

# Implementation of Aircraft Productivity System to Improve Company Performance

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**Abstract.** Aircraft Productivity System (APS) is a system that is proposed to be applied to airline companies in improving company performance. The application of this system focuses on the discussion of aircraft flight data such as arrival data and flight departure data used in data processing. The purpose of this study is to build the implementation of the Aircraft Productivity System (APS) in airlines so that management can monitor the results of company performance. The method used in this study is the waterfall method which is used as a method for processing the stages of working on the system from the design stage to the final stages of system implementation. This study also uses the method of acceptance of the use of the system with the Technology Acceptance Model (TAM) used in testing the acceptance of the system of 4 respondents through several variables, namely the variable Perceived Usefulness, Perceived Ease of Use and Actual Use of the three variables will get a result that Aircraft The Productivity System is accepted with the criteria of being very agreed by the user to use the system. The results of this study are in the form of a dashboard display that displays a flight departure dashboard that contains information about the number of flight departures and a flight arrival dashboard that contains information about the number of aircraft arrivals, so that management can continue to monitor the results of the company's performance quickly.

## 1. Introduction

Current technological developments continue to develop, as does a company that requires technology in business development making it easier for executives to make a decision.

Reports obtained manually hinder decision making for the executive, this is because the need for reports that are analyzed in detail so as to produce a report display in graphical form.

The previous reporting process still uses Microsoft Excel as a supporter of data processing by getting data that has been obtained from the results of the aircraft report, then performed an analysis using Microsoft Excel.

The company needs a solution in the form of a system that is able to process flight data both arrival and departure data quickly and the system is able to process data on a large scale.

It is intended that the data obtained can be easily processed through the system, making it easier for company executives to be able to make decisions quickly.

The system is called the Aircraft Productivity System (APS) which is a system that is able to help airline companies to improve their company performance in the form of a dashboard display.



According to Meyliana, etc (2014: 283). Dashboard is a diagnostic tool that is designed to display images of company performance quickly, and prioritizes work preparation for leaders who have very high activity.

According to Kusnawi (2011: 43). Dashboard is a tool to present information from the BI (Business Intelligence) process, which provides an interface display with various forms such as diagrams, reports, visual indicators, alert mechanisms, which are combined with dynamic and relevant information.

Dashboards can be used as a medium for quick decision making for company executives through information displayed through the dashboard, this also makes it easier for company executives to monitor company performance.

The workings of the Aircraft Productivity System (APS) are that it can produce a dashboard display in the form of a flight departure dashboard that has a display contents regarding the number of aircraft departures and there is also a flight arrival dashboard that has the display contents in the form of the number of aircraft arrivals.

In this study a solution for airline companies in monitoring company performance through the Aircraft Productivity System (APS) which provides information needed by company executives in the form of flight arrival and departure information in the form of a dashboard.

## 2. Problems

The problem that occurs in companies is the difficulty of knowing information related to the number of aircraft arrivals and the number of aircraft departures, so that a problem formulation is made in this research, namely how to design the Aircraft Productivity System (APS) and testing the APS system assessment to adjust the needs of company executives.

This study has a limitation of the problem that is only showing a discussion in the form of display design of the Aircraft Productivity System (APS) which is a solution for corporate executives in making decisions.

## 3. Method

In the design of the system will be done through the waterfall method by performing the system design stages from the initial stage to the final stages of system development.

The next step in this research after the design of an Aircraft Productivity System (APS) was made, an evaluation of the system was tested using the TAM (Technology Acceptance Model) approach.

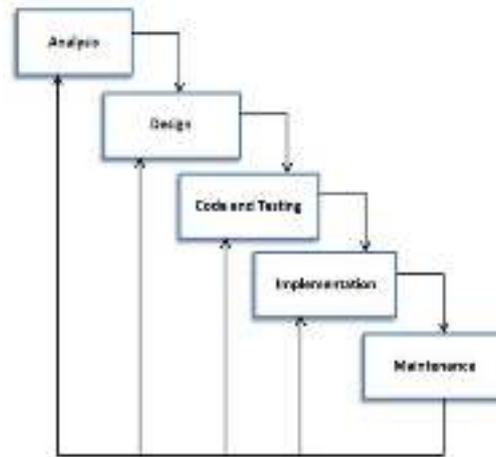
### 3.1. Method Waterfall

According to Zaliluddin and Rohmat (2018: 25). Waterfall is a model used for software development. This model develops systematically from one stage to another in a mode like a waterfall.

This waterfall model proposes an approach to the development of systematic and sequential software that starts from the level of system progress throughout all analysis, design, code, testing and maintenance. This model covers activities such as system engineering and modeling, requirements analysis, design, coding, and testing and maintenance (Zaliluddin and Rohmat, 2018: 25).

According to Yurindra (2017: 43). Waterfall is one of the methods in SDLC that has a characteristic workmanship that is every phase in the waterfall must be completed first before continuing to the next phase. With the intention to focus more on each phase, so that it can be done to the maximum, because it does not often occur in parallel work, although parallelism can also occur in the waterfall.

