



Measurement Information System Development Performance of the Unnes Faculty of Engineering Academic Civity

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ABSTRACT

The existence of an Information System that is able to track the performance of the community academics in the Higher Education environment will be very helpful in managing potential existing at the university. The process of ranking universities by institutions one of which is done by detecting the activity of all components that exist at the university such as lecturer activities, the achievements of the alumni, and the competitiveness of the university towards acceptance by society. All of these activities must be able to be presented by a university well so that people know the potentials that exist in the university. Faculty as part of a university has a central role in development of the academic community, because faculties have existing resources from the academic side. Faculties must be able to present up-to-date data regarding the activities of the academic community at the faculty. One of the presentations of the data so that the data can be presented quickly and accurately one way through the management of the system information. This information system is expected to be able to track activity records of the academic community of the Faculty and be able to present data properly to all parties requiring. This research begins by determining the attributes (variables) that are used to determine the performance of the academic community. The next step is to determine the relationship between these attributes. The relationship between these attributes is then used to become the basis for determining reward and punishment for the academic community. This research focuses on developing an information system used to record performance of the academic community of the Faculty of Engineering, and calculating performance points for consideration to increase the rank of the academy's academics.

Keywords: *Faculty of Engineering, Information System, University*

1. INTRODUCTION

In this digital era, the use of information systems in an organization is a must. Management of data and information becomes easier [1]. However, organizations that are new to using information systems, need time to adapt to a new management. The use of information systems at the initial start is usually preceded by a training process for all levels of users. An information system is an organized combination of people, hardware and network software communications and data resources, which collect, transform, and disseminate information within an organization to support decision making and control organization [2]. The use of information systems besides providing many benefits,

there are also organizations that fail to implement them. Many systems development projects have failed to produce a useful system. Failure to apply information technology systems to organization can be caused by several factors both internal and external. This research is the development of an information system to record data from the academic community so as to be able to support the performance of higher education tridharma. Data The tridharma of higher education is very diverse and comes from many activities. Such as assignment letters, research and service activities, achievements of both lecturers and students, student academic data, and lecturer rank data [3]. All of this data used to support reporting of institutional performance starting from the level of department to university. This research begins

with the development of an information system that is intended to record and assess the performance of the UNNES Faculty of Engineering academic community. Based on The recorded data is then generated performance points. Next, performance points later it will be used as material for consideration for promotion from the academic community Faculty of Engineering[3]. This study emphasizes the development of information systems, which can facilitate all existing human resources to be able to adapt and implement a new governance based on information system technology[4]. According to several studies conducted by Megawati, Sitanggang, and Suryono states that the background of early adopters is very dominant in successful implementation of information systems in an organization[5]. Therefore an initial process i.e. socialization and training needs to be done in the application of an information system in an organization that is new to it. The next process after the initial process is to determine the behavior of all levels of users so that the level will be obtained by implementing the information system.

2. METHODOLOGY

2.1. Research design

In this study, in general, it will be divided into two stages, namely the first development of a web-based information system that is used to record performance of the academic community of the Faculty of Engineering. The second is to evaluate para system users. Figure 1 shows the stages of the research carried out. Broadly speaking, research activities consist of a number of stages, including: information system development, user measurement, behavior analysis users, and compiling research outputs.

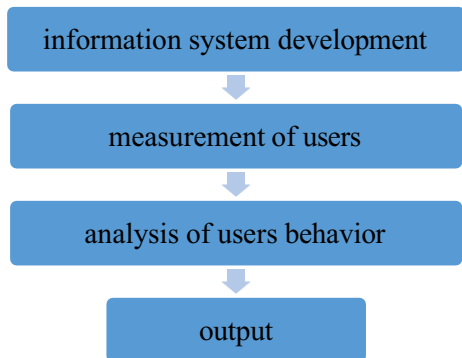


Figure 1. Experimental design.

2.2. System Development Model

There are many systems development models that can be used as a reference for developing information

systems. Figure 2 shows the model used for development of an information system for measuring the performance of the Faculty of Engineering academic community, namely the waterfall model. The stages in the waterfall model include Communication, Planning, Modeling, Construction, Deployment[6].

