The Role of Information Technology in Aviation Security and Customer Safety

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Abstract

Customers' expectations of building and developing their relationship with the firm are growing as a result of the development of technology and social media. The focus of this research study was to identify the role of information technology in providing Aviation Security and the safety to customers. The findings revealed that a clear and a concise relationship between customer satisfaction and aviation modern security measures exist which needs to be positive for the development of aviation industry. It is recommended to conduct a future research study in this regard on a broader scale with more access to respondents and aviation management.

Keywords: Airport security, Information technology, Customer safety

1. Introduction

With the introduction of highly advanced technology combined with information technology, the concept of liberation, commercialization, and globalization has radically transformed the world's economic behavior. Air transport is one of the world's most widely used and networked international infrastructures, linking everyone, everywhere, at all times. 'Airports' and 'Airlines' are the economic engines that propel a country's learning and expansion. Because of the misuse of information systems, civil aviation becomes a concern to the safeguard of passengers, crew members, and the aviation sector as a whole. Every airport, airline, and air traffic control system today is built on intelligent transportation systems, or information and communication technology (ICT). Flying has become the lifeblood of our global economy, transporting people to work, visitors to vacation spots, and goods to markets. The business of "aviation" is the industry of liberty. In 2016, 3.8 billion passengers flew safely, while 54.9 million tons of cargo was delivered via air freight. Focusing on "financial performance" so far have not resulted in acceptable returns for airline investors, despite aviation's crucial role in the world. However, in recent years, airline initiatives to reform and reengineer their companies have resulted in unprecedented bottom-line growth (Rajaguru, 2016).

In 2016, the industry achieved a 9.9% return on invested capital, which was higher than its cost of debt (estimated at 6.6 percent). When it comes to "safety," flying comfortably is the top priority, and while the business competes intensely for each passenger, there is no rivalry when it comes to fulfilling safety. The aviation industry remains an iconic target for terrorist and also other security-related threats, according to "aviation security." Air travel is always inextricably linked to communication and technologies (ICT), benefiting from technical advancements while also contributing to their growth. Modern consumers are increasingly conversant with IT technology and have access to more information, making them smarter and

demanding, necessitating specialized and interactive services. The evolution of information and communication technology (ICT) has altered actually the global air transport sector. The air travel sector is highly fragmented and diversified, connecting a "global supplier community"6 with passengers/consumers who are spread across the globe. The progress of ICTs has shown that centralizing data is critical to the growth of air travel and tourism, as well as the transformation of transmission into an online commerce (Sandada, & Matibiri, 2016).

Customers' expectations of building and developing their relationship with the firm are growing as a result of the development of technology and social media. Understanding customers' preferences, IT innovation, and modernization assist airlines in re-engineering their business processes and transforming their operations to a customer-centric strategy by tackling industry obstacles and possibilities. This traditional strategy improves customer happiness by increasing connectivity, while modern software applications deliver real-time value to customers (Smith, 2018).

In order to protect civil aviation from acts of unlawful interference, aviation security is a mix of procedures and people and material resources. Terrorist acts, sabotage, threats to person and property, false threat communication, bombing, and other forms of unlawful interference are examples. Some incidents have occurred as a result of passengers bringing weapons or materials that will be used as weaponry into planes in order to hijack the jet. Metal detectors and/or millimeter wave scanners are used to screen passengers. X-ray devices and bombs trace-detection portal machines are examples of explosive identification machines (a.k.a. "puffer machines"). Machine learning techniques can be used to automate the detection of explosives in specific instances (Kos, Kukar & Vegelj, 2017).

Mainly the focus of this research study is to identify the role of information technology in providing Aviation Security and the safety to customers. In this research study two dependent variables are depending on one independent variable.

1. Independent variable (IV) is *Information Technology*

2. Dependent variables (DVs) are *Aviation Security* and *Customer Safety.*

1.2 Research Objectives

i.   To identify the effect of information technology on *Customer Safety*.

ii.   To explore the customer satisfaction from *Aviation Security?*

1.3 Research Questions

i.   What is the effect of information technology on *Customer Safety*?

ii.   What is the relationship between *Aviation Security* and *Customer Safety*?

1.4 Hypotheses

H_1: Information Technology Has Positive Effects on Customer Safety.

H_2: Aviation Security Increases the Level of Customer Satisfaction.

