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DO GOVERNMENT CHARACTERISTICS AFFECT E-GOVERNMENT MATURITY?

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ABSTRACT

The purpose of this research is to examine empirical evidence of the effect of human resource competence, information quality, government complexity, area, and size of government on the maturity of e-government of provincial government in Indonesia. The research applied purposive sampling method, and examined 21 provinces in Indonesia for the year of 2018-2020. This study uses secondary data from Central Bureau of Statistics, websites of provincial government, and data from Ministry of State Apparatus Empowerment and Reformation of Bureaucracy (KemenPAN RB). Since this research involved multiyear data, therefore data panel analysis using Common Effect Method was applied. The results show that human resource competence and government complexity significantly influence the maturity of e-government. However, information quality, width of area and size of government do not influence maturity of e-government. The results are important for the government in developing e-government systems. Implications of the research are further discussed in the paper.

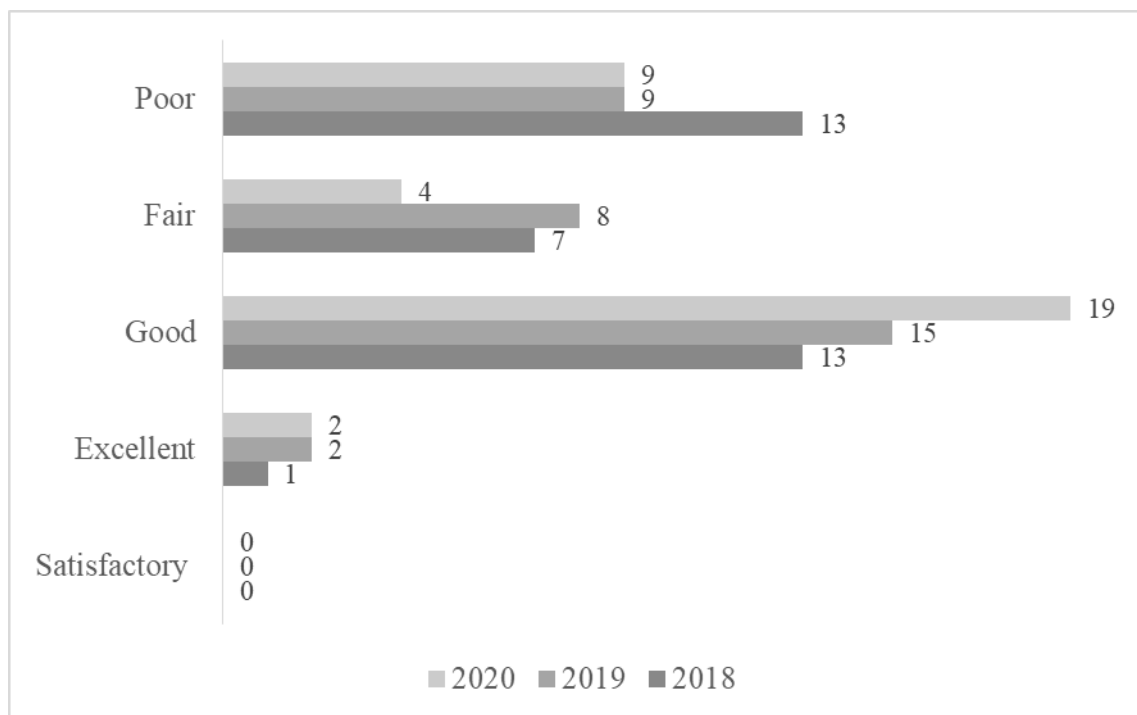
KEYWORDS: E-Government Maturity; Government Complexity; Human Resource Competence; Width of Area.

INTRODUCTION

As civilization is more advanced, technological revolution, information, and communication (TIC) are also more sophisticated. With respect to this, government of Indonesia issued Presidential Decree No 95, 2018 about e-government or Electronic Based Government Systems, whose purpose is to create a more responsible and accountable public service, in addition to a good, transparent, unity, effective, efficient governance when implementing e-government.

E-Government in Indonesia has been implemented since 2003 (Dhevina, 2018). However, in 2018, 59% regional government of provinces in Indonesia had not reached the e-government maturity as expected (KemenPANRB, 2018). This was caused by the different interpretation of e-government design among ranks of government. Another challenge is the absence of integrated information system among government institutions.

Government can boost the e-government maturity by evaluating its implementation. The Ministry of State Apparatus and Bureaucratic Reform (*Kemenpan RB*) has done the evaluation on the e-government maturity since 2018 based on the Regulation of Ministry PANRB no 5, 2018. The evaluation has been conducted on three domains, namely: policy domain, management domain, and service domain.



