Determinants of E-Government Implementation in Indonesia

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Authors’ contributions
This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

ABSTRACT

Aims: This study aimed to determine the effect of Regional Original Income, general allocation funds, capital expenditures, audit opinions, and the level of public education on the implementation of e-Government in local governments in Indonesia.

Study Design: This study uses secondary data.

Place and Duration of Study: Local Government Financial Reports (LKPD) and audit opinions. This information can be found at the Supreme Audit Agency (BPK). The level of community education attainment uses the new Average Years of Schooling (RLS) method from the Central Statistics Agency (BPS) representative of each province from 2018 to 2020.

Methodology: The sample used is 347 local governments. The purposive sampling method and multiple regression analysis were used in this study and used the SPSS 25 analysis tool. Before running the regression test, the data was first tested using the classical assumption test.

Results: The independent variables in this study consisted of Regional Original Income (PAD), General Allocation Funds (DAU), Capital Expenditures, Audit Opinions, and Community Education Levels. At the same time, the dependent variable is the implementation of e-Government seen from the SPBE index value. This study carried out hypothesis testing with the Coefficient of Determination Test (R2) and the t-Statistical Test. The Coefficient of Determination Test (R2) measured how far the model's ability to explain the variance of the dependent variable was. The value of the coefficient of determination is zero or one. A small R2 value means the ability of the independent variables to provide almost all the information needed to predict the dependent variable variance [1]. At the same time, the t-test statistic shows how far the influence of one
explanatory/independent variable individually in explaining the variation of the dependent variable results in a decision to reject or accept H0. This research was processed using IBM SPSS version 25 software.

**Conclusion:** In this study, the variables "Regional Original Income," "General Allocation Funds," "Opinion Audits," and "Community Education Levels" have a positive effect on the implementation of e-Government. On the other hand, the capital expenditure variable does not affect the implementation of e-Government.

**Keywords:** Regional original income; general allocation funds; opinion audits; community education levels.

1. INTRODUCTION

Indonesia was familiar with Electronic Government (e-Government) in early 2001. This was marked by the issuance of Presidential Regulation (Inpres) No. 6 of 2001. This promoted telematics technology, achieved the goal of a clean and dignified government and was called good governance, accelerating the realization of the desired democracy. E-Government is an information technology system whose development is carried out by the government to improve public services by providing easy access to public information related to the broader community. In Indonesia itself, the development of e-Government has existed since 2003. Although the results have not been as expected, they are considered not optimal because they did not produce a significant increase, only 0.1 compared to the first year 2003 to 2018. This failure is due to the government's lack of attention to the development of e-Government in Indonesia [2].

As part of the 2020 e-Government Survey, the United Nations has announced how countries have accepted e-Government systems. Based on the results, Indonesia is ranked 88th out of 193 countries to implement an electronic-based government system (SPBE). (https://www.kominfo.go.id/). Meanwhile, Ugi Cahyo Setiono, coordinator of the coordination and evaluation of SPBE policy implementation at the PANRB Ministry, said his party evaluated the 2019 SPBE to 637 government agencies. Sixty percent of ministries, fifty percent of provincial governments, and twenty three percent of district/city governments have achieved good ratings. This ranking and evaluation are expected to focus more on institutions that have received inadequate and sufficient predicate in the past year and increase the SPBE index of the institution [3]. The results obtained by the district/city government of only twenty three percent should be in the spotlight more than the government. For example, in Lampung Province, the predicate was sufficient with an SPBE index of 2.45. Meanwhile, the districts of North Lampung, South Lampung, East Lampung, Central Lampung, Tulang Bawang Barat, and Pesawaran still have a low SPBE index. The cities of Metro, Pringsewu, Way Kanan and Pesisir Barat have sufficient SPBE indexes. Another example is Jambi Province, which found an SPBE index value of 1.61. North Kalimantan Province found an SPBE index value of 1.78 with a predicate of less value (Ministry of PANRB, 2021).

