Safety Management System (SMS) Effect on the employee engagement in airline industry of Pakistan and UAE.

Mahnoor Tauseef
Research Scholar, Karachi Institute of. Technology and Entrepreneurship (KITE)
hamzanaseem317@gmail.com

Muhammad Asadullah
Research Scholar, Karachi Institute of. Technology and Entrepreneurship (KITE)
aadibaba097@gmail.com

Abstract

In the research we are discussing the effects of safety and defining it as a strategy to overcome the harmful situations. We as aviation management controllers have to focus on the implementation of safety management system under the regards or safety personals. It is important for the employee working at an airport or an airline to integrate the safety management systems. The study is demonstrating the safety management system of the aviation industry which differentiates the pros and cons of the designing of the safety management systems. The aviation system doesn't focus much on the safety issues as they put it their primary aspect. This article also examined the selected safety strategy (reactive, proactive, and predictive) and safety indicators of success (SPIs), which collectively make up a good and effective security framework that maintains a respectable safety level.

Key Words: *Safety training, CAA, UAE, aviation, safe task assignment, safe work procedures, accident investigation, supervisor support, detection & monitoring, employee perception, employee engagement.*

Introduction

The safety management system is defined in the research by using the idea of QM (QUALITY MANAGEMENT SYSTEMS) to make strategies for the reduction of risks while travelling and monitoring the airplane. The focus while the safety management review is to build strong communication, organization of the management and to follow the rules of the manager. When the organization make policies and strategies for the safety it is considered as the development of the management systems of the safety. (Miao, Zaman et al. 2022). The second most important and the critical observation made by the managers working at the aviation authority is to take steps which will help in reducing the failure risk. The approach for quality management is used to make strategies for controlling the safety issues by making goals and objective for achieving the opinion for giving safety measures to the passengers. Monitoring and detection is main perspective through which the safety can be over viewed easily. The objective of safety can be meet when the better safety plans are made by the employees working in the safety department of the aviation authority. On the other hand, safety management systems demonstrates the framework which help them in growing and promoting the company's growth as a favorable aspect. The obligations for the safety are fulfilled by creating committee to look after the safety plans either they are implemented or not. (Miao, Zaman et al. 2022). The country or a nation should prepare different programs and then employees should be enrolled and registered in that programs which help them in getting training because when the training programs are organized it means that the human errors are reducing.(Jalees, Kazmi et al. 2023).

ESARRS is known as the regulatory safety requirements which are approved in the legislation of the commission organized by the Europe. As the providers of the navigation systems of the airline safety systems are implemented. The GA proposed as the general aviation under the light of safety management system introduced some of the enterprises but at the same time it also highlights the issues which are unique in itself. (Khan, Zaman et al. 2023). It is not an easy thing to analyze the standards of the safety managements systems which shows their functional standard by explaining all the appropriate authorities of the aviation and the airline organizations as well. The information regarding the safety management system should be discussed domestically and internationally which shows us the modified relationship between the passenger's and the providers of the organization.(Miao, Jalees et al. 2022) By the EASA known as the European Union aviation safety agency shows their interests in describing the safety

management systems. FAA known as the federal aviation administration is the department which shows the current alignment for the aviation industry of America under the light of laws of safety by causing the best attempts by achieving the ICAO. (Jamil, Khan et al. 2022). To achieve excellence in performance, most organizations frequently use behavior-based systems or systems to handle the functions of safety management in the aviation authority. System adoption is preferred by businesses over alternative approaches, potentially due to resource and implementation constraints.(Khan and Zaman 2023) The standards for the safety are shown as per the program of management of the safety system which are utilized in all the best ways. The development of the safety management system is considered as the necessary processes and procedures, as described in these rules and standards, do not place a major emphasis on the human components in these safety requirements.

Contrary to the traditional behavior-based systems, which apply observational approaches, employees engage in more developed critical behaviors, pay attention to employees' attitudes, and then provide feedback (Wachter & Yorio, 2014). Antecedent behavior consequence systems and DO-IT systems are two separate categories of safety systems. The fact is that these systems' features are probably necessary for properly controlling safety performance in businesses.(Miao, Jalees et al. 2022) According to others, these kinds of systems are crucial, and their advantages can be merged into a more balanced and all-encompassing strategy for controlling safety and minimizing accidents (DeJoy, 2005). These characteristics are widely underlined in the human performance approach to safety management, which aims to analyze and eliminate the causes of workplace human error using both behavioral systems and safety management approaches (Yorio, Edwards, & Hoeneveld, 2019). To better understand the Safety Management System (SMS) and its impact on employee engagement, this study also considers the airline sectors in Pakistan and the United Arab Emirates.

Background of the study

In the study it is proposed that the safety management system has different factors of implementation as per the aviation industry because the plane engine failure is one of the major issues faced by the planes while flying above the sea level. The safety management system of the aviation companies totally depends on their quality and technical strategies. To make sure the safety management it is necessary for the company to make indicators regarding the environment and climate change. (Jiang, Zaman et al. 2023). The research is based on the UAE safety

management where there is a highly professional staff is hired by the companies but still there are lot of chances for the human error that can happen any time anywhere and anytime so that's it is important to make safety measure before and after flight which always build your passengers satisfaction and they trust you for their lives obviously. (Zahra, Shahid et al. 2023). Management safety is the creation where it make modifications for the spontaneous improvement by recognizing that how to manage the natural disasters while there is a huge risk. The safety management systems are always active to cope up with the situations happened before the accidents or any natural disaster during the flight. The safety management system itself determination of goals and objectives. Safety management is demonstrated as approaching system for the safety management as per international aviation authority perspectives.

Problem Statement

The most significant and unavoidable fact is that safety management practices lead to latent weaknesses in organizations for a variety of practical reasons, including the inability of SMS to plan, control, and defend against potential errors because there are some steps which shows their uniqueness which they planned and then their controlling standards are highlighted. To give a demonstration of the different strategies that help employees to bring development for the advancement of the culture in the organization. In the study we are analyzing the effect and impact of the measures of the safety and engagement of the employees by explaining the moderating and mediating effects i.e., supervisor support & employee perception.

