



Implementation of Electronic Signature Policy in Bogor Regency Government Apparatus

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Abstract: Electronic Signatures are a form of e-Government implementation in government, influenced by various factors that have a crucial role in this policy. This research aims to analyze the implementation of the Electronic Signature policy based on Bogor Regent Regulation Number 77 of 2021 concerning the Management of the Use of Electronic Certificates within the Bogor Regency Government. Based on the theory of George C. Edward III (1980), four variables determine the success of implementing the policy in question. The method used is a qualitative method through in-depth interviews with several sources, including the Bogor Regency Diskominfo Encryption Section, Bogor Regency BPKAD Treasury Officials, and the General Personnel Section (Umpeg) at the Bogor Regency Disdukcapil. The research results show that the four variables influence the success of implementing the policy. This policy has been communicated to all regional officials in Bogor Regency, ensuring that resources such as the number of employees and server facilities play a vital role in the successful implementation of the policy. Employees who understand the use of Electronic Signatures, supported by adequate server facilities, are the key to the smooth implementation of this policy. The regional head, through a regent's regulation, explained that the main aim of implementing this policy is to achieve time and cost efficiency, hoping to increase work effectiveness and efficiency. This research uses qualitative methods with data collection through in-depth interviews as the primary source of information.

Abstrak: Tanda Tangan Elektronik menjadi salah satu bentuk implementasi e-Government di pemerintahan, dipengaruhi oleh berbagai faktor yang memiliki peran kunci dalam kebijakan ini. Penelitian ini bertujuan untuk melakukan analisis implementasi pada kebijakan Tanda Tangan Elektronik berdasarkan Peraturan Bupati Bogor Nomor 77 tahun 2021 tentang Tata Kelola Penggunaan Sertifikat Elektronik di Lingkungan Pemerintah Kabupaten Bogor. Berdasarkan teori George C. Edward III (1980), terdapat empat variabel yang menentukan keberhasilan implementasi kebijakan yang dimaksud. Metode yang digunakan yaitu metode kualitatif melalui wawancara mendalam dari beberapa narasumber antara lain Seksi Persandian Diskominfo Kabupaten Bogor, Pejabat pada Bidang Perbendaharaan BPKAD Kabupaten Bogor, dan Bagian Umum Kepegawaian (Umpeg) pada Disdukcapil Kabupaten Bogor. Adapun hasil penelitian bahwa keempat variabel memiliki pengaruh terhadap keberhasilan implementasi

kebijakan tersebut. Kebijakan tersebut telah dikomunikasikan kepada seluruh perangkat daerah di Kabupaten Bogor, memastikan bahwa sumber daya seperti jumlah pegawai dan fasilitas server memainkan peran vital dalam kesuksesan implementasi kebijakan. Pegawai yang memahami penggunaan Tanda Tangan Elektronik, didukung oleh fasilitas server yang memadai, menjadi kunci untuk memperlancar implementasi kebijakan ini. Kepala daerah, melalui peraturan bupati, menjelaskan bahwa tujuan utama dari implementasi kebijakan ini adalah mencapai efisiensi waktu dan biaya, dengan harapan meningkatkan efektivitas dan efisiensi pekerjaan. Penelitian ini menggunakan metode kualitatif dengan pengumpulan data melalui wawancara mendalam sebagai sumber informasi utama.

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INTRODUCTION

Advances in information technology and the rapid development of information provide opportunities for fast and precise access, management, and utilization of information (Athaya, 2021). The application of information technology in the government context, known as e-Government, is expected to increase efficiency, transparency, and accountability in government administration (Athaya, 2021; Halachmi & Greiling, 2013; Hochstetter et al., 2023; Pertiwi et al., 2021). E-Government is a step toward developing the implementation of an Electronic-Based Government System (SPBE) to improve the quality of public services efficiently and effectively (Nugraha & Mahardika, 2016). E-Government is also expected to increase productivity in bureaucratic settings and support economic development (Pratiwi et al., 2020).

The implementation of e-Government in Indonesia was clarified by Presidential Regulation (Perpres) Number 95 of 2018 concerning Electronic-Based Government Systems (SPBE). This Presidential Decree regulates various aspects related to SPBE, including governance of Electronic-Based Government Systems, management of these systems, audits of information and communication technology, administration of these systems, acceleration of their implementation, and monitoring and evaluation. E-Government also aims to increase transparency (Dewi et al., 2020; Hidayah & Almadani, 2022; Kumorotomo, 2008) by providing easy access for the public to public information and budget data, which in turn increases government accountability (Muliawaty & Hendryawan, 2020).

