

Analysis Of The Implementation Of A Safety Management System For Cabin Crew On The Reliability Of Facilities And Training Costs At Lion Air Group

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Abstract: To determine the impact of implementing a safety management system through facility reliability and training costs. The Safety Management System is an important thing that airline companies must pay attention to because it is related to the safety of cabin crew and airline passengers. This research technique is explanatory quantitative research, the primary data used is cabin crew from Lion Air airline, then the secondary data is journals that support the research. Data analysis techniques use SPSS. The research results show that the safety management system is influenced by facility reliability, then training costs also have an influence on the safety management system. Lastly, facility reliability and training costs have a simultaneous influence on the safety management system. Therefore, the safety management system cannot be separated from the reliability of the facilities and training costs incurred by the company or cabin crew who want to improve their capabilities.

Keyword : *Safety Management System, Reliability Facilities, and training costs*

Introduction

Aviation safety is an absolute requirement for all stakeholders in the aviation industry. Aviation safety is a very serious matter that is continuously pursued for its realization. To realize the aviation business by prioritizing safety as a "brand", it is necessary to implement a Safety Management System (SMS).

Safety Management System (SMS) is very important in the creation of flight safety. Aviation accidents can occur due to various factors: natural factors, human factors and system failure factors can be direct or indirect factors in the occurrence of aviation accidents. (Fiyanzar et al., 2016) The formation of a safety culture and safety awareness of aviation in the organization will be able to make a positive contribution to the creation of flight safety. And it is inseparable from the successful implementation of safety management systems in organizations and entities related to the aviation industry. (Nugraha et al., 2020) For that Lion Mentari Air as an airline requires high safety standards. Lion Air conducts training for all cabin crew. (Corporate, 2022) Training for cabin crew so that cabin crew are always alert to emergency situations. There are several stages of training such as mock-ups for cabin crew and simulators for pilots. The implementation of a safety management system at Lion Air is expected to improve services to realize flight safety and comfort. Training for cabin crew must be carried out continuously to increase the level of safety and can maintain good relations with customers so that it is necessary to conduct research in the field of aviation safety so that it is hoped that every user of Lion Air makes safety a major component in the aviation business and is more open to profit. Part of the profit is reallocated to improve safety so that business continuity can be achieved.

Aviation safety has always been a serious matter for many years because the risk of death caused by an aircraft accident is very high when compared to other modes of transportation. Most of the victims in airplane accidents end up dead. Safety is therefore a top priority in flight operations.

In Indonesia, Law Number 1 of 2009 concerning Aviation has regulated that every Aviation Service Provider operating a certified airport must establish, implement, evaluate, and continuously improve the Safety Management System. (Blessing, 2017)

The legal basis for SMS is Annex 14 Aerodrome, ICAO Document 9774, ICAO Document 9895, Law Number 1 of 2009 concerning Aviation and Decree of the Minister of Transportation Number 20 of 2009 concerning Safety Management Systems and Regulation of the Minister of Transportation (KM No.8 Tahu 2010) concerning the National Aviation Safety Program, which states that airport operators are required to create, implement, evaluate and improve SMS on an ongoing basis.

Literature Review

Safety Management System

The Safety Management System has a main focus, namely to minimize the loss of human life (human life), aviation property damage (property damage) and revocation of flight permits, streamline the expenditure of funds, reduce the incidence of adverse impacts, on society and environmental damage, which explains the safety management system aims to control a state of danger. The following is a statement of the safety management system:

“The Systematic and planned top management driven activity that aim at controlling the safety hazards is usually called safety management. The Primaru aim of safety management is to intervene in the causation process that leads to accidents in incident.”

From this statement states that the application of the safety management system can minimize the loss of property and lives of passengers, then the property of the airline itself. According to Ntampakis, D & Biermann (2014) explains that safety management can be shown for the systematic application of specific managerial and technical capabilities to identify and control hazards and related risks. Meanwhile, according to Mihailovici, (2013) and Ludwig, Duane A., Cheryl R. Andrews, (2007) interpret SMS as a proactive approach to managing safety that concentrates on process control rather than relying solely on inspection and corrective actions on the final product

Aviation safety is a state of fulfillment of requirements. Safety in the use of airspace, aircraft, airport, air transportation, flight navigation, as well as supporting facilities and other public facilities. (Law No.1 of 2009). However, in reality there are still many obstacles to fulfilling safety in the use of airspace, aircraft , airports, air transportation, flight navigation or other facilities. This is indicated by the continued occurrence of accidents or incidents in the aviation sector. Aviation incidents can be Break of Separation (BOS) or Break of Coordination (BOC) (jurnal ITL Trisakti: 2016)

