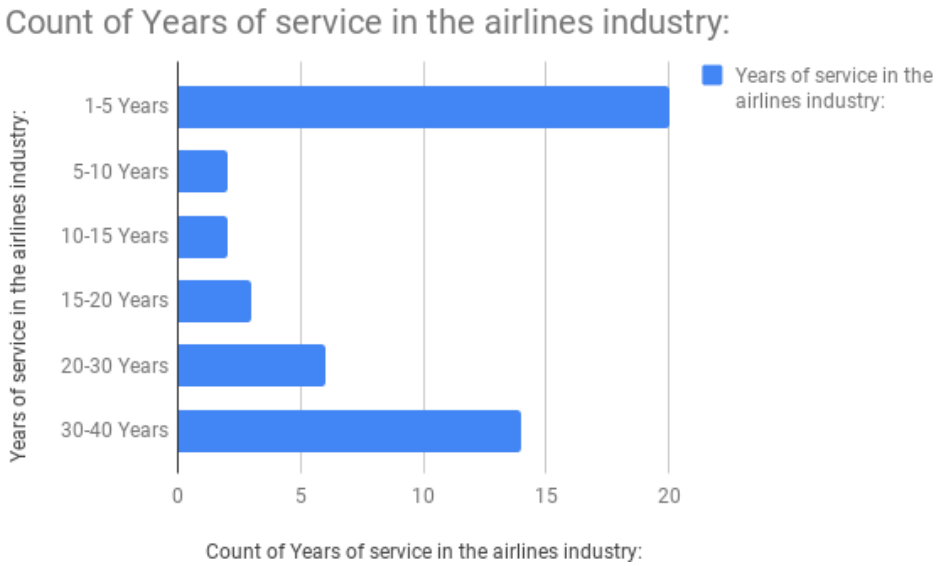



*Figure 3*. Count of years of service in the airlines industry

Interestingly, while 41.3 percent of respondents indicated that they had between 1 and 5 years of service in the industry, the next largest group identified themselves as having worked in the sector for 30 to 40 years. This suggests that the workforce consists of either relatively inexperienced workers or very experienced workers; this in turn leads to questions as to how training related to crisis management is perceived.

Of the total sample, 47.5 percent identified themselves as employees of Saudia, 26.1 percent stated they were employed by Saudi Ground Services (SGS), and 10.9 percent said they worked for Flynas. The remaining respondents claimed employment at Saudi Gulf Airlines, Flyadeal, Nesma Airlines, GACA, or "other".

When queried about their place of residence, the respondents presented a fairly diverse picture of themselves. Of the total, 34.8 percent indicated they live in Ta'if, while 23.9 percent claimed residence in Al-Madinah and 17.4 percent said they lived in Abha. Bisha is home to 10.9 percent, while the remainder of the respondents live in either Baha, Alqasiem, Najran, or Jazan.

The final demographic item asked subjects to identify their occupational level at their place of work or with respect to their employer. Some 37.0 percent stated they were entry-level front-line agents, with 19.6 percent identifying themselves as Supervisors. A total of 17.4 percent stated they were Managers, 10.9 percent identified as General Managers, 8.7 percent as "other" and the small balance of respondents said they were currently Executive Managers.

**Issues Regarding Crises and Crisis Experiences**

The next set of survey items sought to determined what subjects considered to be a crisis and what is Crisis Management. Respondents were given the following definition of Crisis management:

Crisis management is a set of skills, tasks, behaviors, and attitudes that all organizations must develop in order to be ready to address crises that for whatever reason cannot be avoided such as a fire, terrorist attack, data breach or natural disasters, or any event that causes disruption in operations and can lead to tangible and intangible costs to a company in terms of lost sales, customers, and a decrease in the firm's net income. They were asked to respond to each subsequent item with a Yes or No response, a scaled (1 = VeryAware/Strongly Agree to 5 = Very Unaware/Strongly Disagree), or an identification of some specific issue or concern.


*Figure 4*. Count of 1 - Do you consider that your organization's operations are prone to crisis?

The first item was: Do you consider that your organization's operations are prone to crisis? A total of 36 respondents or 76 percent answered Yes to this question while

only five people, 10.6 percent, do not believe that their organizations are prone to crisis. A total of 14.9 percent or seven respondents are not sure whether or not their organizations are prone to crisis. None of the 46 respondents elected to answer this question.

The second item asked respondents to provide a Yes or No answer to the question of whether or not they, as employees in the airline sector, had ever experienced a crisis in their jobs. Only 45 respondents completed this item, with 42 or 81.4 percent stating that they had experienced a crisis and the balance of 4 respondents or 8.9 percent indicating that they had not experienced a crisis related to their work roles.

Probing the nature of crises experienced by those who answered "Yes" to the preceding question, Item 3 asked respondents to identify the type of crisis experienced. 38 or 82.6 percent indicated that the crisis they experienced was due to weather conditions (e.g., heavy rain, sand storms), while 17 subjects or 37.0 percent indicated that terminal congestion to events such as the annual Haj created a temporary crisis. Some 33 respondents or 71.7 percent indicated that equipment malfunctions or shortages, staffing deficits, and similar concerns at times generated a crisis. It should be noted that it seems likely that some respondents identified two or more crises causes.

The next series of survey items employed the aforementioned 5-point Likert-type scale with 1 = Very Aware to 5 = Not at all aware of issues related to crisis risks. The following graphic depicts responses to these items by individual item. The bar on the far left represents 1 or Very Aware/Strongly Agree, while the bar on the far right represents Not at All Aware/Strongly Disagree.

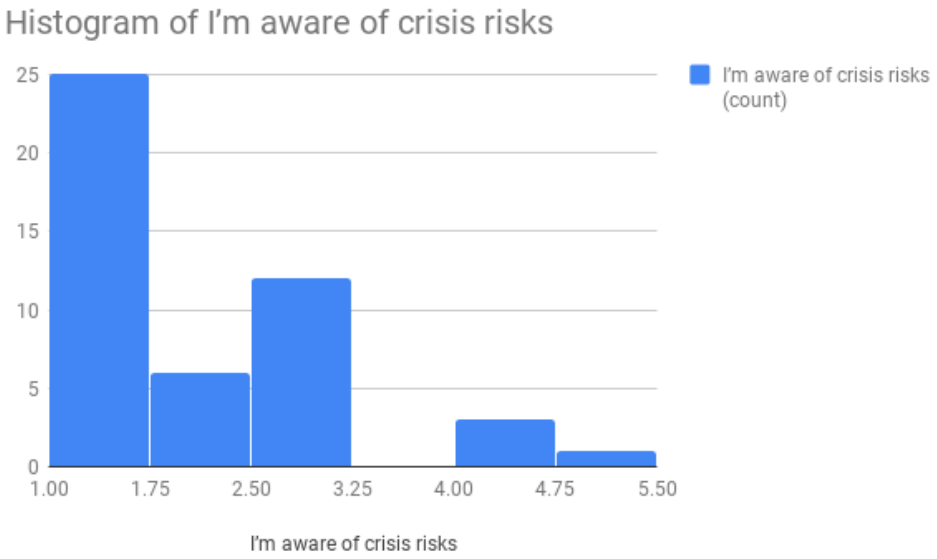



*Figure 5*. Histogram of I'm aware of crisis risks

I know how to deal with those crises

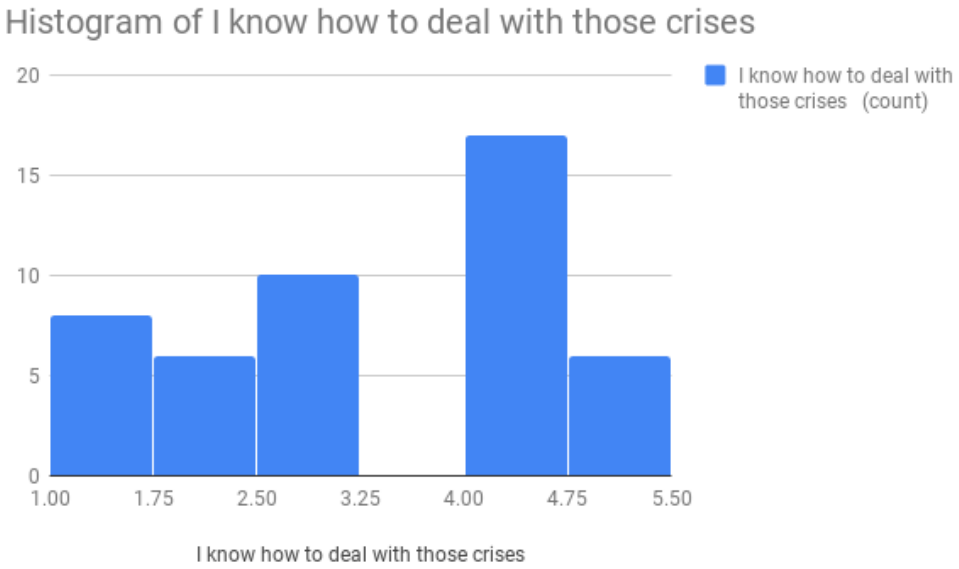



*Figure 6*. Histogram of I know how to deal with those crises

I am trained to work with my coworkers and my subordinate to deal with the crisis

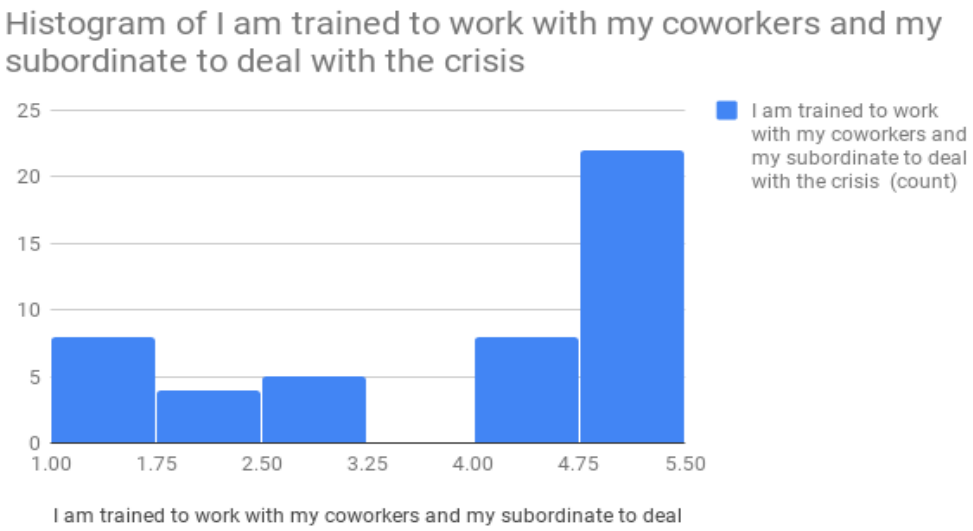



*Figure 7*. Histogram of I am trained to work with my coworkers and my subordinate to deal with the crisis

I am aware of all the employees who are trained to deal with crisis and who do not

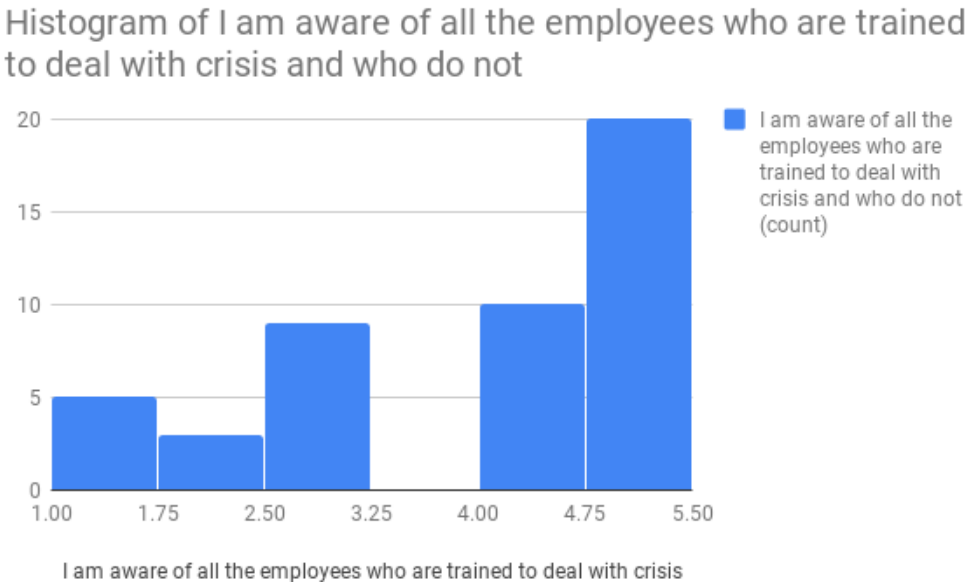



*Figure 8*. Histogram of I am aware of all the employees who are trained to deal with crisis and who do not

I am informed about emergency plans and procedures that I need to follow during

crises

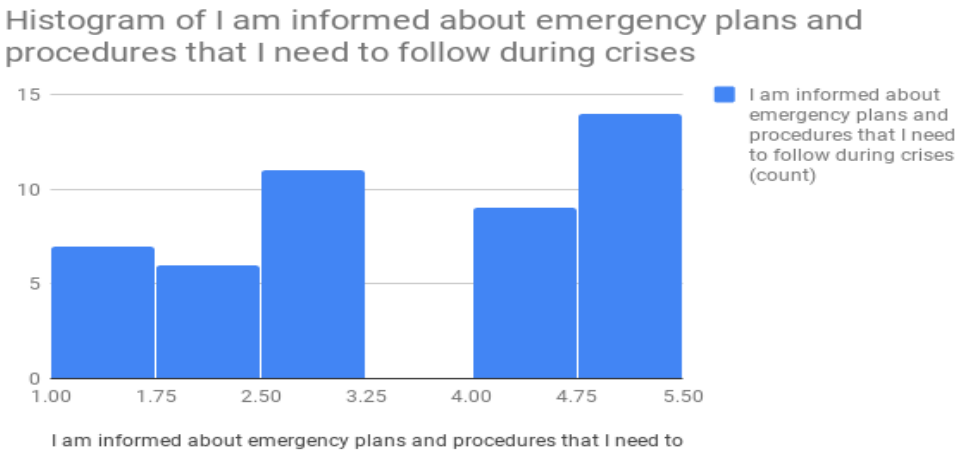



*Figure 9.* Histogram of I am informed about emergency plans and procedures that I need to follow during crises

I am willing to participate in crisis management training if it is available.


*Figure 10.* Histogram of I am willing to participate in crisis management training if it is available

Subjects were asked to respond to the statement that "I encourage executing crisis drill at least once a year in my workplace. 31 subjects (67.4percent) strongly agreed with this statement, while 5 or 10.9 percent indicated some level of agreement and 7 or 15.2

percent appeared to have no opinion on the issue. The balance of 3 employees or 6.5 percent indicated that they did not encourage this activity.

Subjects were asked to state whether or not they were aware of the leader designated as a Crisis Commander and that individual's contact information. A total of 27 subjects (58.7 percent) stated they did not have access to this information. The remainder of the respondents (17 or 37 percent) stated that they did have knowledge of the designated Crisis Commander and his or her contact information.

Those who indicated knowledge of this person's identify were asked to specify who was responsible for leadership in a crisis. Only 4 subjects of the 46 total respondents and 17 indicating that they knew this information were willing to be more specific. One subject (2.2 percent in each category) identified one of the following individuals as the Designated Crisis Commander: Duty Manager, Supervisor or Duty Manager.

Subjects were asked if they were aware of the availability of various communications channels (e.g., phones, the Internet, an app, maps, and public announcements) that were used during a crisis to communicate with staff members. A total of 33 or 82.6 percent of the subjects indicated that they were aware of these various communication channels. Only eight subjects or 17.4 percent indicated that they were not aware of communication channels. It is possible that the phrasing of the question itself explains why 17.4 percent of the subjects indicated that they were unaware of these communication tools. They may have been aware of one or more such tools or channels but not all of them.

The next item on the survey instrument asked respondents to identify the importance of a group of crisis training programs or crisis managers. Forty-two or 91.3

percent of the sample indicated that they were not very aware of existence of such programs using a four-point scale. With respect to on-site drills, 42 or 95.6 percent indicated unawareness using the same four-point scale. When asked if they were aware of the importance of briefings of an imminent crisis, 41 or 89.1 percent indicated that they were aware of the briefings.

With respect to the importance of a crisis management handbook that was readily accessible to the subjects, 87 percent indicated that they were aware of the importance of being knowledgeable about the existence of this resource. In the case of a crisis management chain of command, the subjects responded affirmatively with 93 percent being aware of the importance of chain of command impacting upon their particular functional unit during a crisis.

The next item on the survey instrument asked respondents to use the four-point Likert-type scale from 1 = very insignificant to 4 = very significant to identify the seriousness or significance of specific crises with respect to their effect on passengers or clients. A total of 73.9 percent of the subjects identified weather conditions such as heavy rains or sand storms as having a significant impact on passengers and/or clients. A total of 68 percent of the respondents agreed that power outages were significant crises impacting on the organization and its clients while 78.3 percent expressed the same sense of significance related to terminal congestion emanating from the Hajj and travel seasons when it is likely that pilgrims or tourists are more commonly found in the airport.

Flight cancellations and delays were seen by 72.1 percent of the sample as significant crises and 60.9 percent of the respondents identified lost baggage as creating a crisis. When queried about the effects of terrorist threats, 78.3 percent identified these

threats as significant in shaping a crisis. The issue of passenger violence elicited a positive response from 78.3 percent of the subjects while disruptions in the activities of other airport authorities was seen as a crisis of some significance by 80.5 percent of the sample.

Infrastructure failure at the facility itself was significant in the view of 76.1 percent of the subjects. These data indicate that for each of the types of crisis sources listed in the survey instrument, around two-thirds of the sample saw each potential crisis as having significant impacts. Only two subjects or 4.4 percent indicated that either a staff shortage or staff absence could consist of a crisis while no other subjects chose to identify staffing issues as creating or contributing to a crisis.

The next section of the survey instrument repeated the items listed on the question discussed above but rephrased the question to read: "how important is readiness for the following crises?" Figure 4, below, depicts these responses.

Table 2

*Readiness for a Crisis*

| Type of Crisis | Somewhat/Very Significant % |
|---|---|
| Weather conditions | 74.9% |
| Power outage | 77.0 |
| Terminal congestion | 77.1 |
| Flight delay/cancellation | 76.1 |
| Lost baggage | 65.3 |
| Terrorist threats | 84.7 |
| Passenger violence | 73.9 |
| Other authorities' disruptions | 78.2 |
| Infrastructure failure | 76.1 |

In comparing the responses for the items related to crisis significance in general and staff readiness vis-à-vis each crisis, it would appear that subjects attached roughly the same significance to each category. This consistency appears to reflect the enhanced level

of significance given by the subjects to both the existence of a crisis as a disruptive event and the importance of being ready to address that crisis as it unfolds.

The next section of the survey instrument asked subjects to rate the importance of a number of factors linked to enhancing protection of the impact of poor weather conditions on passengers. In this instance, a five-point scale was used. Informing authority to announce to passengers in advance that operations had been disrupted by weather conditions was somewhat or very significant to 89.9 percent or 41 of the subjects. Ensuring that passengers were informed via social media channels was significant to 91.3 percent of the subjects or a total of 42 respondents. Forty-three or 93.5 percent of the total sample indicated that informing passengers through text messages was important or useful. Finally, 44 or 93.4 percent of the sample indicated that each of the foregoing methods of communication to passengers about disruptive weather conditions was important or useful.

(Parenthetically, when one adds the number and percentages of subjects using a response of either four or five, differences are likely to emerge depending upon how many subjects used each of these possible responses. One would expect, for the most part, that when 44 of 46 subjects indicate that the category is very or somewhat significant and 43 subjects indicate that this is the case, that the former percentage would be higher. The percentages vary based upon whether a subject used as response of four or five.)

Subjects were asked to use the 5-point scale to respond to a series of statements regarding actions that could potentially reduce the impact of terminal congestion during the Haj and tourist seasons. Figure 5 uses graphs to visually depict responses, with higher

numbers reflecting higher levels of support for the statement.

Early check in through internet and self-service machines

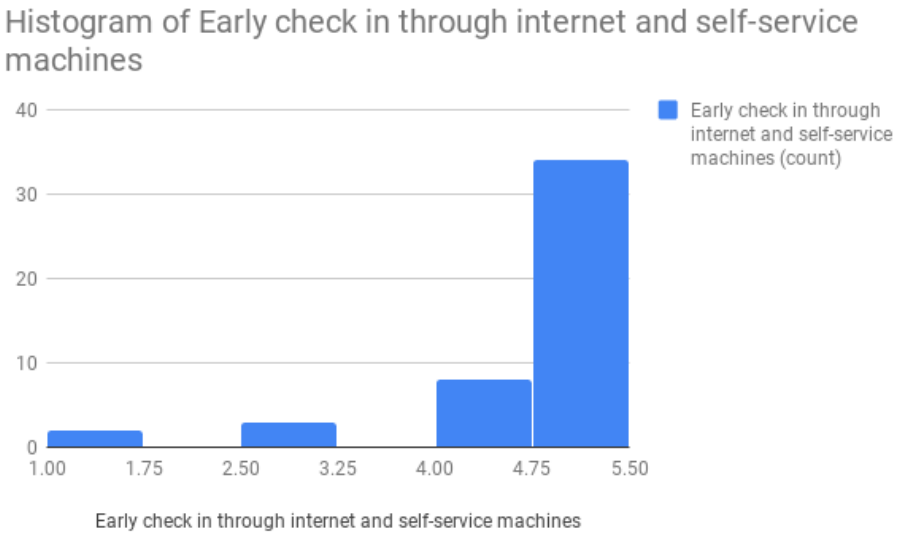



*Figure 11*. Histogram of Early check in through internet and self-service machines

Adding more staff

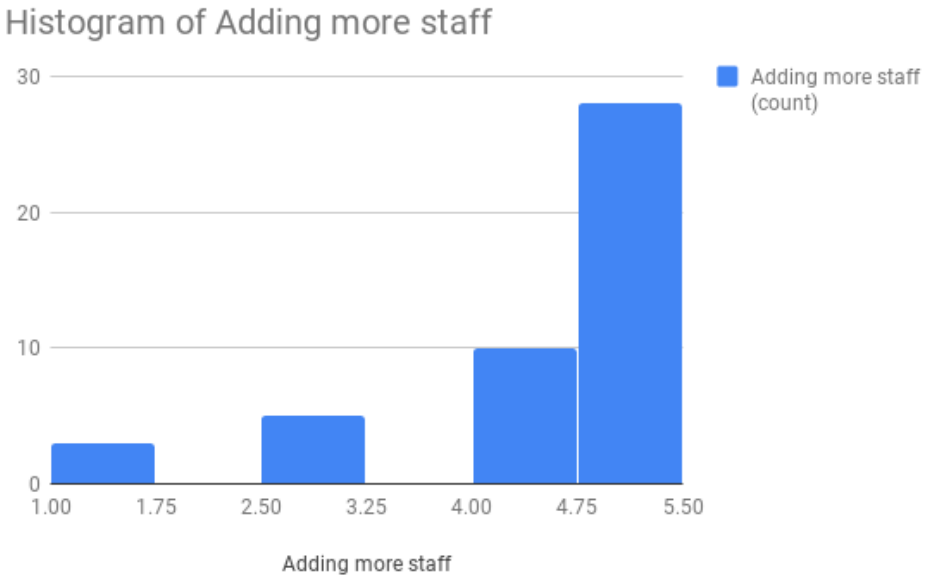



*Figure 12*. Histogram of Adding more staff

Have a designated crisis response team

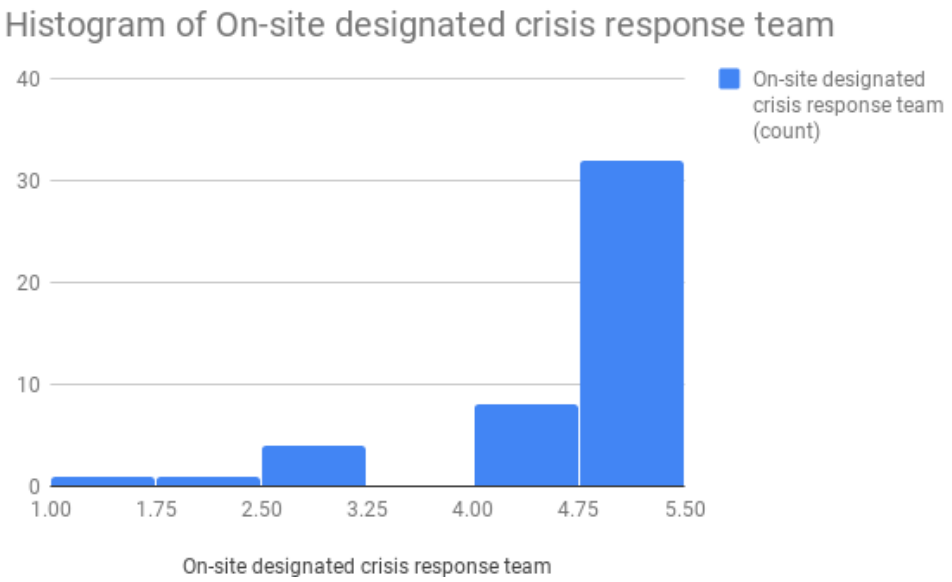



*Figure 13*. Histogram of On-site designated crisis response team

The next survey item asked respondents to use a four-point scale as above to indicate perceptions of the value of other actions, specifically: Please rate the availability and effectiveness of the following crisis management strategies in your organization. The bars reflect a left side value of 1 (Very Important) to a right-side value of 4 (Not Very Important) scale