Even though e-Government in Indonesia is still at the maturation stage (Jaya, 2013), e-Government development continues to be carried out to improve public services and government efficiency and encourage community participation in government processes (Abadi et al., 2014). Evaluation of e-Government implementation is essential because it is necessary to obtain feedback from e-Government system users (Rahman, 2011a, 2011b). Meanwhile, Regulation of the Minister for Administrative Reform and Bureaucratic Reform (Permenpan RB) No. 5/2018 stipulates that the evaluation of the implementation of the Electronic-Based Government System (SPBE) at the regional government level is carried out by the Indonesian Ministry of State Apparatus Empowerment and Bureaucratic Reform (Kemenpan RB). The aim is to assess the progress of SPBE implementation and provide recommendations for improvements to improve its quality (M. R. Y. Saputra et al., 2020a, 2020b). This evaluation involved 47 indicators as parameters for calculating the SPBE index. SPBE evaluation is vital in monitoring SPBE implementation in various government agencies and ensuring compliance with quality standards.

Electronic Signature (TTE) is one of the components in the 7th Aspect regarding Electronic-Based Government Administration Services, which needs to be evaluated in the SPBE assessment. This aspect includes ten assessment indicators, where indicators 36 to 39 focus on assessing the maturity level of electronic-based government administration services, including services related to personnel, archives, management of state property, and internal government supervision.

Advances in TTE technology have been anticipated through the issuance of Law Number 11 of 2008 concerning Information and Electronic Transactions (UU ITE) (S. L. Saputra et al., 2012) Regulations related to Information, Documents, and TTE are contained in Articles 5 to 12 of the ITE Law. Overall, it can be considered that Electronic Information and/or Electronic Documents, including printouts, are recognized as valid evidence in the legal system in force in Indonesia. This statement reflects the existence of valid evidence by the regulations in the applicable Procedural Law (Mayasari, 2022) Likewise, the owner of an electronic signature indicates that the owner is a legal subject within the framework of implementing electronic certification (Ardwiansyah, 2017; Disemadi & Prasetyo, 2021).

The Bogor Regency Government is one of the regional governments transforming and participating by using digital technology in government business processes. One of the business processes that the Bogor Regency Government has carried out is the implementation of Electronic Signature (TTE), which has received a certificate from the Electronic Certificate Agency (BSrE). Implementing TTE in various government business processes is expected to form an integrated work process management and network system and provide simple access to public services (Yusuf et al., 2023).

The Bogor Regency Government has implemented TTE based on Bogor Regent Regulation Number 77 of 2021 concerning the Management of the Use of Electronic Certificates within the Bogor Regency Government. However, this implementation has yet to be fully implemented, so the achievement of TTE use in the Bogor Regency Government is still low, namely, only 19 out of 36 regional apparatuses and 17 out of 40 existing sub-districts. This research is interesting because not all regional officials use TTE in government business processes.

Theoretically, implementing TTE in government faces several inhibiting factors that influence effectiveness and implementation. The availability of technological infrastructure, such as stable internet access and adequate hardware, is critical in implementing electronic signatures. In addition, unequal access to technology in various regions can hinder implementation (Musfikar, 2018). Using paper-based official notes is still a culture in several government agencies (Nugraha & Mahardika, 2016). Distrust in data security and privacy is an issue and obstacle to implementing electronic signatures (Daffa et al., 2023).

The use of TTE is not easily forged (Abraham et al., 2018; Risma, 2022), unlike conventional signatures on documents, which carry certain risks, such as the possibility that the document can be reproduced or copied by other parties (Yuniati & Sidiq, 2020). Although challenging to forge directly, wet signatures can still be forged (Sale et al., 2019) Other people can try to imitate a wet signature if they have physical access to the document (Omiyani et al., 2023). In addition, wet signatures are susceptible to human errors, such as cut-off signatures that are difficult to read in parts (Hayatunnufus et al., 2010), which can cause legal problems or ambiguity in the document.

Collecting and storing required documents in business processes in various work units in Bogor Regency will require ample storage space. As time goes by, the number of documents continues to increase, which ultimately causes document storage space to become increasingly limited and cannot accommodate all documents (Lindawati & Azwir, 2021). Apart from that, this condition will also make retrieving documents that have been saved more difficult (Handoko, 2021; Madhrozji & Effiyaldi, 2019).