Factors that influence the Safety Management System

According to Akbar Bagus Ismail (2020) explain the factors that influence the implementation of the Safety Management System, namely:

1. Resource Factors, including hardware and software. Safety equipment, personal protective equipment and other special industrial needs must be adequately developed and provided. It should be noted that this resource involves the facilities obtained by workers from the Company. So that it has an influence on the safety management system.
2. Management Factors leadership, vision, direction, statements, commitment goals, supervision, safety analysis and prevention planning.
3. Personal factors, including good communication awareness, personal attitudes, safety culture, positive groups, and personal competence. Work culture results from personal traditions, language, attitudes and work habits and Company practices. Safety culture was once used to describe safety management weaknesses, but is now applied to explain

accidents. Meanwhile, according to Hopkins, organizational culture requires a strategy called perception survey and Gulden mund shows that there is no relation between organizational culture and work safety. While in this competence is very influential on work safety. With competence workers will take care at work

Safety Management System (SMS) has been required in the implementation of traffic services aviation, listed in Minister of Transportation Regulation no. 49 of 2011 concerning Civil Aviation safety regulations, section 172 concerning Air Traffic Service Provider which states that traffic service providers airline must have and implementation SMS (jurnal ITL Trisakti:2016)

SMS focuses on a systematic approach to identifying and dealing with risks in an effort to minimize the loss of human life, property damage and revocation of flight permits, streamline the expenditure of funds, reduce the incidence of adverse impacts on society and environmental damage (Sicily, 2009). SMS introduces new principles of holistic safety risk management. (Ntampakis, D & Biermann, 2014) Safety Management can be described as the systematic application of specific technical and managerial skills to identify and control hazards and associated risks. (Mihailovici, 2013).

Facility Reliability

Reliability is always associated with maintenance, and an important element in maintaining the ability of systems in an enterprise to always be in a workable condition or under a certain condition standard. (Betlehn, 2016) It should be noted that reliability is generated through maintenance, and reliability can create efficiency and increase productivity. The goal of maintenance and reliability is to maintain system capability, while controlling costs. A good maintenance system will eliminate system variability.

Training Costs

According to PUSDIKLAT, training is a planned process to modify attitudes or behaviors of knowledge, skills through learning experiences. The goal is to achieve effective performance in any activity or varied activities. When linked to work the purpose of training is to develop individual capabilities and to meet the current and future workforce needs of the organization. (Manpower Services Commission (MSC), U.K., 1981 62) In achieving these objectives, training seeks to provide the skills, knowledge, and behaviors required to perform job-related tasks. Training is divided into two: training that costs money and training that does not cost money. Usually costly training is training that provides complex knowledge and takes a very long time, then will also provide independent tests in order to hone the knowledge and skills of the trainees. Then for training that does not require costs is training that explains the basics without conducting complex and detailed training.

From this explanation, the researcher considers that we, as a society that needs self-development that is used for the future, will definitely follow the costly ones, rather than the free ones. It is difficult to find training that is complex and can provide guarantees to participants in work organizations. Therefore, the implementation of the safety management system requires guaranteed self-development.

Framework of Thought

This study examines the application of the safety management system which is influenced by the reliability of the facilities and training costs received by the Lion Air cabin crew. According to Sugiono, (2017) it explains that the group of theories that need to be explained in the preparation of a framework in compiling a hypothesis must first determine the research variables. In the preparation of the framework, there are variables and their explanations,

there is a theory that underlies the variables, can show the position of the variables and their relationship, either expressed in a variable relationship diagram.

In this study using 3 variables, namely

the application of the safety management system, facility reliability, and training costs. The formation of this research is through the empirical results of previous research. Based on the theoretical studies and background that have been discussed, the following is the framework of this research:

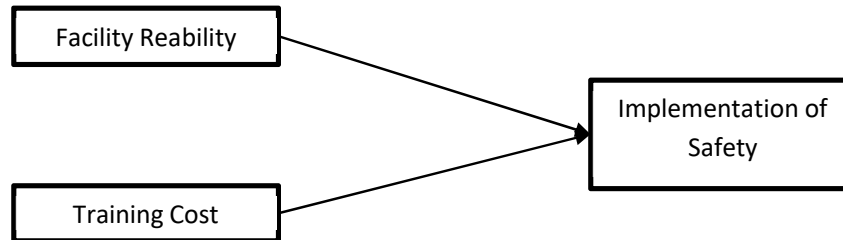


Figure 1. Research framework (2023)

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Based on the above framework, the researcher can formulate the following hypothesis:

Ho: There is no relationship between the reliability of the facility and the application of the safety management system cabin crew of Lion Air Airline

Ha: There is a relationship between the reliability of the facility and the safety management system cabin crew of Lion Air Airline.