Disclosure made through local government websites is an implementation of e-Government. Disclosures on the website are not only disclosures regarding financial statements but include non-financial related disclosures. In this study, local revenue, general allocation funds, capital expenditures, audit opinion & public education level are independent variables. According to Nugraha [4], High performance in local government is a signal of good public management. While the research of Craven and Marston [5] explains that bad local governments will avoid voluntary disclosures, such as voluntary internet-based disclosures, limiting information disclosure to the public. PAD in research, Oktaviani and Arza [6], Utami [7], Sipahutar and Sutaryo [8], and Dewi and Haryanto [9] has a significant effect on the implementation of e-Government. Meanwhile, in Moehardiono and Yuliati's [10] research, PAD does not significantly affect.

Fintari [11] stated that the amount of DAU received depended on the local government. Oktaviani and Arza's [6] study found empirical evidence that DAU had a positive but not significant impact on e-Government implementation. The problem in the development of e-Government at the central and regional levels is the linkage between infrastructure development issues. It must be admitted that the
availability of technology in developing countries is still often an obstacle [2]. A study by Sipahutar and Sutaryo [8] shows that capital expenditure affects the implementation of e-Government.

The implementation of e-Government can affect accountability and transparency, one of which is disclosure through local government websites. This is because the information presented by the local government is easily accessible and open to the public. This explanation is supported by research by Rahim and Martani [12], which results that audit opinion has a significant positive relationship with the disclosure of financial information on local government websites. In contrast to the findings of Oktaviani and Arza [6] and Utami [7], the audit results show that they have not significantly impacted the implementation of e-Government. Factors other than the above that affect the implementation of e-Government is the level of public education. The higher the education level of the community, the higher the level of understanding, the more demanding the public is for the services provided, and the government continues to monitor, modify and promote the speed of the existing government. A study by Dewi and Adi [13] shows a significant positive correlation between education level and disclosure. In contrast, the survey by Dewi and Haryanto [9] shows that the level of public education has no significant effect on the implementation of e-Government.

From the previous studies above, there are inconsistencies in the research results. This makes the authors want to re-examine Regional Original Income, general allocation funds, capital expenditures, audit opinions, and public education level on the implementation of e-Government.

1.1 Hypothesis Development

Regional Original Revenue (PAD) is one of the sources of regional income which consists of regional taxes, regional levies, the results of separated wealth management, and other legitimate regional revenues. E-Government in its implementation usually requires enormous costs. This illustrates that if the economic welfare of an area is good, the government will have sufficient costs in financing services to the community through the implementation of e-Government (Sarjono & Sutaryo, 2017). Therefore, regional heads who have served in an area will try to get a large PAD to develop to achieve community welfare. Rahim and Martani (2015) and Dewi and Haryanto [9] stated that PAD has a positive influence on the implementation of e-Government.

H1: Local revenue has a positive effect on the implementation of e-Government.

Governance. The General Allocation Fund (DAU) is a block grant. This means that its utilization must be delegated to the regions by regional priorities, and public services need to be improved as part of the implementation of regional autonomy. Fintari [11] shows that the central government pressures highly dependent governments to disclose complete local financial information. When the DAU is given to local governments, there must be a take and give to the central government by displaying complete and timely financial information because the central government wants local governments to be disciplined in budgeting implementation from planning, execution, to reporting so that they are more accountable according to sound principles. For this reason, it is necessary to promote an e-Government-based budget that will make it easier for each agency to report.

H2: General allocation funds positively affect the implementation of e-Government.

Capital expenditures are related to capital development to increase tangible assets/inventory that benefits from several accounting periods. Support in the implementation of e-Government requires the procurement of the proper infrastructure to overcome the obstacles that arise. Three factors influence the development of e-Government: district/city government resources, politicians, and the environment. District/city government resources are related to specific characteristics such as government size, financial strength, and technological strength [14]. In a study by Sarjono and Sutaryo (2017), capital expenditure positively influences the implementation of e-Government.