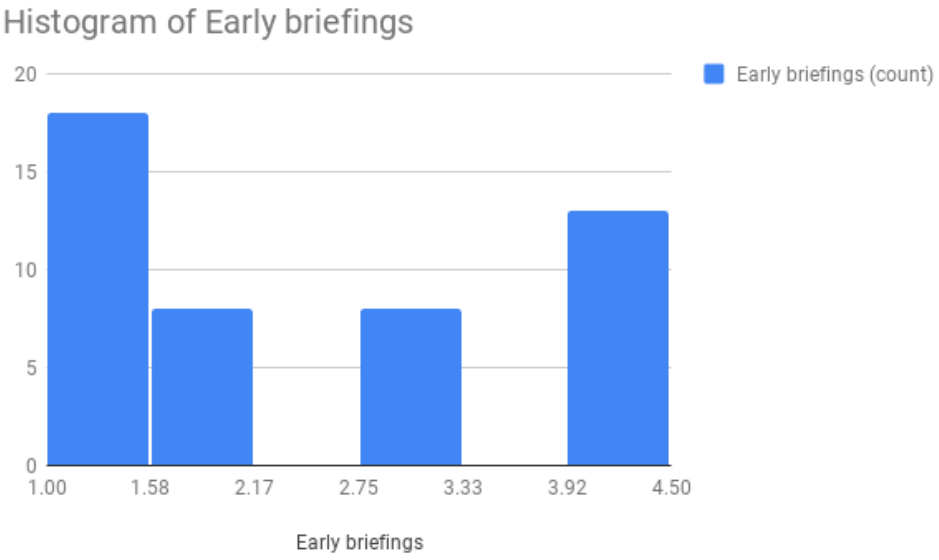



*Figure 14*. Histogram of Early briefings

Crisis management commander


*Figure 15*. Histogram of Crisis management commander

Crisis management center

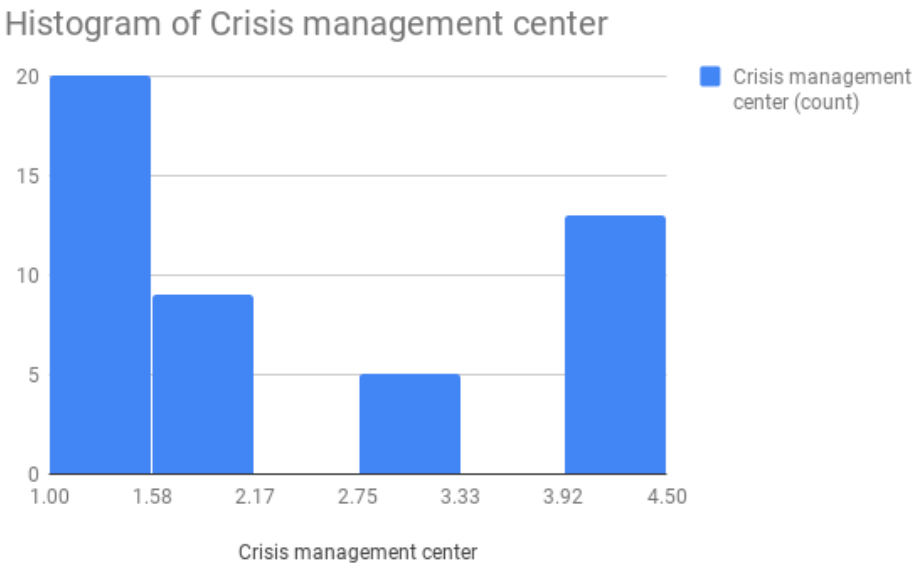



*Figure 16*. Histogram of Crisis management center

Volunteer Groups

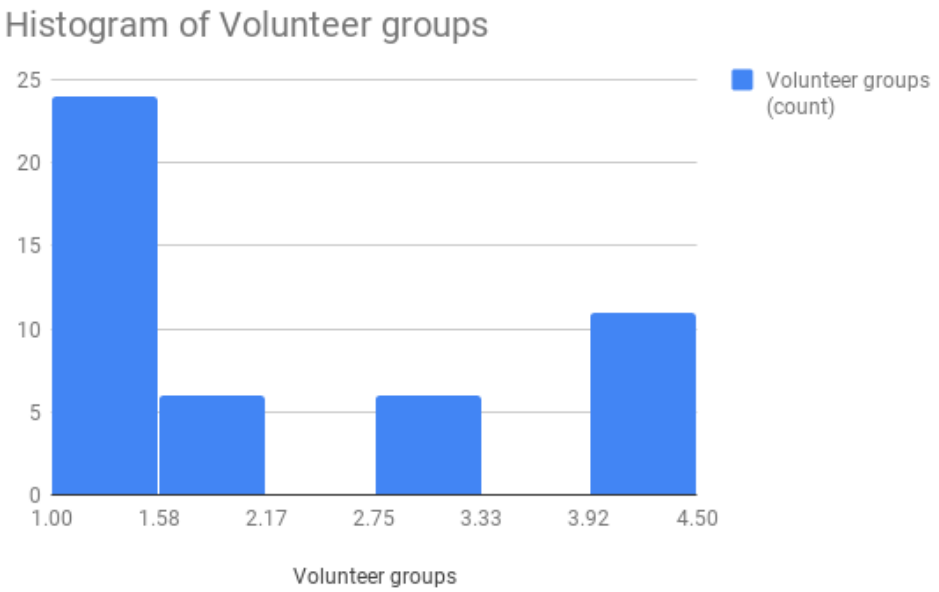



*Figure 17*. Histogram of Volunteer groups

Logistics e.g. phones, internet services buses,hotels

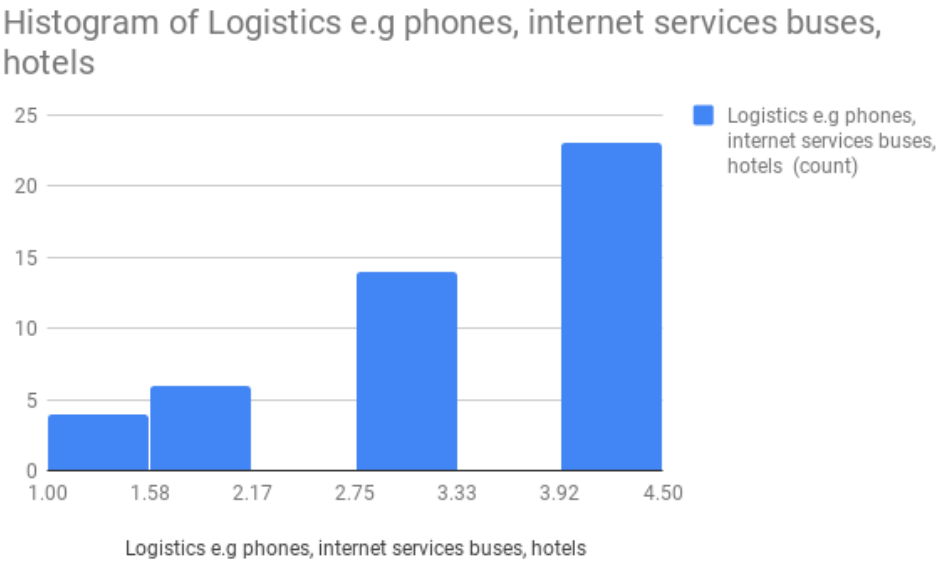



*Figure 18*. Histogram of Logistics e.g. phones, internet services buses, hotels

The survey then asked participants to state whether they believed crisis management should be addressed via reactive versus proactive plans and actions. A total of 24 respondents (52.2 percent) said that they preferred a proactive response. Only three subjects or 6.5 percent of the sample indicated that they preferred a

reactive perspective. Interestingly, 25 respondents or 54.3 percent indicated that they prefer a combination of both proactive and reactive responses while only one subject (2.2 percent) called for anticipation and vision. It should be noted that some subjects appear to have called for more than one response. It is likely that some subjects who indicted a preference for a proactive or reactive response also indicated that they would like a combination of the two.

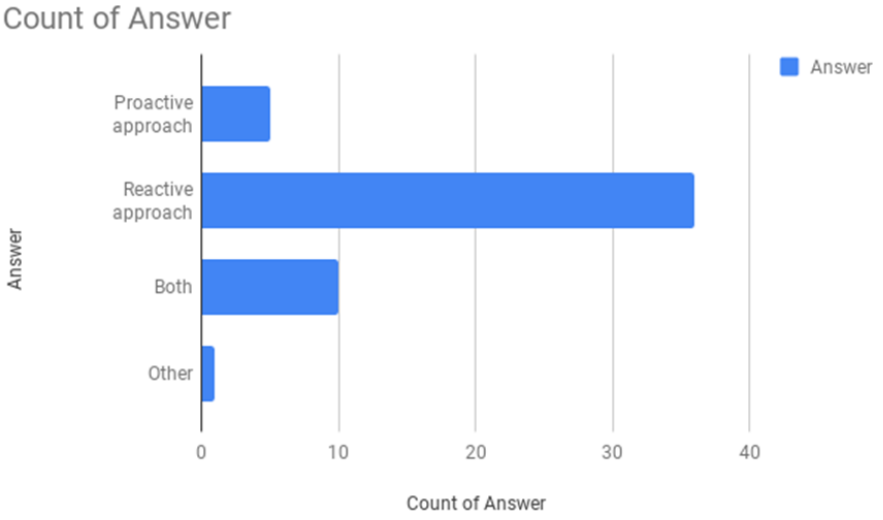



*Figure 19.* Count of Answer

**Current approach to dealing with a crisis**

Item 14 asked subjects to identify their organization's current approach to dealing with a crisis. Only five subjects or 10.9 percent indicated that their organization tended to be proactive when responding to crises while 35 or 76.1 percent stated that their organization tended to be reactive when crises occur. The remaining six subjects or13 percent indicated that their organization used a combination of the two approaches when confronted with a crisis.

The next item, Item 15, asked the question of whether or not subjects believed that there are systems and regulations that need to be designed, changed, or added to

help their organization deal more effectively with crises. Only 36 of the participants responded to this question. Of that number, 33 or 91.7 percent indicated that such steps needed to be taken to enhance organizational responsiveness to crises. Only one subject (2.8 percent) believed that such approaches were not necessary and two subjects (5.6 percent) were uncertain.

Item 16 on the survey asked respondents if they believed that the current crisis management training available at their organization was compatible with the organization's crisis management manual. All 46 of the subjects responded. Ten subjects (21.7 percent) agreed that this correspondence did exist while 24 or 52.2 percent stated that the training and manual were not compatible. A total of nine subjects (19.6 percent) said that the compatibility between the crisis management training and the crisis management manual existed to some extent. Three respondents or 6.6 percent indicated that they were unsure as to this relationship.

The final two items on the survey instrument were open ended, designed to provide respondents with the opportunity to use their own words to assess the strengths and the weaknesses of crisis management training at their organization. Responses to these items varied. Only 22 subjects chose to identify the strengths of their crisis management training. Among these strengths were teamwork, the use of modern strategies for crisis management, enhanced awareness, the capacity of training to make staff more vigilant, aware, or prepared, and links between actual likely crises and required responses. One subject indicated that the crisis management plan was weak while three of these respondents said that there was no such training offered at their organization.

Next, 26 subjects were willing to identify weaknesses of the crisis training at their organization. Of this group, eight subjects stated that they either did not have such training available to them, that training was not performed on site, or that their particular work superiors prohibit them from participating in crisis response training. Others were uncertain as to whether or not training was in fact available. One individual stated that "I don't know if we have plans but if there is, it is not implemented" while another subject indicated that training needed to be reviewed and updated. One particularly responsive individual said that training was not updated to reflect "worldwide advanced technologies" and that training was "not given to all operational staff to be in harmony when needed."

**Conclusion to the Section**

This discussion has identified the key results of the survey undertaken by the researcher. The next section of this chapter of the study will present what amounts to a general content analysis of some of the more current airline and airport crisis management training programs and models. These programs are not necessarily those that are employed at Saudia but instead reflect state of the art professional airline sector training protocols and systems that are available through a variety of organizations including those that play a central role in regulating the entire air transport sector. Others, including that provided by Velsoft (2018) are more generalized workplace safety training systems, some of which can be made available to companies like Saudia via cyberspace.

## Safety Training Programs: Comparative Analysis

This section of the chapter considers the content of crisis management

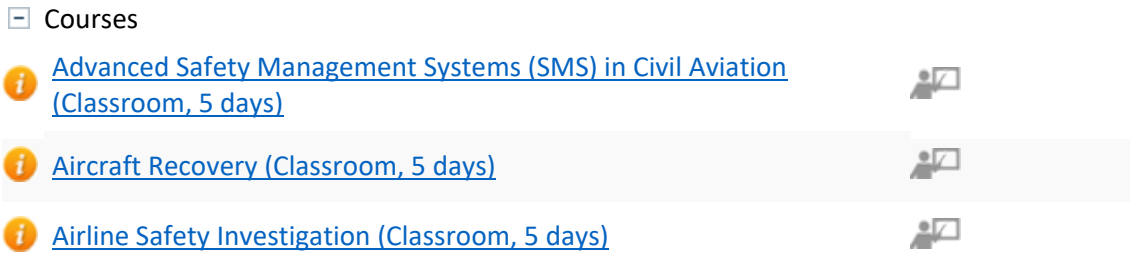
training programs that are available in the aviation sector. It focuses on identification of core content of a select sample of such courses that are widely available to companies like Saudia and which often form the basis of internal programming at such firms. As Taylor (2017) has commented, prevention, intervention/response, and post-intervention evaluation are the key components of any crisis management effort. With that in mind, the literature as reviewed herein does demonstrate that Taylor (2017, p. 1) is correct in noting that airport and safety managers are "usually quite aware of the advantages of having well prepared Emergency Procedures to minimize the effects, both social and financial of an accident, should one ever occur."

**IATA and Other Training Providers: Sample of Programs**

A number of different organizations including the IATA have developed multiple crisis management security risk emergency planning and related programming that is available worldwide to airlines and to airport operators. As noted elsewhere in this study, IATA (2018) is one of the primary international providers of safety training related to all aspects of aviation and airport management. Presented below is a comprehensive listing of the full range of programs offered under the aegis of IATA (2018, p. 1).

Table 3

*IATA Training Programs*



- Airside Operations - Safety Compliance (Classroom, 5 days)
- ATC Team Resource Management (TRM) and Safety (Classroom, 3 days)
- Aviation English Language Solution - Assessment
- Aviation English Language Solution - Training
- Basic Airside Safety - E-Learning - English
- Cargo Accident Investigation and Prevention (Classroom, 5 days)
- Cargo Security Awareness
- Crew Resource Management (CRM) Implementation (Classroom, 3 days)
- Crew Resource Management for Instructors (CRMI) - (Classroom, 3 days)
- Developing an Effective Safety Culture (Classroom, 2 days)
- Emergency Planning and Response for Airlines (Classroom, 3 days)
- Emergency Planning and Response for Airports and GSPs (Classroom, 5 days)
- Emergency Response Planning for CAAs and Air Navigation Service Providers
- Factores Humanos en la Aviación (presencial, 5 días)
- Fatigue Risk Management Systems (FRMS) (Classroom, 3 days)
- Fatigue Risk Management Systems (FRMS) and Safety Case Training for Regulators (Classroom, 3 days)
- Fatigue Risk Management Systems (FRMS) for ANS Providers (Classroom, 3 days)
- Gestión de amenazas y errores (TEM) en la Gestión del tráfico aéreo (ATM)
- Gestión de investigación de accidentes e incidentes (presencial, 5 días)
- Gestión de riesgos operacionales (ORM) y aviación civil (presencial, 5 días)
- Gestión de vigilancia de la seguridad operacional (presencial, 5 días)

- Gestion des risques opérationnels (ORM) pour l'aviation civile (en salle de cours, 5 jours)
- Human Factors in Aviation - Italian (Classroom, 5 days)
- Human Factors in Aviation (Classroom, 5 days)
- Human Factors in Ground Operations (Classroom, 3 days)
- Integrated Aviation Management System - IAMS (Classroom, 5 days)
- Introduction to Safety Management Systems (SMS)
- IOSA-SMS Requirements (Classroom, 3 days)
- Managing Accident Prevention and Investigation (Classroom, 5 days)
- Managing the Safety Oversight Function (Classroom, 5 days)
- Operational Risk Management (ORM) in Civil Aviation (Classroom, 5 days)
- Phraseology and Safety Training for Air Traffic Controllers and Pilots (Classroom, 5 days)
- Procesos de Gestión de Seguridad y Calidad (presencial, 5 días)
- Programa de Seguridad del Estado (SSP) (presidencial, 5 dias)
- Programme de sécurité de l'État (SSP) (en salle de cours, 5 jours)
- Risk Management Implementation (Classroom, 5 days)
- Root Cause Analysis (Classroom, 5 days)
- Root Cause Analysis for Civil Aviation Authorities and Air Navigation Service Providers (Classroom, 5 days)
- Safety (SMS) and Quality Management (QMS) Processes in Civil Aviation (Classroom, 5 days)
- Safety Interviewing of Aviation Agents and Witnesses (Classroom, 5 days)
- Safety Management Systems (SMS) - Implementation and Control (Classroom, 3 days)
- Safety Management Systems (SMS) - Train the Trainer (Classroom, 3 days)
- Safety Management Systems (SMS) for Airlines (Classroom, 5 days)

- Safety Management Systems (SMS) for Airports (Classroom, 5 days)
- Safety Management Systems (SMS) for Civil Aviation - University of Geneva
- Safety Management Systems (SMS) for Civil Aviation (Classroom, 5 days)
- Safety Performance Indicators (Classroom, 3 days)
- Safety Risk Management (Classroom, 3 days)
- Safety, Legal and Regulatory Aspects of Unmanned Aircraft Systems (UAS) (Classroom, 5 days)
- Sistema de Dirección de Seguridad (SMS) para Aviación Civil - Nivel Avanzado (presencial, 5 días)
- Sistema de gestión de seguridad operacional (SMS) implementación & control (presencial, 3 días)
- Sistemas de gestión de seguridad (SMS) para la aviación civil (presencial, 5 días)
- State Safety Program (SSP) (Classroom, 5 days)
- Systèmes de gestion de la sécurité (SMS) pour l'aviation civile (en salle de cours, 5 jours)
- Systèmes de gestion de la sécurité (SMS) pour les aéroports (en salle de cours, 5 jours)
- Temperature Controlled Container Operations (Classroom, 2 days)
- Threat and Error Management (TEM) in ATM (Classroom, 5 days)

This up-to-date listing of the many different crisis management or emergency planning and response programs indicates the depth and breadth of IATA (2018) engagement in this particular field. It is beyond the scope of the present study to provide an analysis of each of these programs, but a discussion of some of their content can provide insight into the concerns that are addressed with respect to crisis management in the aviation sector.

For example, IATA (2018b) offers a course entitled “Security Risk and Crisis

Management (SRCM)," a classroom-based program that requires attendance over a five-day period. The course, like most offered by IATA can be accessed at the IATA Training Centers, Regional Training Partner locations, and on demand as in-house training for companies. It offers 40 hours of instruction that is delivered by an official IATA instructor. As is usually the case, IATA courses have selected prerequisites for participation.

In the case of this particular IATA (2018b) program, these prerequisites are:

- Participants must have a minimum of three years of managerial responsibility including international experience.
- A job assignment as a professional or manager.
- ICAO Operational Level 4 language proficiency for courses in English or other languages.

According to the IATA (2018b), this particular course addresses risk management and crisis management through team exercises, group discussions, and traditional Socratic instructional methodology. Upon completion of the course, participants are expected to have acquired to: 1) analyze emerging trends in attacks against civil aviation; 2) identify areas of vulnerability within the organization; 3) prepare a comprehensive organizational risk assessment; 4) report and recommend countermeasures to senior management; 5) develop a viable organizational crisis management plan; and 6) improve communication skills during a crisis (IATA, 2018b).

Under risk management, IATA's (2018b) SRCM includes instruction on intelligence analysis, reporting of risk assessment findings, evaluating aviation

security countermeasures, and identifying areas of vulnerability. In terms of crisis management, this course examines crisis management planning that is focused on incident investigation and reporting as well as crisis control areas, developing specific communication skills (negotiating and public speaking), applying resource management, understanding the role of human error, and analyzing threats to civil aviation before and after 9/11. IATA (2018b) also states that this course is recommended for managers in airline, airport, and civil aviation and is a step toward obtaining an IATA diploma in Aviation Security Management.

A second IATA (2018c) course is Emergency Planning and Response for Airlines (EPRA). IATA (2018c) describes this three-day classroom program as giving participants "the skills needed to take on a leadership role in an airline emergency response organization" and to learn about "the design, implementation, and optimization of an Emergency Response Plan (ERP) according to industry practice and regulatory requirements (p. 1)."

Delivered over three days either in a company setting or through IATA Training Centers or locations of Regional Training Partners, EPRA prepares participants to undertake a number of important tasks. IATA (2018c, p. 1) describes outcomes of the course as including the following competencies:

- Plan, develop and execute an emergency plan, plus coordinate the parties and processes involved
- Advocate for the role and responsibilities of the emergency planning specialist within an airline
- Follow ICAO, the National Transportation Safety Board and State regulations

- Train airline staff for an emergency response or other crisis situation
- Identify and outline areas for improvement in an emergency response situation.

This course also includes content focused on the following issues, many of which were identified by participants in the survey described above as significant:

- Developing an emergency response plan
- Emergency response organization
- Airline responsibilities and compliance (SMS, FAP, IOSA)
- Emergency response network
- Alarm and mobilization
- Emergency response plan
- Station emergency response planning
- Special assistance team basics / Humanitarian Response incl. Inquiry / Family Assistance Center
- Go-Team organization
- Crisis communication basics
- Command center missions
- Emergency response facilities
- Emergency response plan implementation: instruction, training and exercises
- Emergency response exercise (IATA, 2018c, p. 2).

This course can also be incorporated into a comprehensive education and training program leading to an IATA Aviation Security Management Diploma (AVSEC). IATA (2018d) identifies this Diploma as having the following impact:

"An AVSEC Manager must have oversight of the multiple activities performed in day-to-day operations, while keeping on top of continuous regulatory development. This diploma validates your ability to manage your team, suppliers, resources, and business processes in line with current industry standards. With this industry recognized diploma, you will learn all the necessary security measures in response to dynamic security demands."

Integral to the IATA (2018d, p. 2) AVSEC program are the following topics, addressed via individual courses, some of which can be accessed as self-study, Internet courses:

- International and national security legislation
- Civil aviation security management responsibilities
- Staff motivation, deployment and supervision
- Technology and equipment in security
- The threat to civil aviation past, present and future
- Control of passenger and baggage
- Security of cargo, catering and stores
- Response to major security emergencies
- Threat assessment and risk management
- Security and facilitation – SeMS
- Contract management and Service Level Agreements (SLA)
- Fraud and smuggling

An AVSEC Diploma is recommended by IATA (2018d) for: 1) Managers responsible for implementing security policy and procedures; 2) Security quality

assurance managers; and 3: Senior and middle aviation security managers. Competencies that will be acquired after completing the Diploma program include:

- Interpreting the latest international regulatory requirements
- Communicating effectively on aviation security with civil aviation authorities, airlines, and other airport-related agencies
- Improving customer service in your facility by developing and implementing effective solutions
- Identifying and managing security risks
- Developing senior management skills relating to international civil aviation security (IATA, 2018, p. 2).

