Measurement of Performance Value for New Student Admission Information Systems

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Abstract. New Student Admission for Universities is the frontline in recruiting new students, therefore the New Student Admission performance needs to be measured to provide excellent service for prospective students as consumers who achieve customer satisfaction values, and for that it requires proportional and professional use of Information Technology, so that it is fulfilled speed and acceleration in winning market competition, and this is inseparable from the quality of information produced from a New Student Admissions Information System, while measurements are made using the Time Motion Study method, which measures the time needed to complete one type of activity in a given period (T) in the form of measurement of productivity time (tp) and response time (tr), so that productivity volumes can be known. This measurement is expected to provide an increase in the value of the University in society in general as well as an increase in the accreditation of the University in particular, as a result of which has an impact on the selling value of the products of the wider community.

1. Introduction

University as an educational institution will not be separated from the implementation of New Student Admissions, so that all components of the management system involved are expected to have an active and balanced role, both from the top management and staff, from the rector, faculty (dean), and study programs including the Foundation, the Daily Management Board, employees, lecturers, and existing students, because all of these components influence performance (performance) an integrated management system for services both directly and indirectly. Prospective students are a market share that must be targeted appropriately so that they want to register as students, therefore a strategy is needed in the delivery of information, both offline and online, and in managing this strategy it is not can be separated from the provision of an information media specific information in order to provide a special attraction for prospective students.

To be able to produce information that is in line with expectations (quality), the Muhammadiyah University of Tasikmalaya as a place to conduct research is expected to improve overall performance, especially in the New Student Admission section, and the increase in performance can be achieved by
performing an *improvement process*, namely an increase in the process that can contribute to *added value* in a continuous manner.

Information System Needs for any organization is an *urgent* and urgent need because it will give a high appreciation for efforts, ideas, and professional values as well as improving *performance* employee for achievement with a "win-win solution" competition, and minimize the level of unproductive competition. Information Systems will run efficiently and effectively if supported by information systems that utilize computer-based information technology, which is expected to be able to present information and models of quality management decisions because information systems are open (transparency) to avoid prejudice or suspicion within a company organization. The focus of research is to realize an *improvement process*, by planning and controlling activities in processing information on New Student Admissions, it is very important to do careful planning with I follow the controls of each activity that occurs, because this information service activity is expected to be a source for improving overall system performance, and through good and correct planning and control, it is expected that the main objectives of the Muhammadiyah University of Tasikmalaya are generally, and specifically in the New Student Admission System can be achieved properly.

So far, the New Student Admission Information System in the Muhammadiyah University of Tasikmalaya environment is mostly done offline, only the existence of information and new student admission procedures are displayed on the web with the link [https://pmb.umtas.ac.id](https://pmb.umtas.ac.id), while the Technique from registration is still done offline, namely prospective students come directly to campus, so that it is possible for officers to provide information services about the existence and recurring acceptance procedures of online information.

For this reason, this research will be carried out by measuring how much the time used by each workforce and how much the level of activity carried out in producing a service productivity, for example, the time to provide registration information services takes as long as 10 minutes (tp), then the volume of work that occurs (which describes the level of activity) unit time is 15 types (vp), and changes from one activity to another will require responsibility (vr), for example, 2 minutes. Likewise in measuring information services for management, for example: to obtain information about how many prospective students have register, it takes time to search or calculate the information from existing records or from existing documents (tp), in this case it also requires time responsibility (tr) and volume of work from a set time unit (vp).

By seeing and considering the urgency aspect (importance) of measuring each activity carried out by officers (labor) in the Muhammadiyah University of Tasikmalaya, it requires an accurate and precise measurement method to be able to provide quality information services based on the time needed and the level of efficiency of motion (motion) every activity in producing service products, so with this method can be obtained an illustration of an increase in productivity over the time and movement of each activity that occurs against the results achieved by the New Student Admission System, and for this purpose, the method used in this research is *Time Motion Study*.

Time Motion Study is a method systematic learning from work systems (activities) with the aim of developing better systems and methods, standardizing the system in a standard manner, determining the standard of time, and providing training to operators (labor) related to the system developed.

Then from the results of calculations obtained based on data - data that occurs, it can be used as a tool to find the best alternative solutions to improve system performance and service quality for information needs for management of the New Student Admission System in the environment of Muhammadiyah University Tasikmalaya.

