THE IMPACT OF CLOSED CIRCUIT TELEVISION ADDITION ON APRON MOVEMENT CONTROL SUPERVISION IN APRON C JUANDA AIRPORT

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ABSTRACT

This Final Project which discusses the impact of Closed Circuit Television Addition on Apron Movement Control Supervision in Apron C Juanda Airport. This is motivated by the limited or almost non-existent number of CCTV cameras in Apron C of Juanda Airport. Juanda Airport is one of the busiest Airports in Indonesia, and with the high volume of flights, the surveillance conducted at the airport needs to be enhanced. Surveillance in a large area like the Apron requires technology to facilitate the activities and CCTV can undoubtedly assist the Apron Movement Control (AMC) in the Airside. However, the current CCTV conditions in Apron C are insufficient to support the supervision adequately. Therefore, there is a need to reconsider the role of CCTV as a supporting facility for supervision in Apron C Juanda Airport. This research employs a quantitative research design using simple regression analysis after instrument testing and prerequisite testing. The research population consists of 40 AMC personnel, and the sampling technique used is consecutive sampling, resulting in a sample size of 3 5 out of 40 AMC personnel. Data collection for this research involves field observations, documentation, and a Google forms-based questionnaire using a likert-scale research instrument, conducted within a predetermined timeframe. The research findings are as follows: (1) There is an impact of the addition of Closed Circuit Television on the Apron Movement Control Supervision at Juanda Airport, (2) There is a 41 % impact of the addition of Closed Circuit Television on the Apron Movement Control supervision at Juanda Airport.

***Keywords**: CCTV addition, AMC supervision*

1. INTRODUCTION

To create an air transportation system that is guaranteed safety and security by creating a sense of security and comfort for users of aviation services, supporting facilities are needed that can realize this goal. One of the security technologies in question has of course been widely used in various places, namely Closed Circuit Television. With the existence of human resources who supervise monitors from CCTV captures and also the assistance of security supporting facilities, namely CCTV, security and safety will be fulfilled to the fullest

Juanda Airport in Surabaya as part of the national and international air transportation network in eastern Indonesia has made various efforts to ensure optimal security and safety. Juanda itself has 2 passenger terminals and 1 cargo terminal, 3 Apron namely Apron A which has 14 parking stands, Apron B which has 30 parking stands, and Apron C which has 7 parking stands. With the number of parking stands, of course, Apron Movement Control personnel who are in charge of supervising the Apron need security support facilities such as CCTV to support and facilitate the tasks of AMC personnel. A total of 51 parking stands at Juanda airport, each apron has CCTV installed on each existing parking stand but only on apron C which only has 2 CCTVs with an apron area of 32.04730 which causes several problems to occur such as a lack of information on the block and

off aircraft block on Apron C, and discovery of inappropriate Ground Support Equipment and discovery of Foreign Object Debris. Following is the CCTV footage on the Juanda Airport Apron:

Figure 1 *Visual Monitor CCTV Room*

The picture above is the result of the CCTV recording at the parking stand in Apron B which also has the same type of CCTV as Apron C. It can be seen that CCTV can only monitor a maximum of 2 parking stands in Apron. This reinforces that the CCTV in Apron C cannot reach all activities in Apron C.

AMC has various responsibilities and also has to monitor supervision manually or look directly in the field and visually or see with the help of tools such as CCTV which sends signals to monitors in the room[1]. This task will also be maximized if it can be supported by supporting facilities such as CCTV.

The formulation of the problems in this study are: (1) Does the addition of CCTV affect AMC surveillance at Apron C Juanda Airport, (2) How much influence does the addition of CCTV have on AMC surveillance at Apron C Juanda Airport? The research objectives: (1) To find out whether CCTV has an effect on AMC surveillance at Apron C Juanda Airport, (2) To find out how much influence CCTV has on AMC surveillance at Apron C Juanda Airport

To provide focus and suitability between the title and the issues discussed, the authors limit this final project research which includes: (1) only discussing the effect of adding CCTV on AMC surveillance at Apron C Juanda Airport, (2) does not discuss the number of procurements to occur, (3) Does not discuss the range of CCTV types.

hypothesis

The hypothesis is not an absolute or temporary answer to the research problem formulation [2]. The hypothesis is not a correct answer but needs to be tested for empirical truth [3]. The hypothesis of this study

H0: There is no effect of adding CCTV on AMC surveillance at Apron C Juanda Airport.

H1: There is an effect of adding CCTV to AMC surveillance at Apron C Juanda Airport.

THEORETICAL REVIEW

Apron Movement Control

In serving flight operations, a unit is needed whose role is to ensure operational security at the airport. The airport area consists of the air side and land side. If on the land side, we know Aviation Security (AVSEC) then on the air side there is an Apron Movement Control (AMC) unit, for the air side itself including the runway, taxiway, apron where the air side is the AMC work area to ensure the safety and cleanliness of the air side [4].

