

*Original Research*

## Does the Determinant of Technology Affect the Indonesian Government Accountability?

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### Abstract

This quantitative descriptive study aims to analyze the relationship between Information and Communication Technology (ICT) factors that have been adopted by local governments in Indonesia on the Public Accountability (Y). Using a purposive sampling technique, panel data were obtained as many as 450 observations from 150 districts in the 2017-2019 period. Descriptive analysis and regression of panel data using software Eviews 09. The findings of this study explain that ICT Determinants simultaneously show a relationship significant through the F-statistic test. While the t-test used to test the effect of each independent variable has various results. The partial test demonstrates that Technology Development (X3), Website Accessibility (X5), and Press Visibility (X6) affect Public Accountability, but the research has not been able to find a significant relationship between Telecommunication Networks (X1), Internet Access (X2), e-Government (X4), and Electronic Procurement (X7) on Public Accountability. The results of this study can be used as consideration for the government in formulating policies related to ICT in order to realize public accountability.

**Keywords:** Accountability, ICT, Technology, Local Government.

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## Introduction

Agency theory views that local governments as agents for the community cannot be trusted to act as well as possible for the benefit of the community. The agency concept also creates information asymmetry between agents who have direct access to information and the principal. The existence of information asymmetry is what allows the occurrence of fraud or fraud by the government. As a consequence, local governments must be able to increase accountability for their performance as a mechanism of checks and balances in order to reduce information asymmetry.

The opinion of Mardiasmo (2009) regarding accountability in the context of public sector organizations means that in the management of local government there is an agency relationship between the community as the principal and the local government as the agent. One of the main dimensions of public accountability is financial accountability. Financial accountability is accountability regarding financial integrity, disclosure and compliance with laws and regulations.

The target of financial accountability is the financial report that includes the receipt, storage, and financial expenditure of government agencies. Accountability of Local Government Financial Statements prepared by local governments illustrates the level of financial accountability of local governments which is an important requirement in the implementation of regional autonomy. The principle of public accountability is a measure that shows how large the level of conformity of service delivery with the size of external values or norms owned by stakeholders with an interest in the service.

In an effort to achieve accountability, Information and Communication Technology (ICT) plays a vital role for government agencies. This statement refers to Government Regulation of the Republic of Indonesia No. 71 of 2019 which requires local governments to implement an electronic-based government system in the field of integrated regional financial management, at least including: preparation of programs and activities from local government work plans; preparation of work plans, preparation of budgets; regional revenue management; implementation and administration of regional finances; accounting and reporting; and procurement of goods and services.

Based on the graph bellow, we can describe that in the last five years, the government's needs in the field of Information and Communication Technology have increased. The figure is 12.7 trillion rupiah in 2016 to 30.5 trillion rupiah in the 2021 budget plan. The average increase in spending that ranges from a percentage of 10% every year proves that all actions and changes that occur in the government environment cannot be separated from the influence of technological developments.

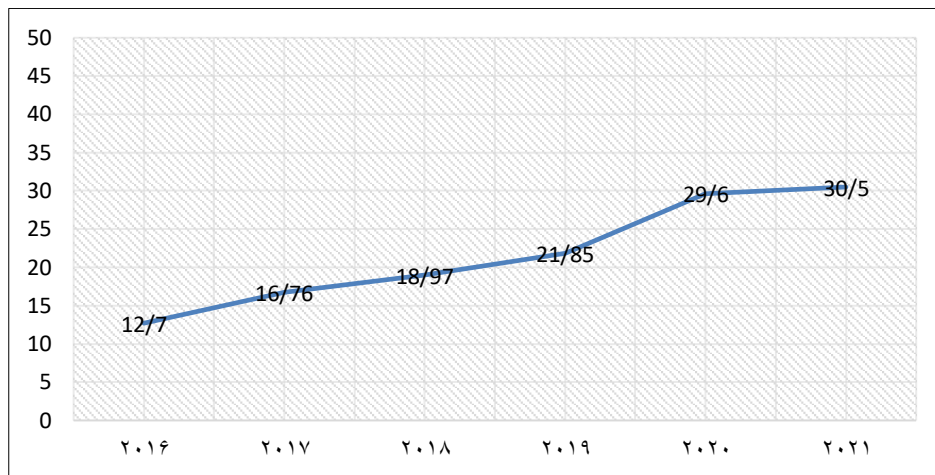


Figure 1. The Indonesian Government's ICT Expenditure Budget  
Source: Kominfo (2020)

The information and communication technology (ICT) revolution provides an opportunity for the government to innovate the development of the state apparatus through the application of the Electronic-Based Government System (SPBE) or e-government, namely government administration that utilizes ICT to provide services to government agencies, state civil servants, actors business, community and other parties. Opportunities due to technological advances are able to encourage and realize an open, participatory, innovative, accountable government administration and reduce the level of abuse of authority in the form of collusion, corruption, and nepotism through the implementation of a more transparent electronic-based monitoring and public complaint system, including disclosure of reports. finance.