It also includes SMS, which try to be institutionalized by many rules, strategies, and techniques and are thus difficult to adapt to natural and inevitable deviations that occur while carrying out the work and running into dangers. Finally, faulty humans oversee the safety management systems. Therefore, it is crucial to consider employee involvement in this setting (Wachter & Yorio, 2014).

Research gap.

In the study gap is notice due to the scarcity of the research knowledge in Pakistan as we are identifying the UAE safety management, and we got a lot more information by the UAE researchers as compared to our local ones. The less research and knowledge in Pakistan limited by research perspectives.

Research Objectives

- To identify the relationship and impacts between safety training & employee engagement.
- To identify the relationship between and impacts between safe task assignment and employee engagement.
- To identify the relationship between and impacts between safe work procedures and employee engagement.
- To identify the relationship between and impacts between accident investigation and employee engagement.
- To identify the relationship between and impacts between detection & monitoring and employee engagement.

Literature Review

It explores management systems in airline firms. The aim is to identify and analyze existing research that examines how various components of safety management systems, such as safety training, safe task assignment, safe work procedures, accident investigation, and detection and monitoring, influence employee engagement. (Lin, Zaman et al.)By understanding this relationship, organizations in the airline industry can develop strategies to enhance both safety performance and employee engagement, ultimately leading to improved organizational outcomes.

As a result, the aviation sector is coming to understand the advantages of integrating QMS and SMS in order to provide customers and stakeholders with high-quality goods and services as well as steadily rising levels of safety.(Khan, Khan et al. 2023). The concerns for safety as per the demands of SMS there is a plan that is organized by the employees must be implemented by the influence of methodology. The main idea to control the risk of the aviation structure is to make proper strategies. The strong acceptance of the compliances which are modified in the better way. For the SMS to be effective, the right policies, guidelines, and practices must be in place, and safety management is also required.(Jamil, Shah et al. 2023). Training is also necessary to develop effective safety management systems. Whenever they occur a security interface, maintaining personnel skills ensures that information regarding safety is communicated both inside and with other organizations. An effective safety management system is inextricably tied to an organization's way of life and organizational structure.(Jamil, Shah et al. 2023). Aviation

remains the most secure method of transportation, but due to the dimensions and height of the aircraft, mishaps often result in fatalities. One of the primary causes of aircraft accidents, in addition to mechanical failure and unforeseen events (such as bad weather, sabotage, birds, etc.), is human error. The Federal Aviation Administration, also known as the FAA, asserts that the primary cause of commercial aircraft disasters and other aviation mishaps is human error. More than 88% of general aviation accidents are the result of human error, especially when the flight attendant loses power while aircraft. Pilot error may be the most common type of error made by humans in plane crashes, yet they are not solely at fault. Other people, such as the crew members, air traffic controllers, or aircraft technicians, or maintenance workers. When human error contributes to an aircraft accident, the three parties most frequently held responsible are the aircrew or the remainder of the flight team, air traffic controllers, or technicians. Here are some instances of mistakes made by pilots or other members of the flying crew:

- Flying when impaired by drink or drugs.
- Pilots who are fatigued
- Utilizing autonomous flight technologies might be confusing.
- Insufficient pilot or flight crew training
- Pre-flight or pre-landing checklists being read, skimmed, or skipped.
- There is insufficient communication among the flight crew.
- Negligence on the part of the flight crew.

All aspects of aero planes in the air and on the runway are monitored and controlled by air traffic controllers who work for the FAA directly or through subcontractors. Their responsibility is to control air traffic flow and maintain a safe separation between aircraft.

The following are some mistakes made by air traffic controllers:

- Understaffing Fatigue
- Lack of safety signals or warnings in the absence of proper training
- Erroneously directing pilots
- Air traffic controllers' lack of coordination

The factors of the human errors are observed at high in the safety management system of the aviation authority. The machine failure is the main aspect when it happens under the human error criteria.(Lin, Zaman et al.) The CRM is the phenomena which help the reference of safety

management. However, it has a far larger database of information and a wider breadth. The concept of "human features" refers to the process of learning about human capabilities, constraints, and other traits in order to design tasks, jobs, environments, machinery, infrastructure, and other things which are secure, pleasant, and useful for those who use them(Khan, Rashid et al. 2023). The aim of the human element in aerospace is to comprehend the way individuals may be incorporated with technology most securely and effectively.(Khan, Zaman et al. 2023) The knowledge is then translated into designs, guidelines, instructions, or practices that help individuals.

Notwithstanding the quick development of the internet, people are ultimately responsible for ensuring the safety and success of the aviation industry. They must continue to be knowledgeable, flexible, devoted, and effective while exercising good judgment.(Agha, Rashid et al. 2021) The sector continues to make large expenditures in training, processes, and technologies that are going to pay off in the near future. As technology continues to progress more rapidly than our ability to predict how people will engage with it, professionals can no longer depend as much on intuition and expertise to guide decisions regarding employee productivity as they once did. Instead, assessing the effects on the way people perform in design, instruction, and processes demands a solid base in science, just as building an innovative wing involves outstanding aeronautical architecture.(KHAN, RASHEED et al. 2022). Airlines have been addressing this problem since the beginning of the 1960s by employing human factors specialists, a lot of which are mechanics or pilots. This team of over 30 experts, originally concentrating on flying deck design, now considers a far wider range of aspects, comprising ergonomics, which is psychological-computer design, mental health, performance among people, and metabolism. Their collective knowledge contributes to the engineering of the airline's airplanes and associated products, which help people perform as well as they can while compensating for their natural limitations. (Khan, Anwar et al. 2023). Major research areas involve creating human-aircraft interactions and developing processes that benefit crew members and maintenance professionals because they can help the industry reduce the number of private airplane crashes. To improve usability, maintainability, reliability, and comfort, Airbus also monitors how passengers behave throughout the entirety of the aircraft. To help operators better manage human error, human factors specialists also participate in operational safety analysis, technique development, and instrument development. Technologists, security professionals,

testing and instruction flight attendants, engineering, and cabin crew must work closely with the specialists in order to integrate human factors throughout the construction of all Boeing airplanes. (Khan and Zaman 2023)