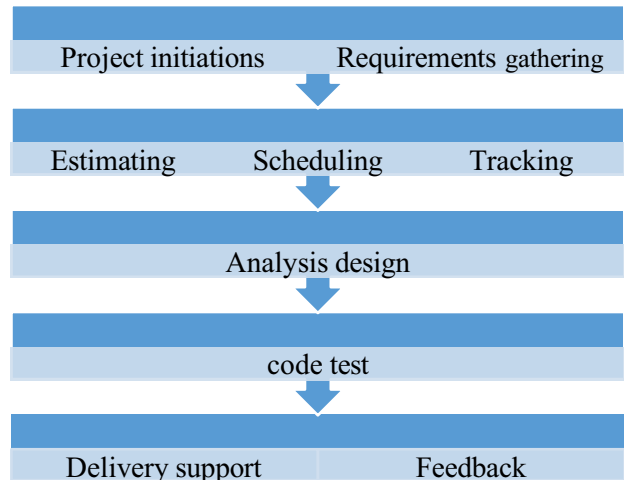


Figure 2. Waterfall model.

2.2.1. Communications

The first stage of the waterfall model described by Pressman is communication. This stage is used to collect as much information as possible regarding the information system to be created. Communication is done by researchers with the UNNES Faculty of Engineering regarding the identification of needs planning information system performance measurement of the intended academic community.

In addition to initiating the information system, at this stage the researcher also determines the specifications the need for system development [7].

2.2.2. Planning

The second stage of the waterfall model is planning. Development process systems continues on developing an information systems project management plan along with other planning documents. At this stage there is an estimation process, tracking information system support resources, and scheduling [8].

2.2.3. Modeling

The third stage of the waterfall model is modeling. Activities performed at this stage are the analysis and design of information systems. Needs analysis carried out by identifying information system requirements specifications of both software, hardware, as well as specifications for the features of the measurement

information system and the performance of the UNNES Faculty of Engineering academic community. Design focuses on designs for making information-based systems web, including: data structures, architectures, interfaces, and procedures coding. Information system design translates software requirements from the needs analysis stage to a design representation so that it can be implemented into a program at a later stage. The “PAK FT UNNES” information system has 2 user access rights, namely rights access as managers and lecturers. Each access right has its features alone.

a. Manager Account

- Dashboard: contains lecturer statistics based on position and lecturer statistics based on major.
- Lecturer Projection: displays data on the name of the lecturer, the initial position of the position functional, projection, and detail calculation projections for each lecturer. This menu is also equipped with a lecturer data search feature.
- Details containing the projected position: Full name, class, position, credit number initial, projection, projected credit numbers, credit terms, calculation information credit score in each field, and the conclusion of the score credit based on projected functional position.
- Lecturer data: presents information on the name, department, and class/position of the lecturer, which is equipped with features add, change, change password, delete, and lecturer data search.
- Profile: displays the manager's photo and profile and provides an edit feature data on the manager profile.
- Change Password: provides a feature to change the password.
- Exit: exit the “PAK FT UNNES” system manager account.

b. Lecturer Account

- Dashboard: Lecturer data information: name, class, position, initial credit score, projections, projected credit numbers, credit terms; credit score achievement: data current credit score achievement based on “Tridharma PT” activities and activities support, conclusions on the achievement of credit scores based on projected positions functional.
- Statistics: contains statistics on credit score data in the field of teaching; study and publications; devotion; and support activities for each category and sub totals per field.
- Projection set: Determine the projected functional positions to be addressed, presents information about class and current position, credit score initial, projections, projected credit numbers, and

credit terms that must be achieved for projections to be met.

- Teaching: Add, change or delete field data/documents teaching based on the selected category. There is a display feature regulation of the maximum amount of data and data search features for each category.
- Profile: provides a feature to display lecturer photos and profiles as well change the data on the lecturer profile.
- Change Password: provides a feature to change the password.
- Exit: exit from the PAK FT UNNES system lecturer account.