Along with the rapid development of technology, the implementation of government duties in accounting, the presentation, reporting and disclosure can be done more easily through various media such as: the official website of the local government, mobile internet or internet access using personal devices, cloud computing, Internet of Things (IoT), Big Data Analytics and Artificial Intelligence (AI) all of which depend on information and communication technology such as the level of internet access, technology development, telecommunications networks, accessibility, e-government implementation and local government electronic spending.

Each financial report of the reporting entity to the local government is audited by the Indonesia Audit Board in accordance with the mandate Law Number 15 Year 2004 concerning Audit of State Finance Management and Responsibility. The results of each examination carried out by the Indonesia Audit Board are compiled and presented in the Examination Results Report (LHP) immediately after the inspection activities are completed. The financial audit will produce an opinion indicating the quality of the preparation and presentation of the financial statements of each reporting entity, including the consolidated statements. The incessant discourse on the Electronic-Based Government System (SPBE) since the last few years is supported by the phenomenon of Indonesia Audit Board's opinion on the 2019 Regional Government Financial Statements

in Indonesia, which was completed by the examination in mid-2020 when the Work From Home period of the COVID-19 pandemic was underway..

This study uses technology determinants that focus on the type of Information and Communication Technology (ICT).. Building on several previous studies, this research focuses on variables that include telecommunication networks, internet access, technology development, e-government, website accessibility, press visibility, and electronic spending of each local government. This study uses data from the 2017-2019 financial statements that have been examined by the Indonesia Audit Board.

## **Literature Review**

### *Agency Theory*

With the aim of evaluating the work of agents against the principal and increasing the expertise of stakeholders when faced with conditions to make good decisions, agency theory explains the concept of cooperation between two parties, where one party acts as an agent who acts on the interests of the other party as the principal (Jensen & Meckling, 1976). As a party that has more information about the resources being managed, it is very possible for the government to carry out policies according to their wishes by ignoring the interests and welfare of the people. The emergence of agency problems in the adverse selection and moral hazard categories due to the gap in interest is caused by asymmetric information where the agent is more powerful than the principal (Scott, 2009).

### *Public Accountability*

Mulgan (2000) asserts that the scope of the notion of accountability goes beyond the demands of individual behavior accountability but also the obligation of accountability to the controlling institution. This is also justified by Sinclair (1995) who said that government accountability that comes from independent institutions is more trusted by the community. The form of giving responsibility by reporting all activities to the community from the agent, namely the government is the definition of accountability of government organizations (Mardiasmo, 2009). Regarding the scope of public sector agencies, Mardiasmo (2009) states that public accountability consists of two types, namely: vertical accountability and horizontal accountability. Mardiasmo (2009) also describes four dimensions of accountability which consist of: accountability for probability and legality; process accountability, program accountability, and policy accountability.

### *ICT Determinants*

McLuhan's (1964) thoughts on the relationship between technology, media and society are known as *technological determinism* assume that technology is a determinant in shaping human life because it has a very large influence on society. The relationship between technology and society can be seen from the perspective of the extent to which existing technological developments are able to change organizational culture. Fu (2013) defines Information and Communication Technology as the scope of computers, the internet, and all electronic delivery systems such as radio, television, projectors, and the

like. ICT is also defined as an integrated blend that refers to all communication technologies (internet, cellular phones, computers, networks, software, middleware, video conferencing, social networks, applications, and media services that allow access in digital form (Food and Agriculture Organization). , 2016)

According to Gupta (2010), technological developments are also utilized by public sector organizations such as the government through the practice of e-governance based on Information and Communication Technology (internet, intranet, extranet, ERP, and other technologies) which are able to accelerate the flow of information and change the way government and government interact. Public. Chen et al. (2015) also revealed that ICT has components that include skills, software, applications and systems. Furthermore, the elements of Information and Communication Technology can be expanded into several parts such as data, hardware, network, communication, information, procedures, internet access, cloud computing, and transactions.

### *Telecommunication Networks*

Gijrath (2017) groups services such as the Internet of Things (IoT) and Machine to Machine (M2M) communication, G signal frequency allocation, cellular data transmission, and broadband services supporting fiber optic networks as an integral part of telecommunication networks. Indonesia regulates the telecommunications network as a series of telecommunications equipment and accessories used in conducting telecommunications activities in the Telecommunications Law Number 36 of 1999.

