Implementation of E-Budgeting Information System on Budget Management PT. Industri Telekomunikasi Indonesia, Indonesia

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Abstract. The purpose of this study is to design the system of online budgeting information on PT Telekomunikasi Indonesia, Indonesia. This research used a descriptive method of analyzing how this company can sell its products to a customer. For data collection methods used consist of field research conducted by observation, questionnaire, and an interview. The results showed that to facilitate the company to manage the data planning and execution of the budget, decision makers get accurate, relevant information and simplify decision making/policy for the future. The application has developed a system of information e-budgeting web-based and open source.

1. Introduction

The sales budget is the basis for the preparation of the company's overall budget, and it is the most critical point and the most significant degree of uncertainty, then in high-precision preparation is required where each result of sales realization compared with budget. [1]

E-Budgeting is one form of e-government application in the budget field. E-budgeting can be interpreted as information, financial data through technology to help increase government openness and accountability where this system involves the management of public money, which is done transparently, efficiently, rationally and reasonably, including in this sense is gender equitable to create public accountability. The budgeting reform it includes the process of drafting, approval, implementation, and accountability of the budget. [2]

One of the researchers who discussed e-budgeting is M.A. Naseer and his friends, [3] they discussed Smart City. The 73rd and 74th Amendment of the Indian Constitution has brought the power to prepare development plans to the grass root level – to the Gram Panchayat on the rural side and the Municipalities on the public side. Annual budgeting in these institutions is of utmost importance as the implementation of development schemes is possible only through a logical and balanced allocation of available funds. At the municipal level, the budget provides a balanced and coordinated approach to public activities so that the requirements and responsibilities of all sections are analyzed while preparing a budget. One crucial innovation, Smart City, embarks on is a web-based participatory e-Budgeting which empowers citizen. E-Budgeting will use an interactive and dedicated annual Municipal budgeting website and will also use web-based Geographic Information System (GIS).
hundred percent E-Literate Smart City with smart people would like to be part of the E-Budgeting. Participatory budgeting allows local citizens in a municipal ward to identify, discuss, and prioritize public spending projects, to make decisions about how money is spent every year. Kozhikode was practicing Participatory annual planning and budgeting since the mid-1990s. This chapter explores how the existing participatory budgeting can be converted to e-budgeting befitting a Smart City. It also demonstrates how Spatial Decision Support System (SDSS) that uses Geographic Information System (GIS) can be deployed in Kozhikode using most up-to-date data for budgetary decision making to help the community to arrive at the most rational budget allocation.

Justice J B Melitski J & Smith, DL explained government transparency through e-government. [4] Fiscal transparency and citizen participation in budgeting processes are widely promoted as a means toward the ends of democratic accountability and responsiveness in the allocation and use of public funds. In the past decade, academics and practitioners enthusiastic about e-government have emphasized the potential for using information technology to enhance democratic governance. Putting these two streams of public administration theory and practice together, the authors developed criteria for assessing e-budgeting efforts and applied them to a sample of Web sites operated by state and local governments. Although practitioners are ahead of academics in exploring the potential of e-government for improving fiscal accountability and responsiveness, practice lags behind the relevant primary recommendations of the Government Finance Officers Association. This finding leads to research and practice agendas aimed at enhancing the use of e-government to enhance fiscal transparency and participation.

Ghiasi S Bozorgzadeh explains about a theoretical framework that solves optimally and in polynomial time, many open problems in time budgeting. The approach unifies a large class of existing time-management paradigms. Examples include time budgeting for maximizing the total weighted delay, relaxation, minimizing the maximum relaxation, and min-skew time budget distribution. The authors develop a combinatorial framework through which we prove that many of the time-management problems can be transformed into a min-cost flow problem instance. The methodology is applied to intellectual-property-based data path synthesis targeting field-programmable gate arrays. The synthesis flow maps the input operations to parameterized library modules during which different time budgeting policies have been applied. The techniques always improve the area requirement of the implemented test benches and consistently outperform a widely used competitor. The experiments verify that combining fairness and maximization objectives, improve the results further as compared with simple maximum budgeting. The combined fairness and maximization objective improves the area by 25.8% and 28.7% in slice and LUT counts, respectively. [5]

It is a response to repeated lamentations and debates about whether it is possible to find a set of core concepts in the IS field. Business and IT professionals can apply this theory to understanding and analyzing information systems. Academic researchers can apply it for gaining a deeper appreciation of past research and for developing future research projects. This theory tries to be equally applicable to all information systems, and not just to a particular type [6].