The IATA (2018d) AVSEC Diploma is one of the more comprehensive and prestigious diplomas that are offered in airline and airport security and crisis management. However, that noted, Taylor (2017) makes the case that there are many different programs available that address these concerns. In part, this is because of the increased appreciation of risk in the post-9/11 era and because of the proliferation of online or distance learning programming that provide individuals and organizations in the air transport and aviation sectors with a plethora of opportunities for easily accessible, cost-effective learning opportunities that will enhance their capacity to respond to all kinds of crises.

Another organization that provides crisis management and security programming that is available to people in the aviation sector is Kenyon International Emergency Services (2016) which offers a variety of training courses segmented into an assortment of core crisis management training programs and several courses that are specific to

aviation. According to Kenyon (2016), its aviation crisis management training programs consist of: the Twelve Principles of Commercial Aviation, Airline Response (Go) Teams, Airline Station Management, Exercises for Aviation Crisis Management, and Airline Legal Department Training. Also available from Kenyon (2016) are crisis management training programs for International Air Accident and Internal Air Accident Investigations, Principles of Business Continuity, and Safety Management Systems.

These courses, which are offered either in-house at the client's location or at a Kenyon training facility in either the United States or the United Kingdom, can be tailored to the individual requirements of the company, combined into a program of training to fit unique training needs, and bundled with any number of core crisis management training options that address issues of leadership, call centers, humanitarian assistance, crisis management communications, and the 12 principles of crisis management.

Kenyon (2016, p. 12) states that its 12 Principles of Commercial Aviation is a gateway program leading to more nuanced courses that examine multiple aspects of crisis management in the aviation sector. Founded on the belief that any airline or airport must mount a "rapid, coordinated, and compassionate response" to any crisis, Kenyon (2016) contends that there are multiple issues that need to be addressed when creating a crisis management plan and ensuring that the appropriate staff members participate not only in the initial training that is centered on crisis management, but also in periodic reviews of new regulations, threats, and other issues that will continue to shape and reshape the response to crises that is needed in aviation.

Additionally, Kenyon (2016) offers its own crisis management response services and has done so for the better part of a century. Kenyon International (2016) states that is has responded to more than 400 disasters around the globe since its founding in 1906. What Kenyon (2016) offers to its clients, is a combination of both training and real time crisis management support.

Another company that provides multiple crisis management and workplace safety programs is Velsoft (2018), an organization that specializes in workplace safety that is not necessarily solely to aviation. Velsoft (2018) offers on-demand courseware that can be delivered online and tailored to some extent to the specific needs of an organization. Velsoft (2018), like IATA (2018), and Kenyon (2016), bases its training upon a thorough risk assessment that is unique to the organization and which requires that the organization be willing to accurately and transparently assess its own capacity for responding effectively to a crisis or safety concern in a timely manner.

While Velsoft (2018) does consider many of the same issues that are relevant to security and safety as described by IATA (2018) and Kenyon (2016), it is a far more generalized workplace safety program that ultimately may be less applicable to airlines and airports. Interestingly, the Emirates Group Security Centre of Aviation and Security Studies (2018) that is headquartered at Edith Cowan University is an educational institution offering its own diploma in Aviation Security Management.

Edith Cowan University, located in Perth, Western Australia, has worked with Emirates Group Security (2018) to develop a program that provides “in-depth understanding of key requirements and skills necessary to successfully manage security needs in the aviation industry. It includes security threats, controls, cargo security,

passenger security, intelligence, crisis management, and post-incident recovery (p. 1).” There are six units in this program: Introduction to Aviation Security, Safeguarding the Aviation Industry, Aviation Security Operations, Managing Aviation Threats and Incidents, Aviation Security Work Based Project Proposals, and Aviation Security Professional Placement.

The program requires Internet access, is delivered over 18 months, and provides block lectures that are supported by tutorials (Emirates Group Security, 2018). This diploma in Aviation Security Management is often used by participants as a gateway to a Bachelor’s degree from Edith Cowan University which serves more than 29,000 students of whom about 5,200 are international students originating from over 100 countries. The focus here is on security as opposed to crisis management per se but it is quite clear that responding to security issues that are associated with crises is an important element in each of the courses.

Another example of aviation and airline crisis management training is provided by Crisis Advisors (2018), an international firm that delivers in-house or on-site training to its clients. The training programs offered by this organization include:

**Airline Emergency Response**

- Airports training course
- Call Center training course
- Crisis Communications training course
- Emergency Command Center training course
- Emergency Response Manager training course
- Executive Emergency Response training course

- Go Team training course
- Operations Control Center (OCC) training course
- Safety Investigation training course
- Special Assistance Team / Family Assistance

**Emergency Response Drill**

- Coordinated between all Emergency Response teams
- Practice your plan and decision making
- Learn as a group, be prepared

**Emergency Response Manual**

- Review and update
- Regulatory requirements
- Conformance to IOSA requirements

**Emergency Response assessment report**

- Review of training conducted
- Running timeline of drill activities
- Recommendations and findings

**Aviation Emergency Response training course overview**

- Accident, incident, emergency scenarios
- Emergency Response Plan
- Crisis Management
- Accident site
- Airport / Fixed Based Operator (FBO)
- Dispatch

- Emergency Command Center / Emergency Operations Center
- Crisis Communications
- Family Assistance
- Safety Investigation

**Emergency Response Drill**

- Practice your plan and decision making
- Learn as a group
- Be prepared

**Emergency Response Manual**

- Review and update
- Conformance to IS-BAO requirements

**Emergency Response assessment report**

- Review of training conducted
- Running timeline of drill activities
- Recommendations and findings

(Crisis Advisors, 2018, pp.1 – 2).

Like other for-profit providers of aviation/airline crisis management training, Crisis Advisors (2018) offers multiple programs that can assist an organization from the beginning of an effort to create a crisis management program, through training and testing of a process, to evaluation of its effectiveness. To a large extent, as Crisis Advisors (2018) notes on its Website, such programs are tailored to match the national or jurisdictional requirements for such programs.

Vormer, et al (2010) pointed out that there are any number of colleges and universities across the globe that are providing certificate, diploma, and degree programs that are related to aviation security and crisis management. From Georgetown University in Washington, D.C., to Adelphi University and others in the United States, crisis management undergraduate and graduate degrees are readily available. However, as Vormer, et al (2010) noted, the vast majority of workers (including managerial and supervisory staff) in the aviation sector do not have such degrees; most depend upon professional crisis management training programs as a source of training in this critical area. Further, most airlines including Saudia (2018) have in-house crisis management protocols, guidelines and processes that are linked to some type of in-house training. Such programs are often provided under the aegis of organizations such as IATA or through national governmental agencies or authorities that contract with providers.

**Key Elements in Crisis Management Training**

Based upon the foregoing brief analysis of a sample of the crisis management training programs employed in the aviation sector, some general or core elements of such programming can be identified. These elements include the following as depicted in Figure 9.

Table 4

*Key Elements of an Airline/Airport Crisis Management Training Program*

| **Element** | **Required** | **Optional** |
|---|---|---|
| **Risk Assessment** | **X** | |
| **Crisis Management Plan** | **X** | |
| Delineated Roles | **X** | |
| Communication Channels | **X** | |
| Reg.Eval./Updating | **X** | |
| Executive | **X** | |
| Managerial | **X** | |

| | | |
|---|---|---|
| Public Relations | **X** | |
| Ground Crew | **X** | |
| Flight Crew | **X** | |
| Terminal Staff | **X** | |
| Security Staff | **X** | |
| Airport Operators | **X** | |
| **Critical Issues** | **X** | |
| Local Laws/Regulations | **X** | |
| International Laws/Regulations | | **X** |
| Communication Channels | **X** | |
| Test Exercises | **X** | |
| Participant Evaluation | | **X** |

These elements are to be found in the vast majority of emergency response training courses. They speak to what Crisis Advisors (2018) identifies as a complex and fast moving process that requires command decisions made by airline leadership to be decisive and immediately forthcoming regardless of the nature of a crisis. Crisis management reflects the philosophy that "there is no time after an aircraft accident for Emergency Response training (Crisis Advisors, 2018, p. 1)."

**The Saudi General Authority of Civil Aviation**

In most countries, a national aviation authority has established a number of rules and regulations, many of which directly address issues related to crisis management and present regulatory compliance systems that must be met in order for an airline company or an airport to receive certification. In the United States, this is addressed by the Federal Aviation Authority (FAA). In the Kingdom of Saudi Arabia, the regulatory body is the General Authority of Civil Aviation (GACA).

GACA (2018a, p. 1) describes itself as follows:

"The General Authority of Civil Aviation (GACA) of the Kingdom of Saudi Arabia emerged from the Presidency of Civil Aviation in 2006. Since then GACA has been on a mission to become a main contributor to the GDP of the Kingdom

> while growing and modernizing its aviation sector employing mostly qualified Saudis.
>
> Over the years, the Kingdom has achieved unprecedented growth and has made qualitative leaps in civil aviation, whose growth has helped to drive development at airports across Saudi Arabia, covering major developments in passenger transportation, air cargo, airport construction and equipment, air navigation and control.
>
> GACA currently oversees economic and safety regulation, air navigation services and the operations of Saudi Arabia's 27 existing airports comprising 5 international, 9 regional and 13 domestic airports with a collective passenger throughput of 75 million as of 2014."

Thus, GACA plays a normative and significant role in shaping the ways in which Saudia and other airlines (as well as airport operators) address their responsibilities with respect to safety and risk management.

GACA (2018b, p. 32) identified its rules and regulations impacting upon airline and airport safety in the Kingdom, under Royal Decree No. M/44, 18 Rajab 1426 H, 23 August 2005, Articles 44 -47:

> **Article (44):** Implementing laws and instructions on aerodrome and aircraft security.
>
> Subject to relevant laws, the Authority, in cooperation with other competent authorities, shall implement laws and instructions and necessary measures to maintain security in aerodromes of the Kingdom and ensure safety of aircraft and navigational support, and may to that end do the following:

1. Restrict or prohibit access of individuals to certain areas of aerodromes.
2. Verify identities of individuals and vehicles entering aerodromes, monitor them and question any suspicious person, if necessary.
3. Search any passenger suspected of carrying weapons, flammable substances or any other materials that could be used in any act of sabotage, violence or threat during flights.

**Article (45): Inspection of mail and parcels**

Subject to Articles (21) and (44) of this Law, air mail and parcels must be inspected if suspected to contain materials threatening the safety of aircraft during flights or illegal or prohibited material under laws in force in the Kingdom.

**Article (46): Supervisory Security Committee for Civil Aviation**

4. A national committee for civil aviation security shall be set up and named "the Supervisory Security Committee" and shall be responsible for devising, developing and following up on a national plan for protecting the security of civil aerodromes, aircraft and navigational facilities within the territory of the Kingdom.
5. The Board of Directors shall issue a resolution on setting up said Committee and determining powers thereof. Said Committee shall be chaired by the Chairman of the Authority – or designee – and shall comprise members representing relevant government bodies.

**Article (47): Aerodrome Preparatory Security Committee**

A security committee shall be set up in every civil aerodrome within the territory of the Kingdom in accordance

with relevant provisions of the Regulations.

**Article (48): Aerodrome Security Manual**

The Authority shall develop an Aerodrome Security Manual containing controls and procedures that should be implemented to ensure civil aviation security in accordance with relevant international rules and law.

These Articles of GACA's (2018b) Civil Aviation Law are designed to ensure comprehensive protection of the Kingdom's aircraft, navigation equipment, and airports or aerodomes. They are fairly broad and are further articulated in Part 5, Safety Management Systems of GACA's (2018a) more detailed requirements for such issues as overall safety policy, safety risk management, safety assurance, safety promotion, and documentation and recordkeeping. This set of rules applies to every certificate holder under GACA, Part 119 which is authorized to conduct air operations, airport operations, flight training operations with and without actual aircraft, ground service, repair station operations, and air navigation. It requires that "each certificate holder must have a Safety Management System (SMS) that is appropriate to the size, nature, and complexity of its organization and its operation (GACA, 2018a, p. 3)."

Adherence to all GACA safety policies is mandatory in order for an affected organization to maintain its certification and ability to operate in the Kingdom. Under the heading of Section 5.23 Safety Accountability and Authority, GACA (2018a, p. 6) required that organizations must develop, implement, and maintain SMS processes including "hazard identification and safety risk assessment; assuring the effectiveness of

safety risk controls; promoting safety; advising the accountable executive on the performance of the SMS and any need for improvement; and safety reporting."

Further, accountable executives, managers, supervisors, and workers must be identified within the SMS along with a system analysis and hazard identification leading to the development and maintenance of processes to analyze safety risk associated with hazards that have been identified (GACA, 2018a). Assessment of SMS performance, documentation, and evaluation must be regularly conducted along with the training of any and all individuals working within the airline and airport sectors who will have a role to play in the development and implementation of a viable and functional crisis management plan.

Many of the rules and requirements promulgated by GACA (2018a) as part of its SMS requirements dovetail with the kinds of issues addressed in the crisis management training programs that have been discussed above. It is the mission of GACA (2018b) to provide for oversight of economic and safety regulations, air navigation services, and the operation of the 27 Saudi Arabian airports. The organization, authorized by Royal Decree, therefore serves a vital function.

That noted, however, it is still the responsibility of organizations such as Saudia to develop their own crisis management and crisis response plans. Saudia as is known to this writer, has a *Corporate Crisis Management Manual* which delineates many of the issues that have been discussed throughout this analysis. This manual, however, is proprietary and is not made available to the general public or even to graduate students conducting scholarly research that, when complete, could be of value to Saudia. While it is unfortunate that such information is unavailable for this study, the thrust of the study is

on the perceptions of Saudia employees at various levels of the organization as to the strengths and weaknesses of the existing crisis management training they receive.

## Conclusion to the Chapter

This Chapter of the study has reported upon the results of two discrete research efforts – a survey soliciting attitudes of Saudi employees with respect to crisis management training needs and interests, and an overview of the components of a variety of crisis management training programs specifically designed for the aviation sector. It also included a brief analysis of critical sections of GACA's (2018a) rules and regulations centered on safety concerns and safety training. Several themes emerge from these research efforts.

The overarching theme is that it is the responsibility of airlines and airport operators to ensure the safety of their various stakeholder groups and this can only be achieved by putting in place a comprehensive plan for addressing crisis management and crisis response. Training emerges from this analysis as a critical component of the crisis management plan and as a process that can be developed to meet the specific needs of an airline or an airport operator.

There are both nonprofit and for-profit organizations that have developed viable crisis management training curriculum. In addition, a number of academic institutions offer graduate and undergraduate degree programs in Crisis Management. Many of these are specific to the aviation sector. Most workers in the sector, must rely on the availability of in-house training programs that are ultimately more likely to be responsive to the specific needs of the organization and its staff members.

The next section of this dissertation provides a comprehensive discussion of the findings generated by the research effort. It brings together a variety of disparate issues that are integral to a thorough understanding of what an effective crisis management program for Saudia should address in training activities.

# Chapter 5: Discussion

## Introduction

This fifth chapter of the dissertation presents an in-depth discussion of the findings of the research effort, including both the review of literature and the results of the survey conducted among employees of Saudia Airlines and other airlines' operators in Saudi Arabia. It integrates the fundamental elements of Systems Theory that are relevant to each of the research questions. It serves as a preliminary to the presentation, in Chapter 6, of a set of recommendations for additional research into crisis management training needs at Saudia and, by extension, other air carriers, as well as recommendations for improved crisis management training at these organizations.

The primary research question addressed in this study was stated as:
What crisis management training needs are not being met at Saudia at the present time and what specific kinds of crisis management training programs and activities are necessary to ameliorate those needs?

This over-arching question is best examined with the specific sub-questions that were addressed in both the literature review and in the survey conducted among workers at Saudia. Broadly, the research suggests that while Saudia, like its many counterparts in the aviation sector, focuses on crisis management planning and training, more can be done to create a seamless system for responding to the specific types of crises that are commonly experienced by an organization in this sector. Further, given the annual stresses placed on Saudia and other organizations in the Kingdom of Saudi Arabia during the Haj, there are certain types of crises negatively impacting upon the organization that are eminently predictable (Saudia, 2018). These include airport and carrier overcrowding,

lost luggage, delayed flights, overworked staff, and so on. Planning for these crises is integral to the task of crisis management and training.

**Subquestion 1**

What constitutes effective crisis management and crisis training? Effective crisis management requires that an organization identify the kinds of risks that exist in its functional environment or within the context of its internal systems (Investopedia, 2017). It further requires the development of a variety of contingency plans that will identify the actors, processes, tools, and techniques that will be brought to bear when a crisis occurs. Crisis management is a complex yet systemic set of interrelated processes that together prepare the organization to deal with both known and unknown stressors that are likely to impact upon the organization's performance (Nickels, et al, 2013).

The literature on crisis management contains multiple references to the importance of training as well as needs assessments (Kuzmanova, 2016). In the context of the aviation sector and the operation of carriers such as Saudia and the airports and other ground facilities that are related to Saudia's mission, there are specific kinds of crises that are more rather than less likely to occur. Taylor (2017) made the case that while accidents per se are relatively rare occurrences, these organizations face the ongoing challenges of dealing with weather effects, facility overcrowding, staffing deficits, outbreaks of contagious illness, and equipment failures or system breakdowns (Joseph, 2017).

Because this is the case it is absolutely necessary for companies like Saudia to be focused on training staff members for effective crisis management. This, of course, is not something unique to the aviation sector. Various researchers such as Bolman and Deal

(2013) as well as Sniezek, et al (2002) have made the case that successful businesses are those who integrate training for crisis decision-making into other managerial activities. No matter how thoroughly an organization believes it has prepared itself for addressing a crisis, situational variables often emerge that place very real and often unexpected stresses on an organization (Bolman & Deal, 2013).

The literature regarding Saudia as described by Lala (2014) depicts an aviation sector organization that has grown exponentially in a relatively short time and that Saudia's growth has required it to modify many of its fundamental business practices. Under the leadership of Saleh bin Nasser Al-Jasser, Saudia has transformed itself into a major regional carrier which continues to focus on improving operations, increasing profitability, expanding its services, and improving its reputation among travelers (Lala, 2014; Al-Maeena, 2017).

The end result of changes made to the organization by Al-Jasser is a significant improvement in the company's bottom line and its placement in 2017 on the list of the world's top100 airlines and receipt of the world's most improved airline at the 2017 Paris Air Show (Al-Maeens, 2017). This has occurred at least in part as a consequence of what one can described as systems thinking which Luenberger (1979) as well as Mengersen, et al (2017) identify as an essential ideological orientation in the aviation sector due to the complexity of its structure and the multiple interactions which must occur in a seamless manner for service to be successful.

Integral to crisis management is training as noted throughout this study. Multiple changes at Saudia have occurred since Al-Jasser was appointed in 2014 as Director General. Such changes, said Abdul Ghafour (2015), have necessitated training designed

to facilitate the embrace of new operating procedures by both managerial and line staff. Given that Saudi faces substantive challenges during the annual Hajj when millions of Muslims arrive in the Kingdom on pilgrimage, training cannot be overemphasized. It is during the Hajj, said Hasan (2017), that many of the crises that challenge Saudi operations are likely to occur – due less to weather conditions than to the sheer volume of passengers and the increased number of flights along with visa issues, flight reservations and rescheduling, and other related problems.

It is this array of concerns that Bar-Yam (2004) identifies as giving rise to the designation of Saudia as exhibiting the characteristics of a complex system. No matter how much training is provided, there will inevitably be some degree of frustration or tension that complicates an already complex situation (Fairbank, 2001). Saudia (2018a) has a crisis management plan which was not made available to this researcher, but some data generated by the research survey sheds light on perceptions of the efficacy of this plan.

The survey revealed that 76 percent of the participants drawn from among Saudia staff believed that their organization's operations were innately prone to crises. Further, some 81.4 percent of respondents to the survey indicated that they had personally been involved in a crisis which could consist of setbacks due to weather conditions, terminal congestion, equipment issues, or staffing deficits. When queried further as to crisis management training, respondents to the survey indicated that they were aware of the existence of an internal crisis management handbook, a chain of command for dealing with crises, aware of crisis risks, and a sense of having been trained to work with colleagues to address crises.

However, the research indicates that well over 67 percent of the subjects identified a willingness to participate in annual crisis training in the workplace. This suggests that crisis training is an important issue in Saudia employees' perceptions and that Fung, et al (2015) are correct in their assertion that crisis management plans are only as useful as the degree to which individuals have been fully trained to cope with such events.

The study also suggests that the participants employed by Saudia do understand what constitutes effective crisis management and crisis training. This includes an awareness of crisis risks, knowledge as to how a crisis is to be addressed, and the specific chain of command that must be activated along with communication channels when a crisis is underway. Only a comprehensive training system is capable of providing individuals expected to respond to a crisis with the knowledge, skills, and tools that are needed for this response (Henderson, 2007, Watkins, 2002).

Effective crisis management within the travel and tourism sectors is vital because there are potentially life-threatening consequences should a crisis response be inadequate (Henderson, 2007). Given that Saudia is positioned within these sectors, it is clearly critical for planners at Saudia to be thoroughly aware of the kinds of risks that the company inevitably faces and the ideal responses to those risks once they become realities. Effective crisis management and crisis training, therefore, seek to provide staff with the information they require to address complex situations in an efficient and effective manner (Snizek, et al, 2002).

These are ideas with which the respondents to the study conducted by this researcher appear to be in agreement. Additionally, organizations such as IATA (2018a)

acknowledge that crisis management goes beyond risk assessments to scenario development that is focused on appropriate responses to known crises. IATA (2018a) makes the case that effective crisis training must be situationally focused, ongoing, evaluated, and subject to modification as new concerns emerge and new technologies and tools become available.

**Subquestion 2**

What specific training and crisis management issues are relevant to the airline and airport sectors? The literature affirms that there are a set of unique crisis management and training issues that are relevant to the aviation industry, including the airline and airport sectors. Certainly, as has been demonstrated herein, Saudia confronts the enormous challenge of moving millions of pilgrims into and out of the Kingdom in a condensed time frame which tends as Hasan (2017) notes, to place unique strains on this particular carrier that may not necessarily be experienced by other carriers and the airports they use. Because this is the case, Al-Maeena (2017) suggests that Saudia must be acknowledged not only as experiencing the kinds of crisis management and training issues that impact upon the sector as a whole, but also as having a unique set of issues that further add to the complexity of the system in which the company operates.

Snizek, et al (2002) as well as Joseph (2017) make note of the fact that any organization, regardless of its specific sphere of activity, is likely to confront the potential for crisis at one or more points in its lifespan. All organizations, regardless of what they do or how extensive their scope of activities might be, are vulnerable to environmental stresses and influences, economic volatility, externally or internally generated service disruptions, and even the potential for violence or terrorist attacks. These kinds of events

take on enhanced significance in the aviation sector where the simple fact of air flight introduces vulnerabilities and potentials for service disruption of even unmitigated disasters.

This means that Saudi functions as an open system that is dependent for its existence on order as opposed to entropy and stability in a climate where volatility is all too commonplace (Von Bertalanffy, 1968). That noted, airlines and the airport sector face a number of crisis management issues that may not necessarily impact on other types of organizations but which could directly affect other actors in the transportation environment.

Mengersen, et al (2017) stated that airports and airlines are complex systems with multiple interdependencies between and across operational or functional units. Saudia is an excellent example of this kind of interdependence in that it operates airlines as well as airports and has multiple stakeholders in these business units as well as responsibilities to a variety of different stakeholders with potentially conflicting interests. Crisis management at Saudia and its counterparts in the aviation sector must at times address conflicting operational objectives such as safety and security on the one hand and efficiency and profitability on the other. Mengersen, et al (2017) put it this way: airlines have multiple obligations to multiple stakeholders and are likely to be challenged by the demands of such stakeholders.

Massey (2005) has noted that the aviation sector as a whole must deal with the threat of terrorism in addition to inclement weather, equipment and technology malfunctions, financial concerns, staffing issues, and public relations concerns. Henderson (2007) believes that a company like Saudia that is expanding rapidly also

faces the necessity of coping with system stresses that occur as part of the growth cycle of an organization's life. Airlines like Saudia are often faced with the necessity of dealing with rapid employee turnover and the existence of the organization in an inherently volatile environment that is characterized by rapid change. Certainly, Saudia (2018c) has grown quite dramatically in relatively short order which can be considered its own unique type of crisis and one that has challenged both managerial and line staff (Al-Maeena, 2017). This is what one would expect in any complex system.

Organizations such as Crisis Advisers (2018) and IATA (2018) are fully cognizant of the multitude of training issues that are linked to crisis response and management at companies like Saudia. These organizations offer a wide range and variety of crisis management training and certification programs targeting executives, managers, and line staff in the aviation sector. A comprehensive listing of IATA (2018) training programs presented in Chapter 4 highlights the breadth and depth of such training options.

