The Development of Service Desk Application (SDA) as a Media to Improve Care Services and Asset Improvement in the University

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Abstract. An asset is a wealth. Assets at universities in the form of facilities and infrastructure are used as learning media. To ensure the assets are in good condition, assets must be managed properly. Universities is an entity that has various types of assets and distributed in various work units. Maintenance technicians have the task of carrying out maintenance and repair of assets. Care and repair history must be recorded. Requests for repairing damaged assets or having problems must be dealt with quickly. However, some universities are still implementing conventional systems. The purpose of this study is to develop Service Desk Application (SDA) as medium to improve maintenance and repair services for campus assets quickly and precisely. SDA is a centralized service application that is used to handle repair requests from customers. The results showed that SDA can monitor the status and progress of asset maintenance and control the performance of technicians so that they can complete work quickly and according to procedures, SDA serves as a useful knowledge-based management to enrich knowledge so that if there are problems with similar assets, then the solution to the problem can be immediately known.

1. INTRODUCTION
Assets are resources or wealth owned by an entity. In general, an asset is an item (thing) or something (anything) that has: economic value, commercial value or exchange value; owned by agencies, organizations, business entities or individuals (individuals)[1]. Physically, the assets purchased need to be managed better, so that adequate administrative equipment is needed so that the assets purchased are maintained[2].

In Educational Institutions assets can be in the form of facilities and infrastructure used as tools and supporting learning processes. To ensure that assets owned can be maintained in good condition, long life, and have a wealth value, then these assets must be managed and maintained properly through maintenance and repair both preventively and corrective.

University is an entity that organizes academic activities which of course has various types of assets including educational laboratory equipment, office equipment, furniture, building buildings, and other supporting infrastructure distributed in various work units. Each University has a Maintenance Technical Implementation Unit which has the task of carrying out maintenance, maintenance and repair of assets as a whole. A list of history of treatments and repairs must be properly inventoryed.
Service requests for repairs from work units to damaged assets or having problems must be managed and handled quickly. But on the other hand, some universities still implement conventional asset maintenance and repair services. If there is an asset that has a problem, then the head of the work unit will contact the Maintenance Technical Implementation Unit by telephone or delivered orally. Then the technical staff will record the request in the repair inventory list (paper based).

The mechanism certainly raises a number of problems, among others, inventory lists for repair requests are poorly stocked and not systematized, maintenance and repair history is not fully recorded, takes a long time to look for similar or similar maintenance and repair history. These problems result in slow response time for maintenance and repair services. Because of that, a Service Desk Application (SDA) is needed that can handle and improve maintenance requests and improve campus assets in a fast, precise and accurate manner. Service Desk Application is a centralized information technology service application that is used to handle requests for repair of an event from a customer. Service Desk is a function in the ITIL process that is responsible for managing incidents and problems and as a bridge between users and service managers[3].

The purpose of this study is to create a service desk information system as a medium to improve care services and repair campus assets. The system is used as a medium of communication and request maintenance services and asset improvements online between asset users and the technical asset maintenance unit at each university.

2 LITERATURE REVIEW

A. Asset
Assets are resources or wealth owned by an entity. In general, an asset is an item (thing) or something (anything) that has: economic value, commercial value or exchange value; owned by agencies, organizations, business entities or individuals (individuals)[4]. Physically, the assets purchased need to be managed better, so that adequate administrative tools are needed so that the assets purchased are maintained[5]. In Educational Institutions assets can be in the form of facilities and infrastructure used as tools and supporting learning processes.

B. Service Desk
Service Desk is a function in the ITIL process that is responsible for managing incidents and problems and as a bridge between users and service managers[3]. Service desk has an important and integrated function in IT service management to support effective management for organizations. Service desk is also a center of contact between service providers and users[4].

Service Desk is a functional unit consisting of a number of employees / employees who are dedicated to handling various services through telephone calls, web interfaces, or infrastructure events that are automatically reported by a system[6]. The purpose of Service Desk is to conduct communication centers between users and IT service management, to handle various events and requests[5]. Task in the Service Desk in general, among others: accepting incidents, recording incidents, classification of incidents based on priorities, classification and escalation, finding solutions, providing information to the end user about the process that takes place[7].

C. Incident & Problem Management
Incident & Problem Management is a handling and prevention of an event / problem. Incident & Problem Management has a role to convince the use of good resources to support the business, to develop, repair and store data relating to trouble as well as possible. Incident & Problem Management has the following responsibilities[5], that is Detect events and record them, Classify each event and initialize the support form, Conduct investigations and diagnostics, Make provisions and fix them, Resolve every problem / event

D. Maintenance
Maintenance is an activity to maintain facilities, so that the facility is in a ready-to-use condition as needed. Treatment is generally seen as a physical activity such as cleaning the equipment in question, giving lubricants, repairing damage, replacing components and the like if needed[8]. In general,
treatment consists of two types, namely planned care in the direction of prevention and unplanned care (unscheduled) direction to damage.