From above references, there is no information about applying to the company in Bandung, Indonesia. We use descriptive methods to analyze how companies can organize budgeting with online systems. As we know, expenditures must be calculated to predict business economic conditions. [7-10] for data collection methods used consist of field research conducted by observation, questionnaire, an interview. The results showed that to facilitate the company to manage the data planning and execution of the budget, so that decision makers get accurate, relevant information and simplify decision making/policy for the future. The application is being developed is a system of information e-budgeting web-based and open source.

2. Method
For data collection methods used consist of field research conducted by observation, and interview. In this research, the approach methods used by us where the object-oriented approach that uses AOO
(Analysis Object Oriented) and visualized using UML tool. UML was a language used to define, visualize, construct and document the artefacts (parts of information used/generated in an application-making process.) artefacts could be models, descriptions, or software. UML was also the best technique that proves successful in modelling a large and complex system. The types of UML diagrams used were Use Case Diagrams. The use case that aims to describe/model the interrelated processes and entities of a series of scenarios that have been combined (Figure 1).

![Research Design Diagram](image)

**Figure 1. Research Design**

The old system would develop using object-oriented was using UML (Unified Modeling Language). The use case diagram would present the interaction between use case and actor where actors could be people or systems that interact with the system to be built. The use case could describe the functionality or requirements of a system that must fulfill by the user. Here was a use case overview of the development system.

3. **Results and Discussion**

The current budget planning and execution system are still manual, with frequent misunderstandings between the sections. Also, monitoring of budget execution is still not optimal, so the treasurer is sometimes found it difficult to calculate how the budget has been used up and unused. Moreover, for report recording still done manually. Based on the ongoing systematic analysis, can be identified the existing deficiencies and user needs. Thus, it can be proposed in the new system design using waterfall method (Figure 2).
Based on Figure 2, user needs can be identified about what information the user needs if the e-budgeting information system is implemented:

1. The system can make the TOR and RKAKL
2. The system can create RKK data based on TOR and RKAKL
3. The system can validate and authorize the budget at the leadership level
4. The system can perform and monitor the budget management process.
5. The system can create budget reports.

Some actors or users directly involved with the system that will be described in (Table1).
Table 1. Actors involved in the system

| Term       | Description                                                                 |
|------------|-----------------------------------------------------------------------------|
| Div. KPA   | The section creates budget planning data                                   |
| Div. PPK   | The financial management official that is authorized to make decisions and budget expenditures |
| Div. ULP   | Procurement services unit charge of implementing the procurement           |
| Div. PPHP  | The recipient of the job as the procurement supervisor/contractor          |
| Div. Treasurer | The actor responsible for bookkeeping or final reporting                   |

To see display of network architecture e-budgeting information system can be seen in (Figure 3).

![Network Architecture Diagram](image)

**Figure 3.** Network architecture

In Figure 3 it can see that the network architecture of e-budgeting information system using the client-server method. It takes one server to store all data from all systems and databases. In the implementation and testing stages, an overview of the analysis has done/translated into a computer programming language where we use PHP language in creating e-budgeting applications.
Furthermore, the program codes and processes are reviewed to avoid errors in the application. This is useful for the development of system improvements so that e-budgeting applications are free from bugs and errors when it is implemented. The method used during testing is the black-box method.

We also document the results of all activities undertaken during this study. Stages are done from the initial process and planning, data collection, analysis and system design, and implementation of test results. The result of this documentation is the research report. Based on the results of system design so it will be done implementation phase. Display interface login interface can be seen in Figure 4.

![Figure 4. Login interface implementation](image)

In principle, any design that has been designed requires supporting facilities in the form of equipment that plays a role in supporting the implementation of the system in the company. Equipment required, such as hardware in the form of computer and network support, as well as software used to operate the system.

4. Conclusion

The conclusion is that the implementation of e-budgeting information system will significantly help the company in the planning and implementation of the budget, it is expected that this application can be understood and facilitate the user in using the application. Moreover, also reduce the possibility of data input errors that lead to producing inaccurate information. Although there are still many shortcomings in this e-budgeting information system, hopefully, this system can also help decision makers to take policies and decisions right for the company going forward.

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