The issue is of such significance that a number of private sector, for profit companies have been established such as Kenyon International Emergency Services (2016) and Velsoft (2018) that focus on customized crisis response training for companies like Saudia. These organizations, including Crisis Advisers (2018), provide on-site as well as off-site training that can be tailored to the unique needs of a client like Saudia. One of the end results of such training is the enhanced professionalization of the workforce from the bottom of the chain of command to the top. Readiness for a crisis is often emphasized by groups such as IATA (2018) as is the integration of communication

channels in a manner that is designed to ensure an immediate internal and public response to the crisis.

At the same time, a number of academic institutions such as Edith Cowan University in Australia are offering crisis management training to aviation sector companies (Emirates Group Security Centre, 2018). These academic programs are beginning to proliferate and are being adopted by carriers in a number of different markets because of the perception that acquiring outside expertise and developing a crisis management unit within the organization is a necessity. Indeed, Bolman and Deal (2013) make note of the fact that as organizations become more and more complex, an in-house crisis management unit becomes a more appropriate response to the problem of crisis management.

The survey revealed that fully 76 percent of the Saudia respondents did see their organization as crisis prone to some extent. This in and of itself leads one to the conclusion that the aviation sector itself functions in an environment of volatility in which a variety of crises are both likely and easily anticipated. Since this is the case, it is clearly incumbent on an organization such as Saudia to assess its potential crisis risks, develop a variety of contingency plans for responding to these crises, and train staff at all levels of the organization to effectively and efficiently deal with such situations. The next section of this chapter will take up the question of the kinds and types of crises that are most likely to occur in the airline and airport sectors.

**Subquestion 3**

What types of crises are most common in the airline and airport sectors? Organizations of all kinds are vulnerable to a wide range and variety of crises (Coombs,

2007). These crises as depicted in the literature are not specific to aviation entities such as Saudia but at the same time Saudia is in no way invulnerable to such disruptions. The categories of crises that one could identify as general range from natural disasters to technology system failures, terrorist attacks, workplace violence, organizational malfeasance, nonviolent malevolent assaults on the organization, and/or its reputation, and confrontations.

These crisis categories as described by Coombs (2007) as well as Lerbinger (1997) are thoroughly appreciated by executives at Saudia and, as the survey results indicate, widely known to employees at the organization. What this suggests is that employees at Saudia, like their counterparts in other business sectors, are cognizant of the risks that are associated with doing business. Researchers have noted that organizational crises emerge from a combination of internal or external forces or variables that may not necessarily be amenable to management by leaders (James, 2007; James & James, 2008).

In other words, while the majority of crises emit signals before they actually emerge, not everyone recognizes these signals or understands the kinds of actions that must be implemented when the signals are perceived. In fact, one of the key findings of the present survey is that a majority of respondents indicated that while they were aware of the kinds of crises that they may confront, they are not equally convinced that they knew what to do, who to contact, or even how to respond when a crisis does occur.

At the same time, 82.6 percent of the subjects indicated that they knew about the kinds of communication channels that were available in a crisis. It is somewhat surprising that these subjects would suggest that they were cognizant of communication channels in a crisis without knowing who designated crisis commanders were and which chains of

command would oversee their own activities. This speaks to what Christensen and Laegreid (2016) might characterize as a communication of structural features and the cultural context at Saudia. This level of uncertainty exhibited by Saudia employees further indicates that there is still a need for enhanced crisis management training particularly in light of the kinds of crises that direct impact upon aviation sector businesses.

When considering crises specific to or common within the airline and airport sectors, Mengersen, et al (2017) make note of the fact that these businesses are complex interdependent systems serving multiple stakeholders whose interests may be competing or overtly conflicted. There are a variety of conflict types that can be generally categorized as internal to aviation or external to it. Both types of conflicts require attention for a number of reasons among which the possibility of personal injury and even high fatalities must be considered primary (Henderson, 2007).

If one considers external versus internal crises affecting companies like Saudia, the following general breakdown may be useful.

Table 5

*External Vs. Internal Crises in Aviation*

| **Crisis Type** | **External** | **Internal** |
|---|---|---|
| Natural disasters | **X** | |
| Weather variations | **X** | |
| Terrorist assaults | **X** | |
| Local/global economic volatility | **X** | **X** |
| Workplace violence | | **X** |
| Technology breakdown | **X** | **X** |
| Regulatory burdens | **X** | |
| Equipment failures | **X** | **X** |
| Employee shortages | | **X** |
| Employee malfeasance | | **X** |
| Failed leadership | | **X** |

| | | |
|---|---|---|
| Financial deficits | | **X** |
| Air accidents | | |
| Inadequate communication | **X** | **X** |
| Inadequate security | | **X** |

*Note*. (Henderson, 2007; Kosatka, 2011; Taylor, 2017; Thackeray, 2011)

The foregoing listing suggests that there are a number of crisis categories that have their roots in either or both internal and external factors. Technology is an excellent case in point. Thomas (2016) and Cole and Maurer (2014) make note of the fact that many of the technological systems on which aviation depends for security, air traffic control, internal and external communications, and so on can be affected not only by system malfunctions at the airport or in the air but also by power disruptions outside of these facilities or locations.

Such disruptions can create a chaotic situation on the ground or in the air. Further, McLay, et al (2010) point out that technology systems that are used in screening baggage and passengers can be hacked or gained. Many airports lack the financial ability to provide fully comprehensive security screening systems. This creates very real vulnerabilities that require some type of a response.

Interestingly, while accidents and crashes are the first type of crisis that most people consider when thinking of aviation, Taylor (2017) notes that such crises are relatively rare when the number of flights occurring each and every day is taken into consideration. Of course, organizations such as the IATA (2018) provide actors like Saudia and airport managers with training specifically that are focused on addressing each of the many activities that are relevant to cooping with the aftermath of an aircraft accident or crash. In such cases, perhaps to a much greater extent than in the more common cases such as flight delays, terminal overcrowding, and lost luggage,

communication becomes vital and it is incumbent upon managers as well as the line staff to have available both effective communication plans and relevant mechanisms for reaching different publics.

In the case of Saudia (2018), as both the literature and the survey conducted herein serve to demonstrate, the most common crisis that must be addressed tends to revolve around the multiple challenges of the Hajj. The Kingdom's General Authority of Civil Aviation (2018a) is the organization that is charged by Royal Decree with overseeing all aspects of aviation and airport security in the Kingdom. This government agency, known as GACA, is a key actor in shaping the kinds of crisis management planning, training, and response that occurs at Saudia. GACA (2018b) requires Saudia and other carriers to conduct annual needs assessments, update training, and assess the kinds of risks that are common in the sector or which can potentially disrupt the smooth management of a vital transportation system.

It is perhaps due to the adherence of Saudia (2018) to GACA (2018b) regulations that 87 percent of the respondents to the present study indicated that they were well aware of the existence of a Saudia crisis management handbook. Unfortunately, this handbook was not available to this researcher because Saudia (2018b) regards its contents as proprietary information. That said, it is more rather than less likely that Saudia (2018) has available a crisis management manual or plan that mirrors the kind of content that is offered by the IATA (2018) via its Security Risk and Crisis Management five-day classroom programs. In these programs, managers are assisted in developing an internal crisis management plan and corresponding manual that comprehensively addresses crisis management activities.

The survey conducted herein contained a number of items asking respondents to rank the significance of common aviation sector crises and the degree to which they perceived themselves as ready to deal with those crises. Interestingly, external disruptions such as those caused by other authorities, uncontrollable flight delays and cancellations, and weather conditions and power outages were seen as significant. The most significant threat requiring readiness according to these respondents was a terrorist threat but terminal congestion and infrastructure failure were also identified as critical concerns requiring readiness.

Thus, one can argue that Saudia employees participating in this study seem to have been relatively well informed as to the need for readiness vis-à-vis a number of different crisis types. Under GACA (2018), Saudia is compelled to acknowledge its vulnerabilities to the kinds of crises discussed herein and to train its staff for an effective crisis response. Such considerations are significant going forward as Saudia continues to expand and grow its business. The next section of this discussion will consider how airline and airport managers view crisis management and related training as critical functions, particularly in light of the multitude of threats that have been identified as impacting upon the aviation sector.

**Subquestion 4**

To what extent do airline and airport managers view crisis management and training for crisis management as critical functions? The literature on this issue is quite specific. It strongly supports the assertion that managers in the aviation sector at both airlines and airports view crisis management and training for crisis management as critical, vital functions that must be addressed in order to ensure that known risks can be

ameliorated and unknown risks anticipated (Taylor, 2017). Most airlines and airports have designated “safety managers” who are charged with the responsibility for risk assessment and the establishment of procedures that are required to minimize social, financial, and other effects of any of the many different crises that are likely to impact upon the organization.

Nevertheless, said Taylor (2017), even the most prepared aviation sector organization finds itself at times challenged by unanticipated crises that place unexpected strains on organizational staff members and the systems that support them. In part, this is due, said McLay, et al (2010), to the fact that the environment in which airline and airport managers function is one in which new challenges emerge fairly frequently. Additionally, said Cheikh (2018), it seems as though every day or every month introduces new technologies that need to be tested and implemented along with new security risks and governing regulations.

Organizations such as Saudi Arabia’s GACA (2018a) find themselves compelled to advocate for the use of new technologies that will enhance the overall security of airports, aircraft, and navigational support. GACA (2018b), operating as it does under Royal Decree No. M/44, is directly responsible for the overall safety of the aviation sector in the Kingdom and as such must ensure that key actors in this sector are properly educated and trained in order to address crisis management.

Indeed, IATA (2018) has demonstrated time and time again that it perceives a need for ongoing and proactive crisis management training in the interests of passenger and system safety. The research suggests that groups such as SITA as described by Cheikh (2018) exist largely to provide the kind of consultation and support services that

agencies like GACA (2018) require. SITA (2018) says that it was selected by GACA to take the lead role in transforming airport and communication technologies across 26 airports in the Kingdom and in the systems of airlines such as Saudia. This demonstrates that under the leadership of GACA, managers and executives at Saudia and other Kingdom organizations in aviation are moving to improve their understanding of what comprises best practices in crisis management and crisis management training.

With these concerns in mind, the survey research effort included responses from 46 Saudia employees or affiliates with an average of one to five years of service in the industry. While this relatively small sample contained a combination of both very experienced and relatively inexperienced workers, only some of whom (19.6 percent) identified themselves as supervisors and 26.1 percent who identified themselves as holding managerial positions, it is nevertheless of sufficient size to indicate that these individuals are aware of the importance of crisis management training and crisis management itself.

It would appear that regardless of their specific role in the sector, these subjects were convinced that annual crisis management training was very important (67.4 percent) and that on-site drills were a critical component of necessary training (95.6 percent). Further, fully 87 percent of the respondents indicated that they believed a crisis management handbook was a vital tool that was instrumental in preparing them for coping effectively with a number of different crises at work. The breadth of understanding exhibited by these respondents suggests that they are, as a group, reasonably knowledgeable as to the variety of crises that can and do occur in their workplace and the role that training plays in preparing them to address these crises.

Unfortunately, it was anticipated that a total of 75 respondents would complete the survey developed by the researcher and this number was not realized. It was also anticipated that the sample would be divided in to three categories of 25 individuals each. These categories were terminal staff including ticket agents and service managers, managerial workers who were responsible for various terminal and airline departments and activities, and executive level employees who are charged with strategic crisis management planning.

Absent from the respondents as an assortment of individuals who could legitimately be categorized as "executive level employees who are involved in strategic planning for crisis management." This deficit does have the effect of limiting discussion as to the issue of how airline and airport managers view crisis management and training. Nevertheless, if one looks at GACA (2018a) and research provided by Cheikh (2018) and Schellenberg (2018) regarding SITA and its interactions with Saudia, one can draw the conclusion that the organization's executives and leaders are thoroughly engaged with this issue.

First, GACA (2018a) mandates that aviation sector actors in the Kingdom have in place a comprehensive crisis management program that incorporates ongoing annual training of all staff. Secondly, Saudia has publicly contracted with SITA and with IATA to provide necessary assistance in both the development of crisis management systems and the training of key personnel (Schellenberg, 2018). Saudi has made substantial investments in new technologies including AI as well as in training provided by consultants like the IATA. The awards given to Saudia (2018b) for its overall improvements in terms of service and reliability indicate further that executives at the

organization know the environment in which their company functions and have taken the steps that are needed in order to address the challenges of this environment.

**Subquestion 5**

What does Saudia currently do in terms of crisis management planning and training? This is a critical question that speaks to the primary focus of this research effort. As noted earlier, the researcher was not provided with direct access to Saudia's crisis management plan or its crisis management training program. This was because officials at Saudia described these materials as proprietary. Consequently, what is known definitively about Saudia's activities in this area is derived from a limited number of items found in the published literature and the specific data revealed by the survey of a small sample of individuals affiliated with Saudia.

With that in mind, some general statements regarding Saudia's crisis management planning and training can be offered. In light of the fact that Saudia exists due to its authorization by GACA (2018a), one can certainly conclude that GACA's (2018a) rules and regulations managing that aviation sector organizations have crisis management plans and training are applicable. Under GACA (2018a), economic and safety regulations, air navigation services, and all of the interdependent operations of Saudi Arabia's 27 airports serving over 75 million passengers annually are applicable. GACA (2018b, p. 1) promulgated the following "Safety Policy Statement:"

**SAFETY POLICY STATEMENT**

The responsibility for promoting and regulating aviation safety in Kingdom of Saudi Arabia (KSA) mainly rests with the General Authority of Civil Aviation (GACA). We are committed to developing and implementing effective strategies, regulatory

frameworks and processes to ensure that aviation activities under our oversight achieve the highest level of safety performance.

To this end we will:

1. Set regulations that are in line with the Standards, Recommended Practices and Procedures of the International Civil Aviation Organization;
2. Adopt a data-driven and performance-based approach to safety regulation and industry oversight activities where appropriate;
3. Identify safety trends within the aviation industry and adopt a risk-based approach to address areas of greater safety concern or need;
4. Monitor and measure the safety performance of our aviation system continuously through the KSA's aggregate safety indicators as well as service providers' safety performance indicators;
5. Collaborate and consult with the aviation industry to address safety matters and continuously enhance aviation safety;
6. Promote good safety practices and a positive organization safety culture within the industry based on sound safety management principles;
7. Encourage safety information collection, analysis and exchange amongst all relevant industry organizations and service providers, with the intent that such information is to be used for safety management purposes only;
8. Allocate sufficient financial and human resources for safety management and oversight; and
9. Equip staff with the proper skills and expertise to discharge their safety oversight and management responsibilities competently.

As this statement demonstrates, Saudia, as one of the premier aviation sector entities in the Kingdom, is required under its relationship with to address safety concerns. Items 8 and 9 in the above listing speak directly to crisis management planning and training. Thus, even absent the direct access to Saudia's crisis management plan and training program, it is correct to assert that such plans and programs are in place.

This was confirmed, in fact, via the literature (Chiekh, 2018; Schellenberg, 2018) and the survey results. Respondents to the survey clearly indicated that they were thoroughly aware of the existence of a crisis management and response plan at their organization and a relevant crisis management handbook. They further indicated that they were aware of ongoing, annual training programs and the necessity for such activities. While some of the survey items delineated in Chapter 4 suggested that there were deficits in the knowledge of these workers related to such matters as chain of command, leader designations, and communications mechanisms, the majority of respondents were cognizant of the role played by a variety of techniques and tools. These include briefings, training, proactive plans and actions, and a clear identification of the necessity of crisis management at their organization. Unfortunately, about 70 percent of the sample indicated that the congruence between the crisis management manual and crisis management training was not particularly strong and that there were weaknesses within the crisis training at their organization.

Interestingly, 26 of the 46 subjects (over 50 percent) indicated that there were significant weaknesses in crisis training that negatively impacted upon their capacity to respond effectively in a crisis. Some subjects actually suggested that training was not provided to them, that it was not updated, and that training was not as available as it

ought to be. These concerns are significant and strongly support the conclusion that more needs to be done with respect to crisis management training at Saudia.

It should also be noted that IATA (2018) as described by Cheikh (2018) and SITA as discussed by Schellenberg (2018) both work with Saudia to provide on-site consultation, training, and support. Much of this activity speaks to the multiple programs offered by SITA and IATA. IATA (2018) has a training center in Saudi Arabia and others elsewhere in the Middle East and North Africa. IATA (2018b) has provided Saudia with a classroom-based program over a five-day period at its regional training partner locations. This particular training, coupled with risk management activities, offers Saudia and others unique opportunities to develop in-house expertise (IATA, 2018c). Further, IATA (2018b) offers Saudia managers AVSEC diploma programs that have a strong emphasis on security policy and procedures as well as crisis management training and planning. Unfortunately, the study did not provide any information regarding whether or not the participants had themselves been involved in these or other IATA and/or SITA programming. This is certainly an issue that should be taken up at a later date with Saudia managers, particularly those that are responsible for security, risk assessment, and crisis management.

The next section of this chapter will briefly consider possible recommendations for Saudia as it goes forward. Again, these recommendations are a response to perceptions that some crisis management training needs as perceived by the limited number of respondents to this study, are not being met at the present time. Certainly, these recommendations are based upon admittedly limited information. Nevertheless, they do address concerns that organizations such as IATA (2018a) and GACA (2018a)

see as significant because of the relationship between safety issues and security in the aviation sector where even seemingly inconsequential errors can have a negative impact on life and property.

**Subquestion 6**

What recommendations can be made to Saudi for enhanced crisis management planning and training with respect to airport operations? Under its mandate from GACA (2018a), Saudia is required to provide a crisis management plan that speaks directly to GACA's regulatory system. It must have a security committee that links the airports to the airline and an overall safety policy that addresses risk management, safety assurance and promotion, and documentation and recordkeeping. As a certificate holder under GACA (2018b) Part 119, Saudia must have a Safety Management System deemed appropriate to the size, nature, and complexity of the organization and its activities.

Respondents to the survey conducted herein indicated that they were, for the most part if not entirely, aware of the existence of a crisis management plan and safety policy manual. Nevertheless, the survey strongly supports the tentative conclusion that Saudia needs to do more in terms of ensuring that each and every one of its employees is aware of the contents of this manual and of their own responsibilities should a crisis occur. A key recommendation therefore is that the individuals or the department at Saudia that is responsible for crisis management and safety issues should conduct an in-house analysis to determine which employees or employee groups have not been provided with adequate safety and crisis management training and then take steps to ensure that such training is delivered. It is quite possible that this activity is already underway and that the

individuals participating in the study who were uncertain about these matters are relatively new hires who have not as yet completed all of the training offered by Saudia.

Certainly, Saudia like other actors in the aviation sector, could benefit from a systemwide renewal of commitment to crisis management training and planning. IATA (2018a) offers multiple crisis management and risk response programs that could be of benefit to Saudia and its employees. Without having any in-depth knowledge as to who at Saudia is responsible for these concerns, it is difficult at best to determine what steps are needed next to enhance the organization's crisis management planning and training effort.

Given that GACA (2018a) is committed to risk management and crisis training, it is incumbent upon Saudia to give attention to this matter going forward. In light of the fact that the company is increasingly embracing AI technologies as described by Cheikh (2018) and that Saudia (2018) itself continues to expand its sphere of operations, such a renewed commitment would be valuable. Nickels, et al (2013) note that such activities should be integrated into contingency planning which are essential in any business regardless of its activity sphere. Other recommendations will be discussed in Chapter 6.

**A Model of Crisis Management**

A specific model for the results found herein can be proposed at this juncture. Visually, this model is depicted as establishing an intersection between planning/s (the Crisis Management Manual), Readiness (Proactive Measures such as Training), and Leadership (Commanders, leaders).

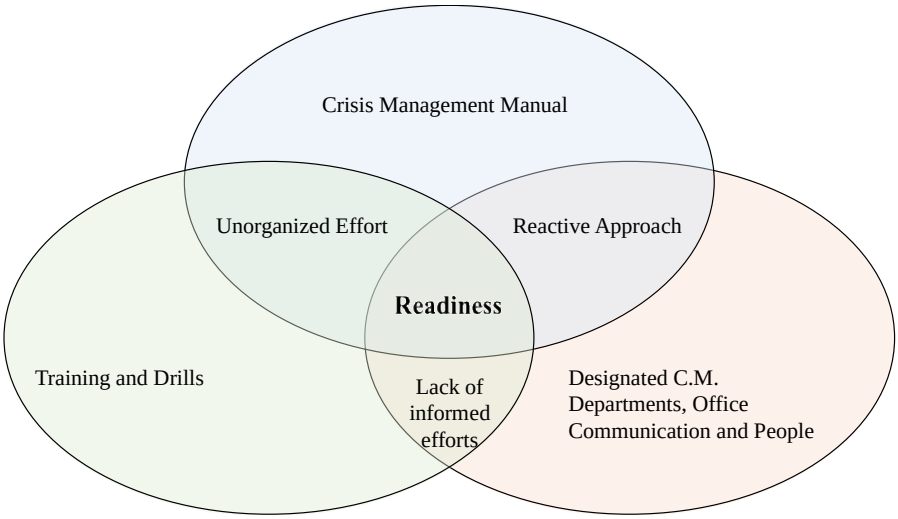



*Figure 21.* A Model of Crisis Management

The model serves to illustrate the conclusion that crisis management is not a single activity or even a linked set of autonomous activities. It is also a mindset – an ideological and theoretical orientation that has at its core aspects of conflict resolution. One can consider a crisis to be a type of conflict that must be addressed in order for the organization (or the "system") to function appropriately and to meet the needs of its various stakeholders. Crisis management, then, is a form of "conflict resolution" that has a specific set of immediately relevant goals and objectives.

## Conclusions

This chapter of the dissertation has offered an in-depth, focused analysis of the results reported in raw form in Chapter 4. It incorporates data generated by both the review of relevant literature and the case study which includes a researcher developed survey of an admittedly limited sample of individuals at Saudia and other national airlines, whose participation in crisis management programming may very well be a critical element in the organization's capacity for addressing crises efficiently and effectively.

The next chapter of this study will offer conclusions, a summary, and recommendations for both improved crisis management planning and training at Saudia and for further research. It is anticipated that further insight into Saudia's needs can be obtained via a large-scale survey that would involve additional subjects at different positions within the organization.

# Chapter 6: Summary, Recommendations, and Conclusions

## Introduction to the Chapter

Any organization, whether it is positioned in the public or the private sector, at some point in its life cycle will be challenged by a crisis that requires a response (Nickels, et al, 2013). Crises, as this report demonstrates, take many forms and can be generated by forces that are external to the organization or internal to it. Crises may or may not be linked to known risks. These events may have effects ranging from relatively minor to totally devastating. Researchers have noted that regardless of the nature or source of a crisis, the affected organization must be able to mount a timely and appropriate response not only to minimize damage, but to ensure that its reputation will suffer only limited negative effects (Crisis management says…, 2007).

This final chapter of the dissertation offers the opportunity to summarize its key findings in the context of relevant literature on crisis management in general and specific to the aviation sector in which Saudia is positioned. It provides for the presentation of specific conclusions that are derived from the research that speak to theoretical as well as practical issues and have implications not only for the field of crisis management and for Saudia, but also for the overarching field of conflict resolution which Nickels, et al (2013) see as brought into play when an organization must deal with the consequences of a crisis.

Additionally, this final section of the research presents two sets of recommendations derived from the case study, document analysis, and the empirical portion of the project. The first set of recommendations speaks to the question of what Saudia should do going forward to improve or enhance its crisis management response,

planning, and employee training. The second set of recommendations considers appropriate avenues for further research focusing not only on Saudia but also on the broader application of systems theory to crisis management.

**Summary of Key Findings**

This mixed methods case analysis, augmented by an empirical component surveying a limited sample of individuals at Saudia's operations in Jeddah and other airports in KSA, is a within-site study. It is positioned within a pair of critical theories, the first of which examines Crisis Management Theory itself and the second of which considers the application of Systems Theory as defined by researchers including Meadows (2008) and Thelen and Bates (2003). Systems Theory is applicable primarily because it captures the nature of Saudia as a complex adaptive system (CAS) (Miller & Page, 2007). For Saudia to meet its goals and objectives of providing multiple stakeholder groups with high quality, safe and secure, efficient air transport services, a number of discrete business units must function in tandem.

Saudia (2018) is a complex organization in which air, ground, and supplier networks and business units all work together. This creates what Johnson (2010) called traffic networks through which information flows, decisions are made and communicated, and strategy is deployed. With respect to crises and crisis management, a complex system like Saudia must provide for meaningful responses within each separate unit or network of the system. This means that employees with different work roles, levels of responsibility, knowledge and skills, and decisionmaking authority must work together as a seamless unit to avoid crises and what Gleick (1987) characterized as the

Butterfly Effect in which a change in one small area of activity can have far-reaching consequences.