Safety training Education and training

In aviation safety are crucial building blocks for creating effective safety cultures. When workers take part in risky events or incidents, this should be one of the first factors that are examined. Aviation risk management education is not all created equal. The quality of training in aviation safety varies just as much as expenses for instruction do. Additionally, a higher price does not always translate into higher quality. Knowing what to search for is essential to get quality aviation SMS training. Each department of an organization needs to have safety training. Upper management, safety management, and front-line staff must all be aware of their responsibilities in the safety management procedure. Training is the main aspect when it comes to the job. The job can be of any type, either the multinational harm department or the aviation department of airline or the airport. It's crucial, but how can a training have programmed transform from uninteresting to one that genuinely prevents accidents and saves lives at work? How can your managers make sure that each employee understands and practices these crucial safety training concepts throughout the day? This thorough guide covers the key workplace safety themes to cover and how to design a comprehensive staff safety training programmed, whether you create a full safety training programmed or simply send out regular safety reminders by message.

Safe task assignment

The safety management system employees are assigned their tasks as they must fulfill their jobs as per the manager's orders. When the employees are hired they have to attend the training programs so that they should know how to manage the problems if they are not trained then they will be unable to fulfill their assignments.(Khan, Khan et al. 2023) The managers who assigned their tasks must have to complete their work on time cos we can't afford any risk when it comes to the safety of the passengers. The staff working in the safety department have to be responsible for every inch of safety or the hazards that happen during or after flights.

To establish roles in aviation safety programs, it is essential to have a clear understanding of the various tasks required to support your SMS. You also need to think about:

The scale of your business, the tools your SMS uses (SMS software, spreadsheets, etc.), the support of front-line staff, and the current procedures.

- Here are some helpful hints for building your roles:

- Make a list of all safety obligations; begin with the fundamental roles.

- List the obligations for each function; determine which critical roles would be a good addition to your current processes.

- Describe the duties of each significant role; and

- Then determine which functions inside your organization do not fulfil the responsibilities you just listed.

The aspect of your SMS that safety managers and department heads will likely deal with the most is your incident management procedure. It nearly goes without saying that to understand, you must be aware of your process:

What tasks are required; what role is required to carry them out; and the extent of responsibility for handling reported difficulties.

Safe work procedures

The industry of aviation in UAE is striving to make high safety and security by giving healthy environment to the employees, pilots, and the flight attendants whereas the safety managements are considered as the main idea in the aviation industry. The economy around the globe is the key step for the development of aviation industry. In aviation it contributes approximately $2.7 trillion (3.6%) of the global GDP in terms of global logistics for the flow of products.

Accident investigation

The investigation of an accident is a methodical process in which all the potential reasons for an unfavorable event are assessed and ruled out until only those factors are left that are relevant to that investigation. Additionally, even though they might not end up in the official investigation report, the investigation team should identify any problems that are found that were not related to the accident and give this information to the appropriate authority. Even though many incidents seem to be variations of one another, this could be deceptive. Therefore, it is crucial that investigators maintain an open mind in order to avoid concentrating on one issue and thereby ignoring another.(Khan, Zaman et al. 2022). Due to the rarity of accidents, investigators must seize every chance to train with air carriers, the military, aircraft manufacturers, and other incident investigators to stay current and learn the best investigative techniques. To assist with recurring training, it is advisable to review the investigation into accident resources that several significant air carriers and airplane makers have established. Periodic emergency drills

are held at aerodromes and by air carriers, and they give accident investigators the chance to practice using the scenarios.

Detection & monitoring

A plane data monitoring program aids an operator in recognizing, evaluating, and mitigating operational risks. It may be utilized successfully to support a variety of operational safety and airworthiness responsibilities. The challenges of defining or fine-tuning a programmed from the supplier suited for turbo-prop operations are shared by many clients.

Super visor support

Long recognized as a resource AS MODERATOR that helps people manage stress, SUPERVISOR assistance (Hoo'll, 2002; Fenlason and Behr, 1994). People who are more socially connected have easier access to things like practical help and esteem support (Cohen and Wills, 1985). The basic premise behind the moderating hypothesis of social support at work is that employees who have supportive organizations, supervisors, and peers, for instance, can rely on them during challenging moments at work.
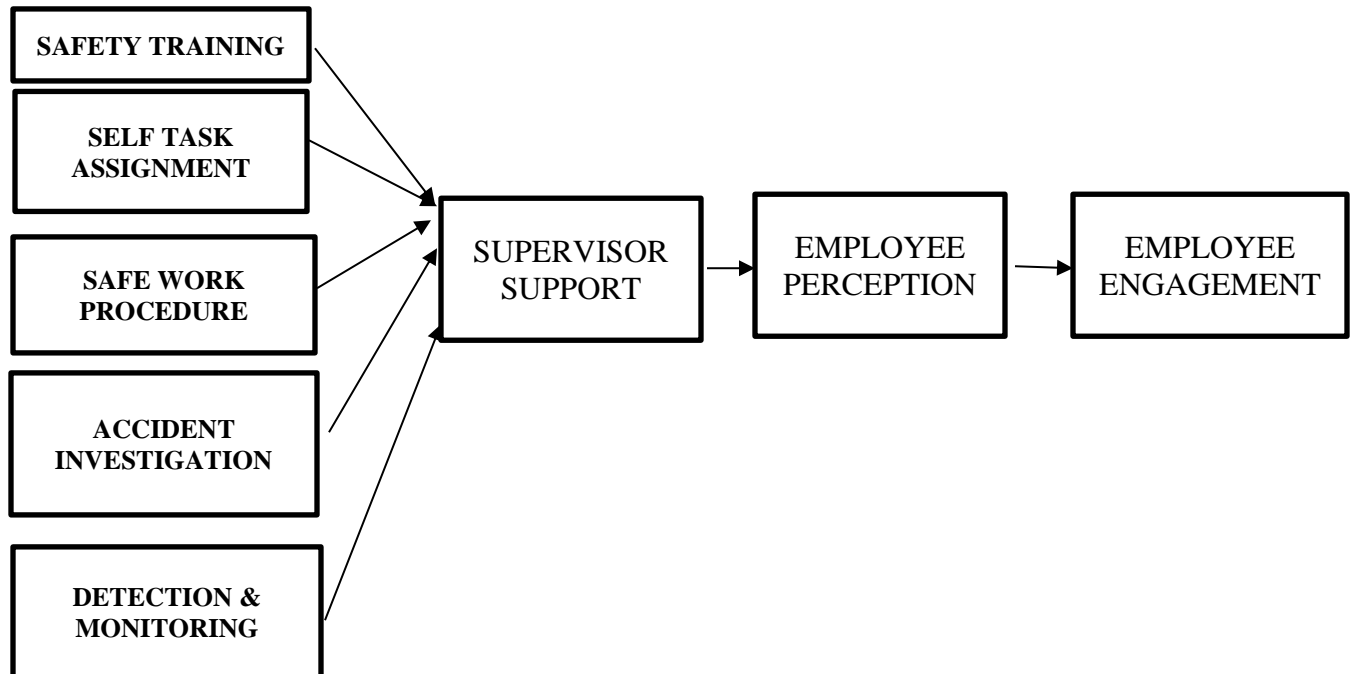
Employee perception

