THE EFFECT OF LION AIR AIRLINE GROUND TIME ON ON TIME PERFORMANCE AT HANG NADIM INTERNATIONAL AIRPORT BATAM

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ABSTRACT
Airport management plays an important role in supporting efficiency and service for flight operations. To be able to provide this service optimally, it is necessary to optimize the flight time of an aircraft. Optimizing aircraft service time or what is usually called ground time needs to be increased to achieve punctuality for an airline. Optimal ground time can be seen from achieving time that is in accordance with predetermined standards so that on time performance (OTP) can be achieved. Batam's Hang Nadim International Airport is the airport with the longest runway in Indonesia with a length of 4025 meters and is ranked second after Kuala Lumpur Airport in Malaysia. This airport has quite a busy flight flow. This requires airport managers to be able to maximize the airline's ground time relative to departure time in orderto achieve the predetermined timeliness. The research methodology uses sequential mixed methods (sequential mixed methods) with research data obtained from observation analysis, documentation, interviews, literature study and regression analysis. The results of research conducted by the author prove that there is an influence of Lion Air airline's ground time on the timeliness of flight departures at Batam's Hang Nadim International Airport and ground time factors such as aircraft type, weather, personnel performance and airside capacity also influence it. Brings about optimizationof ground handling operations.

Keywords: block off, block on, ground time, departure, on time performance

1. INTRODUCTION

Aviation or air transportation is one of the supports for transportation in Indonesia which has an important role and function in reaching remote areas in Indonesia. Indonesia is a country that has a total of 17,001 islands Finaka (2024). With so many islands in Indonesia, a fast and efficient mode of transportation is needed to reach all regions of Indonesia. One of the right choices to get to these regions is air transportation because it has time. relatively fast travel time exceeds the travel time of land transportation and sea transportation.

Airport management is something that needs to be considered to support efficiency, comfort, and service for flight operations. To be able to provide this service optimally, it is necessary to optimize the flight time of an aircraft. Optimizing the time of aircraft service or what is usually called aircraft ground time needs to be increased to achieve on-time performance for an airline.

Ground time is an important part that cannot be separated from the world of aviation, ground time means the time used by the aircraft while on the apron in the implementation which starts from the time of block on to block off Yopi & Adipura, (2022). The optimal ground time can be seen from the achievement of time in accordance with the predetermined standards so that it can achieve on time performance (OTP). This will support the on-time performance of flight departures.

Lion Air is one of the largest private airlines in Indonesia, and has a route network, and has an international route network from Indonesia to Vietnam, Singapore, and Saudi Arabia. Lion Air has significantly expanded its fleet since 2000 by holding a number of major contracts with Airbus and Boeing, totaling 234 Airbus A320s and 203 Boeing 737s. The airline company has a long-term plan to utilize its fleet to accelerate its expansion in the Southeast Asian regional scene by creating subsidiaries, namely Wings Air and Batik Air, and overseas, Lion Air established Malindo Air and Thai Lion Air.Lion Air Group (2024).

According to data from Guide (2023) Lion is the airline with the largest number of passengers in the Southeast Asia region. The Indonesia-based airline had 2.99 million passenger seats filled as of 2023. However, the airline also recorded poor results by only getting an on time performance (OTP) percentage of 50.90% throughout 2023. Lion Air is known to often experience problems with its operations and company performance Fathan Hawari (2018). On the other hand, Lion Air needs to improve the quality of management to overcome

various obstacles such as flight delays and unsatisfactory service to customers. Based on the author's observations, there are several problems related to the causes of delays, namely weather conditions that are not possible to carry out flights, passenger delays at boarding time, delays from pilots, co-pilots, cabin crew, catering, and aircraft unpreparedness and aircraft rotation

.Hang Nadim Batam Airport (IATA: BTH, ICAO: WIDD) is an international airport situated in the Riau Islands Province's Batu Besar Village, Nongsa District, Batam City.. Hang Nadim International Airport Batam is the airport with the longest runway in Indonesia with a length of 4025 meters and is ranked second only to Kuala Lumpur Airport in Malaysia. As an international gateway that connects the city of Batam with the rest of the world, every day this airport serves an average of 43 flights. As a very strategic and vital place in the Batam Area, the existence of Hang Nadim Airport has a function and role, through the airport, the traffic of passengers and investors becomes easier to reach the prima donna areas to invest. To be able to cut the travel time, air transportation was chosen as a mode of transportation to be able to reach areas in Batam.