Thus, approaching Saudia as a complex system that is best understood as exhibiting high levels of interdependence is one of the key findings supported by this study. Further, Saudia can be understood as embedded within the legal and regulatory system of Saudi Arabia's GACA, its general authority responsible for the aviation sector (GACA, 2018). GACA (2018) requires that the agencies it supervises have in place a comprehensive crisis management plan that addresses the multiple varieties of crises that can impact upon different aspects of aviation. The research also suggests that Saudia is compliant with these regulations. The research suggests that Saudia (2018) has actualized crisis management efforts and that by doing so, it has developed training activities that are made available throughout its organization and to those units or individuals who function as support for Saudia activities.

The literature on crisis management also identifies the aviation sector as vulnerable to both natural and man-made crises (Coombs, 2007). These crises range from natural disasters that cannot in fact be controlled by the organization such as tornados, earthquakes, floods, and hurricanes to man-made crises that may be technologically generated, the result of workplace violence or malevolence, or even a terrorist attack. Coombs (2007) as well as Kuzmanova (2016) made the case that both types of crises have the potential to disrupt business activities and strain the resources of even the most well-prepared organization. Additionally, given that aviation includes activities that directly speak to the physical safety and security of passengers and airport personnel, the sector is especially vulnerable to various kinds of attacks and assaults.

With these considerations in mind, the study considered a number of specific cases in which airlines like Saudia were confronted with crises. These cases described by Taylor (2017) highlight the fact that businesses in this sector tend to be particularly focused on crisis management planning, risk assessment, business continuity planning, and training of staff to address crises as they occur. Based upon the survey of an admittedly limited sample of Saudia employees and affiliates, it would appear that this particular airline has provided training to its employees and that these employees are quite cognizant of the different kinds of crises that they are likely to face and perceive themselves as trained adequately to address these events.

Nevertheless, Taylor (2017) makes the case that no matter how thoroughly prepared an aviation sector organization may believe it is, when a crisis does occur, the airline's response is not always perceived as adequate. This is as true when weather conditions lead to significant delays in flights that inconvenience passengers and place new strains and stresses on airports as well (Crisis management says about an airline…, 2007). When more devastating crises occur such as a terrorist attack, a crash or accident, or in-flight system malfunctions, the potential effects are clearly more devastating (Maben, 2017). Regardless of what type of crisis occurs, the consensus among experts in the field is that the airline will be assessed by observers based upon perceptions of how efficiently and effectively it has responded to the crisis and communicated its responses to multiple stakeholder groups (Taylor, 2017).

The limited sample of cases that were included in the discussion of crises in the aviation sector serves to illustrate the depth and breadth of these events and the kinds of issues that inhibit an effective response. For example, Braud (2014) pointed out that

when Malaysia Airlines Flight 370 went missing, it was 17 days before the company confirmed that the flight was lost and that in all likelihood, all of the individuals on board were dead. This case, said Braud (2014), illustrates how communication is a key component of any crisis management response plan. Apparently, Malaysian Airlines learned a valuable lesson from the Flight 370 disaster when Flight MH17 was shot down over Ukraine either by Russia or one of her allies. In this case, Malaysia Airlines immediately communicated to stakeholders what had occurred and worked quickly to retrieve the bodies of passengers (Malaysian Airlines Flight 17, 2014).

While immediate communication as a crisis unfolds may not defuse the crisis, it can establish the organization as responsive to its stakeholders (Taylor, 2017). However, one must note that regardless of how well prepared a company might be for all types of crises, crises by their very nature are not predictable. The best planning, training, and role playing cannot fully simulate a terrorist attack such as occurred on September 11, 2001. The literature does illustrate how the events of 9/11 led to the development of new crisis response strategies in the United States and the creation of new technological approaches to preventing and intervening in crises (Finkel, 2017).

Unfortunately, the survey undertaken herein did not question respondents as to their understanding of the kinds of technology that Saudia has adopted in the wake of 9/11. It is known that since that terrorist attack, airports and air carriers across the globe have developed far more comprehensive screening systems to provide early notification that a risk has been identified which must be addressed (Shine, 2017). New technologies, said Cole and Maurer (2014), represent a front-line strategy for reducing the threat of terrorism (both domestic and international) and workplace violence. New passenger

screening policies as well as new laws and regulations impacting on airport security are seen by McLay, et al (2010) as reactive rather than primarily proactive.

The survey did not provide a great deal of insight into issues centered on technology and its uses in terms of risk assessment, crisis response, and prevention of potential violence attacks from terrorists or others (e.g., disgruntled employees and/or passengers). Cole and Maurer (2014), in their extensive discussion of how 9/11 has fostered enhanced interest in and deployment of various technologies, make the case that it is imperative that such tools be used if an airline or an airport operator has determined that it has vulnerabilities not addressed by other means.

Certainly, Saudia (2018b) has reported that it is pursuing enhanced technology in conjunction with airports in the Kingdom with which it is closely affiliated. Additionally, the literature reveals that under GACA (2018) and in conjunction with IATA (2018), Saudia is working to improve its overall response to risks and potential crises. Training is a key component of GACA's (2018) safety mandate which Saudia must address in order to maintain its certification and its status as an approved air carrier in the Kingdom. GACA (2018) perceives its mission as going well beyond regulatory oversight of aviation and as inclusive of working with sector organizations to improve security in airports and aircraft operations.

To the extent that material was available to assess Saudia's compliance with GACA or its use of IATA training, it would appear that the organization is in fact compliant with the former and engaged with the latter. There is evidence reported by Cheikh (2018) and Schellenberg (2018) that Saudia is enthusiastically embracing modernization of its technology base as airports themselves are modernizing throughout

the Kingdom. A safety strategy and crisis management approach has therefore been adopted by GACA and, consequently, by Saudia. The organization is also pursuing new technological system acquisition by GACA in a contract with SITA (Schellenberg, 2018). Clearly, Saudia (2018b) has been moving assertively to enhance its overall capacity for providing high quality, state-of-the-art services to its various stakeholder groups – among whom passengers certainly take precedence in many instances.

That said, the survey revealed that there is some degree of confusion or ambivalence on the part of respondents regarding such issues as chain of command, communication, and training. Some of the respondents (less than 30 percent) indicated that they were unsure as to what their roles were in a crisis, or how communication would flow in such situations. Others seem to have been somewhat unsure as to where they should look for leadership. As noted above in Chapter 5, this suggests that enhanced training efforts may be needed to ensure that all employees of Saudia and related support services are aware of these issues.

The survey also revealed that while most respondents were well aware of the kind of crises to which Saudi was vulnerable. Not surprisingly, the respondents seemed most familiar with the type of crisis situations that impact primarily upon airport terminal operations – flight delays, overcrowding, lost baggage, short staffing, and so on. This is only to be expected as the majority of the respondents were placed in work roles in the Jeddah terminal and not in flight-based roles. It is likely that flight crew at Saudia would lace greater emphasis on other concerns such as the impact of weather on flight operations, the potential for a terrorist attack, and equipment failure. Such differing

perspectives, noted Taylor (2017), are linked to one's workplace role and not to any failure to understand sector vulnerabilities.

Some commentary regarding the analysis of IATA and other training programs is necessary at this juncture. The IATA (2018) roster of programs is both broad and deep. It includes options for program delivery at its headquarters, in regional training centers, and on-site. It includes certification programs that can be used to enhance the overall knowledge and skill sets of professionals in various aspects of the aviation sector, including ground operations in airports and in support service roles. Further, IATA is recognized by GACA (2018) and other state aviation authorities as providing high quality training programs that can be customized to meet the specific needs of a sector actor. Customization is a key feature of such programs, which can also be accessed in cyberspace.

Additionally, there are other for-profit firms and even universities delivering such programs focused on crisis management and other risk assessment and minimization concerns. Edith Cowen University (2018) is one of the academic providers of these programs, which are linked to both certification and academic degrees. IATA (2018d) also offers an Aviation Security Management Diploma (AVSEC) that includes a combination of in-class and online programming covering multiple aspects of security, crisis management, and risk mitigation. Taylor (2017) maintains that the recent proliferation of this programming is a response not only to the terrorist attack of 9/11 but also the perception that such attacks remain likely.

Finally, Chapter 4 presented a figure delineating key elements in an airline or airport crisis management training program based upon a review of literature. From risk

assessment to the development of a crisis management plan, to the training of all staff in the organization, these efforts are regarded by groups such as Crisis Advisors (2018) as representative of a complex process that in and of itself reflects the system dependencies within the aviation sector. Ultimately, the aviation sector is not limited to aircraft or air flight activities. Support activities on the ground both in terminals and behind the scenes are as significant in determining how a crisis will be addressed or how effective a response to any kind of crisis will be.

Because this is the case, crisis training is more than an option. It is a critical activity which an organization such as Saudia must provide under the rules of GACA (2018b). An organization overseen by GACA (2018d) that does not adhere to required safety policies will lose its certification and no longer be permitted to operate within the Kingdom of Saudi Arabia. Training of any and all individuals is an integral part of having a Safety Management System that is appropriate to the size, nature, and complexity of the organization. It is quite apparent from a review of GACA's (2018) key articles imposing requirements on companies like Saudia that attention has been given to IATA standards.

These are the key issues that were explicated by the research conducted in compliance with requirements for a dissertation in the field of Conflict Resolution. Nickels, et al (2013) suggest that crisis management details aspects of conflict resolution because implicit with any crisis is some type of conflict that distorts reactions and presents challenges that must be addressed. If crisis management is a set of skills, tasks, behaviors, and attitudes, it necessarily includes the kind of actions that reduce tensions and resolve differences. With this in mind, training emerges in the view of theorists such

as Taylor (2017) as one of the most important responsibilities within the management of an organization such as Saudia.

## Recommendations

Two discrete sets of recommendations emerge from this research project. The first speaks to the kinds of efforts that are likely to be of value to Saudia with particular emphasis on the training of employees and support personnel for effective crisis response. The second set of recommendations considers strategies for enhancing knowledge of training needs of Saudia and the role of training itself in a complex interdependent system such as that of an airline and its airport partners. This section of the study presents these recommendations.

### Recommendations for Saudia

One of the key issues confronted in the process of conducting the present study centered upon the unavailability of Saudia's *Corporate Crisis Management Manual*, a document to which the writer had access at one point due to his association with the airline. However, as has been noted herein, this manual is proprietary and Saudia executives have chosen to refrain from making it public or permitting academics to review it as part of a research project. Based upon the writer's familiarity with the *Corporate Crisis Management Manual,* it is possible to make the general statement that Saudia is not remiss in terms of offering crisis management training programs to its employees at various levels of the organization. That noted, Saudia is in compliance with GACA (2018) in this important area.

However, some of the responses provided to the empirical portion of the study indicate that there are some potential deficits in terms of crisis management training that

Saudia should consider addressing. In light of the fact that only 37.0 percent of the subjects identified themselves as entry level or frontline non-supervisory or managerial employees, it is somewhat troubling that 58.7 percent of the respondents or 27 individuals indicated that they were not aware of the leader designated as a Crisis Commander and that individual's contact information. This is an issue that needs to be rectified. It is possible that many of these individuals were in fact entry level or new employees who had not completed crisis management training. Others may in fact have been recently placed in a new role in the organization and were not given this information at the time of the study.

Regardless, what one might suggest to Saudia is that including annual or biannual crisis management training updates or refresher courses would be useful to ensure that deficits in this kind of knowledge are eliminated. Making crisis management training available throughout the year rather than just as an element within an orientation program would be useful. Such refresher courses could also enhance other knowledge sets that are linked to crisis management and crisis response.

Certainly, the research indicates that these subjects were very well aware of the kinds of crises that their employer might face and to which they themselves might need at some point to respond. With 75.0 percent of all subjects indicating that their organization's operations were prone to crises, even without annual refresher courses it would appear that these employees were relatively sophisticated in terms of their understanding not only of what causes crises in their industry but also what types of responses are available to them. As a group, the respondents indicated a high level of

willingness to participate in crisis management training including crisis drills. It is also recommended that Saudia include more crisis response drills in its training efforts.

Saudia may also wish to enhance its existing crisis management training to include the identification of crisis management commanders who are then provided with additional educational opportunities such as the various certificate programs offered by IATA (2018) and others. Enhancing the knowledge of Saudi employees and particularly Saudia managers and supervisors about all aspects of safety is likely to be a cost effective strategy. It is also the kind of activity that must be linked to the acquisition of new screening and other technologies that are designed to enhance Saudia's risk reduction and crisis response. Saudia's investment in such technology through its relationship with SITA suggests that this would be a highly desirable and ultimately valuable addition to Saudia's current training effort.

It is certainly important to acknowledge that some 26 of the subjects or slightly more than 50 percent identified specific weaknesses of crisis training at Saudia. Some of these individuals were not direct employees of Saudia but their comments are nevertheless concerning because they are employed by Saudia partners and supportive services at the Jeddah airport. Fully eight individuals indicated that they either did not have training available or that their work superiors prohibited them from participating in crisis response training and some were generally uncertain as to whether or not training was available to them. Saudi may wish to take a lead role in working with its airport partners to extend training opportunities to each and every individual working in the airport regardless of their specific work role.

In an era in which terrorist threats, coupled with other manmade and natural disasters, have proliferated, it makes sense for Saudia and its partners to improve their overall focus on training. Given that during the annual Hajj, airports in the Kingdom are overwhelmed by the massive influx of pilgrims, leading inevitably to flight delays, terminal overcrowding, lost baggage, and other problems, ensuring that staff are able to mount an effective and timely response is critical.

Saudia (2017b) identifies its mission statement as focused on enhancing its reputation and improving its own image within the Kingdom and abroad. Being able to efficiently handle the stresses and strains of the annual Hajj and acknowledgement of this event as precipitating a crisis for the airline and airport staff seems reasonable. These are the kinds of recommendations for specifically for  Saudia that emerge from the present study.

Finally, however, it is recommended that Saudia supervisors and executives who are directly responsible for security, risk assessment, and crisis management should conduct an annual review of the organization's *Corporate Crisis Management Manual*. The Manual may require or at least benefit from a systematic review and possible modifications including modifications that speak to the training concerns that this study has identified. Conducting such a review in a partnership with airport security managers could also be beneficial to all concerned. A synergistic response from the airline and the airport operators to any crisis is certainly desirable (Taylor, 2017).

**Recommendations for Further Research**

This research project included the use of a new attitudinal and informational survey instrument that was adopted and developed by the researcher. It also included a

limited sample of 46 individuals, of whom, a number were not employed directly by Saudia Airlines but instead by an affiliate of the company or a support business in other national airlines with a strong presence at the airports at the time of the survey. Taken together, these two factors can be viewed as limiting. Expanding the research developed in this project could be beneficial in identifying more nuanced concerns regarding what types of training are needed at Saudia.

Specifically, it is recommended that the survey instrument be expanded to capture more detailed information about the kinds of crisis management training that respondents received, the regularity of such training, and their perceptions of its efficacy. Such a survey instrument could also include a listing of typical components of crisis response training and ask respondents to identify whether or not they had personally received such training and if so, whether or not it was effective. A survey that is more nuanced in this manner would certainly be valuable.

A more extensive survey instrument would undoubtedly provide greater insight into how and why some of the subjects found their current training to be inadequate and what these individuals felt would improve their training. The survey could include a listing of the typical contents of a crisis management manual and ask respondents to indicate whether or not these elements are present in the manual provided to them by their employer. This would help to overcome the limitations imposed on this study by Saudia's unwillingness to make its *Corporate Crisis Management Manual.*

Secondly, a larger sample is certainly desirable. Such a sample could be stratified based on two or three possible factors. First, given that the largest number of participants in the present study (41.3 percent) had only worked in the airline industry for one to five

years, and 30.4 percent had careers spanning five to 10 years, it might well be useful to develop a larger sample stratified according to the variable of years in the industry. Individuals with longer service histories will undoubtedly have experienced both more crises and a greater variety of crises. They were also likely to have received more training and, consequently, to have different attitudes and perceptions regarding crisis training and responses. Alternatively, a larger survey sample could be stratified based upon line versus managerial or supervisory status.

Researchers such as Babbie (2004) and Creswell (2013) make the case that stratification in a sample is quite useful in ensuring that nuanced responses are generated by the research. A larger sample stratified according to length of time in the field or work role and level of authority could lend itself to more sophisticated analytic techniques. These techniques could include measures of central tendency revealed by such statistical procedures as the T-test or Analysis of Variance (ANOVA), or even basic Correlation analysis using Pearson's r. This would also provide a depth of analysis that is counterindicated in a sample of fewer than 50 individuals in which relatively few respondents fall into work roles or length of service cohorts beyond the entry level or a one to 10-year service span.

Finally, a larger sample could be based upon the creation of two groups of subjects in which Group A consisted of Saudia employees and Group B consisted of employees of airports in the Kingdom and/or support organizations working within the airport or airline sectors. This particular type of categorization of respondents could be useful in helping to assess the degree to which Saudia Airlines and airport/support staff organizations view themselves as mutually dependent with respect to crisis management.

Taylor (2017) notes that within the broader aviation sector, responsibility for addressing all kinds of crises is not limited to one actor. There is a role for multiple actors because when a crisis occurs, airport personnel as well as flight personnel and executives and managers must work together to mount a timely response and return their complex system to a state of functionality. The notion that the typical airline like Saudia is in fact one actor in a complex networked system leads inevitably to the conclusion that it must integrate its crisis response plans with those of its partners. These are the recommendations for further research that emerge from this study.

## Conclusions

The purpose of this study was to determine what specific kinds of training and planning need to be done to enhance Saudia's capacity for effective crisis management and responses. As the foregoing summary and the entirety of Chapter 5 demonstrate, an organization like Saudia is certainly typical of what is characterized as a complex networked system (Von Bertalanffy, 1968). A complex system is one in which there are many different actors each of whom has an important role to play in ensuring that the efforts of the whole are executed in an appropriate, efficient, and effective manner. Because this is the case, any crisis management response or training effort undertaken by Saudia ought to include some synergies with similar efforts on the part of its partners, among whom airport operators would certainly be significant.

Even without access to the Saudia *Corporate Crisis Management Manual* and with a limited sample of respondents, one can conclude that crisis management training at Saudia could benefit from some enhancements. Issues related to chain of command and communication seem to be paramount. This may be less of a function of any deficit in

Saudia's training effort than it is deficits that would be due to a lack of coordination between Saudia's efforts and those of other key groups at the airport.

With that in mind, this study can be seen as reflecting a first step in assessing Saudia's crisis management training status and possible needs. Certainly, Saudia is well within its rights or prerogatives with respect to viewing its training program and its manual as proprietary. Equally obvious is the fact that Saudia's certification under GACA (2018) as well as its expanding presence (Lala, 2014) support the conclusion that managers and executives at Saudia are addressing the issues of critical significance to the organization going forward. Nothing in this analysis can be legitimately construed as indicating that Saudia is in any way or to any extent not meeting its obligations as specified under GACA.

What the study does suggest is that Saudia may very well benefit from enhancing its current training efforts with respect to crisis management to include its partners such as the operators of airports at Jeddah, Riyadh, and elsewhere in the Kingdom. There is nothing in any way to be lost if such an effort is undertaken and there is much to be gained. The responses of the limited number of individuals who participated in this study support this conclusion.

Should such coordinated training be undertaken, it appears that it should focus on chain of command, communication, and scenario modeling and drills. Taylor (2017) contends that these are the kinds of training efforts that appear to be most beneficial in the aviation sector. Saudia might wish to work with the IATA or any of the other providers that are expert in such training programs.

Further research as described above may be useful in providing more insight into efforts that Saudia can make and should perhaps make going forward. This study, though limited by some factors, provides an excellent baseline for assessing a real world case in which crisis management as one of the tasks subsumed within the larger field of conflict resolution is positioned. Overall, Saudia appears to be very proactive and effective with respect to this vital training function.

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# Appendix A: Survey Instrument

**Survey Questions**

**Part 1: Demographic Information**

Please give us some general information about yourself.

Gender:
Male ____
Female___

Age:_____
Country
City
Company/Organization

***What is the highest level of education you have completed?***

High School ___
Undergraduate ___
Graduate____
No qualification ___
Other (please specify)_____

Occupation related to Airlines/Airport:

Entry-level front line agent ____
Supervisor _____
Manager _____
General Manager _____
Executive Manager ____
Other (please specify)_____

In which region do you work in Saudi Arabia?

Jeddah Headquarters___
Jeddah Saudia Offices ___
Jeddah King AbdulAiziz Airport ____
Other (please specify)_____

**Part II: Crisis Experiences**

Please answer each of the following questions about your personal experiences with or attitudes towards workplace crises.

***1- Do you consider that your organization's operations are prone to crisis? Adopted from (Almutairi &*** Mourshed, 2018)

Yes ____

Not ____
I'm not sure____

***2- Have you ever experienced any type of crisis in your job? Adopted from (Almutairi &*** Mourshed, 2018)

Yes____
No _____

***3- If you answered "Yes" to Question 1, what type of crisis: new items***

Weather conditions (heavy rain, sand storms) _____
Power outage _____
Terminal congestion due to Haj and travel seasons ____
Flight cancelations/delay ____
Lost Baggage ____
Terrorist threats ___
Passengers' violence ___
Other airport authorities' operations disruptions ____
Failure of Facilities' infrastructure ____
Other (please specify)_____

***4- Specify to what extent do you agree or disagree with each of the following statements about the risks of crises? Please use the following scale to respond to each item. Adopted from (Almutairi &*** Mourshed, 2018)

Strongly agree 1
Agree 2
Neutral 3
Disagree 4
Strongly Disagree5

I'm aware of crisis risk ____
I am aware of the divisions and operations vulnerable to have crisis ____
I know how to deal with those crises ___
I am trained to work with my coworkers and my subordinate to deal with the crisis ____
I am aware of all the employees who are trained to deal with crisis
and who do not____
I am informed about emergency plans and procedures that I need to follow during crises ___
I am willing to participate in crisis management training if it is available ____
I encourage executing crisis drill at least once a year in my work place _____

***5- Are employees provided with the following required information/people before the crisis happen? Adopted from (Almutairi &*** Mourshed, 2018)

-Designated leader as a Crisis Commander's name and contact information
Yes ___ No ___
-Communication channels phone, internet, app, map, and announcement
Yes ___ No ___

6- ***Please rate the importance of the following crisis training programs/people Adopted from (Almutairi &*** Mourshed, 2018)

Very important 1
Important 2
Of little importance___
Unimportant___

Crisis management training program ___
On site drills ____
Briefings about immanent crisis___
Crisis Management Handbook___
Crisis Management Chain of Command___

***8- how significant these crises are on your organization and its passengers/clients? Adopted from (Almutairi &*** Mourshed, 2018)

| Not significant | Slightly significant | Moderately significant | Very significant |
|---|---|---|---|
| 1 | 2 | 3 | 4 |

-Weather conditions heavy rain, sand storms ___
-Power outage ___
-Terminal congestion due to Haj and travel seasons ___
-Flight cancelations/delay___
-Lost Baggage ___
-Terrorist threats ____
-Passengers' violence ___
-Other airport authorities' operations disruptions ___
-Failure of Facilities' infrastructure___
-Other (please specify) ____

9-***how important is readiness for the following crises? Adopted from (Almutairi &*** Mourshed, 2018)

Unimportant 1
Of little importance 2
Moderately important 3
Important 4
Very important 5

-Weather conditions heavy rain, sand storms ___
-Power outage ___
-Terminal congestion due to Haj and travel seasons ___
-Flight cancelations/delay___
-Lost Baggage ___
-Terrorist threats ____
-Passengers' violence ___
-Other airport authorities' operations disruptions ___
-Failure of Facilities' infrastructure___

-Other (please specify) ____

10- ***Please rate how important the following factors are to enhance the protection of the impacts of: Adopted from (Almutairi &*** Mourshed, 2018)
Weather conditions on the passengers?