1.5 Significance of the Study

Aviation services have been dependent on the IT industry for a long time. Despite the modernization of many tasks, the aviation sector employs a wide range of applications. Airlines can find a number of technologies to help them manage procedures including computerized systems, aircraft structures and flight control management, staff management, and fuel efficiency. The system needs upgrading; it is not advanced sufficiently to entirely satisfy the clients; in other sense, we lag behind other nations when it comes of information technology. The current study is more significant to conduct because the customer's safety depends upon the Aviation security measures and the information technology that is used to manage the aviation security. The study will aid the literature about the security measure taken by aviation using the new technology to provide safety and satisfaction to customers.

1.6 Problem Statement

The global aviation sector, as one of the world's most influential enterprises, has undergone a major structural transformation in recent decades, and analysts and policymakers are keenly interested in its efficiency. The fundamental reason for this difference was, and continues to be, the advancement of internationalization, and it is reasonable to expect that international air traffic will continue to evolve dynamically in the next years as demand grows (Doganis, 2010; & Richter, 2014). The security of customers and customer satisfaction is a fundamental notion in aviation industry. Because services are more complicated and multi-layered, satisfying consumers in the service setting is more difficult than satisfying customers who purchase things (Leong, et.al, 2015). Furthermore, in the service industry like aviation industry, it is critical to keep consumers by gratifying them. It has been discovered that acquiring new clients costs five percent more than keeping them satisfied and loyal which can only be done by giving them the assurance of safety and security (Sandada & Matibiri, 2016).

Conceptual Framework
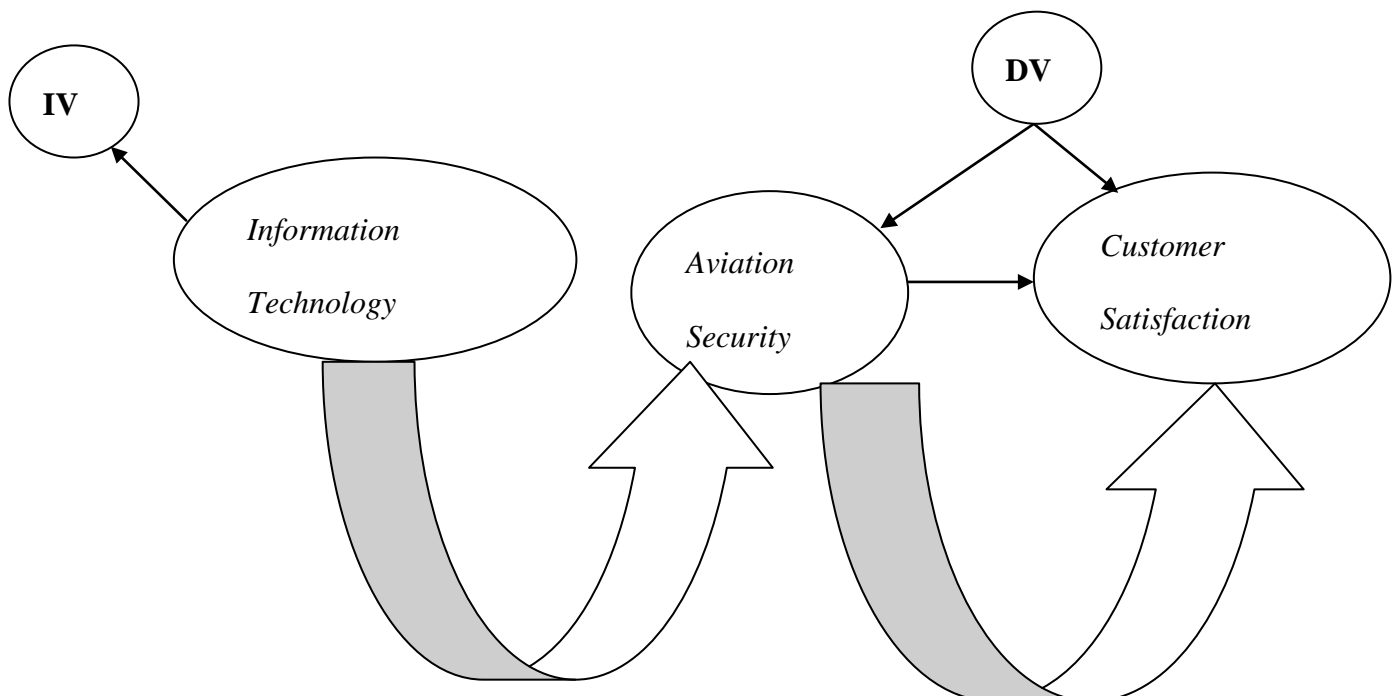
2. Literature Review