Supervision

Supervision is an ongoing activity to see compliance with aviation security regulations carried out by aviation service providers or other institutions related to aviation security [5].surveillance is often deceptive where citizens, users, or consumers are not even made aware that they are being watched which brings a tradeoff between human rights and particularly privacy on the one hand, security, and crime prevention [6].

Impact

Influence refers to the strength that exists or arises from an entity (both individuals and objects) that plays a role in shaping a person's personality, beliefs, or behavior[7]

METHODOLOGY

This research uses quantitative methods and quantitative research methods are based on a positivistic approach that relies on concrete data and the data is obtained in the form of numbers [2]. This research uses quantitative methods aimed at testing theory, and the use of methods must be structured and designed as well as possible this research to test the impact of CCTV addition [8].

Data Collection Techniques and Research Instrument

Table 1 *Instrument measuring scale*

No.	Answer	Score
1.	Sangat tidak setuju (STS)	1
2.	Tidak setuju (TS)	2
3.	Netral (N)	3
4.	Setuju (S)	4
5.	Sangat setuju (SS)	5

Data collection techniques in this study used field observations, closed questionnaires based on Google forms, and documentation in the form of image documentation. Closed questionnaires in collecting research data used a Likert scale research instrument so that the measurements in this study were accurate and clear**.**

Data Analyze Technique

Regression analysis is a statistical calculation to testhow close the relationship between variables [9].

Simple regression analysis aims to see how one variable affects other variables. In a regression analysis, the variable that is affected is called the independent or independent variable, and the variable that is affected is called the related or dependent variable[10].

the analysis technique used is a simple linear regression analysis technique to see the effect of poverty levels on the construction of livable houses in riau province. [11].

This study uses simple regression analysis where this analysis is carried out 3 tests first, the first is an instrument test in which there is a validity test with the formula:

$$r = \sum XY-(\sum X. \sum Y) \sqrt{\{n \sum X 2 - (\sum X 2)\}\{n \sum Y 2 -(\sum Y) 2 \}} \quad (1)$$

[12].

r xy = coefficient correlation
n = sampels
Σ XY= number of variable multiplications x and y
Σ X = number of variabel x
Σ Y = number of variable y
Σ X2 = sum of the variable x
Σ Y2 = sum of variable y

Instrument Test

This validity test compares the value of each question item with the total value. If the calculated r value is greater than the r table value and the r value is significantly positive, then the question item is said to be "Valid" [13]. In Reliability Test A variable can be declared reliable or meets cronbach alpha if it has a cronbach alpha value > 0.60[14]

Classic Assumption Test

In this study, several prerequisite tests were applied as a requirement before carrying out regression tests with the aim of achieving the best and unbiased linear estimates (Best Linear Unbiased Estimators). BLUE is an assumption developed by Gaus Markov Theorem [15] [16]. Following are some of the prerequisite tests that must be fulfilled in this study are Normality Test, the normality test is carried out using the normal probability plot method on the basis of decision making if the data is spread evenly along the diagonal line and follows the pattern of the diagonal line then the regression model meets the assumption of normality.[17].

After the normality test, will go on to Heteroskedasity test, Furthermore, a heteroscedasticity test was carried out to test whether the regression variance occurs from the residuals of another observation [18]. The basis for decision making uses the Glejser test method with the provision that if the sig value > 0.05 it can be concluded that there is no heteroscedasticity problem.[19].

After confirming that there are no problem symptoms in the data, it is continued with a linearity test to identify the existence of a linear relationship between variables on the basis of decision making if the sig value > 0.05, it can be concluded that there is a linear relationship between variables and vice versa if the Sig value <0.05 then no there is a linear relationship between variables. [20].

Hipotesist Test with t test. a process for evaluating the strength of evidence from a sample, and providing a basis for making decisions regarding the population. The purpose of hypothesis testing is to decide whether the hypothesis being tested is rejected or accepted [21]

Simple linear regression analysis in this study aims to provide answers to two related problem formulations including (1) t test or hypothesis testing on the basis of decision making if $t_{count} > t_{table}$ then H0 is rejected and H1 is accepted and vice versa if $t_{count} < t_{table}$ then H0 is accepted and H1 is rejected [22]. (2) The Coefficient of Determination or R Square to answer the second problem formulation in this study in measuring the extent to which the percentage of influence. [23].

Table 2 *Level of Relationship between Variables*

Interval Koefisien	Tingkat Hubungan
0,00-0,199	Very weak
0,20-0,399	Weak
0,40-0,599	Intermediate
0,60-0,799	Strong
0,80-1,000	Very Strong

With the formula

$$Kd = (r^2) \times 100\% \quad (2)$$

Note:
Kd = Coefficient Determination

R = Coefficient Correlation

POPULATION AND SAMPLE

The population is a combination of all elements in the form of events, things or people who have similar characteristics and become the center of attention of a researcher as a research universe. the sample is the subject of a population consisting of several members of the population. This subject is formed as a research object that can represent the population[22].With sampling technique consecutive sampling that defined as a non probability sampling where samples are picked at the ease of a researcher more like convenience sampling[24]

RESULTS AND DISCUSSION

Results

Instrument Test

- Validity Test

The method for assessing the validity of the questionnaire in this study was to use the Pearson bivariate

