The design of electronic monitoring process model and evaluation of development in the government (case study: Pakpak Bharat District)

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Abstract. Information technology leads the public to be involved in the planning, implementation and oversight process of public policy. Many regions in Indonesia have not yet applied the concept. E-government with the application of electronic monitoring and development model, addressing the issue of information disclosure. The method is DSRM. The public can see directly every department and agency under the district government. The information displayed in the form of graphs that sort according to the achievements of each institution.

1. Introduction

Information technology is currently increasing very fast. This can be seen from the emergence of a breakthrough that cannot be predicted before, especially technology that can connect external parties with internal companies and communities with the government. Public information publication becomes a demand that must be fulfilled for the implementation of good governance. This is explicitly regulated through the law on information disclosure in Law No. 14 of 2008. [1,2]

There are many ways to make government open about public information, it can be a manual (the community asks for information directly to the office), announcements through the mass media, and make the system accessible to the public freely.

Manual information system is certainly not recommended, in addition to the cost incurred more expensive and ineffective, manual way does not match the rapid development of technology. E-government for data transparency is considered vital in order to facilitate the public in accessing information. Principally, e-government refers to the delivery of information and online services through internet and other digital media [3]. In addition to being a fast and accurate information delivery, e-government will be a media for evaluating policies.

E-government makes both parties, the government as service providers and the community as service users will get some benefits, such as better access to information or reports, greater efficiency, increased public participation, reduced transaction costs, and also provides accountability and transparency of budget usage, as well as evaluation of work programs [4].

Based on research, e-government must follow several proposed stages, including increasing data transparency, increasing public participation, increasing open collaboration and others [5]. However, the government should also be able to provide human resources and infrastructure that support the smooth implementation of e-government [6].

Data transparency is considered important to increase the level of public confidence, but it will be harmful if the data is not processed correctly. This will lead to misunderstanding at the community level as the recipient of the information. Data that is ready to be opened must
comply with the existing level for data privacy and protection of the data itself. Not all information can be published in the mass media. This is because the published news must really be processed first so as not to cause new problems for the wider community [7, 8, 9].

Pakpak Bharat Regency, North Sumatra, Indonesia, uses a manual system in reporting the use of local budgets as well as evaluation of activities and projects being undertaken for by district and sub-district offices. This creates problems such as the difficulty of governments to monitor performance and see how far the ongoing program is being implemented.

In addition, in the case of the preparation of the budget was still manual without any system that set the data centralization to the regional secretary and Regent as regional leaders. This certainly makes it difficult for local leaders to monitor and evaluate each proposed budget.

2. Research Background

In Indonesia, the application of electronic government was introduced since 2001 through Presidential Decree No. 6 Year 2001 on Telecommunication, Media and Informatics which states that government apparatus must use the technology to support good governance and accelerate democratic process. After that, the government again issued Presidential Decree No. 3 of 2003 on National Policy and Strategy of e-Government Development. This is a serious step by the Government of Indonesia utilizing information and communication technology in the government process to create an information-based Indonesian society.

The government’s commitment in realizing e-government under President Susilo Bambang Yudhoyono, among others appear with the issuance of Presidential Decree No. 20 of 2006 on the National Information and Communications Technology Council.

Many government agencies have taken advantage of the digital revolution and provided various government services and public information services online to e-government stakeholders. Especially for the evaluation and monitoring of information systems, actually has been applied in several regions in Indonesia such as Bojonegoro, Bandung, Blitar, and Central Lombok. From the results of the authors review to some of these systems, only Central Lombok regency began to seriously implement e-money system and update data consistently.

Here are some previous studies on e-government and information disclosure in government.

**Table 1. Previous Research**

| NO | TOPIC                                                                 | AUTHOR | RESULT                                                                 |
|----|----------------------------------------------------------------------|--------|----------------------------------------------------------------------|
| 1. | A Model Design of Information Technology Investment for The Government Sector [10] | Endah Susilawati, Kridanto Surendo (2017) | IT investments consume 20-40% of the organization's overall expenditure. |
| 2. | A Conceptual Model for E-Government Adoption in Egypt [11]         | Sara Elkheshin, Noha Saleeb         | Demonstration and validates a framework of government adoption generally success. |
| 3. | A Best Practice Based E-Government Portals' Maturity Model –A Case [12] | Abduoullah Fath-ALLAH, Laila Cheikhi, Ali Idri | The evaluation of the maturity model by the expert has proven that the model is valid and reliable. |
| 4. | Adoption Model of m-government services [13]                      | Renata Bikova, Anna Kralova          | The paper proposes an m-government adoption model based on original TAM Model extended by Factors Affecting. |
| No | TOPIC                                                                 | AUTHOR                          | RESULT                                                                                                                                 |
|----|----------------------------------------------------------------------|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| 5  | Communication Model of Open Government Data Gamification Based on Ukrainian Website [14] | Oleksandr Blazhko, Tetiana Luhuva | The proposed communicative model in the context of Ukrainian informational politics makes it possible to take a complex look at the process of gamifying open data and integrating it into the social communications system. |
| 6  | Research on Government Data Publishing Based on Differential Privacy Model [9] | Chunhui Piao, Yajuan Shi       | This paper proposes a DP-based MDHP model, which can effectively resist attacks based on growing user background knowledge.                  |
| 7  | Modeling IT Public Value for IT Performance Measurement in Government Organization A Case Study : BPS-Statistics Indonesia [6] | Ivadia Elmina Patola, Suhardi, Novianto Budi Kurniawan | The result of this study indicates that IT public value in government organization is reflected by the indicators constructed from the model proposed. |

