

Operational Performance of Aviobridge for Stand Parking At The Sultan Hasanuddin International Airport in Makassar

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Abstract: Sultan Hasanuddin International Airport, which functions as a node for air transportation systems, has a very important role today as a gateway for passenger and cargo traffic in Eastern Indonesia (EI). The standard service for Aviobridge utilization for airlines should be in accordance with the Standard Operating Procedure given to airline operators which is around 55 minutes. However, the use of Aviobridge facilities is estimated to occur with less or more deviations related to the effectiveness of aviobridge services. To find out the extent to which deviations and effectiveness are carried out qualitative and quantitative statistical analysis of observational secondary data during June 2018 to January 2019. It can be explained that the deviation of the excess use of Aviobridge time from 55 minutes SOP is 49.36%, on time 9.11% and less than 55 minutes 41.3%, the effectiveness of the use of Aviobridge averaged 21.36%. Conclusion of the analysis is that the excess time of using Aviobridge is still relatively high and its effectiveness is low.

Keywords: Aviobridge, parking stand, time limit, effectiveness

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I. Introduction

Tasks and functions related to the use of Aviobridge for activities at the Sultan Hasanuddin International Airport apron in an organizational structure under the Airport Operations Service [1]. In operator service at the aviobridge parking stand, the usage duration setting is 55 minutes for each operator. Operational problems or technical problems are sometimes the cause of excess parking stand time and have an impact on the deviation of time and effectiveness. [2,3]

Based on these considerations a time study of aviobridge was used and tried to reveal how the deviations and effectiveness were analyzed by qualitative and quantitative statistical methods on secondary data observations during June 2018 to January 2019.

II. Methodology

The duration of the flight using Aviobridge services is analyzed by the excess time of the SOP (55 minutes) for each airline using the Microsoft Excel application, the duration of time is calculated based on the time period between blocks on arrival and blocks off departures. [1,4,5].

Data is tabulated and grouped for each month which represents rush hour, taken 5 months, i.e. June 2018 to January 2019. Furthermore, data is analyzed statistically from each airline that uses aviobridge. The effectiveness of using each aviobridge [2,6] is calculated using the following equation.

$$Efektivitas = \frac{\sum WP}{PPA}$$

Where:

$\sum WP$ = Time to use Aviobridge in hours

PPA = Time to use Aviobridge services in a month (30/31 days x 24 hours)

Operational performance analysis [6,7] is carried out by reviewing aspects of flight frequency, duration of use and effectiveness of using aviobridge. Secondary data is tabulated and described from the average operational performance per month about airline frequency, proportion [8] use of Aviobridge and Aviobridge usage matrixes according to airline users Aviobridge.

Treat the same data on the deviation analysis of aviobridge usage time according to airline, likewise the effectiveness of the use of Aviobridge matrix according to monthly time for 5 months. The grouping of data analysis when using Aviobridge [1.8] is divided into 3 time durations, namely normal use according to the SOP

determined by Apron Movement Control (AMC), which is for 55 minutes, greater than normal time and less than normal time.