Dr. S. N. A. Shafi (2018) explored that Customers' expectations of building and developing their relationships with the company are growing as a result of the development of technology and the internet. Understanding customers' preferences, IT innovation, and modernization assist airlines in re-engineering their business processes and transforming their operations to a customer-centric strategy by tackling industry obstacles and possibilities. This traditional strategy improves customer happiness by increasing connectivity, while modern software applications deliver real-time value to customers. Any company's growth is influenced by market dynamics and industry advances. The airline industry's financial viability has been harmed as a result of increased traffic and competitive factors. International market realities and industry advancements, as well as changing technical trends and client tastes, are posing more obstacles than ever before. The aviation industry's landscape has transformed as a result of IT automation. It aids the industry in reducing expenses, enhancing customer and client connections, and improving economic health in a long-term manner. Aviation operations have been based on the IT industry for decades. Through digitalization of many procedures, the aviation sector employs a wide range of applications. Airlines can find a number of technologies to help them manage procedures including computerized systems, aircraft structures and flight planning optimization, staff management, and fuel efficiency. Other innovative services, such as those for live flight tracking, have lately become accessible.

Hakan & Ozlem (2009) stated that customers all over the world want to be able to choose their location, choose an airline operator from among the numerous available, buy their tickets easily, and make modifications as needed. When it's time to board, customers expect the entire service to be accurate, dependable, and quick. However, flying is a hard operation for both individuals and businesses. In the highly competitive air transportation sector, companies aim to take advantage of any new technology that can help them gain an advantage. To make the system

easier, more appropriate, and more dependable, developing information technology (IT) and information systems (IS) have been deployed. The purpose of this study is to introduce new IT and IS apps in airlines and to identify how these new technologies are reflected in Turkish airlines. A study was undertaken to determine the extent to which these businesses employ IT and IS solutions. According to the results of the survey, Turkish airline businesses are not using modern information technology to the extent that they should be. The main causes of this predicament are the incomplete growth of Turkey's air transport business and a poor coordination among carriers.

Ukwandu et al (2019) asserted that Security concerns have been highlighted as a result of the advancement of Information and Communication Technology (ICT) tools with mechanical components used in the aviation industry. Because of the inherent weaknesses contained in the ICT toolsets that powers the process, the more interconnected it is, the more vulnerable it is. As the notion of automated planes and smart airports is polished and deployed, security problems have become more acute. In line with the foregoing, this paper examines the incidence of cyber-security in the aviation industry over the last 20 years. The goal of this study was to analyze the most common types of threats, their objectives, the types of attacks, and the most commonly targeted aviation infrastructure, and then to match these to provide insight into the present status of computer hackers in the aviation industry.

The review found that the majority of the industry's threats come from Advance Persistent Threat (APT) groups that collaborate with some government entities to steal copyrighted material and intelligence in order to advance their domestic aerospace capabilities and possibly monitor, infiltrate, and subvert the capabilities of other countries. The Network Infrastructure is the most commonly targeted segment of the aircraft industry, and the most common type of attack is malicious hacking, which aims to gain illegal entry using well-known malicious pass code cracking methods such as Brute force attacks. The review went on to look

at the much potential vulnerability that exists in the aviation business, as well as threat dynamics, and how to leverage these dynamics to anticipate future cyber-attack patterns in the industry. The goal is to provide information to cyber-security specialists and aerospace stakeholders so that they can take proactive steps to protect these critical infrastructures from cyber-attacks and provide excellent customer service.

3. Research Methodology

3.1 Quantitative Research Design

Quantitative research method emphasizes on the objective measurements and the statistical, mathematical, or numerical analysis of data collected through polls, questionnaires, and surveys, or by manipulating pre-existing statistical data using computational techniques. Quantitative research focuses on gathering numerical data and generalizing it across groups of people or to explain a particular phenomenon (Babbie, 2010). In this research, quantitative research design was applied to examine the role of information technology in aviation security and customer safety.