Unimportant 1
Of little importance 2
Moderately important 3
Important 4
Very important 5

-Informing airport authority to announce to passengers in advance about operations disruptions ___
-Informing passengers through social media channels___
-Informing passengers through text messages ____
-All of the above ____
-Other (please specify)___

11- Please rate how important the following factors are to enhance the protection of the impacts of Terminal congestion due to Haj and travel seasons: New items

Unimportant 1
Of little importance 2
Moderately important 3
Important 4
Very important 5

-Early check in through internet and self-service machines___
-Early check in through passengers' group leaders ___
-Adding more staff ____
-On-site designated crisis response team___
-Other (please specify)_____

***12- Please rate the availability and effectiveness of the following crisis management in your organization: New items***

***Not available 1***
***Available but not effective 2***
***Effective 3***
***Very effective 5***

-Early briefings___
-Crisis management commander ___
-Crisis management center___
-Crisis management plan ___
-Volunteer groups ___
-Logistics e.g. phones, internet services buses, hotels ___

13- Do you believe it is better for airlines companies and airports to deal with airlines crises from proactive perspective or from a reactive perspective? New items

- Proactive
- Reactive

14. What is the organization's current approach to deal with crisis? New items

Proactive approach___
Reactive approach ___
Both ___

15. Do you believe there are systems and regulations that need to be designed, changed or added to help the organization deal better with crisis? Use the rating scale to indicate your response to each item. New items

Strongly agree 1
Somewhat agree 2
Neutral 3
Somewhat disagree 4
Strongly Disagree 5
We would benefit from a comprehensive crisis management manual.___
We need a clear chain of command for crisis management.____
We need more training specific to each potential crisis.____
Training should be revisited each year.____
A designated Crisis management Response Team is needed.____
Crisis management should be centralized for all the organization's operations.____
All organization's personnel should participate in crisis management training.___
Each department should have a designated Public Relations manager to respond in a crisis.____

16- Do you believe the current crisis management training (if any) is compatible with the organization's crisis management manual?
Yes
No
To some extent, explain

17- what are the strengths of the crisis management training if any?

18 – what are the weaknesses of the crisis management training if any?

**A Model of Crisis Management**

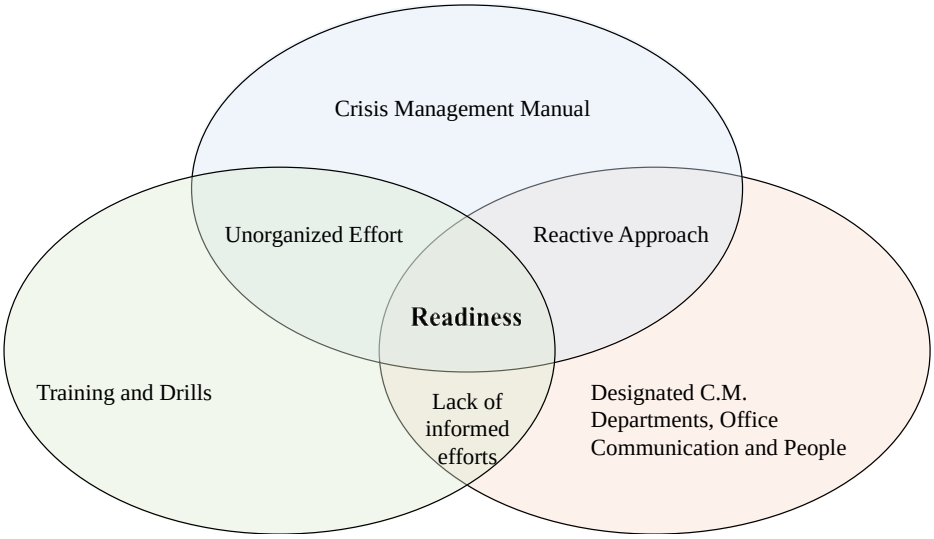


*Figure 21*. A Model of Crisis Management

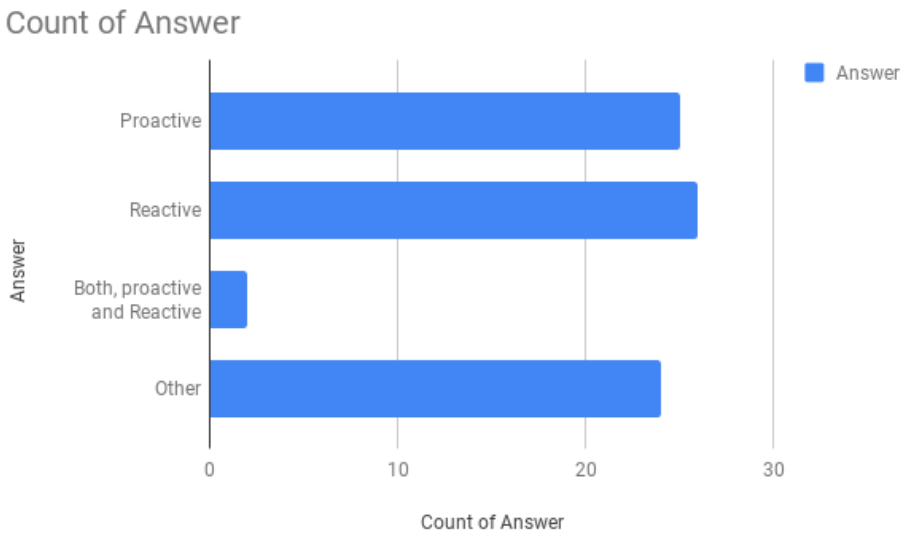


*Figure 22*. Count of Answer


*Figure 23*. Count of 1 - Do you consider that your organization's operations are prone to crisis?

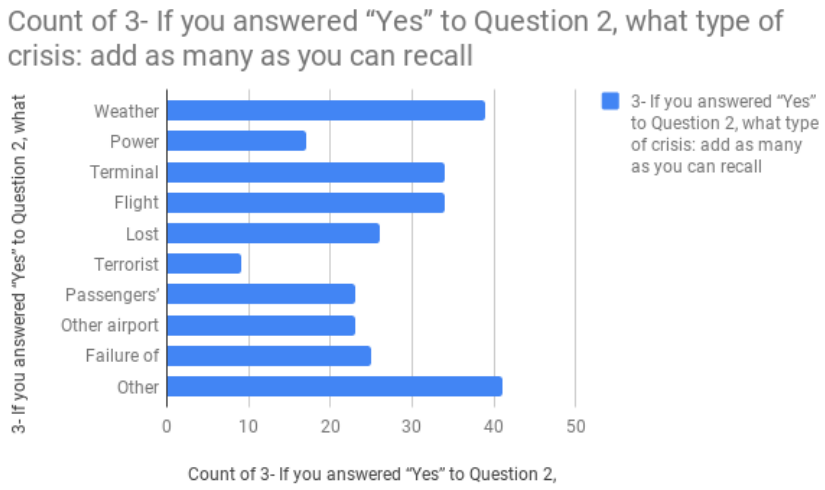


*Figure 24*. Count of 3 - If you answered "Yes" to Question 2, what type of crisis: add as many as you can recall

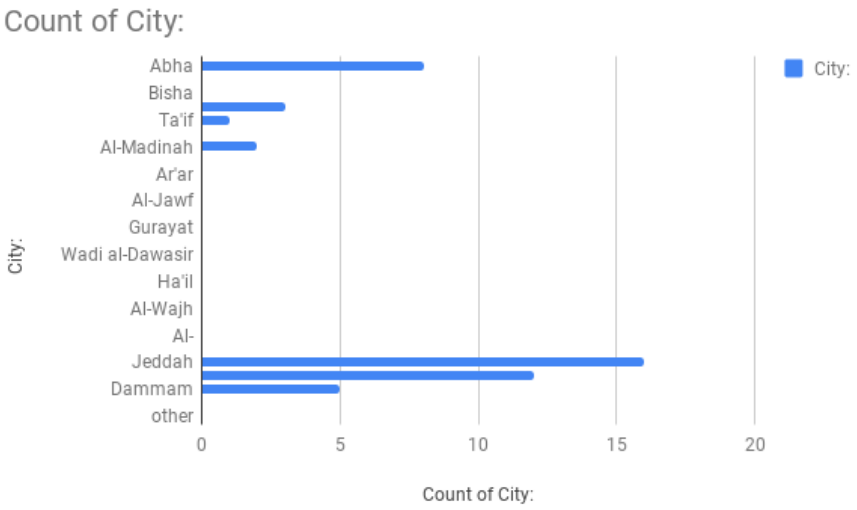


*Figure 25*. Count of City

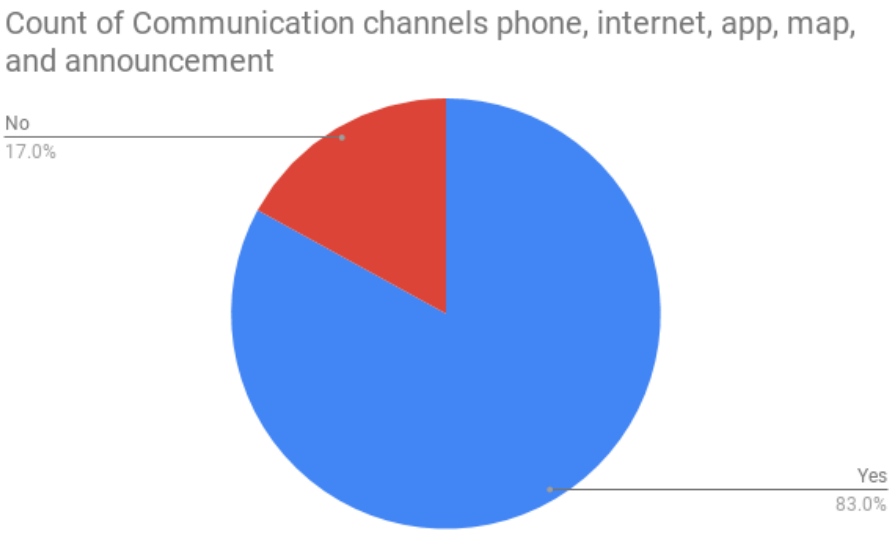


*Figure 26*. Count of Communication channels phone, internet, app, map, and announcement

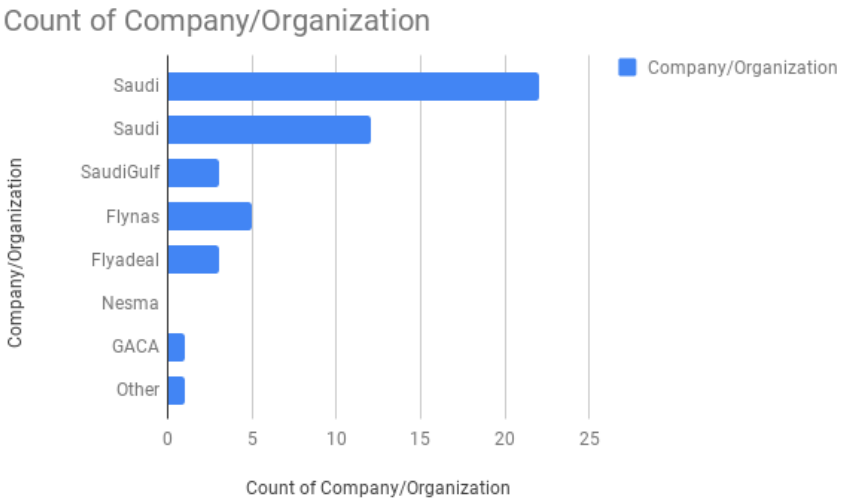


*Figure 27*. Count of Company/Organization

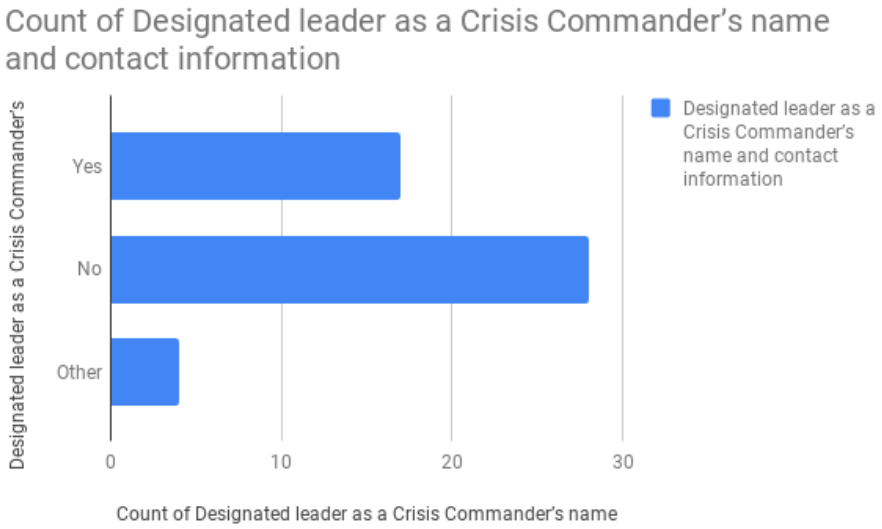


*Figure 28*. Count of Designated leader as a Crisis Commander's name and contact information

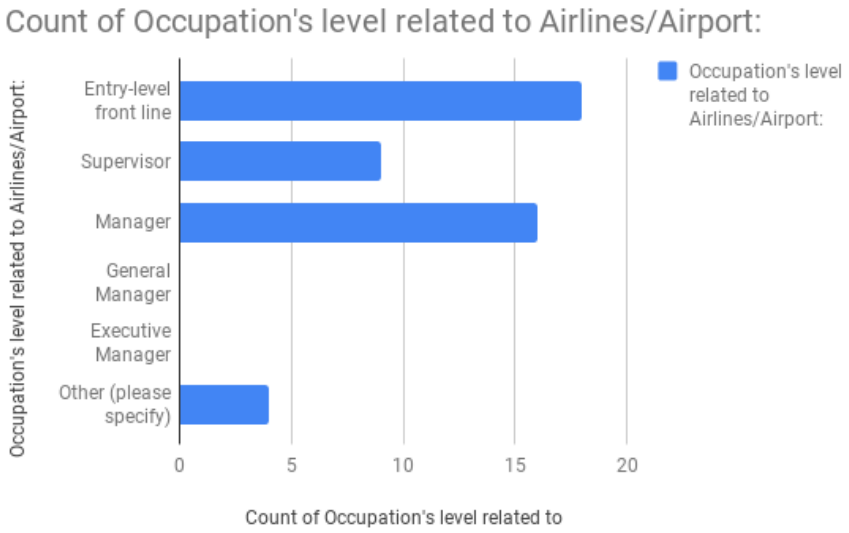


*Figure 29.* Count of Occupations's level related toAirlines/Airport

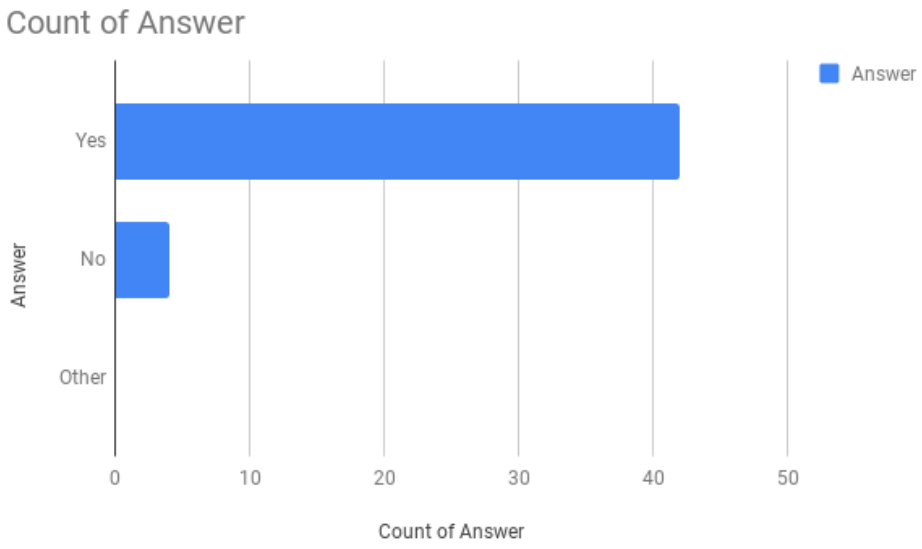


*Figure 30.* Count of Answer

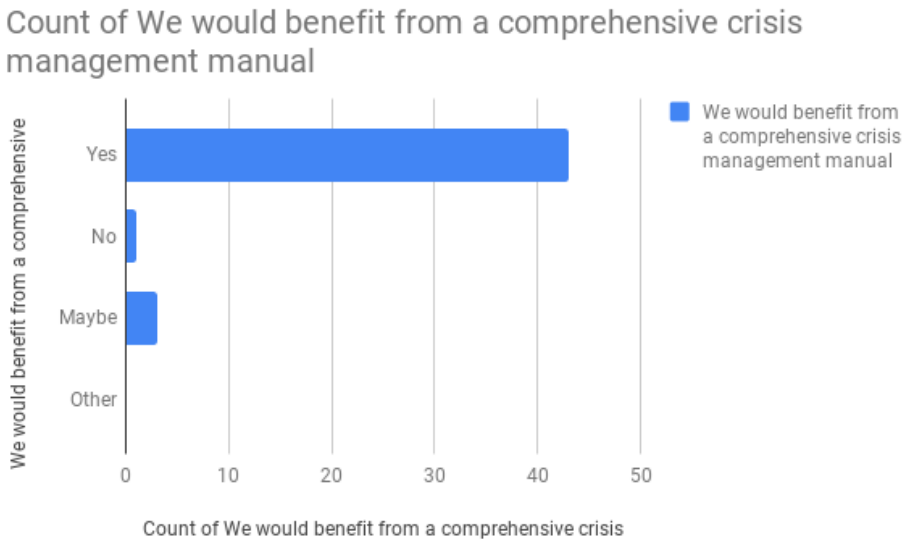


*Figure 31*. Count of We would benefit from a comprehensive crisis management manual