Based on back problems that exist, then the problem can be formulated as follows: "How to get quality time parameters from an event in the New Student Admissions section at the University of Muhammadiyah Tasikmalaya?"
To answer or measure the problems that occur at the Muhammadiyah University of Tasikmalaya in order to improve performance in this case the author uses analysis and information, measurement measurements are carried out using time methods and motion studies formulated:

\[ T = (tr + tp) \times vr \]  

Where:
- \( T \) = the time needed to arrange one type of activity in a given period
- \( tr \) = average time needed for one unit of activity
- \( tp \) = time iteration due to the transition between one activity unit
- \( vr \) = average volume of activity (activity) in a certain period of time

2. Methodology

Method, which includes the material & tools used, and stages of research, can be specified as follows:

2.1. The research material used in increasing the value of performance and needs service of the New Student Admissions Information System by using The method Time Motion Study is the result of measuring productivity time (Time Productivity, \( tp \)) and response time (Response Time, \( tr \)) and volume of productive work (Productivity volume, \( vp \)) in conducting research on increasing the value of performance and requirements service for the System New Student Admission Information requires some hardware and software as follows:

2.1.1. Hardware, consisting of a stopwatch is a tool used to measure the time of system performance, both productivity time and time responsibility; Laptops that operate with Windows for processing data; Forms are used for data retrieval of time and customer satisfaction (prospective students) and as an observation tool for each occurrence of.

2.1.2. Software, consisting of Ms. Excel 2007 used in processing data on productivity time and response time to determine the real-time (effective time) and used to measure the level of customer satisfaction (prospective students) in determining the increase in the value of performance and satisfaction levels service of the New Student Admissions Information System; Word Processor The used to make the needs of the forms used in the study as well as in preparing reports.

2.2. The research phase here includes several steps, including:

2.2.1. Stages of literature studies and literature studies, this stage is carried out literature studies and literature studies on several references relevant to the research topic. The references referenced in this study are the methods used to measure the time-motion study.

2.2.2. The stages of problem identification, as explained in chapter I, the problem to be solved in this research is how to get quality time parameters from an event in the new student admission section at the Muhammadiyah University of Tasikmalaya?

2.2.3. The methodology stage includes the following steps, there are several stages or steps in this research, in broad outline in the research stage of the new student admission system at Muhammadiyah Tasikmalaya University, consisting of the observation stage (observation) of the new student admission system from prospective students come to register (registration) both offline and online, then described a pattern in the form of a flowchart (flow chart) of the overall student admission system; the stage of measuring the time of an event (event) to the next event, both productivity time (\( t_p \)) and time / response time (\( t_r \)) by using a stopwatch, used 2 kinds of stopwatches to get accurate time quality, and measuring satisfaction level service (service) through questionnaire (quiz questionnaire) to prospective students as customers; the stage of calculating the effective time (\( t \)) of the performance of the new student admission system using the method time motion study, and calculating the level of satisfaction service (service) for prospective students (customers) using the method scoring; the stage of determining the level of effectiveness performance and service as a measurement step to increase the desired model. Steps of this research methodology as shown in the following figure 1.
2.3. Stages of Research Location, Research Preparation location preparation is the first step in this research, there are several things that need to be prepared before starting the measurement of time and level of customer satisfaction including the preparation of the equipment used and the making of the research forms needed.

2.3.1. for Equipment Preparation, is the first step in conducting the research in the form of calibration tools to obtain optimal results, in addition to making the forms needed to collect data, as well as questionnaire questionnaires as research material.

2.3.2. Making Research Tables, This research table is used as a place to store data - data obtained as material for calculation in the analysis of

2.3.3. Formulation Making, aiming to calculate the data obtained to be evaluated and analyzed from the research carried out, then used as a recommendation tool, both with the time-motion study method and the scoring method.

2.4. Recommended Stage, at the recommendation stage, is the stage of providing important notes in the form of input to do a process of increasing the value of performance and service requirements in the new student admission information system at Muhammadiyah Tasikmalaya University.

3. Result
Improvement values performance in the New Student Admissions information system at Muhammadiyah University of Tasikmalaya is a measurement method for solving problems that occur in a system through measurement 2 parameters to improve performance management system and
service requirements, and based on observations at the Muhammadiyah University of Tasikmalaya, obtained data of employees directly involved in the mechanism system works new admissions which is formed in a committee as there are people, consisting of:

- Enrolment Services = 2 person
- Administration = 1 person
- The Test Log = 1 person
- The Health Test = 2 person
- Part of Infrastructure = 1 person,

the total number of employees involved in actively accepting new students is 7 employees.

The mechanism of the new student admission system that takes place at the Muhammadiyah University of Tasikmalaya has been done conventionally, namely recorded by bookkeeping manually by the committee has been appointed based on the Chancellor's Decree, based on the results of direct observation that many problems are felt by the perpetrator including errors, delays, and forgetfulness in processing registration, payment, testing, and announcement of graduation results, because the bookkeeping or recording section does not only work in recording administration services but also involved in other aspects of the work in the task and mandatory responsibilities in campus management.