H3: Capital expenditure has a positive effect on the implementation of e-Government.

The audit opinion describes the accountability & transparency of the organization. Disclosure of information received in an Unqualified Opinion (WTP) identifies that the area has more minor misstatements and shows the region's ability to prepare and publish financial statements quickly and on time. This can be categorized as good government performance in an area, indicating that the implementation of e-Government is
superior to regions that receive opinions other than WTP. One of the implementations of eGovernment is budget monitoring so that it is more open. This is supported by Rahim and Martani (2015), who conclude that audit opinion has a significant positive relationship with disclosing financial information on local government websites.

H4: Audit opinion has a positive effect on the implementation of e-Government.

Abadi [15] states that the level of education strongly influences people's ability to access information technology, so it impacts the successful implementation of e-Government. If the country's level of public education is low, people are usually unfamiliar with access to the Internet and other information technologies. Of course, people do not need to disclose financial information online because of the limited access to such technology. Several previous studies have observed a significant positive correlation between educational achievement and disclosure [9].

H5: The level of public education has a positive effect on the implementation of e-Government.

2. RESEARCH METHODS

This research is research with quantitative methods where the data used is secondary data derived from local government financial reports (LKP) and audit opinions about the area whose information can be seen in the Supreme Audit Agency (BPK), as well as the level of public education using the Average Years of School (RLS) new method from the Central Statistics Agency (BPS) representative of each province from 2018 to 2020. The population in this study is the BPK has audited all local governments whose financial reports for 2018 – 2020, but because the 2020 research data on the e-Government implementation variable measured using the SPBE Index, there is no data for 2020 yet, so in this study only 2018 and 2019 data are used. The sampling technique used is purposive sampling with the criteria of local governments reporting financial reports to the BPK for 2018 - 2019, regional governments with the SPBE index for 2018 - 2019, and regional governments providing complete information according to research needs. This resulted in a total of 347 samples which were divided into two groups, namely 27 for provincial samples and 320 for level II local governments. Then because the period used is two years, namely 2018-2019, the total sample used is (347 x 2 ) = 694 samples.

The independent variables in this study consisted of Regional Original Income (PAD), General Allocation Funds (DAU), Capital Expenditures, Audit Opinions, and Community Education Levels. At the same time, the dependent variable is the implementation of e-Government seen from the SPBE index value. This study carried out hypothesis testing with the Coefficient of Determination Test (R2) and the t-Statistical Test. The Coefficient of Determination Test (R2) measured how far the model's ability to explain the variance of the dependent variable was. The value of the coefficient of determination is zero or one. A small R2 value means the ability of the independent variables to provide almost all the information needed to predict the dependent variable variance [1]. At the same time, the t-test statistic shows how far the influence of one explanatory/independent variable individually in explaining the variation of the dependent variable results in a decision to reject or accept H0. This research was processed using IBM SPSS version 25 software.

3. RESULTS AND DISCUSSION

Description of Research Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional Original Income (PAD)</td>
<td>694</td>
<td>15,266</td>
<td>45,707</td>
<td>753,666</td>
</tr>
<tr>
<td>General Allocation Funds (DAU)</td>
<td>694</td>
<td>0</td>
<td>4,973</td>
<td>844,734</td>
</tr>
<tr>
<td>Capital Expenditures</td>
<td>694</td>
<td>5,085</td>
<td>14,118</td>
<td>453,482</td>
</tr>
<tr>
<td>Audit Opinions</td>
<td>694</td>
<td>0</td>
<td>1</td>
<td>0.93</td>
</tr>
<tr>
<td>Community Education Levels</td>
<td>694</td>
<td>4.36</td>
<td>12.64</td>
<td>8.30</td>
</tr>
<tr>
<td>Implementation of e-Government</td>
<td>694</td>
<td>1</td>
<td>3.85</td>
<td>2.17</td>
</tr>
</tbody>
</table>

Source: SPSS Output Results, Appendix 3
Table 1 presents descriptive statistics, including minimum, maximum, and average values. This research has 6 variables. The Regional Original Income (PAD) variable, the independent variable, has a maximum value of Rp. 45,707,400,003,802, which DKI Jakarta Province owned in 2019. The lowest is Rp. 15,266,635,341, which is in North Buton Regency, South Sulawesi Province. in 2018, the average value of the Regional Original Income Variable was Rp. 753,666,282,031.65.