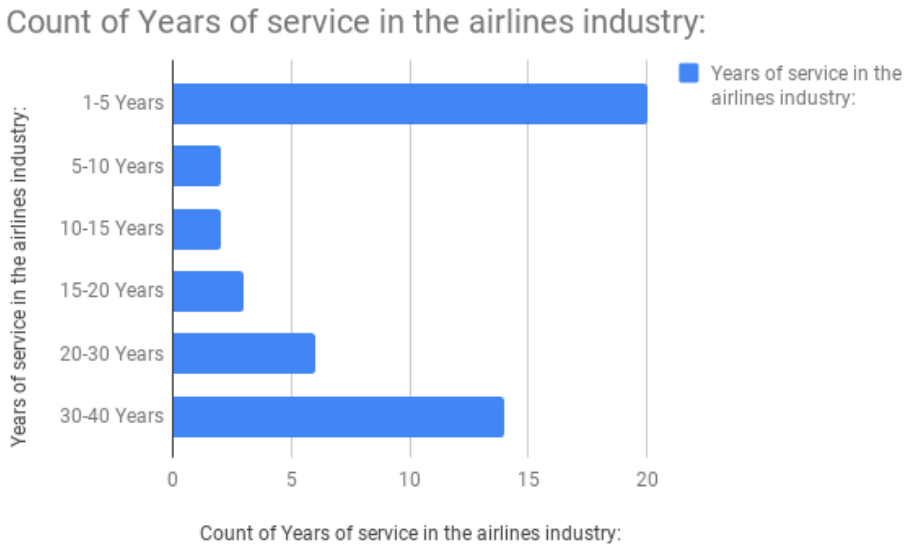


*Figure 32*. Count of Years of service in the airlines industry

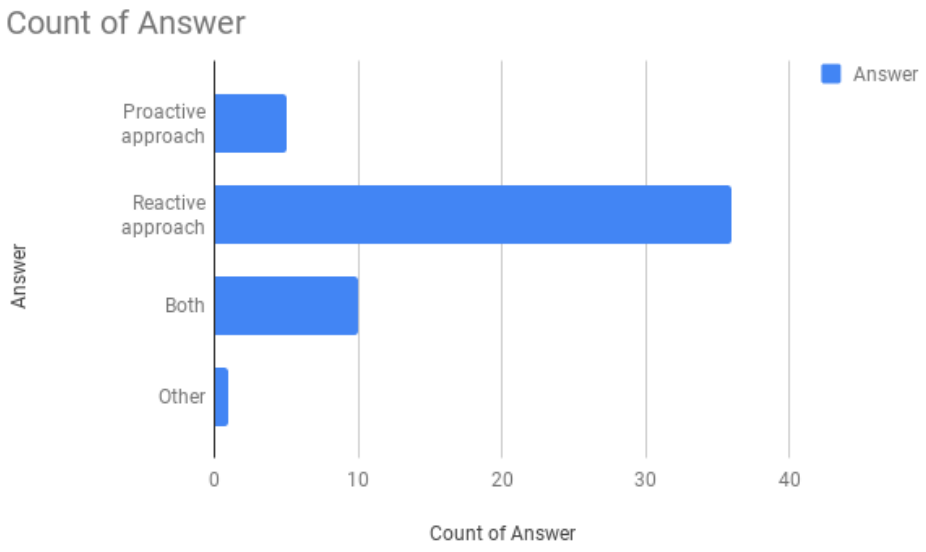


*Figure 33*. Count of Answer

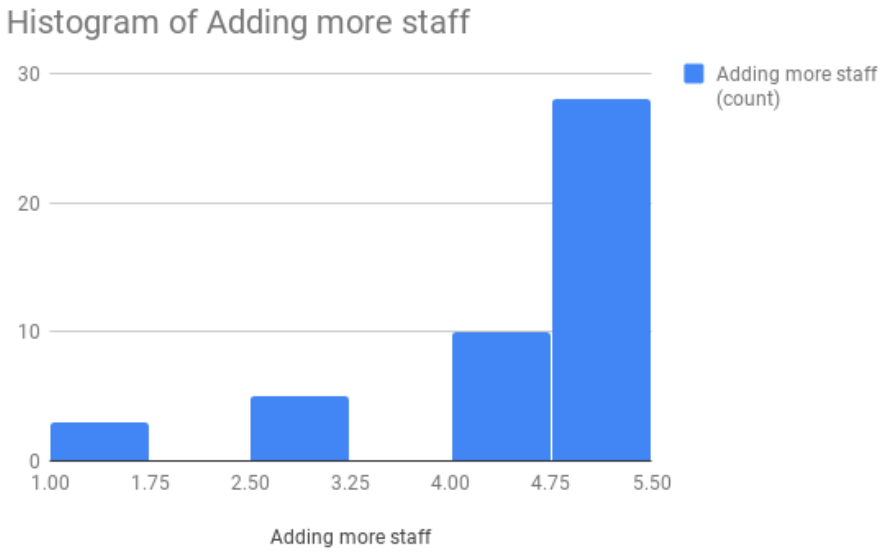


*Figure 34*. Histogram of Adding more staff

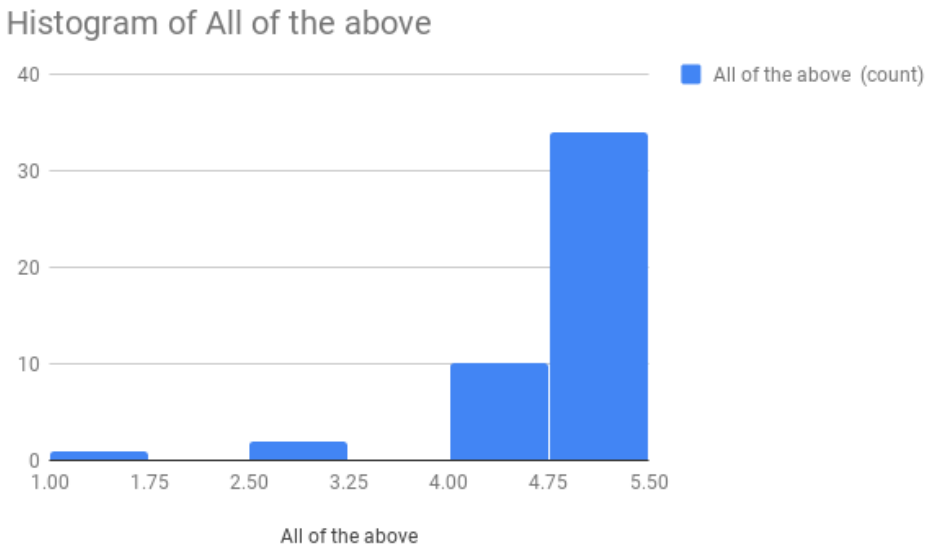


*Figure 35*. Histogram of All of the above

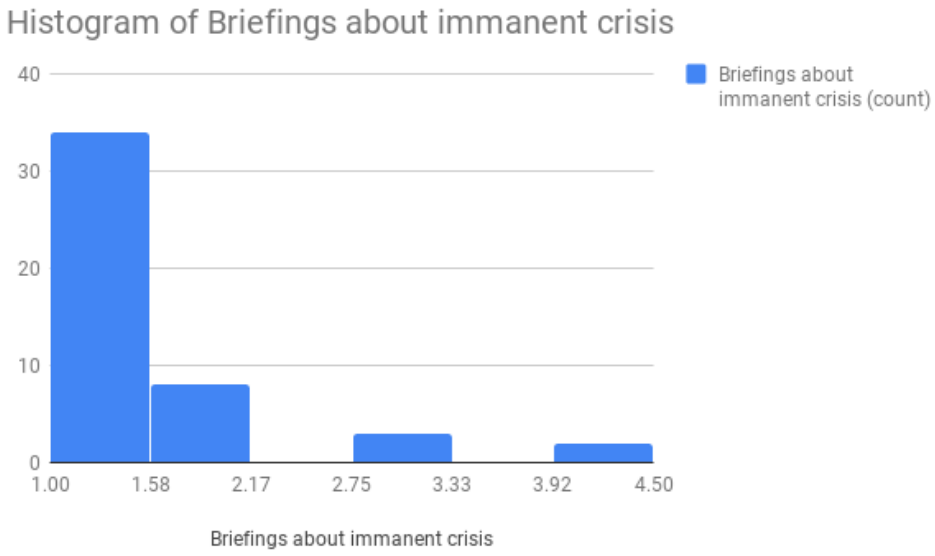


*Figure 36*. Histogram of Briefings about immanent crisis

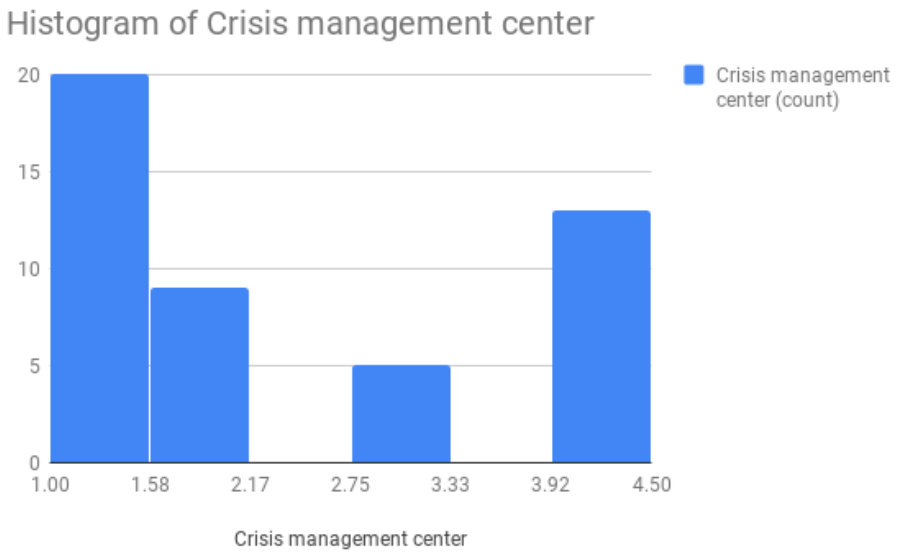


*Figure 37.* Histogram of Crisis management center

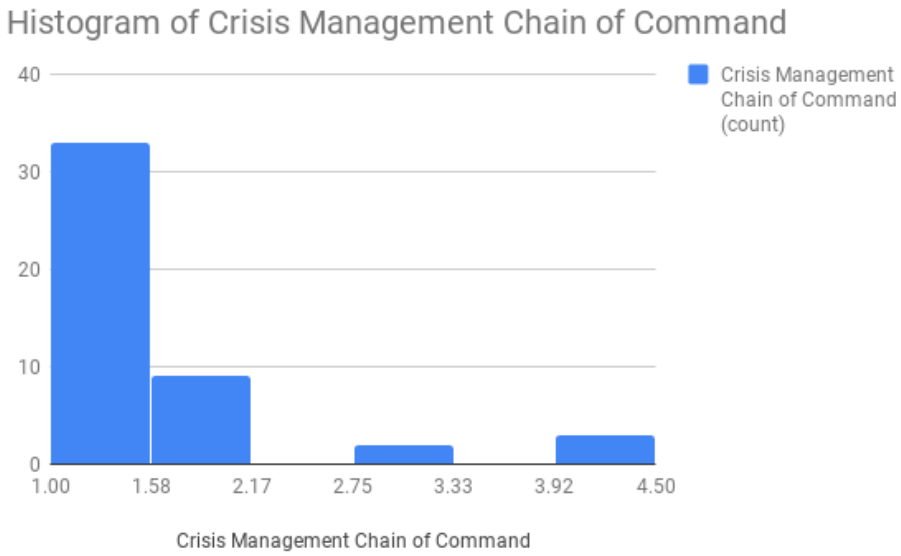


*Figure 38.* Histogram of Crisis Management Chain of Command


*Figure 39*. Histogram of Crisis management commander

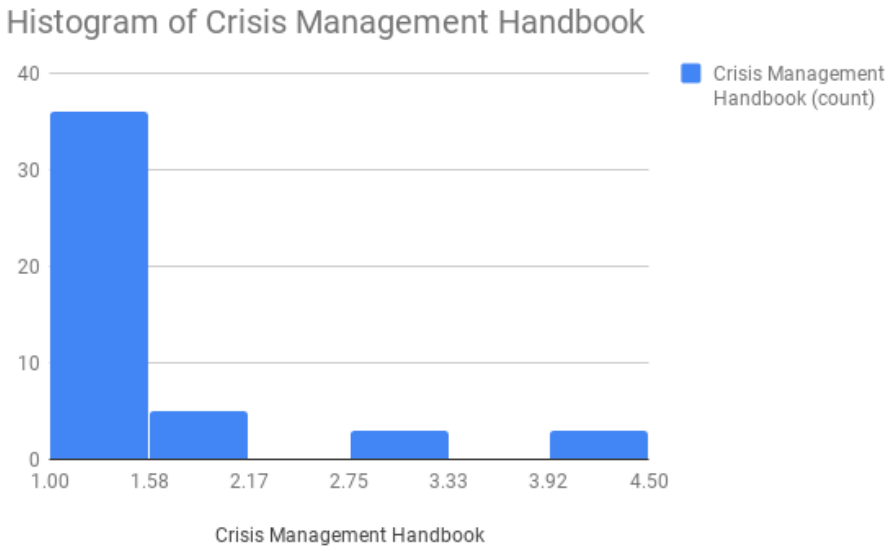


*Figure 40*. Histogram of Crisis Management Handbook


*Figure 41*. Histogram of Crisis management plan


*Figure 42*. Histogram of Crisis management training program

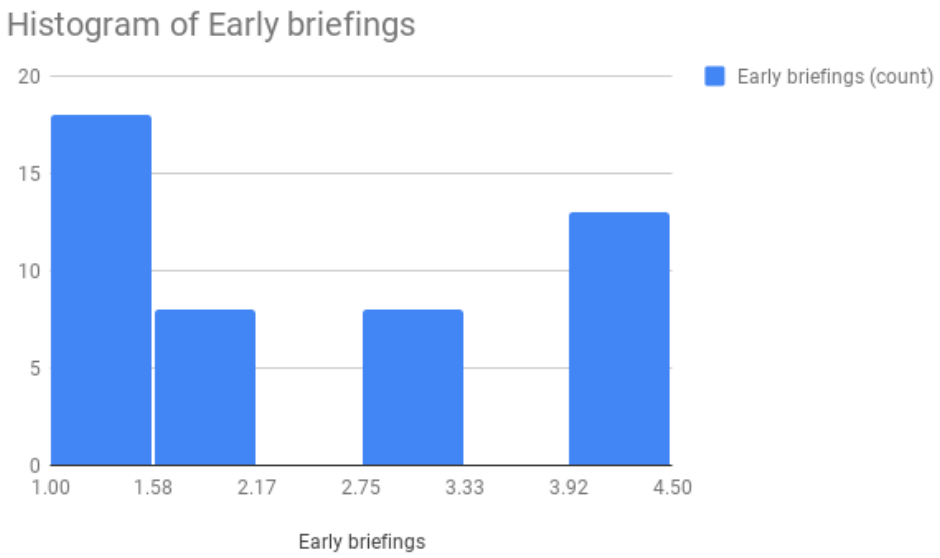


*Figure 43*. Histogram of Early briefings

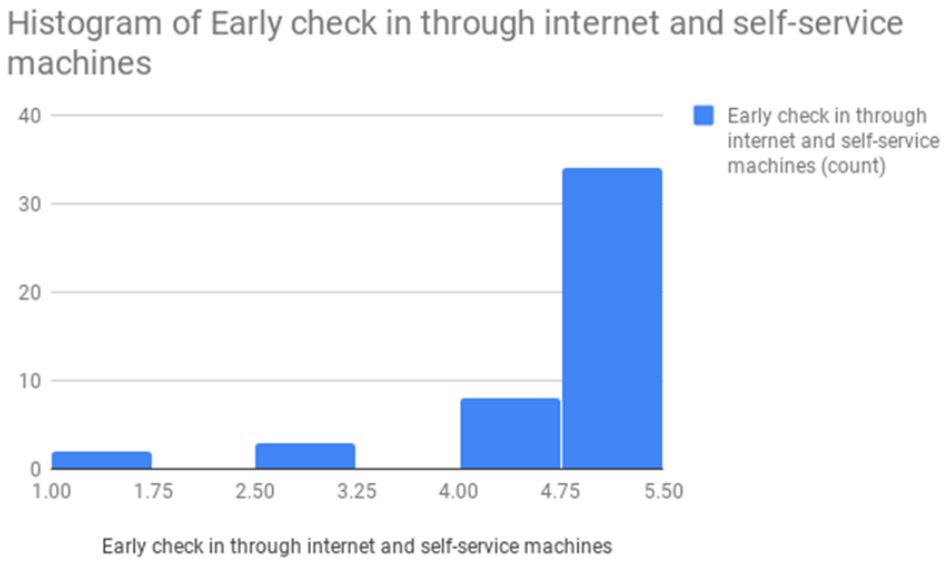


*Figure 44*. Histogram of Early check in through internet and self-service machines

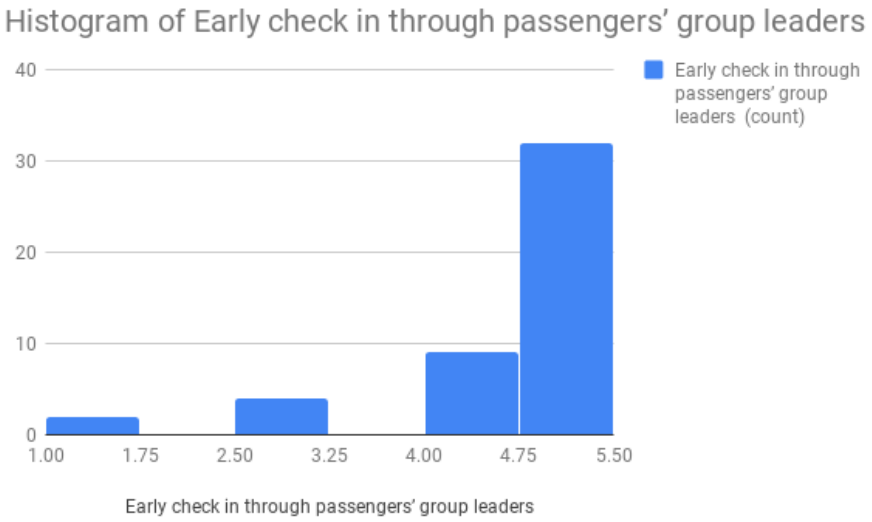


*Figure 45*. Histogram of Early check in through passengers' group leaders

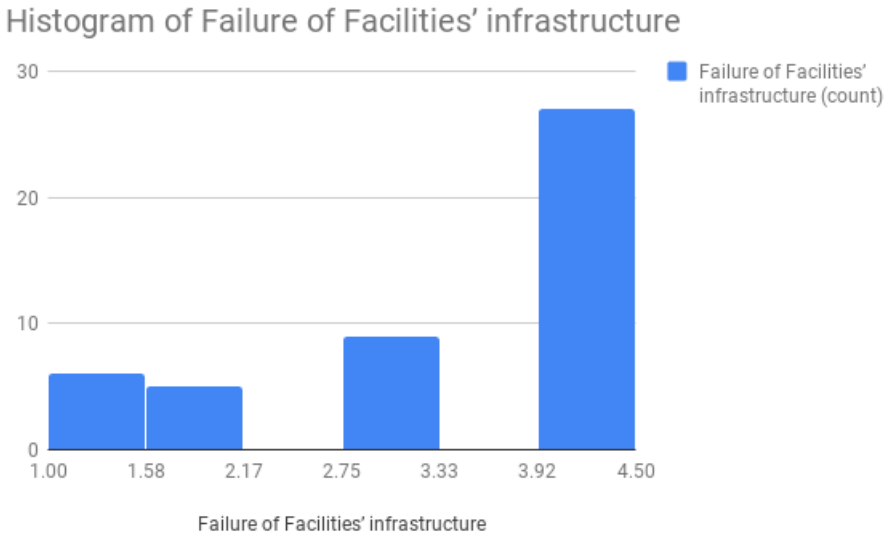


*Figure 46*. Histogram of Failure of Facilities' infrastructure

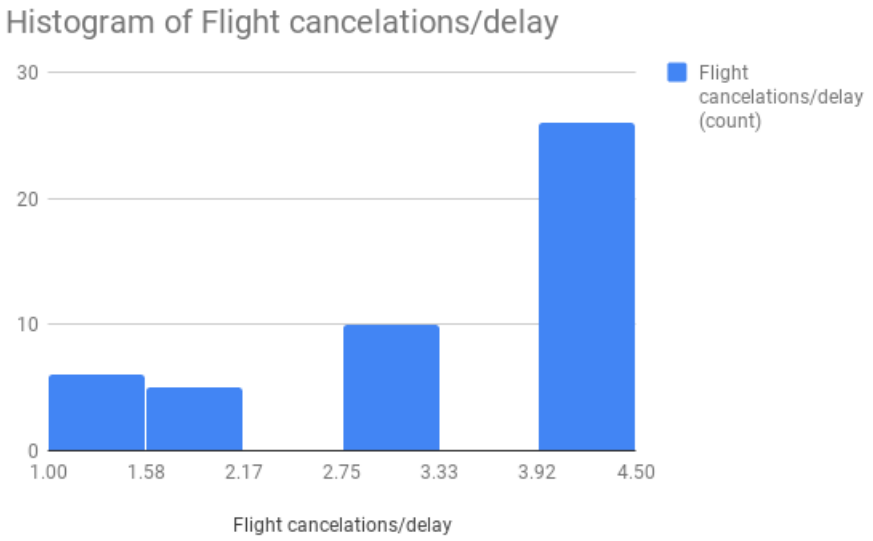


*Figure 47*. Histogram of Flight cancelations/delay

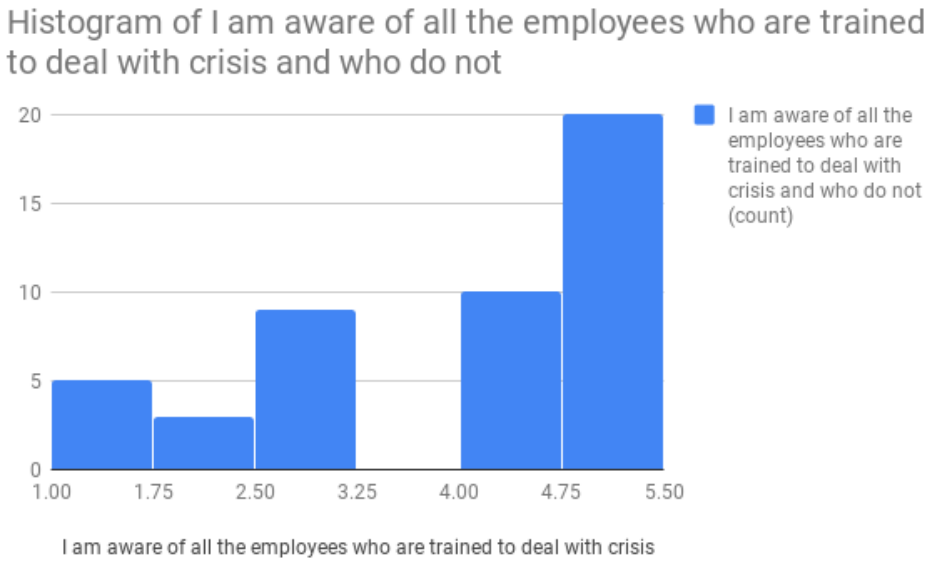


*Figure 48*. Histogram of I am aware of all the employees who are trained to deal with crisis and who do not

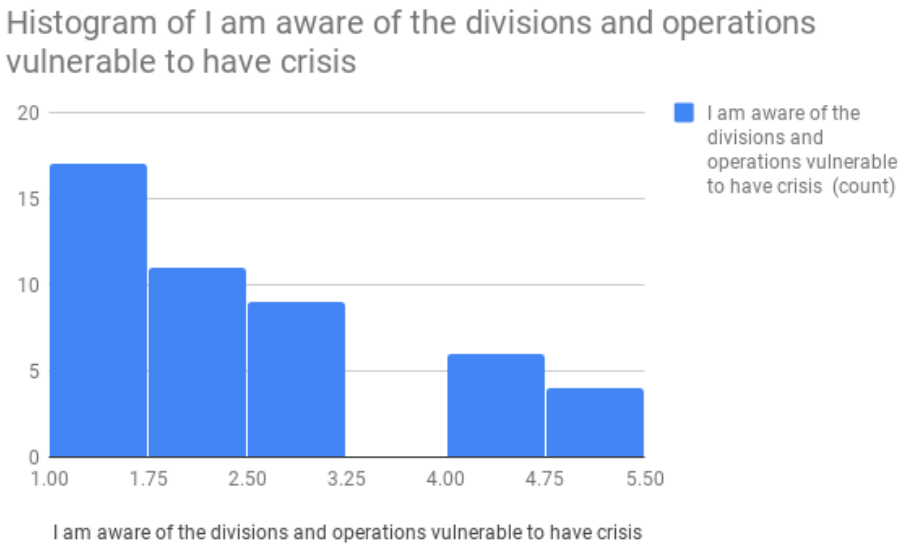


*Figure 49.* Histogram of I am aware of the divisions and operations vulnerable to have crisis

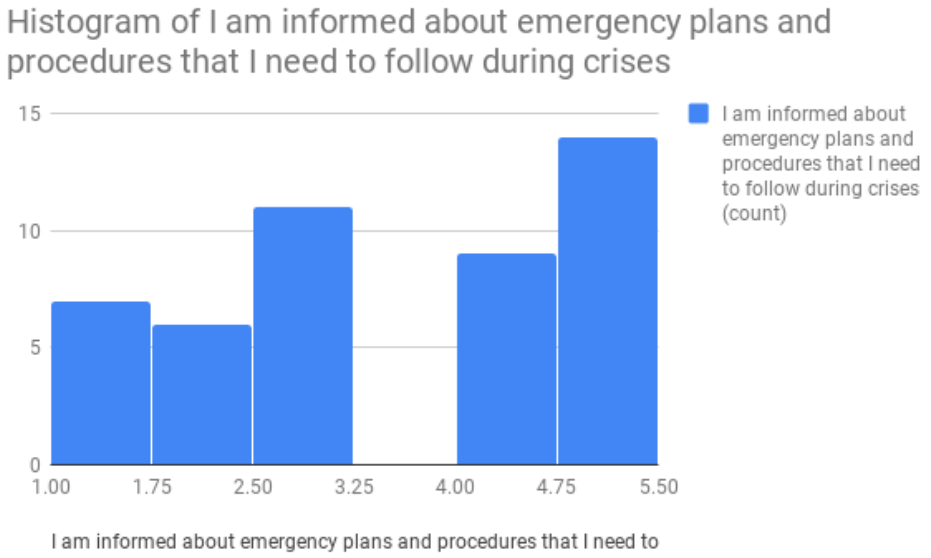


*Figure 50.* Histogram of I am informed about emergency plans and procedures that I need to follow during crises


*Figure 51*. Histogram of I am trained to work with my coworkers and my subordinate to deal with the crisis


*Figure 52*. Histogram of I know how to deal with those crises

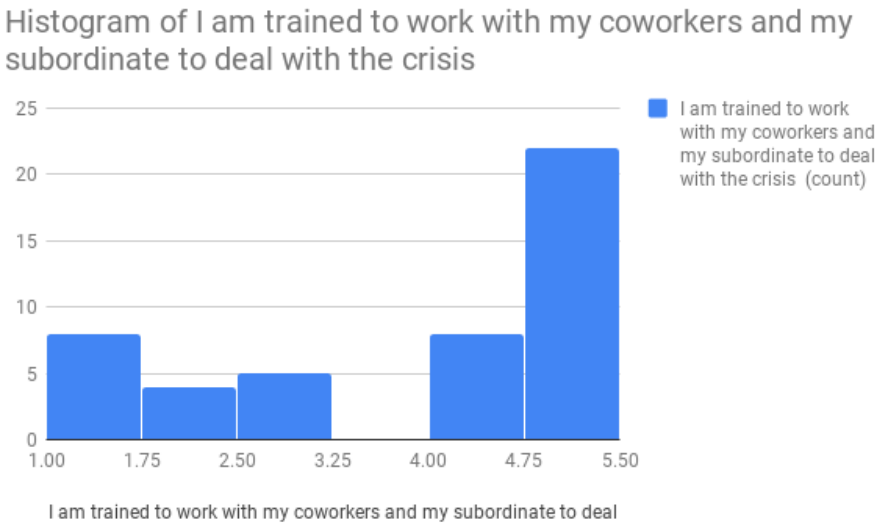


*Figure 53*. Histogram of I am trained to work with my coworkers and my subordinate to deal with the crisis


*Figure 54*. Histogram of I am willing to participate in crisis management training if it is available

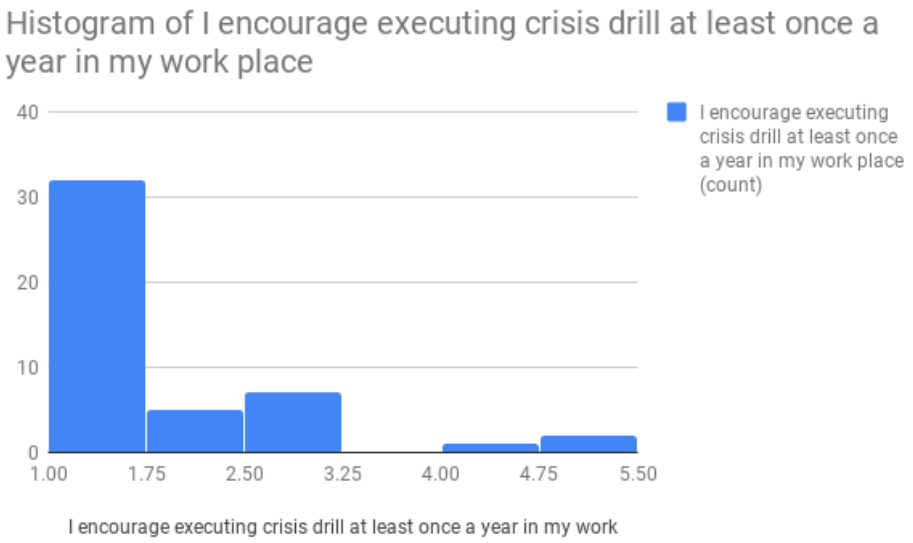


*Figure 55*. Histogram of I encourage executing crisis drill at least once a year in my work place


*Figure 56*. Histogram of I'm aware of crisis risks

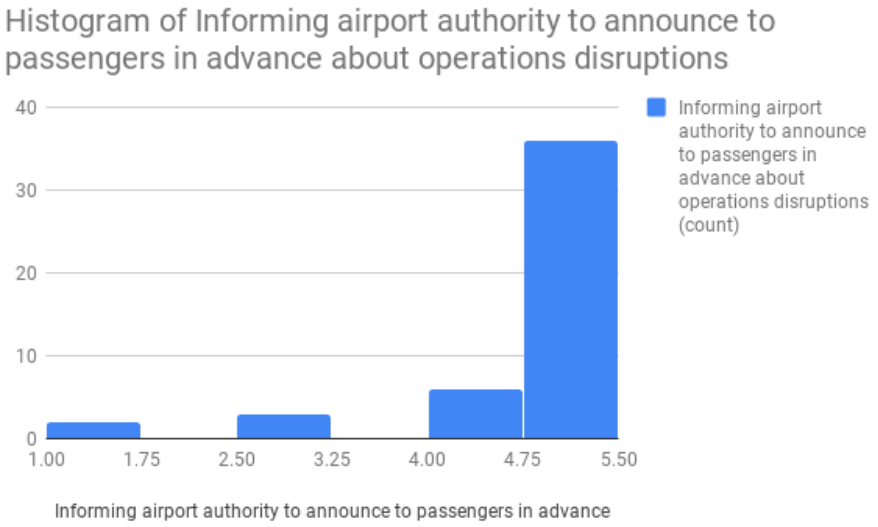


*Figure 57.* Histogram of Informing airport authority to announce to passengers in advance about operations disruptions