3. RESEARCH METHODS
The research was carried out in several stages, that is:

A. Research Materials
In this study, the research materials used were as follows:
1) Data obtained from a literature study on Service Desk Application.
2) Information on mechanisms and procedures for maintenance and repair of assets
3) Information regarding inventory list of problems for maintenance and repair of assets

B. Research Instrument
The research tool used in this study is a computer device that has enough specifications to run an operating system and software, namely Windows 7, Macromedia Dreamweaver (software developer), xampp 1.7.3 (web server), and Adobe Photoshop (graphic design software).

C. Road Research
In the process of developing Service Desk Applications, researchers refer to software development methods in general, namely the method of developing the System Development Life Cycle (SDLC) Waterfall model[9]. Method of developing the Waterfall Model consists of several stages / stages. That is Analysis & Requirement Phase, Design Phase, Implementation Phase, Testing Phase Is a stage of testing the system and improving the system developed, and Maintenance Phase.

D. System Design
The process of requesting maintenance assets in the developed system can be shown in Figure 1.

**Figure 1.** Flowchart of the process of maintenance requests and asset improvements
System design is made in the form of Data Flow Diagrams (DFD).

**Figure 2**, describes the main processes in the Service Desk Application which can be explained as follows:
1. There are 4 main processes including the user registration process, the input process requesting asset repair and maintenance, the process of checking asset problems, and maintenance history input and asset improvement.
2. Administrators only have access rights in managing user data as shown in process 1.
3. The work unit has access rights to input incidents or problems and submit requests for asset repair and maintenance. Requests for maintenance and repair of assets will be stored in the database as shown in process 2.
4. The maintenance unit checks the demand for repair and maintenance of troubled / damaged assets as shown in process 3.
5. After the asset is repaired, the maintenance unit will input the list of asset problems and solve the problem into the system as a history of maintenance assets.

4. RESULTS AND DISCUSSION
The results of the research conducted were the creation of an information system as a medium to improve care services and asset improvements in universities called Service Desk Applications. The system can function to convey incidents, requests for maintenance and repair of damaged or problematic assets delivered by asset users. An overview of Service Desk Application can be shown in Figure 3.

**Figure 3**, shows the general description of the service desk application work process. From the picture, it is explained that, when an incident or problem occurs in an asset used by the user, it must be reported to the head of the work unit. The next stage, the head of the work unit reports the incident or problem to the maintenance unit through an online application, namely the service desk application to be repaired. The head of the maintenance unit will check the list of asset repair requests from the work unit and forward it to technical support to make improvements. Requests for asset repair and solution to the problem will be stored in the system database as maintenance histories.
Figure 4, shows information on asset maintenance history as knowledge based. Thus, if similar problems occur on the same machine, then the solution to the problem can be immediately known and the repair of assets will be resolved quickly. Based on the study of the research that has been done, the Service Desk Application can provide benefits as a medium in improving maintenance demand services and improving assets at Higher Education as shown in table 1.

Table 1. Benefits of Service Desk Application (SDA)

| No  | Field                   | Benefits                                                                                                                                 |
|-----|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| 1.  | Incident report         | 1. Incident reports on assets that are problematic, damaged, or experiencing well-documented interference in the system.                     |
|     |                         | 2. Types of assets in universities that are reported through natural resources can be in the form of educational equipment, office equipment, furniture, buildings and buildings, and other supporting infrastructure. |
|     |                         | 3. Incident reports can be made by users online                                                                                             |
| 2.  | Monitoring maintenance  | 1. The repair status of assets can be monitored by the reporter and maintenance unit head with the status of waiting, process, and finish so that maintenance progress is more controlled. |
|     |                         | 2. As a tool to control the performance of technicians (technical support) in maintaining and repairing assets at the University to work quickly and according to procedures. |
| 3.  | Time management         | 1. Incident reports can be done at any time and are not limited to working hours, thus speeding up the process of data collection of complaints against problem assets. |
|     |                         | 2. Response to asset repair based on report date (queuing system), except for matters that are urgent and very urgent on the basis of orders from the Head of the Maintenance Unit. |
| 4.  | Knowlade based          | 1. SDA has a basic knowledge that is obtained based on maintenance history, so that if similar problems occur, the repair solution can be immediately known and the repair of assets will be resolved quickly. |
|     |                         | 2. As a media for handling problems for Technicians and asset users. Thus, if there are problems with assets that are of a minor nature, asset users can try to improve themselves |

5. CONCLUSION
Based on the results of the research that has been done by developing it can be made as follows:
1. Desk Application Service can receive incident report information on troubled or damaged assets from various work units at the University for maintenance and repair by the Maintenance Unit. Incident reports are done online so that they can be done at any time not limited to working hours.
2. Service Desk Application can monitor asset maintenance status to control the progress of maintenance and repair as well as controlling the performance of technicians so that they can complete the work quickly and according to procedures.

3. Service Desk Application can function as knowledge-based management with maintenance history data sources. This information is useful for maintenance unit technicians to enrich knowledge. If there are similar asset problems, then the solution to the problem can be immediately known and the repair of assets will be resolved quickly (responding to maintenance service times faster).

The suggestions that can be made for system development and further research are as follows:

1. Service Desk Application can be developed again by adding online chat features.
2. Service Desk Application can be developed again by adding the function of asset maintenance schedules at Universities on a regular basis in order to minimize the occurrence of asset damage.

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