Budget Planning Information System Using the Rapid Application Development Method Case Study: SMK Negeri 1 Magelang Indonesia

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Abstract. Education plays a crucial role in building a solid foundation for the progress of a nation. As an entity, education is very important. Education in a country like Indonesia is reflected in various aspects that are closely related to national development. Education not only provides access to knowledge and skills, but is also a major milestone in reducing poverty and social inequality. Educational progress cannot be separated from educational management managed by each agency. Each agency has a vision and mission to achieve its goals. Successful educational attainment depends on several factors, one of which is financial management. Financial management is an inevitable foundation in life, playing an important role in ensuring financial stability, success and well-being. Financial management is very important in providing education.

SMKN 1 Magelang in an effort to advance education both in terms of infrastructure and other needs, provides the opportunity for each unit to submit a budget plan every year. Submission of budget plans is done manually using a paper form. Problems that always arise in every budget are irregular data and time efficiency. Filtering activity priorities is also difficult for the budget team. Therefore, a problem solution is needed in the form of a system that can manage the budget design. Information systems have many advantages such as good management and reporting and can increase time efficiency. Currently developing information technology allows budget planning using information systems, becoming the right solution for managing budget plans.

The research objectives to be achieved are as follows: Produce an appropriate information system to help prepare School Activity Plans and Budgets (RKAS) at SMKN 1 Magelang.

The method used is Rapid Application Development (RAD) with three stages including planning, design and implementation. This method was chosen because it has the advantage of being able to produce a quality system in a short time.

The main finding in this research is the existence of a filtering feature to determine the budget priority scale. Increasing the effectiveness and efficiency of RKAS design time at SMKN 1 Magelang and making it easier to develop and build the RKAS information system using the RAD method.

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1 Introduction

Education plays a crucial role in building a solid foundation for the progress of a nation [1]. As an entity, education is very important. Education in a country like Indonesia is reflected in various aspects that are closely related to national development. Education not only provides access to knowledge and skills, but is also a major milestone in reducing poverty and social inequality [2]. Educational progress cannot be separated from educational management managed by each agency. Each agency has a vision and mission to achieve its goals. According to [3], the success of educational attainment depends on several factors, one of which is financial management. Financial management is an inevitable foundation in life, playing an important role in ensuring financial stability, success, and well-being [4]. Financial management is very important in providing education, especially vocational schools, which are focused on meeting economic needs [5] [1,2,4].

SMKN 1 Magelang Indonesia to advance education both in terms of infrastructure and other needs, provide the opportunity for each unit to submit a budget plan every year. Submission of budget plans is done manually using paper-based forms. Problems that always arise in every budget are irregular data and time efficiency [6]. Filtering activity priorities is also difficult for the budget team. Therefore, a problem solution is needed in the form of a system that can manage the management of the budget design. Information systems have many advantages such as good management and reporting and can increase time efficiency [7,8]. Currently developing information technology allows budget planning using information systems, becoming the right solution for managing budget plans [9].

Research on budget planning that has been carried out [10] found that budget planning minimizes inconsistencies in budget planning and implementation. School aid funding must be in accordance with Activity Plan and School Budget (RKAS) [11]. Meanwhile, research on budget planning information systems found that using information systems makes budget planning easier [12].

Previous studies have not thoroughly examined the impact of using information systems on increasing efficiency and accuracy in vocational school budget planning. Apart from that, there has been no research that specifically explores the implementation of information systems for managing budget plans at vocational schools in Indonesia. The advantage of this research is that the priority scale determination feature can be determined from the star based on predetermined categories and sub-categories so that filtering can be done quickly. The priority scale can also be determined manually by the admin and school principal if necessary.

2 Method

![RAD Workshop Design](image_url)

Fig. 1. RAD Workshop Design
Information system development can be carried out using various methods, one of which is the Rapid Application Development (RAD) method [13] (Fig. 1). The RAD method is based on the concept of repeated iterations, allowing development teams to design and develop software in a short and efficient time period [14]. The RAD method divides the development module into several parts to work on the modules separately and can be done in parallel [15] no need to design from scratch, can be applied to small scale systems[16]. Various studies were carried out by [13,17,18] regarding the implementation of the RAD method. The research that has been carried out has concluded that the RAD method is very suitable for developing information systems quickly, with limited time and resources [19]. The RAD method is divided into 3 stages: planning, design and implementation.