According to a lot of organizational identification research, when employees think favorably of their organization's image, they are more likely to feel strongly identified with it. Employees are more likely to identify with a company that fosters positive values through its CSR efforts, according to a prior study(Nafees, Khan et al. 2022). Additionally, since people with a strong sense of belonging to an organization are often driven to work hard and achieve its goals, it stands to reason that employees with high organizational identification would be more productive at work.(Khan, Khan et al. 2023) The key mediator of the study is employee perception which mediates the relationship as per hypotheses.

Employee engagement

In a previous post, we discussed a disturbing Gallup Organization survey that revealed that only 29% of American workers are currently "motivated and engaged."
The remaining 71% exhibit some degree of "disengagement." You would only be firing on two cylinders if that engine in your car had eight cylinders. Not much performance, and certainly not much power! This analogy also directly relates to your aviation company.

Figure 1
Conceptual Framework

```
┌──────────────────┐
│ SAFETY TRAINING  │──┐
└──────────────────┘  │
┌──────────────────┐  │
│ SELF TASK        │  │
│ ASSIGNMENT       │──┤     ┌──────────────┐   ┌──────────────┐   ┌──────────────┐
└──────────────────┘  │     │ SUPERVISOR   │   │ EMPLOYEE     │   │ EMPLOYEE     │
┌──────────────────┐  ├────▶│ SUPPORT      │──▶│ PERCEPTION   │──▶│ ENGAGEMENT   │
│ SAFE WORK        │  │     └──────────────┘   └──────────────┘   └──────────────┘
│ PROCEDURE        │──┤
└──────────────────┘  │
┌──────────────────┐  │
│ ACCIDENT         │  │
│ INVESTIGATION    │──┤
└──────────────────┘  │
┌──────────────────┐  │
│ DETECTION &      │  │
│ MONITORING       │──┘
└──────────────────┘
```

Hypothesis

H1: Safety training has a positive relationship with employee engagement**.**

H2: Safe task assignment is having a positive relationship with employee engagement.

H3: Safe work procedure is having a positive relationship with employee engagement.

H4: Accident investigation is having a positive relationship with employee engagement.

H5: Detection and monitoring are having a positive relationship with employee engagement.

H6: Supervisor support Moderates relationship between safety training and employee engagement

H7: Supervisor support Moderates relationship between safe task assignment and employee engagement.

H8: Supervisor support Moderates relationship between safe work procedure and employee engagement.

H9: Supervisor support Moderates relationship between accident investigation and employee engagement.

H10: Supervisor support Moderates relationship between detection and monitoring and employee engagement.

H11: Employee perception of safety culture mediates relationship between safety training and employee engagement.

H12: Employee perception of safety culture mediates relationship between safe task assignment and employee engagement.

H13: Employee perception of safety culture mediates relationship between safe work procedure and employee engagement.

H14: Employee perception of safety culture mediates relationship between accident investigation and employee engagement.

H15: Employee perception of safety culture mediates relationship between detection and monitoring and employee engagement.

Research Methodology

The sample size of the research is calculated by the margin error of 5% and then the confidence level for the calculated sample size is 95%. In the research we are targeting the employees working and travelling to UAE with the emirate's airline or any other airline that flies to UAE. The questionnaires are distributed by online platforms through email and WhatsApp. For the empirical study previous data of the already tested research is used in the recent study. We have selected the employees and asked them about the training, risk management, accidents that took place naturally or by human errors, supervision, perceptions, engagement of the employees while on job. The methods of common bias respondents are used in the research (Podsakoff et al., 2003).

Questionnaire design.The questionnaire is designed with the help of previously published papers which were then extracted replicated and then published again. In the questionnaire theoretical and conceptual framework information is implemented.

Scales & Measures

The reliability and validity for the responses collected through the questionnaire are calculated on the new and current data information (Podsakoff et al., 2003). We are using the Likert scale to measure the responses.

Questionnaire Design

The questionnaire for the study is designed in two parts first part of the questionnaire is the main information that includes demographics, and the second part is based on the questions constructed on the Likert scale 1 to 5 (Strongly Agree, Agree, Neutral, Disagree & Strongly Disagree).

Table 1 shows the basic information of the questionnaire that includes variables, references, and number of questions for each variable.