3.2 Population

Population of this research study consisted of all those people who travel through airline. Size of target population in this study is 300 travelling people approximately from Lahore Airport.

3.3 Sampling

In quantitative research methodology the purposive random sampling technique is a commonly used sampling technique. In this study the researcher has selected 100 random people who preferred to travel through airplane. The data was collected through pre design questionnaire.

3.4 Research Instrument

Pre designed questionnaire was used for data collection. First part of the questionnaire was designed to obtain information on the demographic characteristics of travelling people, like gender, age, region, or employment status of the respondents. 2nd part was designed to obtain information on some quantitative variables related to use of information technology used in airports and aircraft and passengers satisfaction with security measures taken for their safety.

3.5 Data Analysis

The quantitative data analysis is based on SPSS data analysis. The SPSS data analysis helps to accept or reject the hypothesis of any quantitative research study on the basis of different tests. In this research study the researcher collected statistical data with the help of pre designed questionnaire and further analyzed the statistical data with the help of SPSS. The questionnaire was designed in two sections. The first section determined the particulars of 100 randomly selected respondents. The second section of the questionnaire has determined the variables related to main hypothesis of the study.

3.6 Assessment of Test

The hypothesis of the study were test through Chi square test, we use chi square test to check the independency of the variable. We have checked level of independence of the variables and on the basis of which we have accepted the hypothesis of the study.
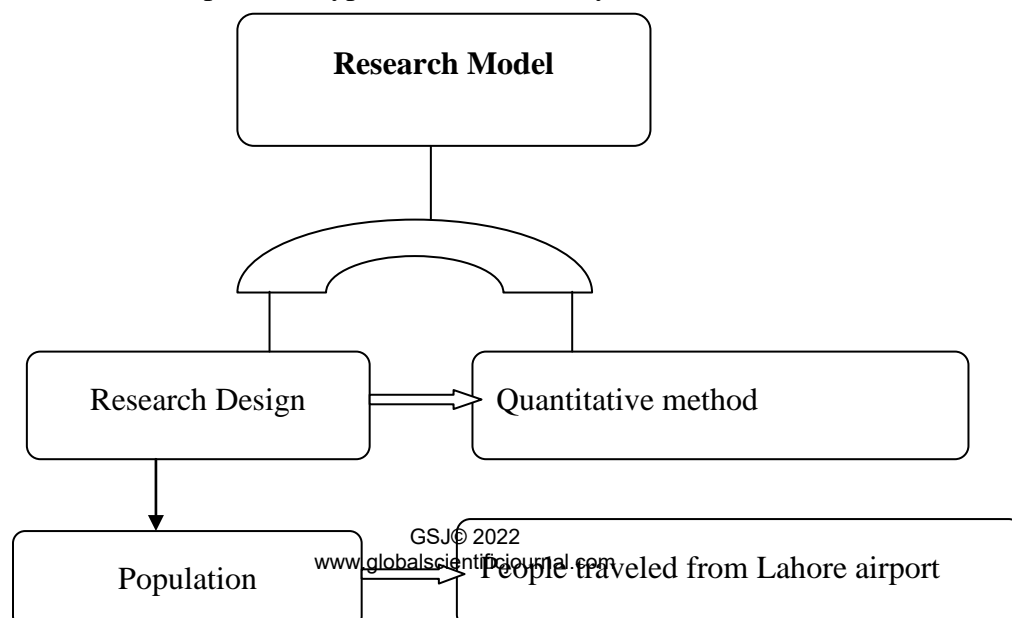
4. Data Analysis

In this section the researcher has analyzed the data in tabulation form to clarify the statistics provided by the respondents through questionnaire.

4.1 Demographic Characteristics of the Respondents.

Table 1: Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	59	59.0	59.0	59.0
	Female	41	41.0	41.0	100.0
	Total	100	100.0	100.0	

Table 1 indicates the gender of the respondents. Out of 100 respondents, total male respondents were 59 and 41 respondents were females. The highest frequency 59 shows that the people who traveled through airplane in last six months were males

Table 2: Age of Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	21-25	56	56.0	56.0	56.0
	26-30	20	20.0	20.0	76.0
	31-35	10	10.0	10.0	86.0
	36-40	9	9.0	9.0	95.0
	41-45	5	5.0	5.0	100.0
	Total	100	100.0	100.0	

In table 2, 56 respondents belonged to the age group of 21 to 25. 20 respondents belonged to the age group of 26 to 30 and 10 respondents belonged to the age group of 31 to 35. 9 respondents belonged to the age group of 36 to 40 and only 5 respondents belonged to the age group of 41 to 45. Highest frequency is 56 which indicate that most of the respondents belonged to the age group of 21 to 25.