The General Allocation Fund (DAU) variable, the independent variable, has a maximum value of Rp. 4,973,031,047,277, which was owned by the City of Surabaya in 2019, and the Province of DKI Jakarta during the research year was the sample with the lowest DAU of Rp. 0 because it never gets DAU. Capital Expenditure variable, which has a maximum value of Rp. 14,118,608,087,643 owned by DKI Jakarta Province in 2018, and the lowest is Rp. 5,085,663,527 in Tojo Una-Uma Regency, Central Sulawesi Province in 2019, and the average value of the Capital Expenditure Variable is Rp. 453,482,424,425.14.

The audit opinion variable, which is measured using a dummy with the provision of a value of 1 for local governments that get WTP, and a value of 0 for non-WTP local governments, has an average value of 0.93, these results illustrate that almost the entire sample or 93% of the research sample in the LKPD auditors did not find material errors in the overall financial statements or there were no deviations from the applicable accounting principles (SAK). The community education level variable, has a maximum value of 12.64, which Banda Aceh City-owned in 2019. The lowest is 4.36, which is found in the Sampang Regency in East Java Province, while the average value of the community education level is 8.30.

The variable of e-Government implementation, which became the dependent variable in the study, was measured using the SPBE index, having a maximum value of 3.85, which is owned by Central Java Province which has a very good predicate, and the lowest is in Bitung City in North Kalimantan Province, which is 1 with a predicate. "Very Poor," and the average value of e-Government Implementation is 2.17, which means that the average local government sampled has an SPBE index with the predicate "Less".

Table 2. Normality test score

<table>
<thead>
<tr>
<th>Description</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kolmogorov-Smirnov Z</td>
<td>1.217</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>0.103</td>
</tr>
</tbody>
</table>

Source: Output resourch by SPSS, Lampiran 3

Table 2 shows that the Kolmogorov-Smirnov sig value shows that the normality test results have a significance value (p-value) greater than the 0.05 significance level, so it can be stated that the data in this study were normally distributed.

Table 3. Multicollinearities test score

<table>
<thead>
<tr>
<th>Variables</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional Original Income (PAD)</td>
<td>0.373</td>
<td>2.683</td>
</tr>
<tr>
<td>General Allocation Funds (DAU)</td>
<td>0.419</td>
<td>2.388</td>
</tr>
<tr>
<td>Capital Expenditures</td>
<td>0.438</td>
<td>2.281</td>
</tr>
<tr>
<td>Audit Opinions</td>
<td>0.965</td>
<td>1.036</td>
</tr>
<tr>
<td>Community Education Levels</td>
<td>0.819</td>
<td>1.221</td>
</tr>
</tbody>
</table>

Source: Output resourch by SPSS, 2022

Table 4. Heteroscedasticities test score

<table>
<thead>
<tr>
<th>Variables</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>0.006</td>
</tr>
<tr>
<td>Regional Original Income (PAD)</td>
<td>0.064</td>
</tr>
<tr>
<td>General Allocation Funds (DAU)</td>
<td>0.124</td>
</tr>
<tr>
<td>Capital Expenditures</td>
<td>0.130</td>
</tr>
<tr>
<td>Audit Opinions</td>
<td>0.774</td>
</tr>
<tr>
<td>Community Education Levels</td>
<td>0.526</td>
</tr>
</tbody>
</table>

Source: Output resourch by SPSS, 2022.
Based on the multicollinearity test in Table 3 above, it can be seen that the results of the calculation of the tolerance value more than 0.10 or 10% and the VIF value is less than 10, then in testing the data there is no correlation between the independent variables or there is no multicollinearity.