Considering the explanation of the description above, the author has a goal it, namely to be able to find out the influence of Lion Air airline ground time on domestic flights on the on-time performance of flight departures at Hang Nadim Batam International Airport and to be able to find out what factors affect ground time

To address the research title, there are several problem formulations that will be discussed in this study, including:

1. Is there an effect between Lion Air ground time on on-time performance of departures at Hang Nadim Airport Batam?
2. What are the factors that affect the accuracy of Lion Air airline's ground time?

The authors' goals are as follows, based on the description given above:

1. To determine the impact of Lion Air's domestic flight ground time on the timely departure performance of flights at Hang Nadim International Airport in Batam.
2. To be aware of the elements that influence ground time

It is intended that this research will help with education in the future based on the goals that need to be met:

1. It is intended that the research process will contribute to the author's knowledge and skill development in the area of aviation operations management.
2. The study's findings may provide Lion Air Airlines with food for thought when it comes to determining the variables that may impact ground time and punctuality at Hang Nadim International Airport.
3. The results of this can be used by Hang Nadim Airport as a source of knowledge to enhance its offerings in areas that may have an impact on the punctuality of departure and arrival flights.

2. METDOHS

2.1 Theoretical Review

A. Ground Times

Ground time is the amount of time that ground handling staff need to set up everything an aircraft will need while it is on the apron. It begins at block on and ends at block off Anggraini (2016). The ground handling officer refuels, loads, and unloads passenger baggage, transfers passengers, and replaces the aircraft crew while the aircraft is on the apron. When an aircraft is on a parking stand and the ground handling officer applies a wheel chock to the front wheel of the aircraft, this is referred to as "block on." The airplane reverses from the parking stand position during block off.

According to Miko (2017), various numbers of airside and landside facilities have an impact on ground time. Other factors include schedules that conflict withrunway, taxiway, or aprons' availability. in addition to additional elements including how well each airline handles ground operations. The efficiency of an airline in providing ground time while on the apron area is greatlyinfluenced by supporting infrastructure and ground handling performance.

B. Ground Handling

The terms "ground" and "handling" make up the phrase "ground handling." Ground refers to the apron in this instance. Managing entails managing. Ground handling is the term for an aviation business that deals with passenger handling or service, baggage handling, cargo handling, post handling, and equipment that facilitates aircraft movement while on the apron Winny Plumeria Aqshani1 (2019).

The aviation industry recognizes three phases of operation, which are as follows:

1. Pre flight service, this is the preparation of the aircraft and passengers for takeoff.
2. In flight service, specifically, passenger services provided on board the aircraft.
3. Post flight service, The process of managing travelers, luggage, freight, mail, and aircraft following takeoff or landing is known as ground handling. Ground handling work has a scope or limitation,specifically on

In technical terms, ground handling operations start as soon as the aircraft is taxiing, the engine has been shut off, the wheels have been propped up, the doors have been opened, and the aircrew is given the go-ahead to carry out their tasks. This stage is known as arrival handling as a result. However, when the aircraft is prepared for takeoff—that is when the engine is started,

the wheels are removed, and the aircraft door is closed—the work of the landside workers comes to an end. This process is referred to as departure handling.

C. On Time Performance

According to Girasyitia and Santosa (2015) state that on-time performance (OTP) is a requirement that is met when an aircraft's departure and arrival times coincide with predetermined times. Because the aircraft has a use value while in flight, on-time performance, or OTP, is significant. A gauge of passenger confidence in choosing to travel is on-time performance, or OTP. Since an airplane has a use value while in the air, the airline will make more money the longer the jet is in the air. Consequently, on-time performance (OTP) is of utmost importance to airlines.