Graph 1.
Categories of e-Government Maturity of Provinces in Indonesia

Source: KemenPANRB (2018, 2019, 2020)

Based on the evaluation of e-government maturity by the regulation of PANRB minister of 2018-2020, the provincial governments predicated “excellent” were still a few, mostly were predicated “fair” and “good” (see Graph 1.) Although the number of the institutions that get “excellent” and “good” were increased, none of the province is predicated “satisfactory”. Graph 1 indicated that many provincial governments encountered challenges when trying to improve the maturity of e-government.

Meanwhile, the previous researches in Indonesian context were mostly related to the e-government implementation or adoption. For example, researches by Farida et al. (2020); Nurkholis & Anggraini (2020); Oktaviani & Arza (2020); Pradipta & Sofyani (2021); Yustikasari (2018). The researches on e-government maturity were mostly related to the evaluation on maturity concept, as the research by Iannacci et al. (2019); Janita & Miranda (2018); Kaisara & Pather (2011); Malodia et al. (2021); Sangki (2018). The researches on e-government maturity were also viewed from the perspective of its impact, for instance the research by Adam (2020); Khalid & Lavilles (2019); Krishnan et al. (2013, 2017).

Mostly, the previous researches mentioned before were qualitative or based on primary data with questionnaire. Research using secondary data in Indonesia is currently lacking; therefore, this research is expected to contribute to a new perspective in the context of e-government implementation in Indonesia. This research is aimed at understanding the characteristics of provincial government that can affect the e-government maturity. In other words, this research questions what are the factors of provincial government characters that can affect the e-government maturity.

Jensen & Meckling (1976) stated that the principals rely on services provided by the agents. Furthermore, the principals give authorities to the agents to make decisions and policies. In context of public organizations, principals are constituents or citizens, while agents are the managers (Silaghi & Sarkar, 2021). The principals transfer their power to make a policy to the public sector manager in order to improve society welfare. This creates a conflicting interest between the agent and the principal, which in return affecting the level of e-government maturity.

The Presidential Instruction no 3 year of 2003 on the Policy and National Strategy state that all public sectors in Indonesia must apply e-government system as the media for public service provided by government to ease the access to information system needed by society and other related subjects. The service stated in that instruction includes the engagement between government to government (G2G), government to business (G2B), and government to citizen (G2C). The level of e-government maturity has its own principals written in the acts of Government Administration no 30 year of 2014 which are: law certainty, utility, fairness, precision, no power abuse, openness, public interest, and good service.

According to Layne & Lee (2001); Malodia et al. (2021); Sangki (2018), the implementation of e-government focuses on technology development when providing public service. It is said that to apply the e-government, the government should go through four stages leading to the e-government maturity. The four stages cover cataloguing, which is the initial form of e-government service. Second is transaction where the e-government service is more interactive. The third stage is vertical interaction which is the integration stage of e-government service among different ranks of government. The last stage is horizontal interaction meaning the integration stage of e-government service among units of other functional units.

Furthermore, Andersen & Henriksen (2006); Iannacci et al. (2019); Krishnan et al. (2013) have proposed Public Sector Process Rebuilding (PPR) model. The PPR model avoid the e-government systems to only focus on a mere technological development, rather also targeting to gain benefits for its users or audience. The PRR Model has four levels of stages. First is cultivation, focusing on the protection of both vertical and horizontal integration stages. The next stage is extension focusing on the development by adopting interactive websites. Following this is maturity designed to create a more useful

development. The most advanced stage is revolution where data mobile across integrated organization so that it will be more effective.

Human is the main subject creating a commitment as stated in Agency Theory between principal and agent. The transfer of responsibility from the principal to government agency to make public policy in the scope of e-government development is expected to generate benefits to society as the end users. Kumajas (2021) notes that humans have a primary role to bring success to an organization. This is in line with Kumajas (2021) research stating that human resources had significant influence to the e-government application. As government has intention to provide a qualified service upgrading the maturity of e-government, a competent human resource is needed. Moreover, Government Regulation No 101, 2000 on Recruitment of Civil Servants indicated that the competency of human resources in government area includes horizon, skills, and responsiveness toward any tasks. Having those competencies, human resources are expected to work maximally.

H₁: Human resource competency positively influences the maturity of e-government systems.

Information is one of the outputs that should be delivered to society as government carries accountability as the agent managing all activities, according to Agency Theory. This is important as to gain trust from the society as the principal. In addition, good services lead to the increase use of e-government which eventually brings maturity to e-government. According to Nurkholis & Anggraini (2020) the good quality of the service will affect the increase use of e-government by society. Meanwhile, Yustikasari (2018) believes that the performance of management affects the quality of information when preparing financial report, which will be informed to policy makers through government official website as an application of e-government.

H₂: The quality of information positively influences the maturity of e-government systems.