Based on the output in Table 4 above, it is known that the sig value for all variables has a sig value > 0.05, it can be concluded that the research model used is free from heteroscedasticity problems.

Based on the results of the Durbin-Watson test in Table 5 above, it can be seen that the data is free from autocorrelation because the du value of 1.725 is smaller than the dW value of 1.864 and the dW value is smaller than 4-du of 4-1.725 = 2.275 or an equation can be made such as 1.725 < 1.864 < 2.275.

Based on Table 6 above, the value of R² is 0.145. This means that 14.5% of e-Government practices in Indonesia are influenced by the level of variables PAD, DAU, capital expenditure, audit opinion, and public education. The remaining 85.5% is influenced by other variables not considered in this study.

3.1 Model Feasibility Test

This test is carried out to determine whether the regression model is feasible or not to be used. In this model, the test is a one-way test with a significance level of 0.05, and the number of observations is 694 with 6 parameters (1 constant and 5 coefficients). Table 6 shows that the computational study model F, other than the value in the table above > the table F value is 0.000 less than the 0.05 significance level, so H0 is not supported and Ha is supported. Due to the F-test, the equations in this model are suitable or can be used.

3.2 Hypothesis Test (Test Statistical t)

The results obtained in Table 6 show the relationship between the independent variables, namely PAD, DAU, capital expenditures, audit opinions, and the level of public education, and the dependent variable of e-Government implementation in Indonesian local governments. It can be explained as follows:

1. The constant value with a negative sign of -3.782 indicates that there are no independent variables that affect the implementation of e-Government. This means that PAD, DAU, Capital expenditures, audit opinion, and public education have value and will reduce e-Government implementation in Indonesian local governments.

2. The regression calculation shows that the value of the PAD regression coefficient is positive, which is 0.043. This means that the PAD variable has a positive effect on the implementation of e-Government, with a significance value of less than 0.05 (0.001). Therefore, the hypothesis that "local revenue has a positive effect on e-Government implementation" is supported. This result means that for an increase in PAD by one unit, the implementation of e-Government also increases by 0.043. The results of this study are in line with the results of research by Dewi and Haryanto [9] and Rahim and Martani (2015), which state that local revenue has a positive impact on the implementation of e-Government. These findings are one of the primary sources of information used by the government for regional development and ensuring that income levels influence improvements in facilities and infrastructure. The infrastructure developed is e-Government which is implemented by building management systems and work processes within the government environment by optimizing information and communication technology. These results also show that higher regional incomes have a higher level of political control and tend to demand more citizen accountability. This is in line with agency theory that the community (principals) requires the government (agents) to realize their wishes in order to be able to develop and implement e-Government.

Tabel 5. Autocorrelation test score

<table>
<thead>
<tr>
<th>Du tabel</th>
<th>Durbin-Watson</th>
<th>4-dU</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.725</td>
<td>1.864</td>
<td>2.275</td>
</tr>
</tbody>
</table>

Source: processed data, 2022.
3. The DAU regression coefficient is positive (0.071), indicating that the DAU variable positively affects e-Government implementation and has a significance value (0.047) less than 0.05. Therefore, the hypothesis proposed "General Allocation Fund has a positive effect on the implementation of e-Government" is supported. This result also means that if the DAU increases by 1 unit, the implementation of e-Government will also increase by 0.071. The results of this study are not in line with the research of Oktaviani and Arza [6], which provide evidence that general allocation funds have a positive but not significant effect on the implementation of e-Government, although these results have similarities with Pusparini and Nurabiah [16,17].

The results of the study prove there is a positive influence because DAU is given to local governments, there must be feedback to the central government by displaying complete and timely financial information because the central government wants local governments to be disciplined in budgeting implementation starting from planning, execution, to implementation. It is reporting so that it is more accountable according to the principles of Good Governance. For this reason, it is necessary to promote an e-Government-based budget that will make it easier for each agency to report.