2.2.4. Construction

The fourth stage of the waterfall model is design. This stage translates the design that was made in the previous stage into a program web based software[9]. The design stage consists of coding and testing. So this design stage is a coding process (coding) to create an overall information system in accordance with the results of the needs analysis and design of the “PAK FT UNNES” information system. The information system generated from the coding process is still not available disseminated. The information system must go through a testing process in advance to ensure that the functionality of the information system runs correctly according to user needs and minimize any bugs (errors) in information Systems. At this stage a black box test is carried out to evaluate the method work and functionality of the “PAK FT UNNES” information system.

2.2.5. Deployments

The fifth or final stage of the waterfall model is system deployment information. After going through the testing process, the information system is ready for distribution to users. At this stage there is the delivery process, support, and information system feedback. The information system is distributed to users, namely the UNNES Faculty of Engineering academic community. The support process is carried out if any change, repair, and maintenance of information systems. Users can provide feedback on the use of information systems. The feedback is next used as material for analyzing user behavior towards information systems. The method used to view and analyze the behavior of users The developed information system can be seen in Figure 3.

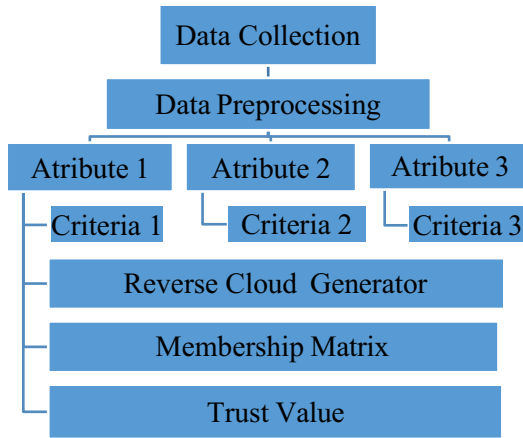


Figure 3. Methods of Analysis of User Behavior towards Information Systems.

This research has two stages, namely the first stage of development information system and the second stage is the analysis of system user behavior information. Below is an instrument that will be used for analyzing the behavior of information systems taken from the UTAUT method[10-15]. The choice of the UTAUT method reflects the analysis to be carried out in other studies compared with existing methods previously. The stages of developing an information system for measuring the performance of the academic community in This research was carried out up to the construction stage. Research is carried out to process system testing to ensure that the information system is ready for deployment to users, namely the academic community of the UNNES Faculty of Engineering. Deployment stage carried out in further research to get feedback from users. Feedback as material for analyzing user behavior towards information systems.

3. RESULT AND DISCUSSION

The stages from the research design that has been carried out to the time of reporting the progress of this research is the stage of developing an information system, namely the process finalization and testing of the information system for measuring the performance of the “PAK FTUNNES” academic community. This web-based information system can be accessed via the web page <http://pak.itpedia.id/login>.

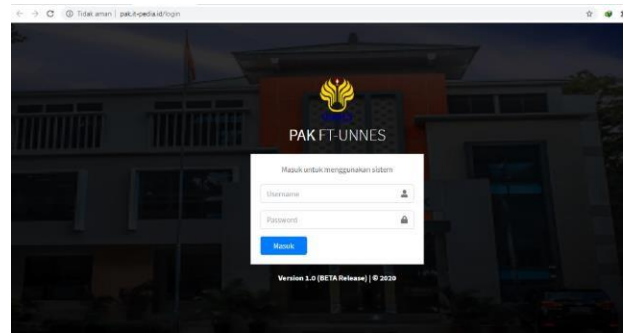


Figure 4. Login page.

Figure 4 shows the login page of the “PAK FT UNNES” information system. This information system has 2 access rights, namely access rights as administrator and access rights As a lecturer.