The value of service user loyalty to a service product is impacted by on-time performance (OTP), a factor that is closely associated with the aviation industry. An aircraft delay may be considered one of the airline's unfavorable evaluation criteria. Accordingly, in order to draw in service customers, on-time performance (OTP) needs to be prioritized and improved upon (Dortina et al., 2017).

Each commercial airline has a set flying schedule, and an aircraft follows this schedule. The daily schedule of an aircraft, sometimes referred to as the minute schedule, is the time allotted for the aircraft to take off from the origin city and land at the destination city. The actual time needed by an airplane to take off from its starting point and land in its destination is measured in minutes.

The airplane can be considered delayed when it departs the departure city if its takeoff time is later than the scheduled time.In a similar vein, an aircraft is considered late to land at its destination if its actual landing time is less than its scheduled landing time by one minute.Airlines often allow for a wait of 15 minutes, Moonlight (2022), so even if there is a delay in departure or arrival, this is still considered to be on time.Thus, the flight can be considered on time if the arrival or departure delay is still less than the permitted time.

In addition to serving as a gauge of airline performance, on-time performance, or OTP, also indirectly affects income for the business. Furthermore, it is anticipated that on-time performance (OTP) reporting will act as a stimulus for enhancing business performance in addition to being a tool for gaugingairline performance. If the actual departure time for a flight is more than fifteen minutes different from the scheduled time, a delay will be taken into consideration.On the other hand, a cancel means that the aircraft's departure is delayed and rescheduled for the following day. When an aircraft booked for a route is unable to operate for whatever reason, affecting both businesses and customers, the flight is deemed canceled (Rizki & Samsudin, 2019).

On Time Performance (OTP) and tardiness are inseparable, because tardiness is the opposite of On Time Performance (OTP). On Time Performance (OTP) is the timeliness that can be achieved by a flight, while delays are explained in the Republic of Indonesia Law Number 1 of 2009 concerning Aviation.

The Ministry of Transportation Regulation Number 77 of 2013 concerning the Responsibility of Air Transport Carriers was created by the government to address the issue of airline delays. It states that passengers have the right to compensation from the airline in the event that their flight is delayed or fails to arrive on time.

The time discrepancy between the scheduled departure or arrival time and the actual departure or arrival time is known as a flight delay, per PM No. 89/2015 on Delay Management for Scheduled Commercial Air Transport Business Entities inIndonesia. The amount of time that separates the scheduled departure or arrival time from the actual departure or arrival time—that is, when the aircraft leavesthe aircraft parking lot (apron) or when it blocks on and parks at the destination airport apron—is used to computethe flight delay in question.

Flight delays are divided into the following six categories, per PM Number 89 of 2015 about Delay Management at Scheduled Commercial Air Transport Business Entities in Indonesia.

1. Category 1, 30 minutes to 60 minutes late;
2. Category 2, 61 minutes to 120 minutes late;
3. Category 3, 121 minutes to 180 minutes late;
4. Category 4, delay of 181 minutes to 240 minutes;
5. Category 5, delay of more than 240 minutes; and
6. Category 6, flight cancellation.

Air transportation companies bear the task of providing compensation to passengers or service users for the various forms of flight delays that were previously stated. The on-time performance aspect is one that airlines need to focus on because it is crucial to provide customers with the services they need. To ensure that the On Time Performance (OTP) factor keeps rising, the government of Indonesia must continue to examine all airlines that operate in the country.

D. Hang Nadim Airport Batam

Hang Nadim International Airport (IATA: BTH, ICAO: WIDD), is an international airport located in Batu Besar Sub-district, Nongsa Sub-district, Batam City, Riau Islands Province, Indonesia. Admiral Hang Nadim, a well-known member of the Malacca Sultanate, is honored with the airport's name. The airport boasts the longest runway in Indonesia, measuring 4,025 meters, and the second longest in Southeast Asia, following Kuala Lumpur International Airport in Kuala Lumpur,

Malaysia. Hang Nadim Airport can now handle eighteen wide-body aircraft, including the Boeing 777, 747, and 767.