Ho: There is no relationship between training costs and the application of the safety management system cabin crew of Lion Airline

Ha : There is a relationship between training costs and the application of the safety management system cabin crew of Lion Air Airline

Ho: There is no simultaneous relationship between facility reliability and training costs on the application of the safety management system cabin crew of Lion Air Airline

Ha : There is a simultaneous influence of the reliability of facilities and training costs on the application of the safety management system cabin crew of Lion Air Airline.

Research Method

Research Design

The research conducted by researchers is based on a research design whose type is explanatory research. Explanatory research is an observation that provides an explanation of the relationship between research variables that have been tested with hypotheses. This explanation is supported by a statement from (Sugiono, 2017) where explanatory research is testing all variable relationships that have been tested by hypothesis testing and achieving actual observation results. (Sari, 2021)

Research Objects, Population and Research Samples

According to Sugiono, (2017) the object of research is a target that is scientifically useful in obtaining data with certain uses and purposes regarding something that is objective, valid, and reliable about something. Research location Cabin Crew Lion Airline. The reason for choosing the object of research is to see the safety management system of the airline to develop a safety management system through the reliability of facilities, and training costs.

The general population in the study was the entire cabin crew at Lion Air. The number of samples used is 30 cabin crew people who have represented research on the application of the safety management system.

Operational Definition of Variables

This study has determined two types of use of variables as a tool to measure the extent of the application of the safety management system. The two variables used by researchers are independent and dependent variables. Below is the description of the two variables:

a. Independent Variable

Independent variables or often called independent variables, are variables that exist in research useful for influencing. In another meaning, a condition or value that if it appears will affect changes in other conditions or values (Purwanto, 2019). Meanwhile, according to Trithahjo Danny Soesilo in Purwanto, (2019), independent variables are variables that can affect or cause changes in the dependent variable (bound). So it can be concluded that independent variables are variables that have a role to influence and provide changes to other variables. The research compiled by researchers has 2 independent variables, namely:

1. Facility Reliability

Facility reliability is a concept related to the extent to which a facility or system can operate or function with consistency and high performance over d of time without experiencing significant interference or failure. This statement is supported by Andres K.S Jardine and Albert H.C, facility reliability is the ability of a system or device to operate under desired conditions without significant failure or interruption within a certain period of time.

2. Training Costs

Airline training costs usually refer to the costs incurred by airlines to train and develop employees, especially pilots, cabin crew, aircraft technicians and other operational personnel. This training is essential to ensure the safety of operations and the quality of service provided by the airline. This statement is supported by the understanding of the Federal Aviation Administration (FAA) that training costs in airlines are costs incurred by airlines to train flight crews, including cabin crew training, pilots, as well as technical training costs needed to keep aircraft safe and operating properly. Meanwhile, according to the International Air transport Association (IATA) states that training costs are costs arising from the training and development of airline employees, including infrastructure costs, training equipment costs, travel costs, and related administrative costs. Training costs in airlines typically include costs such as instructor salaries, training material costs, flight simulation equipment costs, trainee transportation and accommodation costs, and administrative costs associated with planning and implementing training programs. Investing in good training is critical to ensuring the safety, reliability and quality of airline operations, as well as complying with stringent aviation safety regulations and standards.

b. Dependent Variable

The dependent variable is the variable that gets the impact or effect of the independent variable. Sugiono, (2017) For the dependent variable used by this study is the application of the Safety Management System. Safety Management System (SMS) is a structured approach to managing operational safety at airlines. SMS is designed to identify, analyze, and reduce risks and improve operational safety. In the context of airlines, SMS is a framework that focuses on safety and helps airlines to meet and exceed aviation safety standards set by

regulatory authorities, such as the Federal Aviation Administration (FAA) in the United States or the European Union Aviation Safety Agency (EASA) in Europe.