### *Internet Access*

The Internet is defined as a global information infrastructure through a complex history and involves many aspects of technology, organizations, and communities to have an influence not only on the technical field of computers but also the use of devices. *on line* communities around the world (Leiner et al., 1997). In this case, the internet is also seen as information dissemination and collaboration media. So that it can be concluded, internet access is the ability of individuals and organizations to connect to the internet using computer terminals and other devices to access the World Wide Web.

### *Technological Development*

In simple terms, technology can be defined as a *tools*(tools), while the social sciences and humanities assume that technology starts from things and skills to become more abstract ideas (Rip & Kemp, 1998). Changes and developments that are still linear with technological development are defined by Jaffe et al. (2001) as a continuous process of discovery, innovation, and diffusion of technology. Based on the definition of technological development in general, it can be concluded that the development of information and communication technology (*ICT-Development*) is the progress of infrastructure, expertise and increased use of ICT as measured by certain parameters.

### *Electronic-Based Government*

While Wescott (2001) describes *e-government* as the use of information and communication technology (ICT) to manage government resources effectively and efficiently to realize better government services and provide easy access to information to the public.

### *Web Accessibility*

Accessibility *websitedefined* as the process of how to make websites accessible to all, including persons with disabilities (Bradbard & Peters, 2010). This opinion is also similar to that of Abanumy et al. (2005) which states that innovative, attractive, accessible to everyone, and convenient design for obtaining information is an effort to realize a government website with high accessibility. It can be concluded that website accessibility is the ease and convenience offered by the official local government website to the general public as searchers and readers of information.

### *Press Visibility*

Lasswell (1988) also describes the three functions of the mass media (press), namely as an environmental watchdog, a liaison between community components, and a transmitter of social heritage. Based on this understanding of the press and visibility, it can be emphasized that the visibility of the local government press is the level of prominence of mass media reporting using various technologies about local government so that they are able to reach the wider community through mass communication.

### *Government E-Expenditure*

Government spending includes the purchase of goods and services, consumption, public investment, and transfer payments. In a narrow sense, the government is a significant buyer of goods and services that can be measured through government procurement (Audet, 2002). Goods expenditure is also classified into several types, namely: Operational Goods Expenditure, Non Operational Goods Expenditure, Public Service Agency Expenditure, and Public Goods Shopping. Furthermore, in its current development, the Indonesian government has implemented an e-procurement system or electronic procurement of goods and services through the Electronic Procurement Service system (LPSE)

### *Research Framework*

Scott (2009) also explains that to facilitate conflicts of interest between the government and society requires the preparation of accounting standards as guidelines. In addition, financial reporting through the media can reduce agency costs because information needs for supervisory and corrective actions can be communicated through Information Technology and Communication rather than choosing conservative reporting. ICT allows the government to carry out controlling functions more easily at low cost through various technological and media sophistication. Various determinants affect the success of agency accountability. Information and Communication Technology or ICT in the concept of Good Corporate Governance-IT which carries the principles of accountability, transparency, responsibility, and justice are important aspects that must be met by local

governments in order to realize financial report accountability. This statement is supported by Bertot et al. (2010) which describes that the ease of government information with the reach of technological means can increase public trust.

Achieving accountability through an audit process on disclosure and government financial performance reports in order to maximize the welfare of the principal has an impact on the emergence of agency costs or costs incurred by the people to ensure that the government does not behave fraudulently. The agency costs include the monitoring expenditures by the principal; the bonding expenses by the agent; and the residual loss. Agency cost due to the desire of stakeholders to minimize information asymmetry, the management of financial statements can be suppressed by the concept of effective and efficient supervision through the application of the concept of Good Corporate Governance that carries the principle of accountability. To ensure the implementation of GCG, it is necessary to have adequate Information and Communication Technology (ICT) governance in public sector organizations, because ITC is the main pillar of the GCG concept. This process requires that the reporting of regional financial information to the public must be in accordance with Indonesian Government Regulation No. 71 of 2019 concerning Electronic-Based Government Systems and Integrated Regional Financial Management.

The agency problem solution in the Electronic Government System concept which is part of the implementation of e-government supports bureaucratic reform against the backdrop of the demand for a government system that is accountable, transparent, and able to respond to the challenges of change more effectively by prioritizing aspects of the use of IT and the purpose of using ICT. Aspects of use can be classified into optimizing the use of computers, software, databases, networks (internet, intranet), electronic commerce, and other types of ICT which in this study are broken down into variables of Telecommunication Network, Internet Access, Technology Development, E-Government, Website Accessibility, Press Visibility, and Electronic Procurement.