Table 1
References

		Items
Safety training	(Liptak, JULY 2018)	3
Safety task assignment	(Hyun Jeong Kima, Received 3 November 2015; accepted 23 November 2016)	3
Safe work procedures	(Maurino, August 2017)	3
Accident investigation	(Manual of Aircraft Accident and Incident Investigation)	3
Detection & monitoring	(FLIGHT DATA MONITORING ON AIRCRAFT, 2016)	3
Supervisor support	(Maurino, August 2017)	3
Employee perception	(Nicole S.N. Yiu 1, Received: 25 March 2019; Accepted: 17 April 2019; Published: 18 April 2019)	3
Employee engagement	(Maurino, August 2017)	3

Data Analysis
Responses and Characteristics
The limited resources don't let us visit each of the employee, so we distributed the questionnaire through online platforms including WhatsApp and emails. The demographics shows us that the 35 males and 50 females answered the questionnaire with the percentages of 58.8% females and 41.2% males, education sectors rely on matric (3, 3.5%), inter (11, 12.9%), bachelors (59, 69.4%) and masters (12, 14.1.%). The income of each employee answered the questionnaire 50,000-100,000 (32, 37.6%), 100,000-250,000 (40, 47.1%) and 250,000-500,000 (13, 15.3%).

Table 2

Characteristics	Frequency	Percentage
Gender	85	
- Male	35	41.2%
-Female	50	58.8%
Education	85	
-Matriculation	3	3.5%
- Intermediate	11	12.9%
- Bachelors	59	69.4%
- Masters	12	14.1.%
INCOME	85	
50,000 - 100,000	32	37.6%
100,000 - 250,000	40	47.1%
250,000 - 500,000	13	15.3%

Results & Discussion
Descriptive analysis

In the research there is table 3 which contains the Cronbach alpha values, composite reliability, and the variance of each variable. The Cronbach values for the variables are between 0.7-0.9 which indicates that the relationships between the variables are significant to each other. The selection of data and the interpretation of the data analyzed in the smart pls, and the data

responses are collected by the Karachi, Pakistan premises (Mahajan, 2017). The values for the AVE are between 0.6-0.8 and all the values for the composite reliability are greater than 0.7. It shows that the tests are not in any deviating factor under the convergent validity (Sarstedt et al., 2019).

Discriminant validity

The Furnell larker 1981 is the test for the calculation of discriminant validity of the test run based on responses collected. Table 3 consist of the Cronbach values, composite reliability, and AVE. In the Table 4 Furnell larker values are calculated which are demonstrating the Pearson correlation values which are greater than 0.7 as per the research Pearson values are significant if they are in between 0.7-0.9 but greater than this value and lower than this value will not be significant (Fornell and Larcker, 1981). In the research there are five mediating and five moderating hypotheses. The bootstrapping tests are used to test the hypotheses. Table 5 illustrates the accepted and rejected relationships of each hypothesis.

The research tests run on the pls are demonstrated on the base of the hypotheses and variables proposed by (Hyun Jeong Kima, Received 3 November 2015; accepted 23 November 2016).

Table 3

		Loadings	Cronbach's alpha	Composite reliability (hoc)	Average variance extracted (Nafees, Khan et al.)
	AI 1	0.769	0.779	0.871	0.692
	AI 2	0.888			
	AI3	0.834			
	DNM 1	0.861	0.765	0.860	0.672
	DNM 2	0.751			
	DNM 3	0.843			
	EE 1	0.861	0.781	0.872	0.695
	EE 2	0.829			
	EE 3	0.810			
	EP 1	0.890	0.860	0.915	0.781
	EP 2	0.889			
	EP 3	0.872			
	SS 1	0.847	0.805	0.885	0.719
	SS 2	0.830			
	SS 3	0.867			
	ST 1	0.812	0.744	0.855	0.663
	ST 2	0.867			
	ST 3	0.760			

STA 1	0.842	0.770	0.867	0.685
STA 2	0.795			
STA 3	0.845			
SWP 1	0.855	0.730	0.849	0.652
SWP 2	0.833			
SWP 3	0.730			

Table 4

	AI	DNM	EE	EP	SS	ST	STA	SWP
AI								
DNM	0.997							
EE	0.714	0.726						
EP	0.789	0.727	0.842					
SS	0.891	0.764	0.805	0.910				
ST	0.961	0.901	0.848	0.818	0.891			
STA	0.971	0.944	0.796	0.672	0.793	1.051		
SWP	0.888	0.877	0.873	0.916	0.971	0.849	0.815	

Table 5

	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	
AI -> SS	0.285	0.073	3.907	0.000	ACCEPTED
DNM -> SS	-0.018	0.055	0.408	0.683	REJECTED
EP -> EE	0.694	0.039	17.996	0.000	ACCEPTED
SS -> EP	0.760	0.023	32.526	0.000	ACCEPTED
ST -> SS	0.275	0.044	6.243	0.000	ACCEPTED
STA -> SS	-0.048	0.049	0.964	0.335	REJECTED
SWP -> SS	0.421	0.053	7.932	0.000	ACCEPTED
AI -> EE	0.150	0.040	3.771	0.000	ACCEPTED
AI -> EP	0.216	0.055	3.915	0.000	ACCEPTED
DNM -> EE	-0.010	0.029	0.407	0.684	REJECTED
DNM -> EP	-0.014	0.042	0.409	0.683	REJECTED
SS -> EE	0.528	0.038	13.696	0.000	ACCEPTED
ST -> EE	0.145	0.026	5.631	0.000	ACCEPTED
ST -> EP	0.209	0.034	6.070	0.000	ACCEPTED
STA -> EE	-0.025	0.026	0.966	0.334	REJECTED
STA -> EP	-0.037	0.037	0.964	0.335	REJECTED
SWP -> EE	0.223	0.035	6.375	0.000	ACCEPTED
SWP -> EP	0.320	0.044	7.339	0.000	ACCEPTED