Table 3 Marital Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Married	19	19.0	19.0	19.0
	Single	81	81.0	81.0	100.0
	Total	100	100.0	100.0	

Table 3 represents the marital status of the respondents. 19 respondents were married and 81 respondents were unmarried.

Table 4: Employment Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Employed	67	67.0	67.0	67.0
	Business	25	25.0	25.0	92.0
	Unemployed	8	8.0	8.0	100.0
	Total	100	100.0	100.0	

Table 4 indicates the employment status of the respondents. 67 respondents were employed. 8 respondents were unemployed and 25 respondents were running their own businesses. The highest percentage is of 67 percent indicating that mostly people travel because of their job or business requirement and some may travel for visiting purpose only.

4.3 The Effect of Information Technology on *Customer Safety*.

Table 5: You travel most often.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	39	39.0	39.0	39.0
	Agree	55	55.0	55.0	94.0
	Neutral	4	4.0	4.0	98.0
	Disagree	2	2.0	2.0	100.0
	Total	100	100.0	100.0	

In table 5, 39 percent respondents have strongly agreed that they travel most often whereas 55 percent slightly agreed to the statement. 4 percent respondents remained neutral and only 2 respondents disagreed to the statement. The higher percentages are in favor of the statement which is that 94% respondents most often travel through airlines.

Table 6: You Traveled in last six months.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	16	16.0	16.0	16.0
	Agree	47	47.0	47.0	63.0

Neutral	28	28.0	28.0	91.0
Disagree	7	7.0	7.0	98.0
Strongly Disagree	2	2.0	2.0	100.0
Total	100	100.0	100.0	

Table 6 indicates how many respondents traveled in the last six months. 16 percent respondent strongly agreed that they traveled in last six months and 47 agreed to the statement. 28 percent remained neutral indicating that they may have traveled through aircraft before six months did not travel during last six months. 7 percent disagreed to the statement and 2 percent strongly disagreed to the statement.

Table 7: The purpose of travel was job related.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	17	17.0	17.0	17.0
	Agree	60	60.0	60.0	77.0
	Neutral	19	19.0	19.0	96.0
	Disagree	4	4.0	4.0	100.0
	Total	100	100.0	100.0	

In table 7, 17 percent respondents strongly agreed that the purpose of their visit was job related and 60 percent respondents slightly agreed to the statement. 19 percent of the respondents remained neutral and only 4 respondents disagreed to the statement.

Table 8: Airport had effective sign system.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	29	29.0	29.0	29.0
	Agree	62	62.0	62.0	91.0
	Neutral	8	8.0	8.0	99.0
	Disagree	1	1.0	1.0	100.0
	Total	100	100.0	100.0	

In table 8, respondents were asked about the effective sign systems on the airport. 29 percent respondent strongly agreed to the statement and 62 only agreed to the statement, 8 percent respondents remained neutral and only 1 disagreed to the statement. Highest percentage is 62 which shows that mostly people approved that airport had effective sign system.

Table 9: The aircraft had Stronger Cockpit Doors.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	23	23.0	23.0	23.0
	Agree	57	57.0	57.0	80.0
	Neutral	12	12.0	12.0	92.0
	Disagree	6	6.0	6.0	98.0

	Strongly Disagree	2	2.0	2.0	100.0
	Total	100	100.0	100.0	

Table 9 represents the responses regarding the statement that the aircraft had strong cockpit doors. 23 percent strongly agreed to the statement and 57 percent agreed to the statement. 12 percent remained neutral in the response and 6 percent respondents disagreed to the statement. only 2 percent strongly disagreed to the statement, the higher percentages are in favor of agree and strongly agree which shows that the air craft had stronger cockpit doors which are necessary for the safety of the customers.