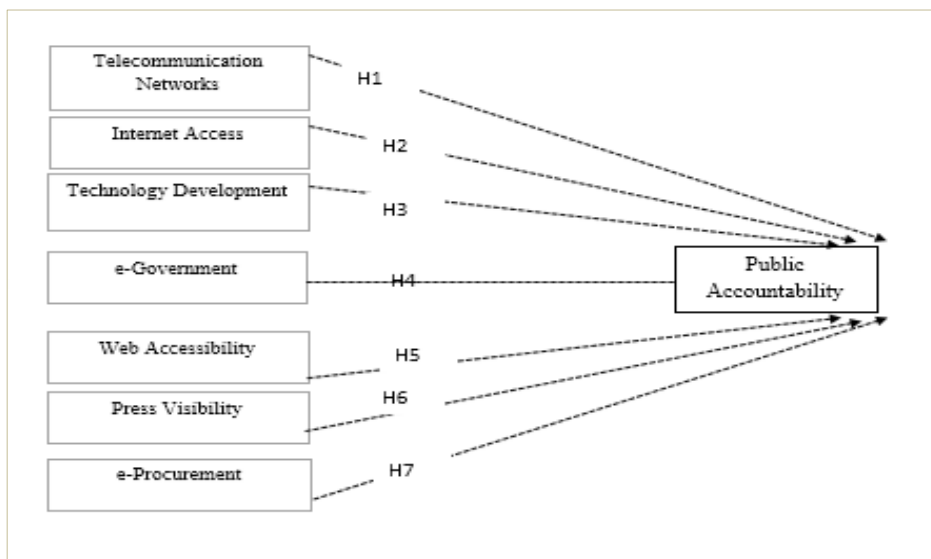


Figure 2. The Research Conceptual Framework

### *Research Hypotheses*

Kominfo (2015) has explained that the distribution of Base Transceiver Stations (BTS) in areas outside the island of Java has an impact on community gaps in obtaining information. To expand the network for equitable distribution of information and transparency of public services, thousands of BTS have been built that are able to reach all villages in Indonesia. Thus the urgency of the benefits of 4G signals reflected through the physical infrastructure of BTS towers can flow well throughout the region (Kominfo, 2020). The construction of BTS towers in Indonesia is a reality of the increasing community telecommunications needs (Dinati et al., 2021).

Telecommunication networks that can be divided into cellular networks, wifi, wireless energy transfer, television frequencies, radio frequencies, internet, and satellites and are useful in accessibility, connection, flexibility, effectiveness, speed, mobility, convenience, and wide information coverage are very useful in the field of communication. accountability. Technically, wireless services or telecommunications networks are the main key to the success of governments that implement electronic systems. It can be assumed, the higher the level of telecommunication network that is proxied in the construction of physical infrastructure in the form of BTS Tower, the higher the level of accountability that occurs between the agent and the principal. Based on the theory and the results of previous research, the following hypotheses can be formulated:

**H<sub>1</sub>:** Telecommunication Network Affects Public Accountability

#### *Internet Access*

Research results from Garcia-Murillo (2010) provide knowledge about the effect of a country's internet access on the level of transparency and accountability to the public. Through a cross section of a sample of countries around the world, the level of internet access of the population affects accountability through reducing perceptions of corruption and misuse of financial information. This opinion is further strengthened by Margetts (2011) who reveals the positive influence of high internet access in democratic countries. This is due to the many links that enable interactive communication between government and society.

The function of media checks and balances through global internet access also confirms transparency and accountability. Reduced abuse of opportunities in financial management and prevention of corruption is the answer to the positive influence of internet access on the accountability of countries in the world (Starke et al., 2016). Internet access in all respects or IoT also allows the realization of accountability due to the establishment of responsibility and trust (Crabtree et al., 2018). The formulation of the hypothesis on the relationship that has been described through theory and previous research studies is as follows:

**H<sub>2</sub>:** Internet Access Affects Public Accountability



### *Technology Development*

The existence of ICT Development was able to reduce the level of corruption, increase transparency and accountability. Furthermore, Ionescu (2013) also confirmed that ICT is a tool for transparency. ICT development has a negative relationship with corruption and fraud on financial statements (Shrivastaka & Bhattacharjee, 2014). The results of this study assume that ICT Development has a correlation with the level of accountability, meaning that the better the ICT Development of an area, the higher the level of openness and accountability it has. Sabani's research (2019) also recommends the potential of ICT in developing countries such as Indonesia as an effort to reduce acts of information asymmetry (corruption, fraud, and abuse of authority) to achieve financial transparency and accountability to the public. Based on some of the thoughts that have been explained in the previous chapter, the following hypotheses can be formulated:

**H<sub>3</sub>:** Technology Development Affects Public Accountability

### *E-Government*

E-government which is defined as ICT utilization skills to improve services between the government to the community, business people, and other governments is a narrower scope than the smart city concept. It can be assumed that the participation of local governments towards a "smart city" is a form of successful implementation of e-government in the use of technology to support the government system. Kominfo (2020) describes that for the development of a smart city, six pillars are needed, namely: smart environment, smart economy, smart branding, smart society, smart government, and smart living. The assumption is that if a decent local government goes to a smart city, the implementation of electronic-based governance is also good. Meanwhile, Ciborra (2009) shows the opposite findings, e-government creates long-distance communication which has many weaknesses and challenges. Lupu & Lazar (2015) explain the effect of e-government on accountability through eradicating corruption. Aritonang (2017) also describes that with financial support, IT, management, and human resources, e-government is able to improve public services to realize accountability. Based on the theory and previous research, the tentative assumptions in the research are as follows:

**H<sub>4</sub>:** E-Government affect Public Accountability

### *Website Accessibility*

The existence of the Data.gov portal is the main strategy for the government to promote public sector services so as to increase accountability (Lourenco, 2013). A number of websites function as portals where people can channel their aspirations and criticisms related to government administration. As a result, people have better access to information through technology and can find new ways to participate. Shende & Bennett (2004) also describe that in the era of the technological revolution as it is today, the ease of downloading and uploading documents containing government material information through the website to be shown to the public is one indicator that accountability is achieved. This means that the ease provided in accessing the website affects public accountability.

### **H<sub>5</sub>: Website Accessibility affects Public Accountability**

#### *Press Visibility*

In some countries the press or mass media has a role as an accountability forum for politicians (Bovens, 2007). In line with the current reform, the control function of the mass media in a democratic situation will support public accountability because it causes pro and contra reactions from the public on news delivery (Maia, 2009). Similarly, Treem (2014) explains that high social media coverage supports the creation of accountability. In addition, Maggetti (2011) also revealed that the media are considered credible and represent the community because they are under the auspices of an independent institution.

### **H<sub>6</sub>: Press Visibility affect Public Accountability**

#### *Electronic Procurement*

The results of the literature study Panda et al. (2010) showed that government spending through the electronic e-procurement system was successful in promoting the concept of accountability and transparency in the implementation of e-government. Neupane et al. (2012) also revealed the potential for implementing government spending through e-procurement in reducing corruption because it provides automatic capabilities in audit trails on the internet so as to increase accountability and transparency of government activities as agents.

### **H<sub>7</sub>: E-Procurement affect Public Accountability**

## **Research Methods**

The research population includes all local governments in Indonesia. The sample selection criteria were based on the ranking and performance status of local government administration nationally in 2017-2019, excluding the Provincial Government, Administrative Government, and City Regional Government which were not included in the research sample. Based on the characteristics of the sample selection described above, panel data obtained from 450 observations from a sample of 150 District Governments. If described, the research consists of quantitative data and has secondary sources collected through documentation techniques and literature studies.

Table 1. Variable Operationalization Summary

Variable	Variable Operations
Public Accountability (Y)	Quantitative in numbers based on the audit opinion: Unqualified Opinion = 5 Modified Unqualified Opinion = 4, Qualified Opinion =3, Adverse Opinion =2, Disclaimer of Opinion =1 <i>Reference source: Rahim &amp; Martani (2016)</i>
Telecommunication Network (X1)	Operators of telecommunications service providers (providers) which are quantified through the number of Tower Base Transceiver Stations (BTS) in each district
Internet Access (X2)	Internet penetration rate (number of accesses) for each region in 2017-2019 - <i>Reference: Rahim &amp; Martani (2016)</i>
Technology Development (X3)	Provincial-level technology development index for 2017-2019
E-Government (X4)	Dummy Variable 1 = Areas included in 100 smart cities 2020 0 = Areas that are not included in 100 smart cities 2020
Website Accessibility (X5)	$ACCE = \frac{\text{Web Accessibility Score}}{\text{Total Score of Rating Index}}$ <i>Reference: Styles &amp; Tennyson (2007)</i>
Press Visibility (X6)	The number of search results and news indexes of each local government that appears in the Google search engine <i>Reference :Laswad et al. (2005)</i>
Electronic Procurement (X7)	Frequency of procurement of goods and services for each local government that has been completed by tender through the Indonesia E-Procurement website

The research data analysis consisted of descriptive analysis, panel data regression analysis, and path analysis using Eviews 9. Structural equations that describe causal correlations between variables expressed in the form of mathematical estimates are as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + e \quad \text{[equation I]}$$

Whereas:

- Y = Public Accountability
- X1 = Telecommunication Network
- X2 = Internet Access
- X3 = Technology Development
- X4 = e-Government
- X5 = Website Accessibility
- X6 = Press Visibility
- X7 = Electronic Procurement
- $\alpha$  = constant
- B1- B7 = Coefficient of Independent Variable
- e = error term