Manager Access Rights

Available menus/features for users with manager access rights include: (1) Dashboards; (2) Lecturer Projection; (3) Search Data; (4) Management which contains Lecturer Data; And (5) An account containing the Profile, Change Password, and Exit menu features. Interface design the main page/dashboard for manager access rights is shown in Figure 5. Page The dashboard presents information regarding lecturer statistics based on position and statistics lecturers by department.

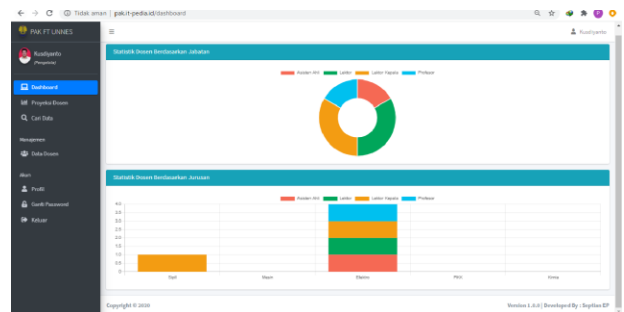


Figure 5. Dashboard user page.

The Lecturer Projection Menu is a feature that the manager has for calculating lecturer projection. This feature contains a list table of “FT UNNES” lecturers who inform regarding Initial PAK position, projected PAK and Details. The interface of the Lecturer Projection feature can be seen in Figure 6. A more detailed explanation of the projections of each lecturer and the projection decision can be seen by clicking on the Details button.

No	Nama Dosen	Posisi Awal	Proyeksi	Detail
1	I Made Sutarna	45	<C	Detail
2	Fitriyulita Prihatni	30	45	Detail
3	Raf Dzikri	45	-	-
4	Nora Muchlisah	30	-	-
5	Anggoro H. Lumbanda	30	-	-

Figure 6. Lecturer future.

The Lecturer Data Management menu provides features for managers to add, change and delete lecturer data as well as the feature to change lecturer account passwords. The account feature functions to display information from the managing user. Profile menu provides user data change facility. The change password menu provides facilities for changing passwords. While the Exit menu provides a feature to exit the system information.

Lecturer Access Rights

Menus/features available for users with lecturer access rights include: (1) Dashboards; (2) Statistics; (3) Projection Set, (4) Tri Dharma which consists of Teaching, Research & Publication, Service and Support; and (5) Accounts containing Profile features Change Password, and Exit menu. Dashboard page interface design for access rights. The lecturer dashboard page presents the same data with detailed data on lecturer projections on management access rights, namely Lecturer Data Information, Achievement of Credit Scores, and the conclusion of the projected promotion from the lecturer. The Statistics menu/feature contains detailed credit score data from the lecturer concerned teaching, research & publication, service, and supporting activities. Page This also presents the total credit owned by the lecturer based on the data that has been collected enter it into the system. The Projection Set menu/feature is used to set/select incremental projections rank of lecturer. Projection can be selected via the dropdown menu then set projection. The Tri Dharma feature contains several menus for entering tri dharma data that has been done by the lecturer. Each menu provides category selection facilities. added data, tables of data sets that have been entered, and rules for each selected category. The account features functions to display information from lecturer users. Profile menu provides user data change facility. The change password menu provides facilities for changing passwords. While the Exit menu provides a feature to exit the system information. After the information system has been created, testing is then carried out to test its system functionality. This study uses the black box test to examine the function of which contained in the information system, whether the results are as planned. This test is also carried out to find out whether there are still errors in the application so that a solution can be given as soon as possible. Black box test is performed on the account manager and lecturer account. The results of system functionality testing for the manager account all items are valid.

4. CONCLUSIONS

The development of the "PAK FT UNNES" information system has been carried up to the process testing at the construction stage. The test results show that the information system has high functionality and is

ready to be distributed to users, namely civitas Faculty of Engineering academic. In order for the development of information systems to run smoothly, it is necessary to perform accuracy in carrying out the modeling stages which include the process of analysis and Information system design according to user needs. This research needs to be continued to deployment stages in order to be able to analyze the behavior of information system users. Thus, it is expected that the information system can run optimally and efficiently for purpose.

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