![Image]

**Figure 2. Display Menu Information System**

Based on the analysis of data from observations that have been made, the performance (performance) associated with the acceptance system new students taking place at the Muhammadiyah University of Tasikmalaya, recapitulation of the average time measurements needed to complete one activity unit to register each prospective student (tr) based on the data, as shown in the following table:

| Event | Average Time (min) |
|-------|--------------------|
| 1. Transition of activities filling in the registration form to file inspection requirements for registrars | 3.5 |
| 2. Transitional checking file requirements for applicants to services enter test preparation and post test | 5.5 |
| 3. Transition services preparation for post-test and post-test to the documentation of registration data files | 5.5 |

So the total time in serving each registration (tr) per applicant is $21.75 \approx 22$ minutes for the 5 types of events that occur, while the time of adjustment of each event in the transition unit activities in the new student admission process is divided into:

a. The transition of activities filling in the registration form to file inspection requirements for registrars
b. Transitional checking file requirements for applicants to services enter test preparation and post test
c. Transition services preparation for post-test and post-test to the documentation of registration data files
d. The transition of documentation of registration data files to the announcement of new student admission results

Table 1. Recapitulation of results tr measurement for each activity

| No. | Activity                                      | Responsibility (tr) |
|-----|-----------------------------------------------|---------------------|
| 1.  | Unit completes the registration form          | 9.59                |
| 2.  | File examination requirements for registrants | 2.56                |
| 3.  | Preparation for entry test and post-test      | 2.16                |
| 4.  | Documentation of registrant data files        | 2.04                |
| 5.  | The announcement of admission results in new students | 5.40                |
|     | Total time =                                  | 21.75 ≈ 22          |

Adjustments that occur due to transition one activity unit to the next activity unit (tp) is based on the results of data processing, and the results of the recapitulation can be shown in the following table:

Table 2. Recapitulation of measurement results for each activity

| No.  | Transition between one unit of activity | Form activities                                             | Time penyes tuition rate (minutes) |
|------|----------------------------------------|------------------------------------------------------------|-----------------------------------|
| 1    | Activity unit 1 to activity unit 2     | Taking, recording and storing registration forms            | 2.02                              |
| 2    | Activity units 2 to activity units 3   | Sorting, grouping and storing requirements                  | 2.30                              |
| 3    | Activity units 3 to activity units 4   | Checking tools, grouping test cards, and storing test devices (questions) | 3.02 |   |
| 4    | Activity units 4 to activity units 5   | Data classification, stationery preparation, and structuring | 2.01                              |
|      | Total adjustment time for 5 activity units = | 9.35                       |                                   |

So the total time for one unit of time in the admission of new students (tr + tp) with 5 units of activity was 22 + 9.35 or 31.35 minutes.

The effective working time of officers for new student admissions in 1 day is 7 hours or 420 minutes (7 x 60 minutes), while the time to do cumulative registration calculations (both preparation and completion of tasks) in one day was estimated to be around 25 minutes, so that working time was effective to make new student admissions is 420 - 25 or 395 minutes (6.58 hours), so that the average volume of new student admission activities per day (vr) is 395 / 31.35 (minutes) or as much as 12.6 ≈ 12 activities, then the total time needed to complete one activity (activity) of new student admission in one day, was t = 31.35 x 12 = 376.2 minutes (or 6.27 hours).

This means that in a total time of 6.27 hours in 1 day, activities for new student admissions were able to serve as many as 12 prospective students (registrants), with the remaining effective work time was 6.58 - 6.27 = 0.31 hours or 18.8 minutes.

4. Conclusion

Based on the main points of the results of the research conducted at the Muhammadiyah University of Tasikmalaya, some conclusions can be drawn:

a. The performance of employees in the New Student admission section was not optimal because the activities of the service process for New Student registration and admission were still done off line, even though the existing facilities were already available, such as computer and other technological devices.

b. Services for prospective new students were still carried out in several stages, so that it took time which was considered less effective.

Suggestions that need to be considered to develop a new online admissions system are:
a. To improve the presentation of quality information in the form of reports forms, test cards that are needed as a whole. It is necessary to note the following matters: verification, validation, pin or password, notification, and installing anti-virus, paying close attention used in carrying out calculations and access rights for users who are entitled to use the acceptance system of this new student.

b. Regarding optimization in the construction of the New Student Admissions Information System, it is necessary to pay attention to the use of costs to the value of the expected benefits, because the costs of developing an Information System are not small in number.

In making the application for a new student admission system, it should be integrated with other systems (modules), both internal and external.

5. References

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