The heterogenous population in one governance has important role in administration process during the transfer of responsibility from principal to agents. With the heterogenous population, various problems will occur which have impact on the development of e-government striving for a better value of welfare for different sectors among society. Based on the agency theory, Yustikasari (2018) states that society as principal is more dominant than the agency or government, in that the society deserves to have a full service to information and public service. Therefore, the more complex a society in one area, the more services should be delivered by the government to fulfill the needs of the principal. The more effective and efficient service is preferred.

H₃: Complexities in government positively influences the maturity of e-government systems.

An area which has abundantly various resources causes a transfer of power for policy making from principals to agents in terms of developing e-government. The wider scale of governing area is, the more complex problems dealing with improving e-government providing a better service to society. Moon (2002) finds that the width area of governing affects the implementation of e-government, as the bigger organization has more sophisticated instruments than a smaller organization. The wide scale of governing area will demand adjustment on public service by the government. The more complex needs to give better public services will affect the level of maturity in e-government implementation.

H₄: Width area positively influences the maturity of e-government systems.

Government size as the model size of government area, affects the performance of the government when dealing with resources to develop e-government for principals.

Government as an agent has responsibility to manage resources in developing e-government. For Lee et al. (2022) resources of a governance area will increase the ability of its government in fulfilling the needs to serve society. The bigger size of a government the more wealth that its area has. In this case, the fulfillment of public service will be easier.

H₅: Government size positively influences the maturity of e-government systems.

METHOD

The population of this research is all provinces in Indonesia. This research analyzed secondary data from provinces in Indonesia during 2018-2020. The samples were collected by using purposive sampling method. The provincial government as the samples of this research were those during 2018-2020 had the following data:

1. Data of e-government index from PANRB ministry;
2. Data of audit opinion from Audit Supreme Board of Indonesia
3. Official data from Central Bureau of Statistics on number of people, human index development, and width of size; and
4. Financial report published on provincial government official websites.

The data were further analyzed using E-Views with data panel analysis to find out the relation among variables. The regression analysis equation is as follows:

$$EGOVT = \alpha + \beta_1 \text{COMPETENCE} + \beta_2 \text{INFORMATION} + \beta_3 \text{COMPLEXITY} + \beta_4 \text{AREA} + \beta_5 \text{SIZE} + \varepsilon_0$$

Where:

EGOVT = E-Government Maturity measured by Maturity Index by KemenPANRB

COMPETENCE = Human resource competence measured by Human Development Index

INFORMATION = Information Quality measured by Audit opinion by Audit Supreme Board

COMPLEXITY = Government Complexity measured by Population

AREA = Width of area of provinces

SIZE = Size of government measured by Ln. Total assets

A = Constant; $\beta_1 - \beta_5$ = Coefficient of Independent Variables; ε_0 = Error

RESULTS AND DISCUSSION

Among 34 provinces in Indonesia, researcher did not find any financial report from 13 provincial governments on their official site. In the other words, 21 provincial governments have met all criteria. Therefore, from the period of observation of 2018-2020, 63 data set were collected. The result of descriptive analysis can be seen on Table 1. From the descriptive statistic of Table 1, the competency of human resource minimum value as much as 66.98 was from West Borneo Province in 2018, and the maximum value was in Jakarta as much as 80.77 in 2020. The average rate of human development index of provincial government in Indonesia was 72.31.

Tabel 1.
Descriptive
Statistics

Variable	Minimum	Maximum	Mean	SD
HR Competence	66.98	80.77	72.31	3.39
Information Quality	3	4	3.98	0.13
Government Complexity	13.43	17.72	15.70	1.01
Area	664.01	147307.00	43875.92	40395.26
Size of Government	28.66	33.89	30.47	1.03
E-Government Maturity	1.29	3.85	2.65	0.65

Source: Data processed

Meanwhile, the minimum value of information quality was 3 (qualified opinion) which had been on West Borneo Province in 2018, and other provinces had 4 (unqualified opinion). The lowest complexity of government was North Borneo Province in 2018, and the highest one was West Java in 2020. For the size of the area, the narrowest area was DKI Jakarta (664 km²) and the widest one was West Borneo Province (147,307 km²). Based on the amount of total asset, the lowest total asset was in NAD Province in 2018 whilst the highest was in Jakarta.

The writer also did some classical tests that was normality, multicollinearity and heteroscedasticity. From the classical assumption test, it can be concluded that the data are normally distributed because of probability is 0.73. Besides, there is not any indication on multicollinearity as all variables have VIF values under 10. The heteroscedasticity test shows that Probability Chi-Square is 0.52 (higher than 0.05), or in other words, heteroscedasticity is not indicated. In terms of autocorrelation test, the result shows that the value of Probability Chi-Square is 0.13 (higher than 0.05).