This study uses the waterfall method as a system design stage through the following stages:



**Figure 1.** Metode waterfall

Explanation of Figure 1. regarding the stages of system design using the waterfall method, can be explained as follows:

*3.1.1. Analysis.* This stage explains the analysis of the initial stages of the analysis of user needs for the system to be built, such as the software specifications required by the system user, that is the company executive.

*3.1.2. Design.* At this stage the Aircraft Productivity System (APS) design needed by company executives is in the form of flight departure dashboards and flight arrival dashboards using UML.

*3.1.3. Code and Testing.* At this stage the program coding is based on the data obtained, then testing the finished program is also carried out to avoid coding errors in the program.

*3.1.4. Implementation.* In this stage the finished system is carried out the final application of the ready-made system according to user needs.

*3.1.5. Maintenance.* This stage can be implemented if there is a system change proposed by the user so that the resulting system can be as desired by company executives.

### 3.2. Method TAM (Technology Acceptance Model)

According to Harb, Yousra and Alhayajneh, Sahar (2019: 494). Technology Acceptance Model (TAM) is a model that is widely used to predict user acceptance of a technology based on several variables such as perceived usefulness, perceived ease of use, and intended use.

This study uses a TAM approach method with several variables, namely the variable Perceived Usefulness, Perceived Ease of Use and Actual Use. Based on these three variables, the results obtained can indicate that the Aircraft Productivity System (APS) is accepted or not by company executives as system users.

## 4. Result and Discussion

In this study the system assessment testing was conducted using the TAM method based on several variables, namely the Perceived Usefulness variable as a perceived usefulness variable, the Perceived Ease of Use variable as a convenience variable for the user and the Actual Use variable as the actual system user perception variable.

The results of the assessment of respondents carried out descriptive statistical calculations to get the results of system assessment testing using the following formula:

$$P = \frac{\Sigma SH}{\Sigma SK} \times 100\% \quad (1)$$

Description:

P = Percentage through questionnaire answers

$\Sigma SH$  = Total score from the results of data collection

$\Sigma SK$  = Score kriterium

Based on the data collection of respondents in this study, the following data management and analysis are carried out:

## 5. Private Airline Data

### 5.1. Assessment through Perceived Usefulness variables

The results of the assessment of the Perceived Usefulness variable have been calculated as follows:

$$\begin{aligned} \Sigma SH &= \frac{\Sigma SH}{\Sigma SK} \times 100\% \\ &= \frac{52}{60} \times 100\% \\ &= 87\% \end{aligned}$$

Evaluation of system testing through Perceived Usefulness variable data collection score reached 52 and reached 60 score kriterium, so as to obtain a result of 87%, this shows that the Aircraft Productivity System (APS) is included in the criteria of strongly agreeing in accordance with the benefits of the system user.

### 5.2. Assessment through Perceived Ease of Use variables

The results of the assessment of the Perceived Ease of Use variable have been calculated as follows:

$$\begin{aligned} \Sigma SH &= \frac{\Sigma SH}{\Sigma SK} \times 100\% \\ &= \frac{51}{60} \times 100\% \\ &= 85\% \end{aligned}$$

Evaluation of system testing through the variable Perceived Ease of Use data collection score reached 51 and reached 60 score kriterium, so as to obtain results of 85%, this shows that the Aircraft Productivity System (APS) is included in the criteria of strongly agree in accordance with the ease of use of the system.

### 5.3. Assessment through Actual Use variables

The results of evaluating the Actual Use variables have been calculated as follows:

$$\Sigma SH = \frac{\Sigma SH}{\Sigma SK} \times 100\%$$

$$\begin{aligned}
 &= \frac{27}{30} \times 100\% \\
 &= 90\%
 \end{aligned}$$

Evaluation of system testing through Actual Use variables reached 27 data collection scores and achieved 30 score kriterium, so as to obtain results of 90%, this shows that the Aircraft Productivity System (APS) is included in the criteria of strongly agreeing in accordance with the actual use of the system.

**6. Implementation**

The implementation resulting from the Aircraft Productivity System (APS) consists of 2 display images, namely the flight departure dashboard image display containing information about the number of flight departures and the flight arrival dashboard image containing information about the number of aircraft arrivals, as shown in the image below:

**6.1. Display of flight departure dashboard**



**Figure 2.** Display of dashboard flight departure

**6.2. Display of flight departure arrival**

the form of flight departure dashboard which contains information about the number of aircraft and the system can also display information in the form of arrival dashboard which contains information about the number of aircraft findings, so that the decision making process



**Figure 3.** Display of dashboard flight arrival

**7. Conclusion**

Companies Can Use Aircraft Productivity Systems (APS) to facilitate companies to make decisions by monitoring companies through the system. Aircraft Productivity System (APS) can display

information in can be done quickly and accurately In testing the system using the method of learning TAM (Technology Acceptance Model) has been successfully carried out in accordance with the needs of system users, the TAM method consists of several variables namely Perceived Usefulness to produce an average value of 87%, the variable Perception of Ease of Use produces an average an average of 85% and an actual Usage variable with an average average value of 90% which the system claims has been successfully implemented in accordance with the needs of company executives as system users.

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