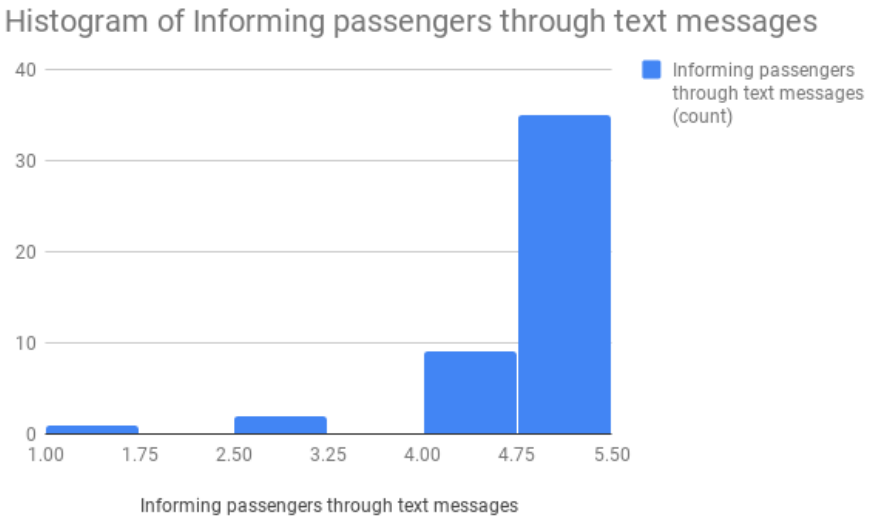


*Figure 58.* Histogram of Informing passengers through text messages

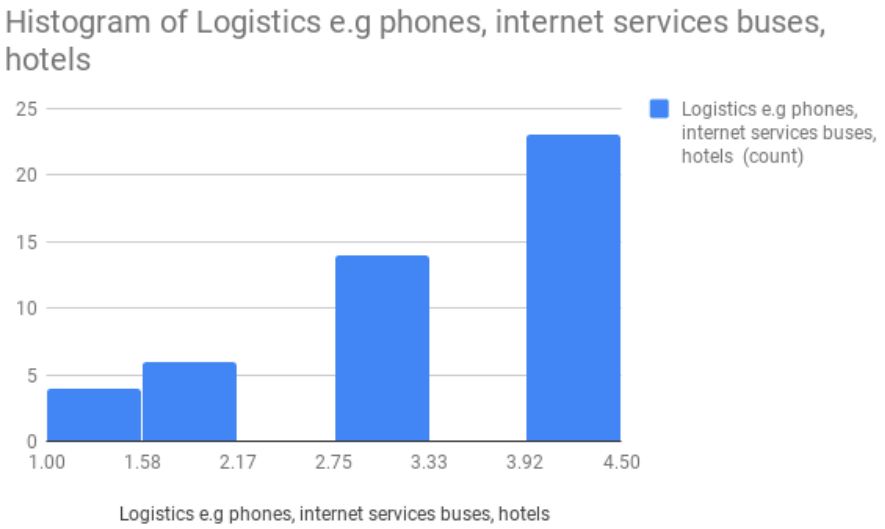


*Figure 59*. Histogram of Logistics e.g. phones, internet services buses, hotels

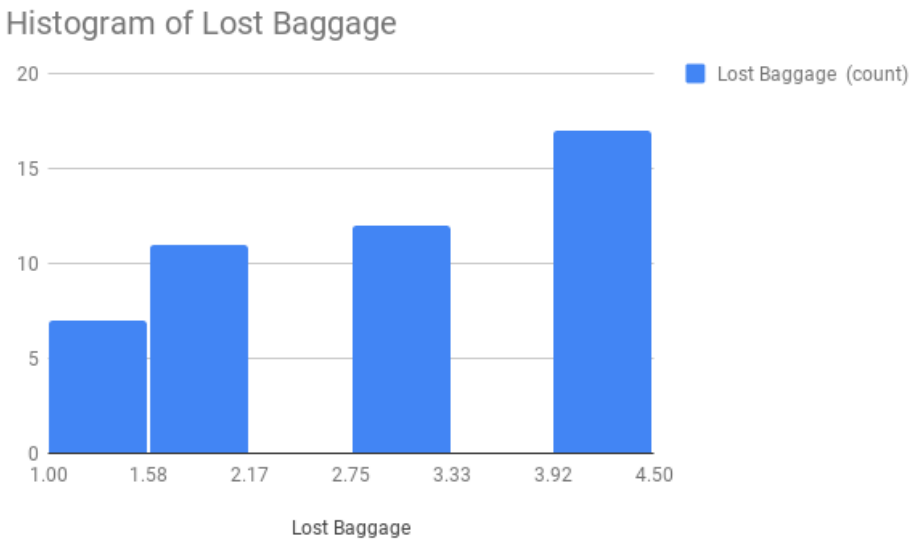


*Figure 60*. Histogram of Lost Baggage

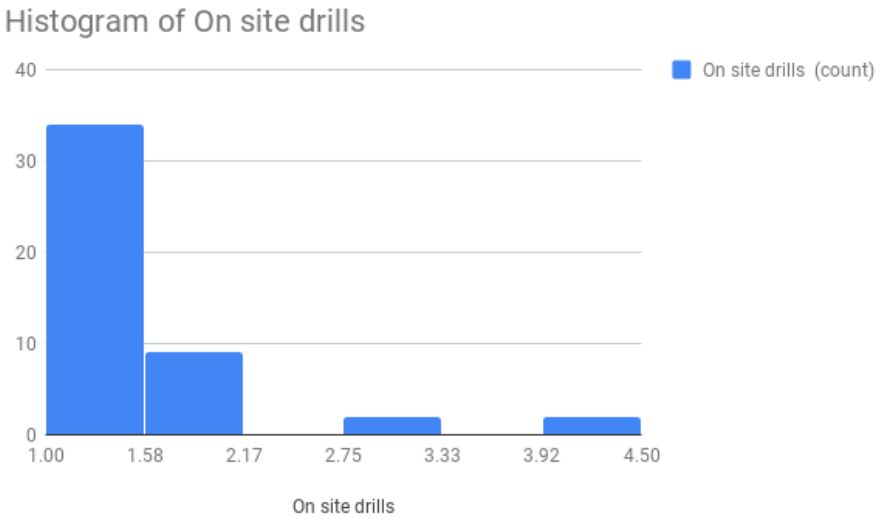


*Figure 61*. Histogram of On site drills

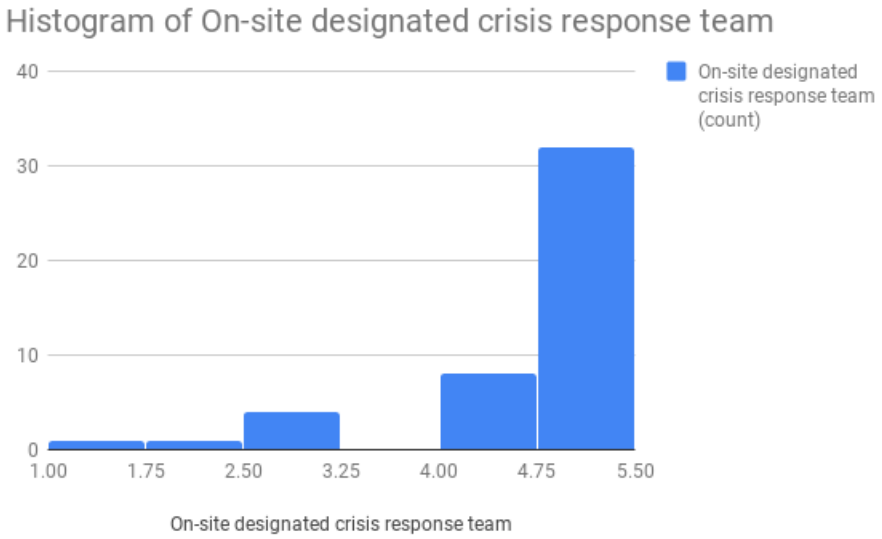


*Figure 62*. Histogram of On-site designated crisis response team

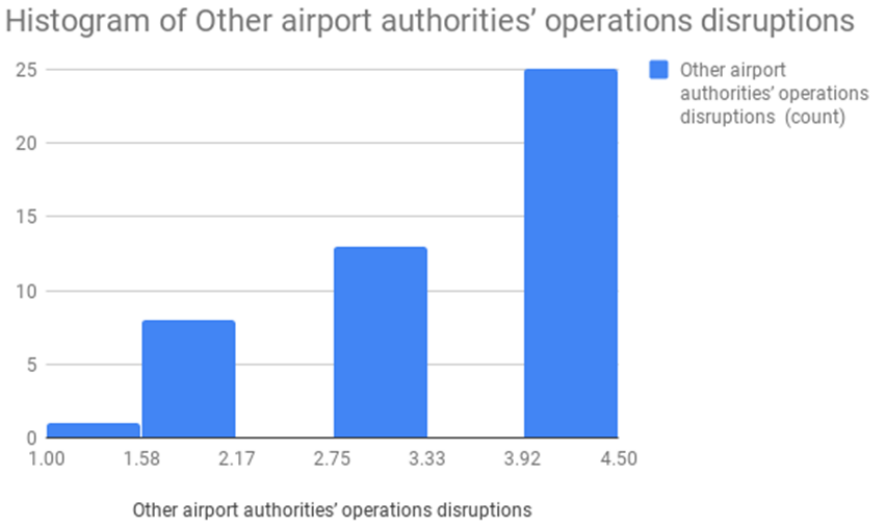


*Figure 63*. Histogram of Other airport authorities' operations disruptions

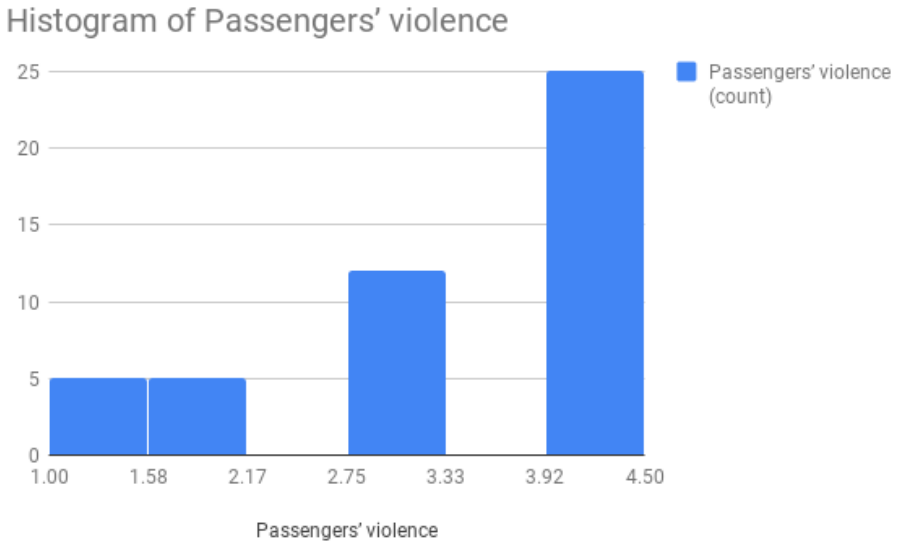


*Figure 64*. Histogram of Passengers' violence

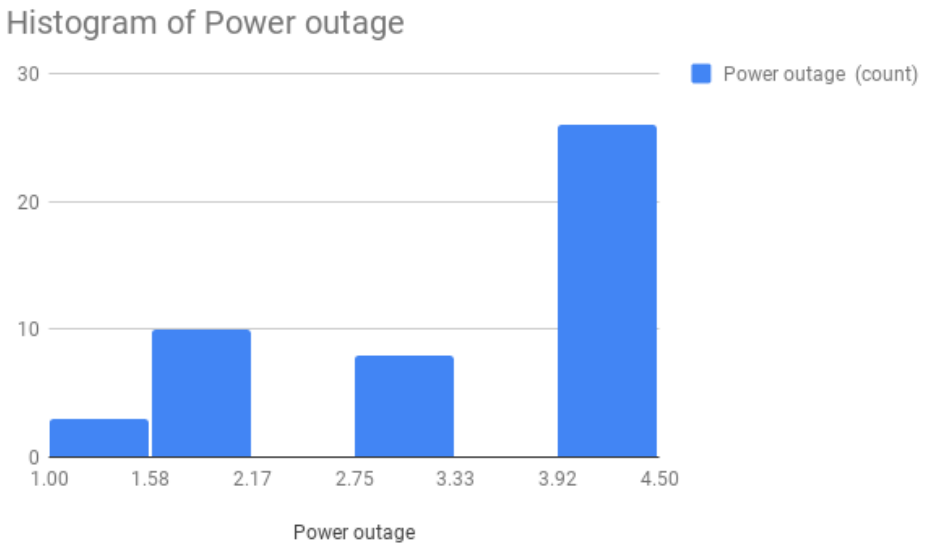


*Figure 65*. Histogram of Power outage

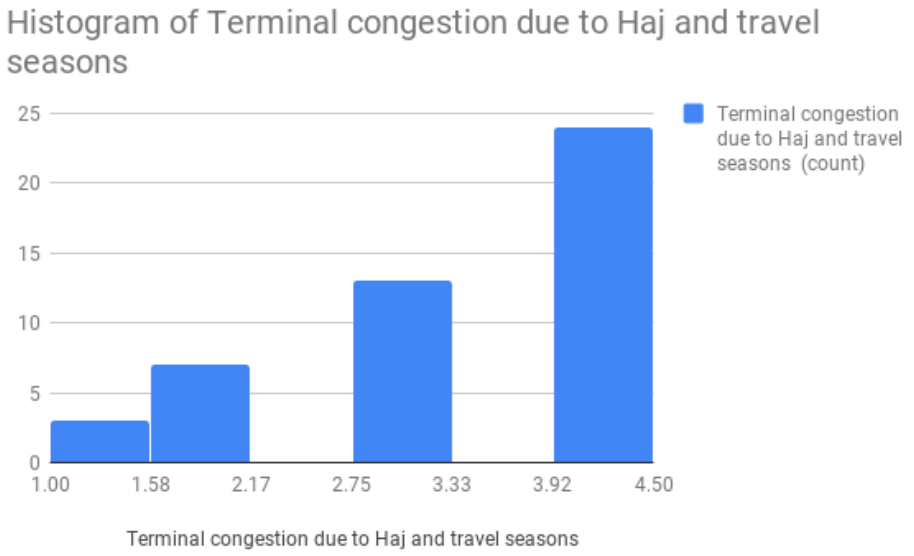


*Figure 66*. Histogram of Terminal congestion due to Haj and travel seasons

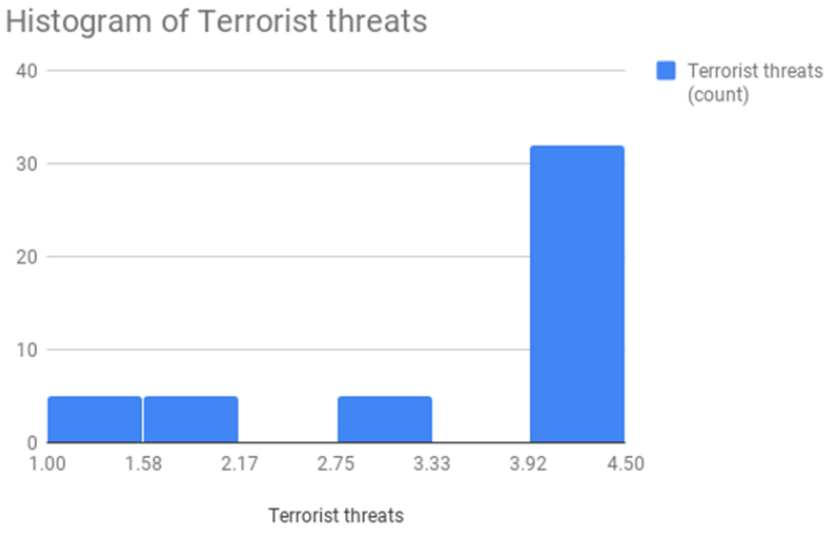


*Figure 67*. Histogram of Terrorist threats

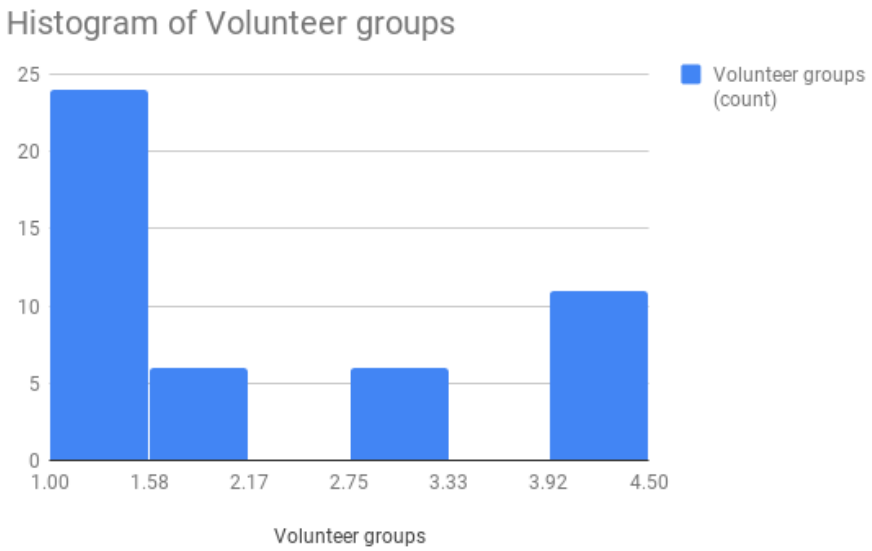


*Figure 68*. Histogram of Volunteer groups

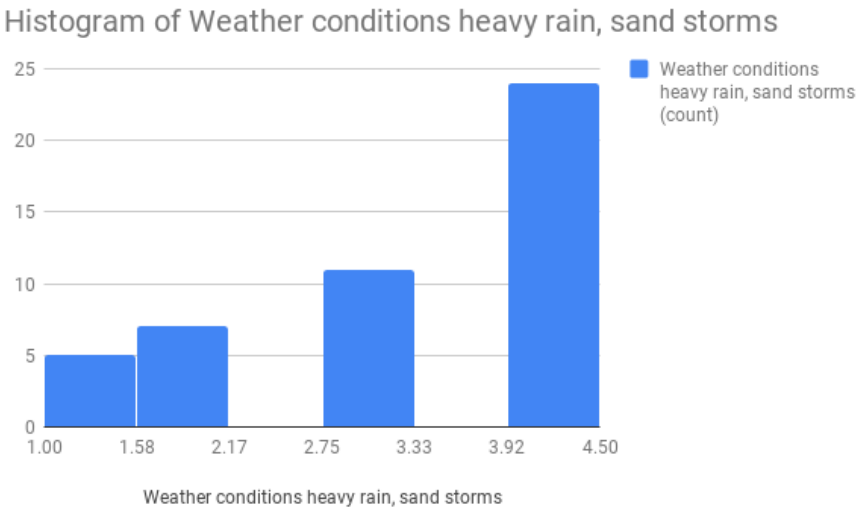


*Figure 69*. Histogram of Weather conditions heavy rain, sand storms

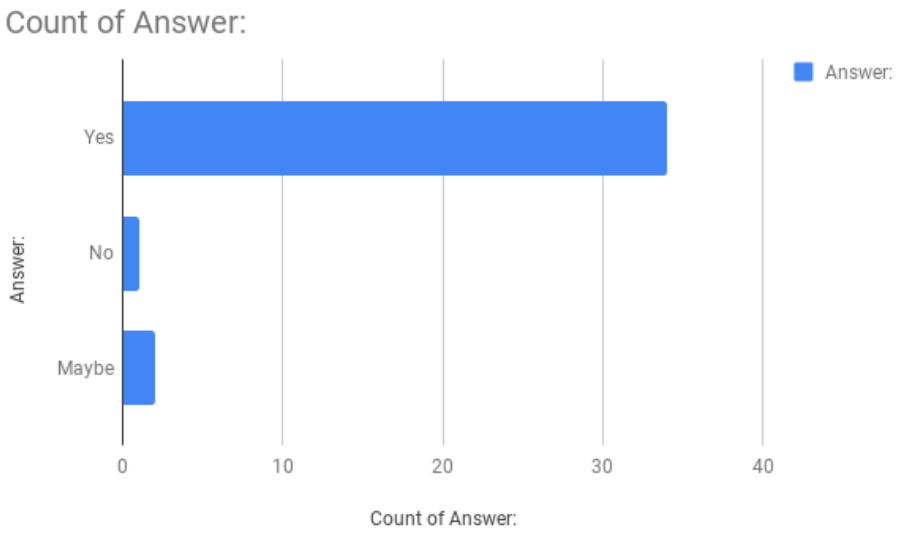


*Figure 70*. Count of Answer

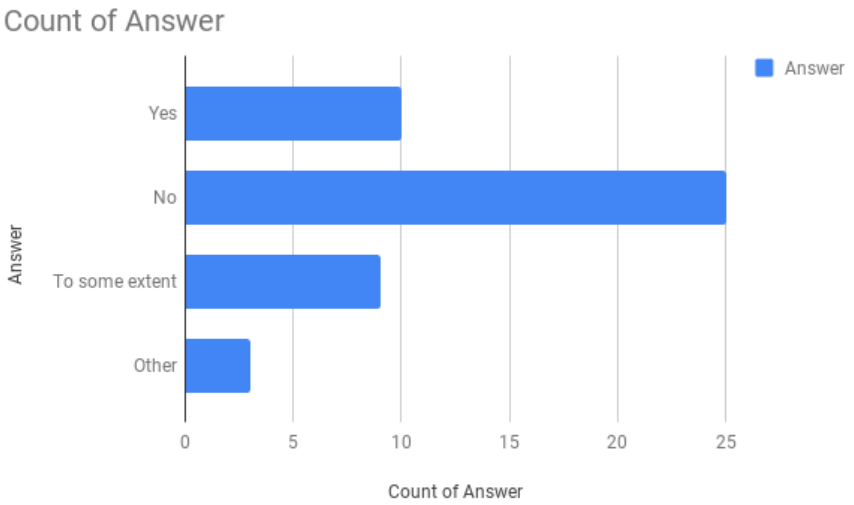


*Figure 71*. Count of Answer

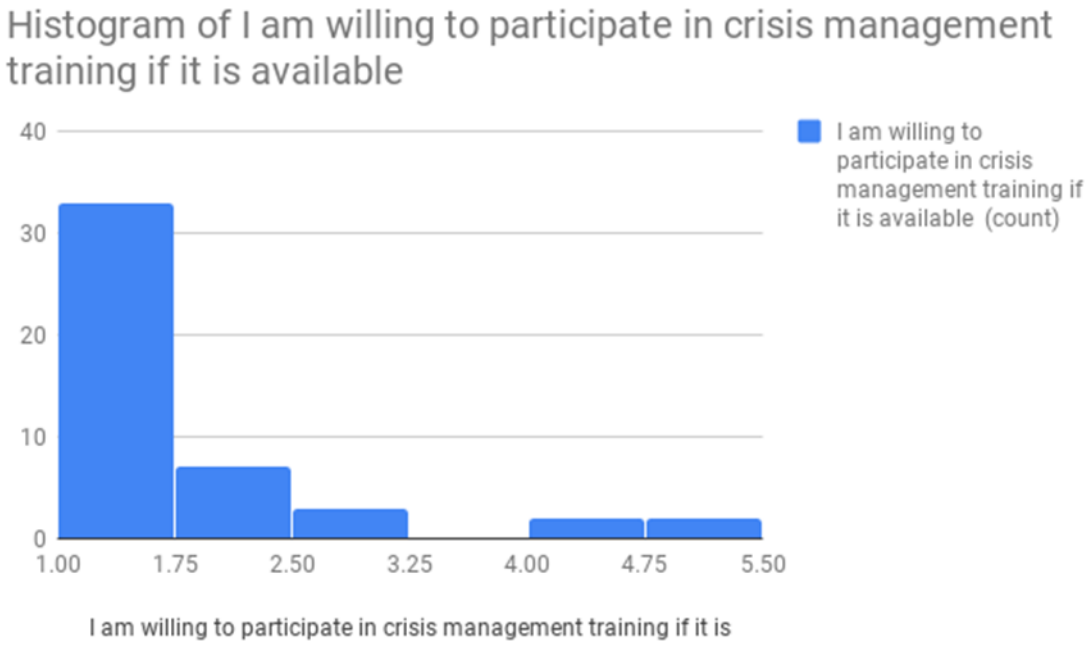


*Figure 72*. Histogram of I am willing to participate in crisis management training if it is available