4. The capital expenditure regression coefficient is positive (0.036), which indicates that the capital expenditure variable has a positive effect on the implementation of e-Government and has a significance value greater than 0.05 (0.128). Therefore, the hypothesis states "Capital Expenditure has a positive effect on the implementation of e-Government" is not supported. The results of this study are contrary to the research of Sipahutar and Sutaryo [8], which provides evidence that capital expenditure has a positive effect on the implementation of e-Government. However, these results have similarities with Ordiyasa [2], which concludes that regulations are not yet supported and budget allocations are inadequate. Insufficient to cause the failure of e-Government implementation in Indonesia. Unaffected results are possible because the development and implementation of e-Government require a gradual and extended time for the government to carry out the complete and more efficient public services to the people who complement each of them. Government can prevent corruption, features increase transparency and convenience, increase growth, and reduce costs. Whereas in Permendagri Number 13 of 2006, capital expenditures are all forms of expenditure that occur in connection with the purchase or procurement, or construction of fixed assets of practical value for more than 12 months and in government activities. Government activities ensure that capital expenditure is only used to acquire fixed assets and other assets that benefit from several accounting periods.

5. The positive audit opinion regression coefficient is 0.156, which indicates that the audit opinion variable has a positive effect on the...
effect on the implementation of e-Government and has a significance value of less than 0.05 (0.005). Therefore, the hypothesis which states "Audit Opinion has a positive effect on the implementation of e-Government", is supported. This result also means that if the Audit Opinion increases by 1 unit, then the implementation of e-Government will also increase by 0.156. The results of this study are not to the research of Oktaviani and Arza [6] and Utami [7] but have similarities with the results of research by Rahim and Martani [12] and Dewi and Adi [13], and Sipahutar and Sutaryo [8].

The audit opinion describes the accountability & transparency of the organization. Disclosure of information received in an Unqualified Opinion (WTP) identifies that the area has more minor misstatements and shows the region's ability to prepare and publish financial statements quickly and on time. This can be categorized as good government performance in an area, indicating that the implementation of e-Government is superior to regions that receive opinions other than WTP. Because one of the implementations of e-Government is budgetary supervision, the more open it is to the public, the more responsible it is for the budget management of a local government, and the more accountability and transparency of government performance will be.

6. The regression coefficient of a positive public education level is 0.170, indicating that the variable of public education level has a positive effect on the implementation of e-Government and has a significance value of less than 0.05 (0.015). Therefore, the hypothesis states "The level of public education has a positive effect on the implementation of e-Government," is supported. This result also means that if the level of public education increases by 1 unit, then the implementation of e-Government will also increase by 0.170. The results of this study have similarities with Anggraini (2015) and Dewi and Haryanto [9].

The implementation of e-Government aims to improve the quality of interaction between the government and various stakeholders. That is the interaction between the government and citizens, between the government and the private sector, the interactions between the government and the government, and other forms of interaction. One of the interactions that affect the implementation of e-government is the level of public education. The level of education has a significant impact on people's ability to access information technology and thus on the successful implementation of e-Government.

4. CONCLUSION

Based on the discussion that has been described, the authors can draw several conclusions:

1. Based on the calculation results, it can be seen that the Regional Original Income variable has a positive influence on the implementation of e-Government.
2. Based on the calculation results, it can be seen that the General Allocation Fund variable has a positive influence on the implementation of e-Government.
3. The calculation results conclude that the Capital Expenditure variable does not affect the implementation of e-Government.
4. Based on the calculation results, it can be seen that the Audit Opinion variable has a positive influence on the implementation of e-Government.
5. Based on the calculation results, it can be seen that the variable of Community Education Level has a positive influence on the implementation of e-Government.

COMPETING INTERESTS

Authors have declared that they have no known competing financial interests or non-financial interests or personal relationships that could have appeared to influence the work reported in this paper.

REFERENCES


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