Table 10: Aircraft you chose was equipped with modern technology.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	12	12.0	12.0	12.0
	Agree	62	62.0	62.0	74.0
	Neutral	15	15.0	15.0	89.0
	Disagree	11	11.0	11.0	100.0
	Total	100	100.0	100.0	

Table 10 indicates the responses regarding the statement the aircraft chosen by respondent were equipped with modern technology. 12 percent respondents strongly agreed with the statement and 62 percent agreed with it. 15 percent remained neutral and 11 percent disagreed that the aircraft did not had modern technology. The highest percentage is 62 percent which is in the favor that aircraft was equipped with modern technology.

Table 11: Puffer machines were used on the airport.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	33	33.0	33.0	33.0
	Agree	60	60.0	60.0	93.0
	Neutral	6	6.0	6.0	99.0
	Disagree	1	1.0	1.0	100.0
	Total	100	100.0	100.0	

In Table 11, 33 percent respondents strongly agreed that puffer machines were used on the airport and 60 percent only agreed to the statement. 6 percent respondents remained neutral and only 1 percent disagreed to the statement.

Table 12: The aviation security used metal detectors to scan the passengers.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	71	71.0	71.0	71.0
	Agree	29	29.0	29.0	100.0
	Total	100	100.0	100.0	

In table 12, 71 percent respondents strongly agreed that the aviation security used metal detectors to scan the passengers and 29 percent agreed to the statement. the higher percentages in favor of strongly agree and agree shows that airports give importance to the security of the customers and use metal detectors to scan the passengers.

Table 13: You used the airline because of security measures.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	61	61.0	61.0	61.0
	Agree	39	39.0	39.0	100.0
	Total	100	100.0	100.0	

In table 13, 61 percent of the respondents strongly agreed that they used the airline because of its security measures and 39 percent had only agreed to the statement. the higher percentages are in favor of strongly agree and agree and no respondent disagreed to the statement which shows that security measures are taken seriously by the airport authorities in Pakistan.

Table 14: Reservations and ticketing transactions were error-free.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	15	15.0	15.0	15.0
	Agree	33	33.0	33.0	48.0
	Neutral	23	23.0	23.0	71.0
	Disagree	19	19.0	19.0	90.0
	Strongly Disagree	10	10.0	10.0	100.0
	Total	100	100.0	100.0	

In table 14, 15 percent respondents strongly agreed to the statement and 33 percent agreed that reservations and ticketing transactions were error free whereas 23 percent remained neutral in the answer 19 percent disagreed and 10 percent strongly disagreed that the reservations of seat and ticketing transactions were not error free.

Table 16: Aviation security measures were enough for the safety of customers.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	25	25.0	25.0	25.0
	Agree	30	30.0	30.0	55.0
	Neutral	23	23.0	23.0	78.0
	Disagree	12	12.0	12.0	90.0
	Strongly Disagree	10	10.0	10.0	100.0
	Total	100	100.0	100.0	

In table 16, 25 percent respondents strongly agreed that *Aviation security measures were enough for the safety of customers* and 30 percent only agreed to the statement. 23 percent remained neutral and 12 percent disagreed that security measures were not enough. 10 percent of the respondents strongly disagreed in the response of the statement. The answers give us a mixed overview that aviation security measures are not enough for the respondents and aviation security need improvements.

Table 17: You suggest your friends and relatives to travel through the same airline they use.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	22	22.0	22.0	22.0
	Agree	53	53.0	53.0	75.0
	Neutral	16	16.0	16.0	91.0
	Disagree	5	5.0	5.0	96.0
	Strongly Disagree	4	4.0	4.0	100.0
	Total	100	100.0	100.0	

In table 17, 22 percent respondents strongly agreed that they suggest other relatives and friends to travel through same airline respondents used to travel. 53 percent respondents agreed to the statement and 16 percent remained neutral in the response. 5 percent disagreed and 4 percent strongly disagreed to the statement.

4.2 Chi Square Hypotheses Testing

H_1: Information Technology Has Positive Effects on Customer Safety

Table 18: Test Statistics

	Airport had effective sign system.	The aircraft has Stronger Cockpit Doors.	Aircraft you chose was equipped with modern technology.	Puffer machines were used on the airport.	The aviation security used metal detectors to scan the passengers.
Chi-Square	90.000[a]	98.100[b]	73.360[a]	89.040[a]	17.640[c]
Df	3	4	3	3	1
Asymp. Sig.	.000	.000	.000	.000	.000

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 25.0.

b. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 20.0.

c. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 50.0.