III. Results And Discussion

Frequency of Use of Aviobridge

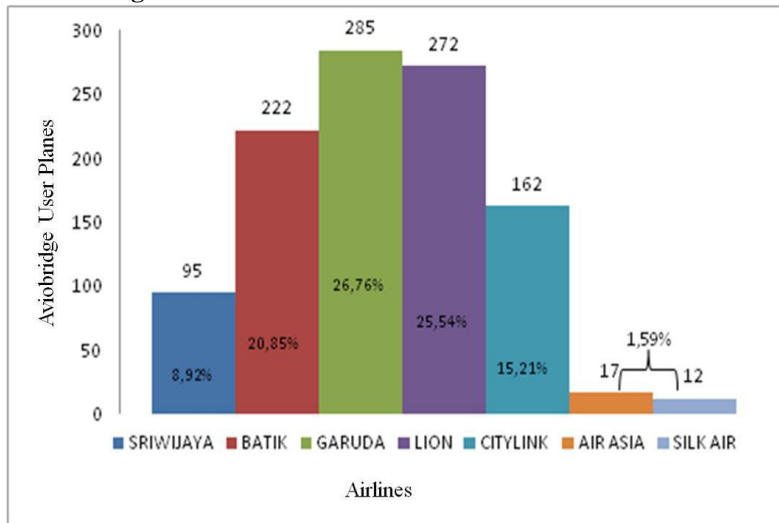


Figure 1. Frequency of Aviobridge Use by Airlines

Figure 1 illustrates the average frequency of airlines using Aviobridge facilities, the average use of Aviobridge 36 airplane per day, for Indonesian Garuda and Lion Air, and the airlines that use the facility the most with 285 and 272 airplanes each month because of the second airline. The airline has the most flight schedules compared to other airlines, while the airline with the lowest usage rate of Aviobridge facilities is Silk Air and Air Asia due to flight schedule.

Table 1. Matrix of Aviobridge Use Average per month with Airlines

	Sriwijaya	Batik	Garuda	Lion	City Link	Air Asia	Silk Air	Amount
Avio 1	19	33	74	39	18	0	0	183
Avio 3	14	43	53	45	21	0	0	177
Avio 4	17	43	49	51	38	0	0	198
Avio 6	15	39	48	52	38	0	0	192
Avio 7	21	36	35	49	36	0	0	178
Avio 9	9	27	25	36	11	17	11	136
Total	95	222	285	272	162	17	11	1064

In Table 1 Aviobridge 4 is the highest level of utilization, it can be seen the number of uses averaged 198 per month or 18.59%. While the lowest utilization rate is Aviobridge 9 with the number 137 or 12.80% this is because the use is prioritized for international flights so that there are not too many domestic flights using Aviobridge 9.

Garuda Indonesia airlines are the most often use Aviobridge numbers 1 and 3, with an average number of 74 and 53 aircraft each month and for Aviobridge number 9 is the least utilization rate can be seen in the number of each aircraft on average only 19 aircraft or 12.80 % every month.

Duration of Use of Aviobridge

In overall aviobridge usage time classification, Lion Air is the airline that most often experiences excess time on an average monthly basis for airlines that earlier use Aviobridge from an SOP which has been determined by the Indonesian Garuda airline to be the highest average 118 every month, and for the right time using the aviobridgen when viewed from the graph 4 lion of water occupies the first position.

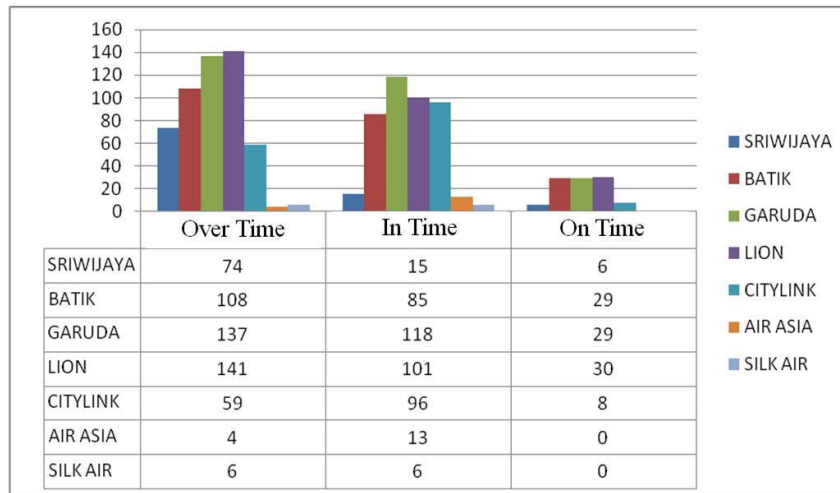


Figure 2. Classification of the time of using aviobridge

For the classification of the use of Aviobridge the longer usage time is the most with the amount of 49.36% while the timely use is the smallest in the use of Aviobridge with Indigo 9% can be seen in Table 2 and Figure 4.

Table 2. Classification of Aviobridge Use Every Month

Month	Over time > 55 menit	On time 55 menit	In time < 55 menit	Number of Flights
June 2018	51,09%	7,44%	41,47%	1196
July 2018	51,07%	6,70%	42,22%	1298
August 2018	45,35%	4,72%	49,93%	721
December 2018	54,18%	21,79%	24,03%	1028
January 2019	45,10%	4,89%	50,00%	1082
Average	49,36%	9,11%	41,53%	1065

The results of the statistical tests showed June, August, December and January there was a strong correlation between the number of airlines using Aviobridge with delays, as closely as in July there was a correlation but not significant with a correlation value of 0.775 and a significance value of 0.070.