## Findings

### *Descriptive Analysis*

Table 2. Descriptive Statistics of Variables

	X1_Telec	X2_Int	X3_Tech	X4_E-Gov	X5_Acces	X6_Visib	X7_e-Proc	Y_ACCOU
mean	83.16889	39.40978	5.181289	0.313333	73.42222	132194.0	271.4533	4.873333
median	86.00000	38.51000	5.170000	0.000000	70.00000	56900.00	236.5000	5.000000
Maximum	158.0000	65.02000	6.910000	1.000000	100,0000	7490000.	1281,000	5.000000
Minimum	24,000,000	19.50000	3.680000	0.000000	60000000	2080,000	39,00000	1.000000
Std. Dev.	35.77488	8.579966	0.526063	0.464365	10.04775	512647.3	189.1229	0.498952
Skewness	0.332092	0.300552	0.423014	0.804860	0.462855	11.28333	2.308880	-4.013743
Kurtosis	2.051766	2.645585	3.921628	1.647800	2.761682	145.2116	10.12854	19.26188
Jarque-Bera	25.13041	9.130064	29.34682	82.86834	17.13250	3887500.9	1352,621	6166.672
Probability	0.000003	0.010410	0.000000	0.000000	0.000190	0.000000	0.000000	0.000000
Sum	37426.00	17734.40	2331,580	141.00000	33040.00	59487290	122154.0	2193,000
Sum Sq. Dev.	574649.2	33053.50	124.2573	96.82000	45329.78	1.18E+14	16059598	111.7800
Obs	450	450	450	450	450	450	450	450

Based on the results of descriptive analysis with the help of data processing software EViews 9, it can be explained that the number of research observations is 450 data. The telecommunication network variable (X1) has the highest number of 158 which reflects the number of BTS Towers in the province of West Java. The internet access variable (X2) obtained through APJII has the highest internet penetration rate at 65.02% which is internet access in the Karimun and Bintan districts in the Riau Islands province. The level of technology development which is the independent variable X3, has the highest value at 6.9%. This figure represents several districts in the DI Yogyakarta province such as Kulon Progo, Bantul, Sleman, and Gunung Kidul in 2019.

The E-Government variable (X4) describes the percentage of 68.67% of the sample districts that have not joined the 100 smart city activities while the remaining 31.33% or 47 districts are included in dummy 1 criteria, which means that they have implemented e-government. Meanwhile, the mean that shows the average ease of accessing the local government's official website is 73.4. Then the description of the press visibility variable, describes the highest level of press visibility in Malang district, East Java in 2019 with a news index of 7,490,000 results and the lowest visibility is at the level of 2,080 index results occupied by Polewali Mandar district, West Sulawesi. In the Electronic Procurement column, the average number of all districts in Indonesia for the frequency of electronic procurement is at the level of 271,453 times.

### *Technological Factors on Public Accountability*

Table 3. Summary of Equation Regression Test

Variable	Standardized Coefficients Beta	t-statistics	Sig.	Hypothesis Direction	Results
Telecommunication Network (X1)	0.000174	0.218992	0.8268	+	H <sub>8</sub> rejected
Internet Access (X2)	-0.004222	-1.081753	0.2800	+	H <sub>9</sub> rejected
Technology Development (X)	0.104362	2.150756	0.0320	+	H <sub>10</sub> accepted
E-Government (X4)	-0.081758	-1.503440	0.1334	+	H <sub>11</sub> rejected
Website Accessibility (X5)	0.017864	4.760822	0.0000	+	H <sub>12</sub> accepted
Press Visibility (X6)	3.99E-06	2.828309	0.0049	+	H <sub>13</sub> accepted
Electronic Procurement (X7)	-0.000265	-1.556324	0.1203	+	H <sub>14</sub> rejected
Constant	2.926593	7.768949	0.0000		
R-square			0.136385		
Adjusted R-square			0.122708		
F-Statistics			9.971739		
Sig. F- statistics			0.000000		
Note: Dependent variables: Public Accountability (Y)					

The summary of the panel data regression test using the best random effect model presented in the table above provides an interpretation of the test results as follows:

1. The variable X1 (telecommunication network) on public accountability (Y) describes the results of the significance of 0.82 which is greater than = 5% which means that H<sub>0</sub> is accepted, the telecommunications network variable (X1) does not have a direct effect on public accountability (Y).

2. Variable X2 (internet access) shows a probability value of 0.28 which is greater than the significance level of 0.05, this result means that H<sub>0</sub> is accepted, the internet access variable has no effect on public accountability (Y).