3. **Methodology**

3.1. *Design Science Research Methodology (DSRM)*

The methodology used in this research is Design Science Research. This study was originally proposed by [17] with the following research steps:

3.2. *Research Steps*

- Identification of problems. In this section the problem to be studied in the research is identified first, then just start collecting data, literature, and interviews. From the results of data collection, we will find what points will be discussed in the study.
- Set Goals for Solutions. At this stage we must determine what solution is proposed in doing research on the problems found. The solution offered is the Prototype Electronic Monitoring and Evaluation Development Application which will be tested in Pakpak Bharat district government, North Sumatra, Indonesia.
- Design and Development. At this stage the researcher will determine the design and development solution based on what has been analyzed before. In this section, we create a
reporting model for each activity, both project results, and financial reporting that can be reported on systems that have been prepared for verification at the next admin level.

- Application demo. In this section the researchers conducted testing and direct validation for the Pakpak Bharat district government.
- Evaluation. At the evaluation stage, the evaluation result from the data that has been inputted by the operator at the level of Pakpak Bharat district office is used to get the conclusion from the research result.
- Communication. At this stage, researchers provide research reports in the form of digital documents on each process performed.

4. Analysis and Design System

Pakpak Bharat District has at least 31 Regional Device Organizations or Organisasi Perangkat Daerah (OPD) covering 23 agencies, and 8 districts. Every month, the Regent as the district head of the district instructs each agency, both the district and sub-districts to report on each of the activities, projects and budgets that have been used to the District Development Board (Bappeda) of the district.

During this time, all reports are done manually. This is certainly a constraint, in addition to ineffective, takes a long time and certainly requires a lot of human resources.

The community as the recipient of information related to budget transparency and development evaluation in the district, also never received valid and complete data. Whereas people need to see and give a direct evaluation of what has been done by the Pakpak Bharat district government.

At the end of each year, the district government, the Regent and the Regional Personnel Board (Bappeda), prepares a work plan for each OPD and sub-district in Pakpak Bharat District for the following year. The work plan is based on the results of the submission of each OPD to the Regent as the regional leader.

The proposed work program with its budget was taken to the local parliament (DPRD) of Pakpak Bharat to obtain budget approval. If the work program and budget are approved by the DPRD, then it will become the official program of OPD next year.

Based on the results of the interview, the following is a description of the system flow to facilitate the reporting of data and the results of development evaluation in the district.

| Authority | Regional Secretary | Citizen |
|-----------|--------------------|---------|
| Data Ready to Proceed | Data in System | Data View |
| Data Input to System | Data Verification and Validation | |
| Data in System | Y/N | |
| | YES | |
| | NO | |
| | Data approval | |

Figure 2. Unified modeling language application system
**UML Explanation:**

- The Authority prepares reports that have been processed and are eligible for publication under applicable law.
- Authority processes input data of financial statements, reports of activities, and reports of readiness of projects that are or have been done into the system.
- Data that has been input will be checked by higher admin level, that is Regional Secretary.
- After the regional secretary checks, if the report can be accepted in accordance with the applicable provisions, it will agree to be visible to the public freely.
- Once the approval process is complete, the system first provides the best value of the authorities.

![Figure 3. Graph of target and performance realization (finance and physical)](image)

**Figure 3.** Graph of target and performance realization (finance and physical)

![Figure 4. Financial performance of authorities each month](image)

**Figure 4.** Financial performance of authorities each month
Figure 5. Physical performance of authority every month

The above view is a display in the form of a chart to show the performance of the authority either the financial statements or the physical reports of each project undertaken. The red color indicates the planned target while the green color shows the realized target. Likewise with figure 4, red indicates the target use of the budget, while the blue color is the amount of realized budget.

In addition to displaying charts, people can also access the rank of each authority aware of the financial and physical reporting performance of each planned work program.

Figure 6. Rank each authority based on financial and physical reporting performance.

5. Conclusion

From the results of the above discussion, the community can easily access the financial statements and physical reports of each project that is done by the government every month. This report can be used by the public and mass media as data to evaluate the overall government performance. In addition to the community, local leaders can also evaluate which agencies and sub-districts or institutions perform and perform poorly in achieving job targets.
This system is only intended to evaluate and monitor ongoing work programs. In the future, this information system can be developed more complex, ranging from the filing stage of the budget and work program, financial examination stage to upload detail report on each item that is done. If this is implemented, it will greatly facilitate the leadership and audit institutions such as the Supreme Audit Agency in evaluating budgets and projects.

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