2.2 Research Design

In this study, the author uses a mixed methods. The mixed methods research method is a research phase that combines qualitative and quantitative research, two types of study that have already been done. As stated by Creswell (2011), A research strategy known as "mixed research" blends qualitative and quantitative research. The research was conducted at Hang Nadim International Airport, Batam. The selection of this Location as The location of the research is due to the ase of obtaining the necessary data when executing On The Job Training.

In this study the authors employed a sequential mixed methods approach, particularly a sequential explanatory approach. In order to address the first problem, which is the impact of Lion Air airline ground time on departures made on time, this study's first step involves gathering and analyzing quantitative data. Lion Air airline ground time data is then processed and compared with on-time performance (OTP) deviations from January to February. Subsequently, the second phase involves gathering qualitative data to address the second problem formulation, which pertains to the factors influencing ground time.

The quantitative mode is prioritized in this instance. When combining quantitative and qualitative data, earlier findings from the first step are typically taken into consideration. The primary focus at this point was more heavily stressed in the first stage, and when the researcher links the gathering of quantitative and qualitative data, the two phases merge. In this study, quantitative statistics are explained by means of qualitative data.

2.3 Research Variabel

The research variables are objects related to the subject. The object of research can be in the form of people, objects, transactions, or events collected from the object of research that describe the condition or value of each object of research. The name of the variable comes from the fact that certain characteristics can vary between objects in a population of Purwanto (2019).

In this study, the author uses two variables. Independent variables (X variables) and dependent variables (Y variables) where variables are expressed in the form of numbers. Dependent variables as variables that are influenced by independent variables. The Dependent variable is in the form of departure time, while the independent variable is the average ground time of Lion Air airline.

Variable X (Independent Variable) is a variable that affects other variables. According to Purwanto (2019), independent variables can also be interpreted as conditions or values that cause (change) other conditions or values to occur. Independent variables are variables that can affect or cause changes or the emergence of a bound (combined) variable to other variables. The variable in this study is the ground time of Lion Air flights. The operational definition is the ground time of Lion Air flights from January to February 2024.

Variable Y (Dependent Variable) is a variable that is influenced by an independent variable (Variable X). This variable is the result of the existence of an independent variable. The variable in this study is the on-time performance of Lion Air flight departures from January to February 2024.

2.4 Data Collection Techniques

The research of this final project uses the following data collection techniques:

A. Observation

According to Nasution (2020), observation is a condition in which direct observation is made by the author in order to better understand the context of the data in the overall social situation so that a comprehensive view can be obtained.

In this case, the author made observations in the apron area to observe how long the ground time on the Lion Air aircraft with the help of a stopwatch device, so that it can find out the time required for ground handling of each aircraft during the pre-flight process in the apron area. With the observation method, ground time data can be obtained which will then be compared with the on time performance (OTP) deviation data. Observations were carried out from January to February 2024.

B. Documentation

According to Fitriawati (2015), Analyzing documents is a task. to collect information about documents used in the system. The purpose of document analysis is to know and understand all the relevant documents running on the running system. In this case, the author collects data by collecting research data through documentation of record files, books, transcripts, documents, videos, and photos that are approved for use in an observation or research and can be used as a theoretical basis or the main guideline for the implementation of a research. The document used in this study is daily log transcript data in the form of an apron movement sheet (AMS) for domestic flights at Hang Nadim International Airport, Batam. From the transcript data, the researcher calculated the average ground time of Lion Air's domestic airline until the data was processed.

C. Interviews

According to Habibah (2014), an interview is a systematic and organized conversation in which the researcher acts as an interviewer (interviewer = iter) with several people as respondents or who is interviewed (interviewer = itee) to obtain several information related to the problem being researched. The results of the

conversation will be recorded or recorded by the interviewer.