Effectiveness of Aviobridge Use

The most effective use of Aviobridge in every month is July in Aviobridge number 7 with a percentage of 27.60 while in the average of July is the most effective month of use, and overall in the Aviobridge category the most effective is Aviobridge number 4, as shown in graph 8 and Table 6.

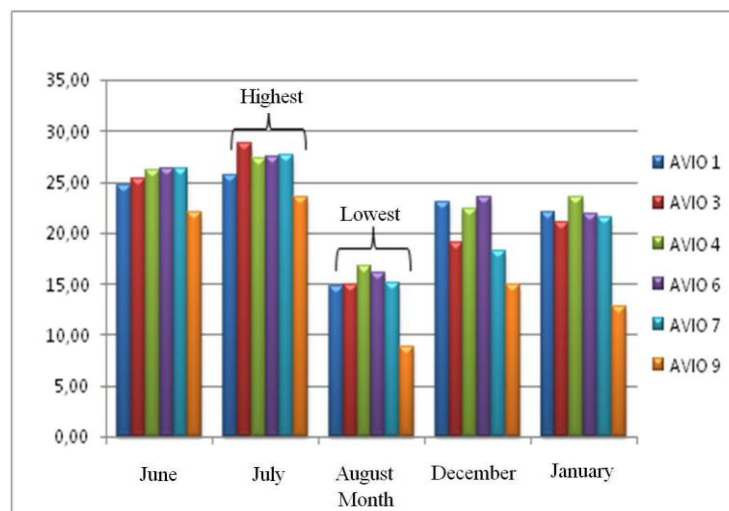


Figure 3. Effectiveness of Aviobridge Use

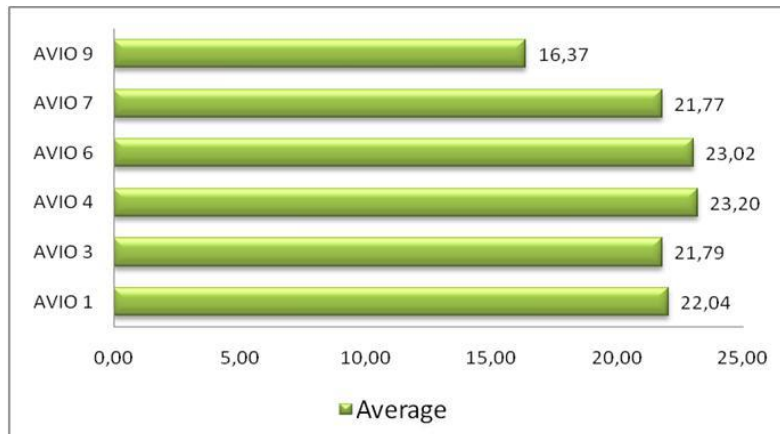


Figure 4. Average Effectiveness of Aviobridge Use per month

In figure 10 the effectiveness of the use of Aviobridge is highest in July this is caused by the increase in passenger demand due to the return of the month during the Eid season. The level of effectiveness on all Aviobridge is 21.36% and the effectiveness of use in all Aviobridge is above the average except for Aviobridge 9 which is only 16.37% this is caused by its use prioritized for international flights.

IV. Conclusion

At Aviobridge, available, almost all airlines that use these facilities experience a longer duration of use than the standard operational procedure (SOP), especially the service of a fleet of airlines Lion Air, Garuda Indonesia and Batik Air. The frequency of using Aviobridge per month is an average of 36 aircraft per day, especially for Garuda Indonesia and Lion Air airlines, around 52% of which use Aviobridge 4 and 6, and the lowest frequency is foreign flights (Air Asia and Silk Air) around 1.59%. The effectiveness of the use of Aviobridge is the highest in July at 26.70% because the number of flights in that month is solid [9,10] and passenger demand for Eid season is mainly backflow. Airlines that experience longer hours of using Aviobridge will see a delay in the schedule for the next flight

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