Data Collection Methods

There are two types of data collection techniques used by researchers, starting from primary and secondary data collection techniques. According to (Sugiono, 2017) explains that this primary data is data collected and obtained directly by researchers through the first source or research site. The primary data of this research comes from the cabin crew of Lion Air airline. The primary data collection technique uses a questionnaire that is distributed and filled in directly by the Lion Air airline cabin crew. It should be noted that the questionnaire itself is a data collection technique in the form of a questionnaire in which there are questions or statements in writing in response to provide answers according to the perceived experience. The statements or questions in this questionnaire have two characteristics of open and closed. The population and sample in the study were aimed at the cabin crew of the Lion Air Airline. The population of the Lion Air airline is 5000 people then the researcher only uses 30 people who can be representative of the research conducted by the researcher.

Secondary data is data that is obtained indirectly because it is through other people and written sources ranging from documents, books, previous research journals. This study uses secondary data by using various types of research journals that are relevant and related to research to understand the safety management system in the crew cabin at Lion Air.

Data Analysis Method

The data analysis technique in this study uses two approaches which are quantitative and qualitative. According to (Sugiono, 2017) quantitative and qualitative data analysis techniques are often used by research to support the analysis of data that has been obtained. The quantitative approach is a research technique based on concrete data in the form of numerical processed results measured through statistical testing related to the problem under study to get the desired research conclusions. Next is the qualitative approach as an approach to understanding and understanding the events faced by the object or subject of research ranging from behavior patterns, points of view, actions, and much more in order to explain in words to conclude what is obtained through research. The reason the researcher uses these two approaches is the compatibility of the research techniques carried out starting from numerical testing to being analyzed to produce an explanatory sentence from word for word so that it can be concluded at the end of the research.

Results And Discussion

Validity Test Results

Table 1. Validity Testing Results

Variable	Questions Items	Rcritical	Rtable	Descriptions
Facility Reability (X1)	X1.1	0.529	0.361	VALID
	X1.2	0.692	0.361	
	X1.3	0.718	0.361	
	X1.4	0.386	0.361	
Training Cost (X2)	X2.1	1.000	0.361	VALID
Implementation of Safety Management System (Y)	Y1.1	0.492	0.361	VALID
	Y1.2	0.423	0.361	
	Y1.3	0.636	0.361	

	Y1.4	0.684	0.361	
	Y1.5	0.402	0.361	
	Y1.6	0.402	0.361	

Source: SPSS processing data (2023)

Table 1 shows that each item of the research variable has a critical r greater than r table. Please note that the r table of the research is 0.361, so it can be said that the variable research items are valid.

Reliability Test Results

Table 2. Reliability Testing Results

Variable	Cronbach Alpha's	Descriptions
Facility Reability (X1)	0.705	Reliabel
Training Cost (X2)	1.000	
Implementation of Safety Management System (Y)	0.692	

Source: SPSS data (2023)

Table 2 shows that the variables used in the study have a Cronbach Alpha value of more than 0.6, which means that the items of the research questionnaire are reliable.

Normality Test Results

Table 3. Normality Test Results

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		30
Normal Parameters ^{a,b}	Mean	.0000000
	Std. Deviation	.65747273
Most Extreme Differences	Absolute	.086
	Positive	.075
	Negative	-.086
Test Statistic		.086
Asymp. Sig. (2-tailed)		.200 ^{c,d}

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

d. This is a lower bound of the true significance.

Source: SPSS data (2023)

Table 3 shows that the normality test results get a value of 0.200 and greater than 0.05, meaning that this questionnaire data is successfully normally distributed.

Multiple Regression Analysis Test Results

Table 4. Multiple Regression Analysis Test Results

	Unstandardized Coefficient		Standardized Coefficient		t	sig
	B	Std. Error	Beta			
Konstanta	4.268	1.240		3.442		0.002
Reability	1.132	0.097	0.861	11.636		0.000
Cost	0.528	0.218	0.179	2.417		0.023

Source: SPSS data (2023)

The data above shows that the regression equation in this study is as follows:

$$Y = 4.268 + 1.132 X1 + 0.528 X2$$

The description of the regression equation is:

Y = Implementation of Safety Management System

X1 = Facility Reliability

X2 = Training Cost

The explanation of the above equation is:

1. The constant value of 4,268 states that if the independent variable facility reliability (X1), and training costs (X2) are equal to zero, then the dependent variable on the application of the safety management system is 4,268.
2. The coefficient of the facility reliability variable of 1.132 indicates that each increase in the facility reliability variable by one unit will result in an increase in the application of the safety management system by 1.132.
3. The training cost variable coefficient of 0.528 indicates that each increase in the training cost variable by one unit will result in an increase in the application of the safety management system by 0.528.