The author conducted an interview with AMC personnel on duty at Hang Nadim International Airport, Batam. This interview aims to obtain information on the problems that occurred to be able to strengthen the author's data related to the influence of ground time on the on-time performance of Lion Air departures at Hang Nadim International Airport, Batam.

Interviews were conducted with parties related to the basis, namely, the respondents taken by the author were personnel related to ground handling and AMC units at Hang Nadim International Airport, Batam. The interview was conducted in the office room of the Airport Operation Control Center on February 23, 2024. An interview was conducted with Apron Movement Control (AMC) officers on behalf of Muhammad Faiz Koto (Airport Operation Airside Squad Leader)

The interview questions are based on the IATA Ground Operations Standards related to the Airport Handling Manual comprises authorized guidelines and protocols to facilitate secure and effective ground operations. both above and below the wing of the aircraft.

D. Research Instruments

According to Sri Surgiarsi (2006) research instruments are tools selected and used by researchers to collect data when carrying out research so that these activities become more systematic. In this case, the instrument has the meaning of a tool to obtain and collect research data as well as a process to determine the results and conclusions of the research. In this final project research, the author uses research tools in the form of daily logs from the apron movement sheet of Lion Air domestic flights at Hang Nadim International Airport Batam from January to February 2024.

2.5 Data Analysis Technique

According to Ali (2016), data analysis is a research process that occurs after all the data needed to solve the problem under study is available. The sharpness and accuracy of the researcher in using analytical tools greatly determines the precision of your final thoughts. As a result, data analysis tasks are essential to the research process and cannot be disregarded. Mistakes in choosing analytical tools can have adverse consequences on the final results and adversely affect the use and application of research results.

The author uses the help of SPSS (Statistical Package for the Social Sciences) software to process data. According to Sujawerni and Utami (2020), SPSS (Statistical Package for the Social Sciences) is one of the software used to assist in statistical data processing, analysis, and calculation. SPSS has undergone several developments and is expected to continue to be developed.

A. Mean

Mean is the average value obtained from the total of all data divided by the number of data.

$$\bar{X} = \frac{\sum_{i=1}^{n} X_i}{n}$$

Where:

- $\bar{X}$ = Mean count
- X_i = The i-th data
- n = Number of data

B. Simple Linear Regression Analysis

This author uses simple linear regression analysis. An equation model that depicts the relationship is a basic linear regression equation between one independent variable (X) and one independent variable (Y) I Made Yuliara (2016).

Simple The application of linear regression analysis is beneficial for estimating the value of the dependent variable. The equation used in the analysis is as follows:

$$Y = a + bX$$

Which states that:

- a = Constant (Y value if X-0)
- b = Regression coefficient (estimated change in value Y when X changes in value by one unit)
- Y = Variable whose value is influenced by other variables (dependent variable)
- X = Variable that affects the value of other variables (independent variable)

C. T test

The T test is a test that can be used to determine the effect of each independent variable on a dependent variable Muhamad (2019). Variable X and variable Y are used as a t test with the test criteria if t count> t table at a (alpha) 0.05 or if the significant value of t < a (alpha) 0.05 (probability value t < 0.05) indicates that the relationship between variables X and Y is substantial. Conversely, if the value of t count < t table, or if the significant value of t > a (alpha) 0.05 (probability value t > 0.05) means that there is an insignificant influence between variables X and Y.

D. Test the coefficient of Determination (R^2)

The coefficient of determination (R^2) test is a test that explains the proportion of variation in a dependent variable that is explained dependent variable that the independent variable explains. Furthermore, the coefficient of determination test can be employed to assess the good the regression line is. If the coefficient of determination (R^2) estimate is close to 1, it can be said that the dependent variable can be explained by the independent variable, in fact. In contrast, in the event that the coefficient of determination (R^2) is far from 1 or close

to 0, then the independent variable explains the dependent variable less well (Muhamad, 2019).

3. RESULT AND DISCUSSION

3.1 Effect of Lion Airline Ground Time on Domestic Flights

Based on the results of the research previously described, on the influence between the ground time of Indonesian airlines on domestic flights on the on-time performance of departures. Researchers conducted several tests to prove the existence of this influence. Researchers conducted a T-test, a coefficient of determination test, and a basic linear regression analysis (partial).