DNM -> SS -> EP	-0.014	0.042	0.409	0.683	REJECTED
SS -> EP -> EE	0.528	0.038	13.696	0.000	ACCEPTED
SWP -> SS -> EP -> EE	0.223	0.035	6.375	0.000	ACCEPTED
AI -> SS -> EP	0.216	0.055	3.915	0.000	ACCEPTED
ST -> SS -> EP	0.209	0.034	6.070	0.000	ACCEPTED
SWP -> SS -> EP	0.320	0.044	7.339	0.000	ACCEPTED
DNM -> SS -> EP -> EE	-0.010	0.029	0.407	0.684	REJECTED
ST -> SS -> EP -> EE	0.145	0.026	5.631	0.000	ACCEPTED
AI -> SS -> EP -> EE	0.150	0.040	3.771	0.000	ACCEPTED
STA -> SS -> EP -> EE	-0.025	0.026	0.966	0.334	REJECTED
STA -> SS -> EP	-0.037	0.037	0.964	0.335	REJECTED
AI -> EE	0.150	0.040	3.771	0.000	ACCEPTED
AI -> EP	0.216	0.055	3.915	0.000	ACCEPTED
AI -> SS	0.285	0.073	3.907	0.000	ACCEPTED
DNM -> EE	-0.010	0.029	0.407	0.684	REJECTED
DNM -> EP	-0.014	0.042	0.409	0.683	REJECTED
DNM -> SS	-0.018	0.055	0.408	0.683	REJECTED
EP -> EE	0.694	0.039	17.996	0.000	ACCEPTED
SS -> EE	0.528	0.038	13.696	0.000	ACCEPTED
SS -> EP	0.760	0.023	32.526	0.000	ACCEPTED
ST -> EE	0.145	0.026	5.631	0.000	ACCEPTED
ST -> EP	0.209	0.034	6.070	0.000	ACCEPTED
ST -> SS	0.275	0.044	6.243	0.000	ACCEPTED
STA -> EE	-0.025	0.026	0.966	0.334	REJECTED
STA -> EP	-0.037	0.037	0.964	0.335	REJECTED
STA -> SS	-0.048	0.049	0.964	0.335	REJECTED
SWP -> EE	0.223	0.035	6.375	0.000	ACCEPTED
SWP -> EP	0.320	0.044	7.339	0.000	ACCEPTED
SWP -> SS	0.421	0.053	7.932	0.000	ACCEPTED

The hypotheses which are written in bold are the main 5 hypotheses that show the relationship between each variable. The safety training and the supervisor support of the employees are having positive connection as per the previous studies demonstrated by (Liptak, JULY 2018). The training of the employees is the main aspect of the study as we know that the employees working in the aviation industry should have to be trained in all the best ways because the

aviation staff is at the stage where they cannot bear any type of human errors. According to the (H1-H5) the safety training, safe task assignment, safe work procedures, accident investigation, data & monitoring and the employee engagements are having their positive relationships impacts on each other. Aviation risk management education is not all created equal. The quality of training in aviation safety varies just as much as expenses for instruction do. Additionally, a higher price does not always translate into higher quality. As per the literature of the previous studies of (Nicole S.N. Yiu 1, Received: 25 March 2019; Accepted: 17 April 2019; Published: 18 April 2019) the rate of the accidents is considered normal as per the metrics of performance and strategies of the employees that are made for the safety purposes. The findings and demonstration of the previous studies show us that the mediator employee perception and moderator employee engagement are showing their positive impacts on each independent and dependent variable. According to the hypotheses H6-H10 the mediator is impacting and creating positive relationship where it mediates the framework as well. On the other side there are moderating hypotheses from H11-H15 where the framework is moderated by showing positive relationships.

Figure 2
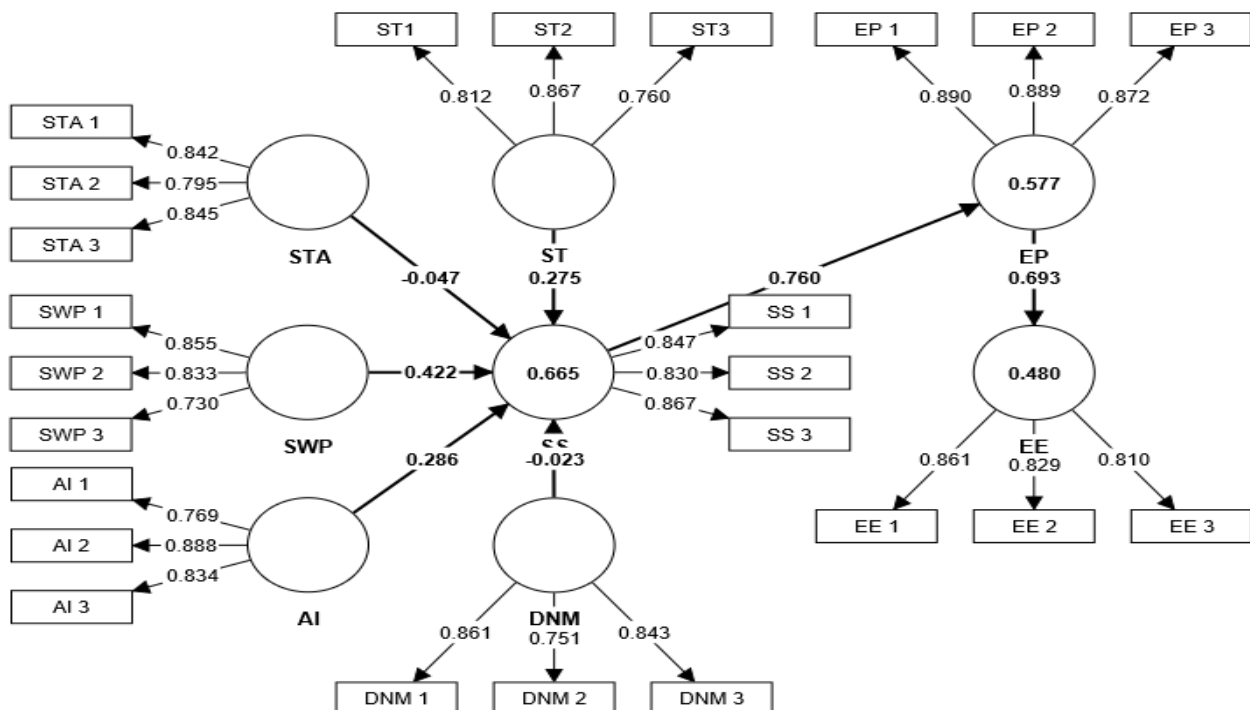
According to figure 2 we can analyze the relationships of the each variable. As you can see the safety task assignment, safe work procedures, accident investigation, data & monitoring and safety training are impacting on the supervisor support where the H1, H2,H3,H4,H5 are elaborated. Once they all impacts on the supervisor support at the same time it shows the supervisor support's relation with employee perception which mediates the frame work and create mediating hypotheses from H6,H7,H8,H9,H10. Lastly, the whole framework will shows its relationship and positive impact towards the moderating variable i.e., employee engagement. It is concluded that the correlation analysis as per the data shown in figure 1 is positive and significant. In the table 5 AI -> EE it shows that the hypotheses between accident investigation and employee engagement is accepted, DNM -> EE it shows that the hypotheses generated between data & monitoring and employee engagement is rejected, ST -> EE the hypotheses is accepted between safe training and employee engagement, STA -> EE the hypotheses made between the safe task assignment and employee engagement is rejected , SWP -> EE this shows us that the safe work procedures and employee engagement hypotheses is accepted.