3. Variable X3 (technology development) has a probability value of 0.032 which is smaller than the 5% significance level indicating that H<sub>0</sub> is rejected. The technology development variable (X3) directly affects the existence of the dependent variable, namely public accountability. The coefficient of beta + 0.1043 means that the X3 variable has a positive influence. Every 1% increase in the level of technology development owned by the district government will cause an increase of 0.104% in FI opinion which reflects public accountability (Y).

4. Variable X4 (E-Government) gives a p value of 0.1334 > from 0.05, meaning that H<sub>0</sub> is accepted and the E-Government variable has no effect on public accountability.

5. Variable X5 (website accessibility) produces a probability value of 0.0000 which is smaller than 0.05, meaning that H0 is rejected, so that the website accessibility variable affects the dependent variable (Y). The beta coefficient at a value of 0.0178 explains that the influence given by the X5 variable on Y is positive, the interpretation is that if the accessibility of the district government's website increases by 1%, it will affect the increase in the public accountability variable by 0.018%.

6. Variable X6 (press visibility) has a probability value of 0.0049 < 5% or 0.05, so it can be concluded that variable X6 affects variable Y. The positive value of the beta coefficient 3.99 also explains that if there is an increase in the number of one percent press visibility will increase the value of public accountability by 3.99%.

7. Variable X7 (electronic procurement) describes the results of the analysis with a probability value of 0.123 > 0.05 at a significance level of 5%, H0 is accepted meaning that the X7 variable has no effect on the public accountability variable (Y).

Based on the partial analysis (t) above, equation 2 of panel data regression can be written as follows:

$$Y = 2.926593 + 0.000174 X1 - 0.004222 X2 + 0.104362 X3 - 0.081758 X4 + 0.017864 X5 + 3.99E-06 X6 - 0.000265 X7 + e$$

Whereas:

Y	= Public Accountability
X1	= Telecommunication Network
X2	= Internet Access
X3	= Technology Development
X4	= <i>e-Government</i>
X5	= Website Accessibility
X6	= <i>Press Visibility</i>
X7	= Electronic Procurement
$\alpha$	= <i>constant</i>
e	= <i>error term</i>

The F test used to determine whether the independent variables jointly affect the dependent variable of public accountability (Y) can be read through the Prob level (F-statistic) of 0.000 < (0.05) meaning that the independent variable consisting of telecommunications networks (X1), internet access (X2), technology development (X3), e-government (X4), website accessibility (X5), press visibility (X6), and electronic procurement (X7) simultaneously have an influence on the dependent variable of public accountability (Y).

The coefficient of determination is used to measure how strong the model's ability to explain variations in the dependent variable is. The results of the regression analysis of equation 2 using the random effects model produce an Adjusted R-Square value of 0.1227 which explains that the contribution of telecommunication network variables, internet access, technology development, e-government, website accessibility, press visibility, and electronic produrement to public accountability (Y) is 12.27% while 87.73% is

explained by other predictor variables that are not used in the study. This low determination figure also indicates that the X variable in the study has not been able to strongly predict the public accountability variable.

## Discussion

In this study, the results obtained that the Telecommunication Network variable (X1) has no effect on the Public Accountability variable (Y) through the output probability value of  $0.8268 > 0.05$ . The rejection of H1 means that statistically, the rapid development of the physical infrastructure of wireless telecommunications networks (*wireless*) has not become an explanatory solution to the need for government accountability to the public. Furthermore, the research results are also contradictory with Gemiharto (2015), Korpelainen (2011), Al-Khasawneh et al. (2019), and Dinati (2019) which explains that the existence of the BTS tower is a solution to the need for openness and transparency from the community. There are several factors that cause differences in research results with the formulated hypotheses, in addition to technical factors in measuring variables that only focus on wireless physical infrastructure, the use of telecommunication network variables is also very rarely found in previous studies. In addition, there are obstacles to equitable distribution of telecommunications operator infrastructure in Indonesia, which is an archipelagic country (Kominfo, 2020).

The test results for the Internet Access variable from *p*-value show a value of 0.2800, which is greater than the significance of 0.05, explaining that the independent variable X2 defined as computer equipment, modems (a device that converts digital signals from computers into analogues for transmission to the telephone network) and telephone lines have not been shown to affect government accountability. Best internet access classification as an online and cellular device is not able to change the transparency and public accountability of district governments in Indonesia. This study also contradicts the results of previous research conducted by Garcia-Murillo (2010), Margetts (2011), Starke et al., (2016), and Crabtree et al. (2018) which explains that the use of internet innovation and technology is able to increase the accountability and transparency of public services.