Table 3 *Validity Test Result*

Variabel	r_{hitung}		r_{tabel}	Ket
X1	0,580	>		Valid
X2	0,588	>		Valid
X3	0,571	>		Valid
X4	0,443	>		Valid
X5	0,557	>		Valid
X6	0,506	>	0,344	Valid
X7	0,631	>		Valid
X8	0,407	>		Valid
Y1	0,823	>		Valid
Y2	0,666	>		Valid
Y3	0,409	>		Valid
Y4	0,713	>		Valid
Y5	0,709	>		Valid
Y6	0,817	>		Valid
Y7	0,876	>		Valid

Based on the results above, it can be seen that all questions for variables x and y have valid information because rcount > rtable 0.344.

- Reliability Test

Table 4 *Reliability Test Result*

	Cronbach's Alpha	N of items
X	0,641	8
Y	0,807	7

Based on the results above, the results of Cronbach's Alpha exceed sig 0.6, which means that the research instrument items are reliable and can be used as a data collection tool.

Classic Assumption Test

- Normality Test

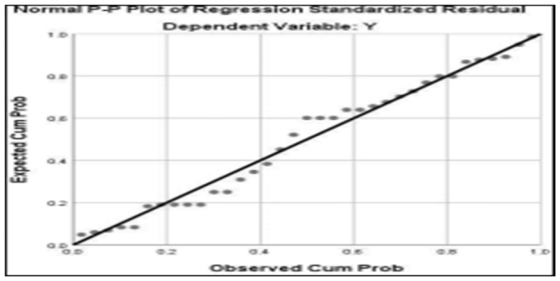

Figure 2 *Normality Test Result*

Based on the results above, it can be seen that the points on the plot follow and approach the diagonal line, which means they are normally distributed

- **Heteroscedastisity Test**

Table 5 *Heteroscedastisity Test Result*

Unstandardized Coefficients		Standardized Coefficient	t	Sig.
Model	Std. Error			
	-8.45 IE	.152	.000	1.000
X	.000	.005	.000	.000	1.000

Based on these results it was shown that the significance level for this heteroscedasticity test was 1, which means

more than 0.05, so it can be concluded that this study was free from symptoms of heteroscedasticity.

- **Linearity Test**

Table 6 *Linearity Test Result*

Sum of Squares		Df	Mean	F	Sig.
Y*X	Deviation from linearity	8	5.894	.798	.610
Within groups		25	7.385		

Based on the results of the linearity test above Sig > 0.05, which means there is a linear relationship between variables.

Hipotesist Test

Table 7 *Hipotesist Test Result*

Unstandardized Coefficient			t	Sig.
Model		Std. Error		
X	9.368	4.388	2.135	.040
	.732	.152	4.799	.000

- Determination of Criteria

  The t_{table} value for a significant level of 5% df = 33 (N-2) is 2.444 and t_{count} from table IV.6 is 4.799.

- Decision Making

  If $t_{count} > t_{table}$ then H0 is rejected and H1 is accepted. By setting the criteria above thitng (4.799) > t_{table} (2.444).

So there is a significant influence between variables. Which is proven that "There is a significant influence between the addition of CCTV on AMC surveillance".

Table 8 Determination Coefficients

Model	R	R Square	Adjust	Std. Error
	.641	.411	.393	2.650

After the rcount is known to be 0.411, to find out the influence of X on Y, it is calculated using the formula with the following results:

$R^2 = r^2 \times 100\%$

$= 0{,}411 \times 100\ \%$

$= 41\%$

From the results above it can be concluded that there is an influence of variable X on Y of 41%.

Discussion

Based on the tests that have been carried out, the following discussion can be obtained :

- There is a significant effect between the addition of CCTV on AMC surveillance in Apron C. This is evidenced by the results of hypothesis testing using the t test where the t_{table} is 2.44 compared to the t_{count} significance of 5% N =33 of 4.799. So $t_{count} > t_{table}$. So it can be interpreted that H0 is rejected and H1 is accepted, that is, there is an influence between the addition of CCTV on AMC surveillance in Apron C.
- There is a significant influence between the addition of CCTV on AMC surveillance in Apron C. So to find out how much 0.411 is, then we will know how much influence X has on Y with a presentation of r2 = 41%, which means that there is an influence of X on Y by 41%. with a moderate level of relationship (not strong and not weak).

CLOSING

Summary

- The addition of CCTV has a positive effect on AMC surveillance at Apron C Juanda Airport, which means that the addition of CCTV has an effect and can improve the AMC surveillance process at Apron C Juanda Airport.
- The addition of CCTV has an influence on AMC supervision at Apron C of Junda Airport by 41%

Outlook

- Coordinating with Aviation Security regarding Closed Circuit Television supervision at Apron C so that the Apron Movement Control at Juanda Airport can have access to monitoring supervision at Apron C.
- Planning for the addition of Closed Circuit Television in the Apron C area of Juanda Airport by considering a wider range of CCTV so you don't have to add CCTV in every parking stand in Apron C.

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