Figure 1
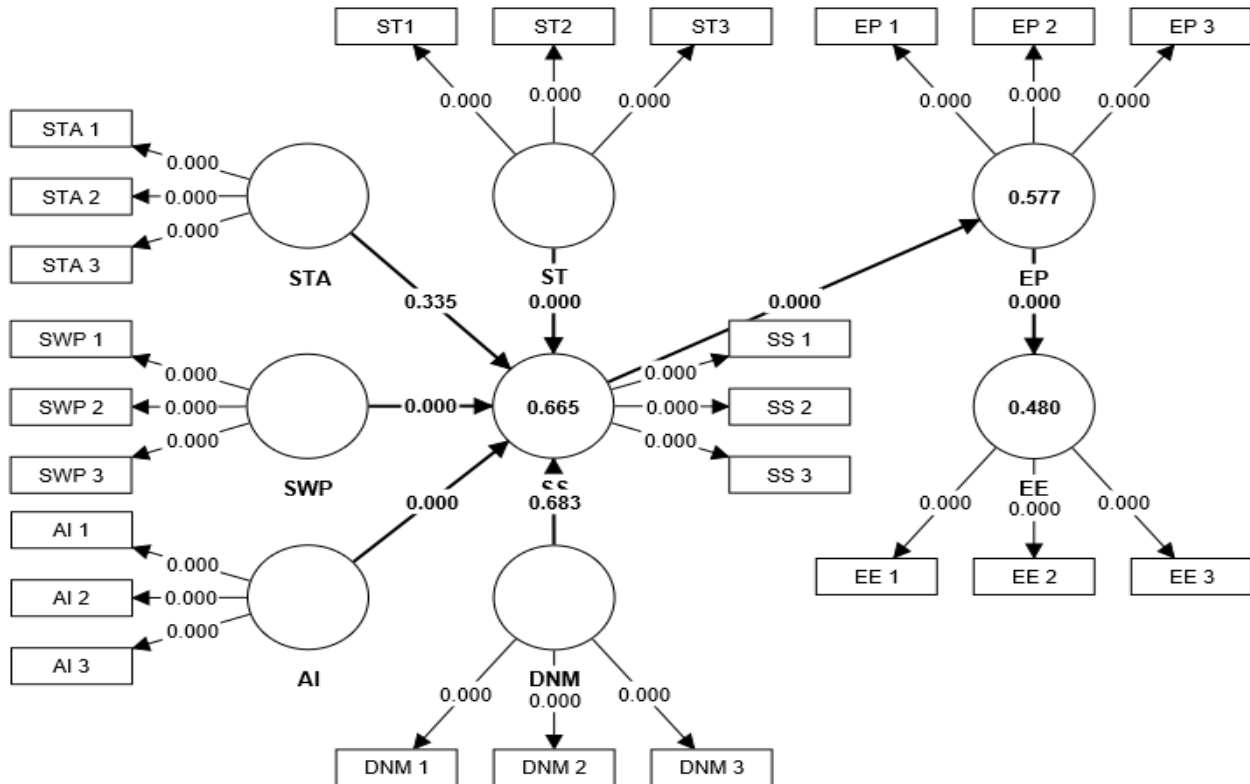
In the table 5 p-values for the each hypotheses and variable mentioned on basis of the p-values it is confirmed that how many of the hypotheses and the relationships between the each variable are accepted and how many of them are rejected.

Conclusion

The safety management system at the airports are now designed properly by reviewing all the organizational perspectives of the safety. It shows us that the safety training, supervisor support and detection & monitoring should be strong enough to fulfil the demand of safety management systems. The quality management system as per the previous researches demonstrated that structural approach is applied on the whole study we cannot say the it will approve functionally or not but there is a human error existing.

The management that overcome the risk and cope up with the problems must hired with extra ordinary effective skills and abilities through which the efficiently work whenever there is a problem regarding the safety of the passengers. It is the responsibility of the airline to control, monitor and detect the problem because once the passengers are satisfied they will choose you for their future travelling.

The emirates airline of UAE is one of the most renowned organization with the aspect of trust and satisfaction of the customers and they also show their preference while travelling just because of their value and the safe flights.