Tabel 2.
Results of
Common
Effect Method

Variable	Coefficient	Std. Error	t-Statistics	Prob.
Constant	-9.61	2.53	-3.79	0.00
HR Competence	0.06	0.03	2.38	0.02
Information Quality	0.05	0.45	0.11	0.91
Government Complexity	0.20	0.09	2.21	0.03
Area	3.53	1.61	0.22	0.83
Size of Government	0.27	0.15	1.79	0.08

Source: Data processed

Tabel 3.
Coefficient
Determination

R ²	Adjusted R ²	Std. Error
0.40	0.35	0.61

Source: Data processed

From the coefficient determination, the value of Adjusted R² was 0.35. It means that the e-government maturity has been explained as much as 35% by all variables of research. In other words, the rest 65%, have been affected by other independent variables apart from this research.

Variable	t-Statistics	Sig.	Hypothesis
HR Competence	2.38	0.02	Accepted
Information Quality	0.11	0.91	Rejected
Government Complexity Area	2.21	0.03	Accepted
Size of Government	0.22	0.83	Rejected
	1.79	0.08	Rejected

Tabel 4.
Hypotheses Tests

Source: Data processed

From the hypothesis test (Table 4), we can conclude that the variables of human resource competence and governance complexity significantly influence e-government maturity. Those two variables have t-statistics more than t-table or significant value less than 0.05. Meanwhile, the variable of information quality, area, and government size cannot influence e-government maturity significantly.

The competency of human resource has both positive and significant influence toward e-government maturity. This result is supported by the researches of Khalid & Lavilles (2019); Kumajas (2021); Lee et al. (2022). From the result of the research, it is found that the competency of human capital with human development index can be the factor that significantly influences e-government maturity. Therefore, it is necessary that regional government have qualified human capital, mainly for improving the e-government maturity. The competent human capital will result in services and information from qualified e-government. In return, the benefits of e-government can be useful for policy makers as the principal.

Research by Janita & Miranda (2018) also shows that e-government system development needs qualified human capital. The e-government system developer should understand that the qualified e-government will enhance trust from the system users. In addition, the e-government system should be followed by the efforts to empower people as the users (Malodia et al., 2021). Educating people is important and becomes the part of a good public service.

The quality of information does not significantly influence e-government maturity. The result is supported by research of Das et al. (2017). The audit opinion which in this research represents the quality of information should be able to show the real quality of governance. Almost all provincial governments in Indonesia during 2018-2020 had gained the Unqualified Opinion. In fact, it was only West Borneo Province in 2018 that got Qualified Opinion. In 2019 and 2020, the provincial government of West Borneo had Unqualified Opinion. Probably this what made the variable of information quality does not significantly affect e-government maturity. The result is also supported by Nurkholis & Anggraini (2020); Oktaviani & Arza (2020); Yustikasari (2018) stating that the quality of information has not any influence toward e-government implementation.

The government complexity has significantly influence e-government maturity. The result of this research is supported by the research of Das et al. (2017). Yet, the results are the opponent of that of Pradipta & Sofyani (2021) finding that the complexity of government does not influence e-government implementation. The number of people in a government area causes the complexity of service and information of e-government needed by the government. The greater number of the people, the better service should be provided to bring welfare to the people. With the complexity of people's needs, the government should focus more on implementing e-government enabling the government to work smoothly. Research by Khalid & Lavilles (2019) revealed that government as an organization with

public as its members is really essential in developing the qualified and mature service system.

The area size does not have significant impact on e-government maturity. The result is supported by Lee et al. (2022) and Pradipta & Sofyani (2021) stated in that the area size does not affect the implementation of e-government. Many areas are dominated by agricultural area with small number of populations; hence the width of area does not influence e-government maturity. Moreover, the obligation of the government is to be responsible to its citizen, according to stewardship theory.

Government size does not significantly influence maturity of the e-government. The result of the research is different from the research of Epstein & Finkelstein Shapiro (2019) and Khalid & Lavilles (2019). The bigger size of a government in one area indicates the amount of wealth that the area has. If the wealth is successfully capitalized by the government, the e-government can develop well and the public service will be more qualified. However, this research shows that qualified human capital is more important. This resource can assist the more developed government system with more sophisticated TIC.

CONCLUSION

This research aimed at testing whether independent variables influence the maturity of e-government. We concluded that the human resource competence and government complexity have positive and significant impact on e-government maturity on provincial government in Indonesia. Meanwhile, other variables such as quality of information, width of area and government size does not have significant impact on e-government maturity in provincial government in Indonesia.

Results of this research have implication on government policy in that some factors such as human capital competency and government complexity, should be seriously considered as those factors that can boost the maturity of e-government. However, this research has limitation in terms of coverage of government characteristics. The next research should consider other measuring tools as variables representing the characteristics of government, since characteristics of government can be represented and measured by many factors.

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