2.1 Planning

The design stage is the stage where system users and developers hold discussions to identify system requirements (Table 1). System requirements the Design Process is carried out by identifying all the required information. User needs in this system are:

<table>
<thead>
<tr>
<th>Table 1. Functional requirement</th>
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<tr>
<td><strong>Actor</strong></td>
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<td>Administrator</td>
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<tr>
<td>Units</td>
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<tr>
<td>Headmaster</td>
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<td>Budgeting team</td>
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2.2 Design process

The design process is a flow design and optimization process that is already underway. At this stage, user activity plays a very important role in achieving goals. Users can provide direct input into the design process if there are discrepancies in the designed flow. This system design uses use case diagrams (Fig. 2).

This information system has 4 actors, namely admin, unit, school principal, and budget team. All actors must go through a login process to use the system. Admin is responsible for running the system and has all access rights to the system. The unit has a role as input for submission data. The school principal and budget team act as filters for requests made by the unit. The school principal has a different role from the budget team, namely in the application approval process where the approval of the budget application is carried out by the school principal. After all processes have been carried out, all users can see reports of applications that have been approved.
This information system involves 5 components, namely admin, unit, system, principal, and budget team. Admin activities are managing all processes in the system and managing the running of the system starting from managing user data, request periods, activities, activity requests, filtering, approvals and reports (Fig. 3). The purpose of providing all access is to ensure the system can run normally. The unit only has the activity of managing its activities and activities. Activities can be filled according to needs, both type of activity and budget. The school principal and budget team have the role of screening proposed activities. The difference between the principal and the budget team is the approval of activities. Activities that contain a list of filtered activities can only be approved by the school principal. The last activity in this diagram is the system component. The system functions as an input process processor so as to produce output in the form of a systematic report.
2.3 Implementation

The implementation stage is the stage where the system design is approved by users and developers. At this stage the developer will develop the system design into an information system that is ready to run. In addition, testing of implementation results is carried out to find flow discrepancies so that they can be corrected and tested again.

3 Result and discussion

3.1 System implementation: authentication page

![Authentication Page]

Fig. 4. Login and forgot password page

The authentication page consists of a login and forgotten password page (Fig. 4). All users, including admin, unit, principal and budget team, must log in using the registered email and password as an authentication step and determine the type of user used. Apart from that, to make it easier if you forget your password, this system has a forget password feature where users only need to reset it via this menu and a password reset link will be sent to the registered email.

3.2 User page

![User Page]

Fig. 5. User Page

The user page contains a list of user accounts registered in the system. This user page can only be accessed by the admin as the person responsible for the information system. Admins can carry out CRUD processes (create, read, update, delete) user data on the system. Each user and user type can be controlled through this menu (Fig. 5).
3.3 The program page

![Program Page](image1)

**Fig. 6. The Program Page**

The program page contains a list of activity programs registered at SMKN 1 Magelang Indonesia. The program list is master data that functions as a limitation on the types of activities when submitting a budget. The program page can only be accessed by admins (**Fig. 6**). Admin can carry out CRUD processes (create, read, update, delete).

3.4 Period and program settings page

![Period and Program Settings](image2)

**Fig. 7. Period and program settings page**

The period and program settings page contains a list of program periods and settings in the form of program type, program weight, and maximum application value for each program in that year (**Fig. 7**). Each period contains a list of activity programs which can be accessed via the period details. The admin is tasked with managing program settings based on the regulations that apply each period.
3.5 Activities and activities page

![Activities and activities page](image1)

**Fig. 8.** Activities and activities page

The activities and events page are a page listing the activities for each unit. On this page, the work unit acts as data input (**Fig. 8**). Each work unit has the right to propose one activity in one period. Each activity has several activities that can be selected by the work unit. Work units can choose the type of activity according to their needs. Apart from that, this page can also be accessed by school principals and the budget team. The school principal and the budget team have different access rights, namely as correctors or filters of data submitted by the unit.

3.6 Report age

![Report page](image2)

**Fig. 9.** Report Page

The report page contains a summary of work unit submission data that has been approved (**Fig. 9**). The report menu displays reports for each period. The report menu can be accessed by all users with different access rights. Units can only view and download their respective unit reports. Meanwhile, other users can view and download all available reports.
4 Conclusion

The implementation of the Rapid Application Development (RAD) method in the design and construction of the budget planning system at SMKN 1 Magelang is considered very effective and efficient. Based on the 3 stages of the RAD method including planning, design and implementation, it can be done in a short time. With the implementation of this information system, SMKN 1 Magelang can easily manage activities, both plans and reports for each period, so that data for each year can be viewed easily and in an organized manner.

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References