Theoretical implications

A system is essentially reactive, proactive, and predictive, however the former two are used more frequently than the latter. Safety performance goals and safety performance measures aid in enhancing and bettering the entire SMS. The many parts and elements work together as a single, integrated system and are fundamentally interconnected. The findings also showed that the standard ICAO structure is a generic model that is adopted and supplemented based on the overall country's feeling of safety.

Findings & recommendations

The findings indicate that this area is more of a recommendation or suggestion, although not all CAAs give it top importance. Implementing SMS denotes a major transformation in how all firms conduct business. Based on the findings, it can be concluded that each of the selected aviation authority has a well-developed system that satisfies the system's implementation requirements.

References

A, G. (2021). Enhancing Aviation Connectivity And Emissions Reduction Via Implementation Of Performance Based Navigation (Pbn) Assistance Program.

Alwi, S. K. K., & Shaiq, M. (2021). Role Of Human Resource Practicesand Staff Satisfaction Onorganizational Performance. *Journal of Contemporary Issues in Business and Government Vol*, *27*(6)

Agha, A. A., Et Al. (2021). "Antecedents Of Customer Loyalty At Telecomm Sector." Turkish Online Journal Of Qualitative Inquiry 12(9).

Alomiri, H. (2021). The Impact Of Leadership Style And Organizational Culture. *University of Plymouth,* , 394.

ANNELI LEPPA¨NEN, A. T. (2021). leaning at air navigation services after initial training. *research gate* .

ASF. (n.d.). air navigation system. *AIRLINE*.

DU, N. (2021). Airport Cooperative Research Program (ACRP) | The National Academies Press. *EDU.N*.

Elsbach, K. D. (2018). Design Thinking and Organizational Culture:. *journal of management*, 34.
    Flight Data Monitoring On Aircraft. (2016).

Guan Gui, S. M. (januray 2020). Flight Delay Prediction Based on Aviation. *IEEE TRANSACTIONS ON VEHICULAR TECHNOLOGY, VOL. 69, NO. 1,*, 11.

Gura1*, D. A. (15 feburary 2017). APPLICATION OF INERTIAL MEASURING UNIT IN AIR NAVIGATION FOR. *Journal of Fundamental and Applied Sciences*, 10.

Haji Omid Kalteh, S. B. (2018). The relationship between safety culture and safety. *International Journal of Occupational Safety and ergonomics*, 32.

Hyun Jeong Kima, W.-M. H.-W.-K. (Received 3 November 2015; accepted 23 November 2016). Is all support equal? The moderating effects of supervisor, coworker, and organizational support on the link between emotional labor and job performance. *2340-9436/© 2016 ACEDE. Published by Elsevier Espana, ˜ S.L.U. This is an open access article under the CC BY-NC-ND license*, 1-13.

Jamil, S., Et Al. (2022). "Resilient Employees In Resilient Organizations: The Influence On Competency Of An Organization Through Sustainable Human Resource Management." Global Journal For Management And Administrative Sciences 3(2): 91-107.

Jamil, S., Et Al. (2023). "The The Influence Of Potential Outcome On Entrepreneurs' Decisions To Participate In Crowdfunding In Pakistan (Karachi)." International Journal Of Social Science & Entrepreneurship 3(1): 1-24.

Jiang, Y., Et Al. (2023). "A Triple Theory Approach To Link Corporate Social Performance And Green Human Resource Management." Environment, Development And Sustainability: 1-44.

Khan, S., Et Al. (2023). "Designing A Knowledge-Based System (Kbs) To Study Consumer Purchase Intention: The Impact Of Digital Influencers In Pakistan." Kybernetes 52(5): 1720-1744.

Keith J Ruskin a, *. (2021). Alarms, alerts, and warnings in air traffic control: An analysis of reports. *elsevier* , 9.

Liptak, C. T. (JULY 2018). Safety Management System and Quality Management System Relationship. *SMICC*, 1-11\\.

m, p. (2021). IOP: earth and envionment science code switching apply by air traffic controller .

Malik, M., Shamshir, M., & Alwi, K. K. (2020). Association of work-life balance and job satisfaction in commercial pilots: a case study of Pakistan. *Independent Journal of Management & Production*, *11*(3), 998-1017

Malik, M., Alwi, S. K. K., & Shamshir, M. (2020). Marital Status & Work-Life Balance: A Case Study of Commercial Pilots of Pakistan. *Journal of Southwest Jiaotong University*, *55*(4)

Manual of Aircraft Accident and Incident Investigation. (n.d.). *ICAIO Doc 9756-AN/965* .

Maurino, D. (August 2017). An introduction and overview of safety management systems. *Discussion Paper 2017-16*, 1-17.

Morgan J. Tear, T. W. (december 2018). Safety culture and power: interactions. *london school of economics*, 50.

Nicole S.N. Yiu 1, D. W. (Received: 25 March 2019; Accepted: 17 April 2019; Published: 18 April 2019). Implementation of Safety Management System for Improving Construction Safety Performance: A Structural Equation Modelling Approach. *MDPI*, 1-19.

Ostroumov, I. (April2017). Contemporary Air Navigation System. *university of ukarine*, 7.

Park, E. (2019). Corporate social responsibility as a determinant of corporate reputation in airline industry. *Elsevier*, 7.

Scott Shappell, C. U. (2007 april). Human Error and Commercial. *academia*, 17.

Starita1, S. (october 2019). Air Traffic Control Capacity Planning Under. *Warwick Business School, University of Warwick, Coventry CV4 7AL*, 25.

Teperi, A.-M. (2010). Learning at air navigation. *RESEARCH GATE* , 26.

V.K. SARASWAT, G. S. (2013). advance navigation system for air craft applications.

Valeriy Konin, V. (2021). AIRCRAFT NAVIGATION EFFICIENCY IMPROVING DURING LANDING USING SATELLITE NAVIGATION SYSTEM. *research gate* .

Waterson, P. (n.d.). Patients safety culture in the airline . *taylor & francis*, 444.

Yanjun Wang a, ⇑. (2021). Effect of Working Experience on Air Traffic Controller Eye Movement. *Engineering*, 7.