Differences in research results are caused by differences in country characteristics. The population of local governments in Indonesia is generally directly proportional to the condition of technology and information. Not all people have the same opportunity and behavior in appreciating technological developments, there are still many people in several districts who do not rely on communication technology including the internet. Kominfo (2020) explained that there are several obstacles that cause gaps in the quality of internet access for residents in each region, namely: geographical position, depending on wireless internet, purchasing power, internet speed, internet coverage, and government regulations.

The third hypothesis test provides an understanding that the Technology Development variable (X3) has a positive effect on the level of public accountability of a local government. The higher the level of technological development owned, the higher the public accountability generated through the Indonesia Audit Board (BPK) opinion. The rate of development of Information and Communication Technology (ICT)

owned by a region will increase accountability to principals. The results of this study are in line with Ionescu (2013), Shrivastaka & Bhattacharjee (2014), and Sabani (2019) which confirm that ICT as a tool of transparency and accountability has a negative relationship with corruption and fraud in financial statements.

The study found that there was no correlation between the e-Government variable (X4) and Public Accountability (Y). The rejection of H4 describes that the activities and participation of local governments through the smart city movement do not affect the Y variable in a statistical test. The results of this research contradict Lupu & Lazar (2015) regarding the implementation of e-government which is able to support the government system to increase transparency and accountability to the public. However, this is in line with Ciborra (2009) which shows that e-government forms long-distance communication, has many weaknesses and is a challenge for developing countries such as Indonesia. The existence of obstacles in the implementation of e-government that requires expertise from all levels of society is the cause of the difficulty in realizing transparency, openness, and accountability. The Kominfo Press Release (2018) also confirms that Indonesia will need a long time to increase digital literacy to its 260 million population. It can be concluded that ICT-based e-government actually increases the emergence of mixed hoax, fake, and true news including information about government administration so that it is difficult for the public to filter out valid content.

The test results found that the Website Accessibility variable (X5) had a positive interaction with the public accountability variable (Y) through a reflection of a significance value of less than 5%. The existence of a local government website can make it easier for the public to obtain the information they need without going offline, thereby increasing the delivery of accountability to the community. This study supports Lourenco (2013) and Shende & Bennett (2004) who reveal that the creation of Financial Statement accountability increases through the existence of official government websites, the easier it is for people to access websites to browse information, the higher the motivation of local governments to realize accountability to the public.

Hypothesis testing proves that the Press Visibility (X6) variable has a positive effect on Indonesia Audit Board's opinion on Financial Statement which is a measure of public accountability (Y). These results indicate that the visibility of local governments revealed by the media will increase accountability to the community. The results of this study that confirm the findings of Bovens (2007), Maia (2009), Magetti (2011), and Treem (2014) confirm the function of the mass media as controlling the government. The role of the press through the online news index will support district government public accountability because it generates pro and contra responses from the public so as to encourage increased openness and accountability from the government to trustees or the public.

The electronic procurement variable (X7) has a significance value  $> 0.05$  indicating that there is no significant effect on the public accountability variable. Existencemethod options for providing goods or services electronically that have been used at this time have not been able to increase public transparency and accountability. This study contradicts the conclusions given by Panda et al. (2010) and Neupane et al. (2012). The potential of implementing e-procurement in increasing accountability and transparency



of government activities as an agent has not been able to be proven through statistical tests of this study. The existence of contradictory results with previous research can be influenced by several things, such as the measurement factor which only focuses on e-procurement or the procurement of goods and services by ignoring other types of spending made by the government to support the creation of public service accountability. LKPP (2019) noted that the value of transactions through electronic tenders was 1.7 trillion Rupiah, where this value did not include the entire procurement. In other words, the regional expenditure procurement scheme has not been fully accommodated through the electronic system (LPSE).

## Conclusions

Based on the results of panel data regression testing, path analysis, and the discussion described in the previous chapter, the conclusions of this study are: Determinants of technology proxied in the variables of Telecommunication Networks, Internet Access, Technology Development, e-Government, Website Accessibility, Press Visibility and Electronic Procurement simultaneously shows a significant relationship through the results of the F-statistical test. While the t-test used to test the effect of each independent variable has various results. The partial test demonstrates that only the variables of Technology Development (X3), Website Accessibility (X5), and Press Visibility (X6) that directly affect Public Accountability.

The results of the study have not been able to find a significant direct effect between Telecommunication Networks (X1), Internet Access (X2), e-Government (X4), and Electronic Procurement (X7) on Public Accountability. The results of the research can be used as criticism and suggestions for the government as a regulator and decision maker in formulating policies related to technology. The existence of a significant influence on technology variables such as internet access, e-government participation, website accessibility, media visibility, and local spending through electronic systems on Financial Statement disclosure can be a consideration for government agencies regarding the process of realizing public transparency and accountability.

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