Determination Coefficient Test Results

The coefficient test is useful in seeing the extent of the model's ability to apply the independent variable. The following are the test results of the coefficient of determination test, namely

Table 5. Determination Coefficient Test Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.930 ^a	.865	.856	.681	2.069

a. Predictors: (Constant), Biaya Pelatihan, Keandalan Fasilitas

b. Dependent Variable: Penerapan Safety Management System

T Test Results

Table 6. T Test Results

	Unstandardized Coefficient		Standardized Coefficient		t	sig
	B	Std. Error	Beta			
Konstanta	4.268	1.240		3.442		0.002
Reability	1.132	0.097	0.861	11.636		0.000
Cost	0.528	0.218	0.179	2.417		0.023

Based on the data from table 4.9, the t test results are

1. Facility Reliability (X1) has a tcount of 11.636 with a significance probability of 0.000. This shows that the probability of significance is below 0.05 and the tcount is greater than the t table 1.69. It can be concluded that the facility reliability variable (X1) affects the implementation of the safety management system (Y). Then the first hypothesis is accepted.
2. Training Cost (X2) has a tcount of 2.417 with a probability of 0.023. This shows that the significance probability is below 0.05 and the tcount is greater than the t table 1.69. It is concluded that the training cost variable (X2) affects the implementation of the safety management system (Y). Then the second hypothesis is accepted

F Test Results

Table 7. F Test Results

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	80.664	2	40.332	86.000	.000 ^b
	Residual	12.536	27	0.464		
	Total	93.200	29			

a. Dependent Variable: Penerapan Safety Management System

b. Predictors: (Constant), Kehandalan Fasilitas, Biaya Pelatihan

Based on table 6, it shows that the Fcount value is 86.000 greater than the table, which means that H0 is rejected and H3 is accepted. Then the significance level of F is $0.000 < 0.005$. This is interpreted as there is a simultaneous influence of facility reliability and training costs on the application of the Lion Air crew cabin safety management system.

Discussion

Effect of Implementation of Safety Management Systems on the Reliability of Cabin Crew Facilities at Lion Air Airline

The implementation of a safety management system is needed by airline companies to identify safety risks faced during operations. One of the factors that can affect the implementation of the safety management system is the reliability of the facility. Reliability is the ability of the Company to provide services in accordance with what is promised accurately and reliably; When the facilities provided by Lion Air airline will create a safety management system for the cabin crew at Lion Air.

The results of data processing show that Facility Reliability (X1) has a tcount of 11,636 with a significance probability of 0.000. This shows that the probability of significance is below 0.05 and the tcount is greater than the t table 1.69. It can be concluded that the facility reliability variable (X1) affects the application of the safety management system (Y). then with this the application of the safety management system is influenced by the reliability of the facility. The results of this study are in line with research conducted by Oka et al., (2023) which says that the reliability of the facility has an impact on the implementation of the cabin crew management system at Lion Air Airlines.

Effect of Implementation of Safety Management Systems on Cabin Crew Training Costs at Lion Air Airline

Training costs are the budget spent by the Company in improving the quality and ability of its employees in order to create good performance. Training costs incurred by Lion Air can have

an impact on the implementation of the safety management system. This statement is evidenced by the results of data processing which shows that Training Costs (X2) has a tcount of 2.417 with a probability of 0.023. This shows that the probability of significance is below 0.05 and the tcount is greater than the t table 1.69. It is concluded that the training cost variable (X2) affects the implementation of the safety management system (Y). The results of the study are in line with previous research, namely Ismail et al., (2012) which says the implementation of safety management can be influenced by training costs. So that the cabin crew can improve the ability that can increase the reliability of the quality of each crew at Lion Air.

Conclusion

This study aims to determine the application of safety management influenced by facility reliability and training costs. Facility reliability is a condition where tools related to airline operations can be used properly, and training costs incurred by the Company can improve the quality of the Airline crew at Lion Air so that the ability of the safety management system is no doubt.

Implications

The implication that can be given by researchers is that the application of the safety management system must be applied by airline companies to manage the safety of both organizational structure, accountability, policies and procedures. Implementation of safety management can run when the facilities owned are in good condition and reliable in their use. Then the safety management system will improve better when the cabin crew has good abilities so that airline operations run smoothly and safety is guaranteed.

Research Limitations

The limitations of this study come from external research, namely the research sample used was 30, it would be better for further research to increase the sample used. Then the variables in research that affect the implementation of the safety management system are very many besides those in this study, for example service quality.

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