The table 18 gives us the chi square test statistics calculated in SPSS. The difference level of the variables is in between 1 to 4 and the significance level p value in cases of all variables is less the 5 which shows that H1; information technology has positive effects on customers safety.

H_2: Aviation Security Increases the Level of Customer Satisfaction

Table 19: Test Statistics

	You used the airline because of security measures.	Reservations and ticketing transactions were error-free.	Aviation security measures taken by the security management was enough for the safety of customers.	You suggest your friends and relatives to travel through the same airline.
Chi-Square	4.840[a]	15.200[b]	14.900[b]	79.500[b]
Df	1	4	4	4
Asymp. Sig.	.028	.004	.005	.000

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 50.0.

b. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 20.0.

Table 19 gives the detailed chi square test statistics regarding our second hypothesis H_2: *Aviation Security Increases the Level of Customer Satisfaction.* The chi square value is greater and p value is smaller than the significance value 5 therefore we will reject the null hypothesis and accept the alternative hypothesis that H_2: Aviation security increases the level of satisfaction in the respondents.

5.1 Major Findings & Discussion

The reliance on technology, especially cyber-technology systems, has increasingly become part of the modern society. This reliance has in no doubt brought increased efficiency and effectiveness in day-to-day life, but it has also some attendant risks. The reliance on cyber-enabled technologies has increased the safety and efficiency of air transport systems. In the same vein, a cyber-incident in one airport could pose a transnational problem with social and economic consequences, due to high connectivity of human migration and the hyper-connectivity in aviation industry (Arampatzis, 2020). With the introduction of modern IT tools such as IoT devices, machine learning, cloud storage and cloud computing in aviation industry, Kagalwalla and Churi (2019) are of the view that many attentions are needed in aviation cyber-security due to their inherent vulnerabilities. In the same vein, Duchamp, Bayram and Korhani added that the increase in the number of travelers, building of new modern airports, and complexities in new aircraft have brought with them an increase in cyber-attacks in civil aviation industry (2016).

- The major findings of this study asserts that most of the young people who belonged to the age group of 21-25 and 26-30 and mostly people travel because of their job or business requirements.

- The major finding of the study suggests that aircraft chosen by respondent were mostly equipped with modern technology but some respondents also disagreed that the aircraft was not equipped with modern technology.

- The acceptance of both hypotheses has clearly shown that in Pakistan, aviation management is adopting the modern technologies to make the aircraft and airport more secure for the customers.

- The only issue face by respondents is of online reservations of seats and ticketing transactions in our study and they also face cyber security issues.

- The first hypothesis of this study was that *information technology has positive effects on customer safety.* The acceptance of the hypothesis has answered the first research question of our study. The integration of modern IT tools and newly emerged devices to check the working of aircraft and cyber security management systems has motivated the people to travel through secure airplane.

- The second hypothesis of our study identified the relationship between aviation security and customer satisfaction and answers our second research question that there is a positive relationship between customer satisfaction and aviation safety measures. The more security provided by aviation company will increase the level of customer satisfaction and they will prefer to travel more through the similar aircraft.

5.2 Limitations of the study and Future Directions

The current study was limited to very small sample size. Furthermore, the limited time duration for data collection and access to respondents may jeopardize the findings. Access to travelers who were the respondents of the study was a big hurdle in data collection. It is suggested that the

future studies may be conducted in a larger sample frame with official and easy access to the respondents so that the validity and reliability of the data may not be compromise.

5.3 Conclusion

Every airport, airline, and air traffic control system today is built on intelligent transportation systems, or information and communication technology (ICT). Understanding customers' preferences, IT innovation, and modernization assist airlines in re-engineering their business processes and transforming their operations to a customer-centric strategy by tackling industry obstacles and possibilities. This traditional strategy improves customer happiness by increasing connectivity, while modern software applications deliver real-time value to customers. Mainly the focus of this research study was to identify the role of information technology in providing Aviation Security and the safety to customers. The findings revealed that a clear and a concise relationship between customer satisfaction and aviation modern security measures exist which needs to be positive for the development of aviation industry. It is recommended to conduct a future research study in this regard on a broader scale with more access to respondents and aviation management.

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