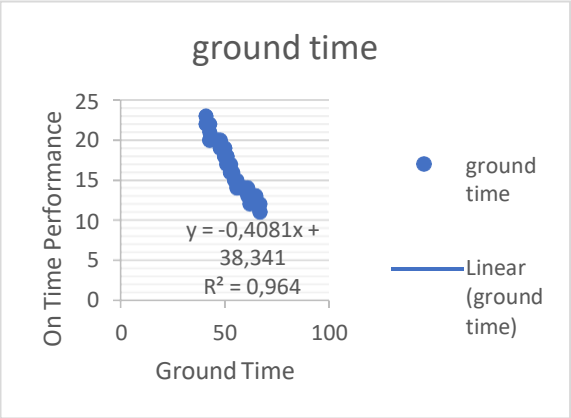

Figure 1. Scatter Plot
Source: Author's Process (2024)

Based on the results of the linearity test seen from the scatter plot above, it shows that there is a linear relationship, this is indicated by the scattered points on the scatter plot tending to form a pattern close to a straight line which indicates that the relationship between variables X and Y is linear. With these results obtained, the appropriate processing method for the data is simple linear regression.

A. Simple Linear Regression Analysis

Based on the results of data processing using SPSS (Statistical Product and Service) software Solutions) in the table above, the results of the linear regression test The simple regression equation is obtained, namely:

Y = a + bX

Y = 38,501 – 0,410X

The above changes are an addition if b is positive and a decrease if b is negative. *It is* known from the coefficients of the preceding simple linear regression equation that the constant of 38.501 indicates that if the ground time variable is zero or fixed, it will increase the level of on-time performance of flight departures by 38.501%. The ground time variable 38.501 indicates that if the ground time variable increases by 1 unit, it will reduce the level of on-time performance of flight departures by 0.410 units or by 41%.

B. Determination Coefficient Test

From the display of the SPSS output model summary presented above, the R^2 value is 0.964. This shows that the ability of the independent variables to explain the variance of the dependent variable is 96.4%. There is still 13.6% of the dependent variable's variation that this research model's independent variables are unable to account for. This is because of the

presence of influencing factors that are not examined in this study.

C. T-Test

Based on the significant results of individual parameters (t test) presented in the table above, it is known that variable X has a significant value <0.05 and t count of 27.484 which is greater than t table (2.006) which means that individual variable X has a significant effect on Y. Based on this table it has been proven that the ground time variable (X) has a significant influence on the on time performance variable departure.

3.2 Factors Affecting Ground Time Accuracy

Based on the results of interviews conducted directly while researchers were still conducting On The Job Training for the Squad Commander of the Apron Movement Control (AMC) unit at Hang Nadim International Airport Batam. The interview was conducted by giving 5 questions to the interviewee Mr. Muhammad Faiz Koto who served as (Airport Operation Airside Squad Leader). The interview was conducted by giving 5 questions, it can be concluded that the factors that affect the accuracy of ground time are the delay of the previous aircraft, the process of loading/unloading goods, the process of boarding passengers, Ramp Maintenance, the process of disembarking passengers and the ability of ground handling personnel.

4. CONCLUSION

Based on the results of simple linear regression analysis and discussion that has been obtained previously, the following conclusions can be drawn:

1. There is an effect of ground time on time performance of Lion Air Airlines at Hang Nadim International Airport Batam, as evidenced by the regression test results of 38.501, if the ground time variable is zero or fixed it will increase on time performance by 38.501%, if the variable increases by 1 unit it will reduce the level of on time performance by 0.410 units or 41%. The results of the coefficient of determination (R square) of 0.964 which show that ground time has an effect of 96.4% while the remaining 13.6% is explained by other variables not examined.

2. Ground time factors are things that can affect ground time which consists of previous aircraft delays, the

process of loading and unloading goods, the process of disembarking passengers, ramp maintenance, ground handling performance, and the passenger boarding process.

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