This research was carried out to look at the factors that caused the slow implementation of the TTE implementation policy based on Bogor Regent Regulation Number 77 of 2021 concerning Management of the Use of Electronic Certificates in the Bogor Regency Government, especially in business processes within the government in Bogor Regency.

LITERATURE REVIEW

Many theories can be used to explain policy implementation and the factors that influence this implementation. Some of the theories referred to include George C. Edward III (1980), van Meter van Horn (1975), Grindle (1980), Sabatier (1980), Elmore (1979) and Hjern and Hull (1982). In this research, the theory used by the author is the theory of policy implementation developed by George C. Edward III (1990). Edward III argued that policy implementation should start from the central government level (top-down). Lower levels of administration then implement policies that the central government has formulated. With these considerations, the

implementation theory developed by Edward III is relatively more suitable for analyzing cases of policy implementation in government bureaucracy, such as research conducted by Setyawan & Srihardjono (2016) and Hidayat (2021).

Edward III's (1980) policy implementation theory has four variables that determine the success of implementing a policy. These four variables are communication, resources, disposition, and bureaucratic structure. The explanation of these four variables is as follows:

1. Communication variables

The communication variable has three indicators: transmission, clarity and consistency. Communication is a determinant of success in achieving public policy goals. The goal will be achieved if implementation is carried out effectively. Decision makers know what they are going to do so that the policy can be communicated to implementers precisely, accurately and consistently.

2. Resource variables

The resource variable has four indicators: staff, information, authority, and facilities. Human resources (HR) staff who understand their duties and are competent in their field are the key to implementing policies successfully. In addition, information is needed both regarding actions that must be taken and data on compliance with government regulations. Formal authority is also essential so policy implementation can be carried out legally, although ignoring authority can have negative impacts. Finally, physical facilities, such as facilities and infrastructure, also have a vital role in the success of policy implementation. With adequate facilities, policy implementation may run well.

3. Disposition variables

The disposition variable has three indicators: disposition effects, bureaucratic arrangements, and incentives. This disposition includes the disposition effect, which states that successful implementation depends on policy implementers' dedication to citizens' interests and the appointment of staff appropriate to their abilities and competencies. In addition, disposition also involves optimal bureaucratic arrangements and incentive manipulation. Incentive manipulation is considered a way to encourage policy implementers to carry out their duties well because people tend to act on personal or organizational interests. These disposition variables are essential in ensuring the effectiveness of public policy implementation.

4. Bureaucratic structure variables

The bureaucratic structure variable has two indicators: creating SOPs and implementing fragmentation. The fourth variable that influences the level of success in implementing public policy is the bureaucratic structure. Even if resources are available and policy implementers know and will, weak bureaucratic structures can hinder successful implementation. Complex policies require cooperation, and resources become ineffective and less motivated when the bureaucratic structure does not support them. Two characteristics that can improve the performance of a bureaucratic structure are flexibility in Standard Operating Procedures (SOP) and fragmentation, which divides responsibilities into work units according to their fields. With flexible SOPs and appropriate fragmentation, policy implementation can be more effective because it is carried out by an organization that is competent in every aspect.

RESEARCH METHOD

This research uses a qualitative approach using in-depth interview techniques as the primary data collection method. The in-depth interview approach provides advantages such as allowing more detailed information to be obtained and producing more diverse data. Research data was obtained from primary information sources. Primary sources of information are information obtained directly from critical sources. Essential sources in this research are the Head of the Encryption Section at the Bogor Regency Communication and Informatics Service (Diskominfo), the Head of the Treasury Division at the Regional Financial and Asset Management Agency (BPKAD) Bogor Regency, and the Head of the General and Personnel Subdivision (Umpeg) at the Population and Registration Service Civil (Disdukcapil).

Using the Miles and Huberman data analysis technique, the data analysis process is an interactive analysis model consisting of three activity flows that co-occur: data reduction, data presentation, and concluding/verification. This model is used in qualitative data analysis, where

the collected data is arranged in a matrix and presented as descriptive data fragments about certain events or experiences. Data reduction in this model is an effort to summarize the data, sorting the data into specific conceptual units, certain categories, and certain themes. This model allows qualitative data analysis to occur interactively and continuously until completion, so the data is saturated.

Thus, the Miles and Huberman data analysis technique can help researchers conduct qualitative data analysis systematically and structuredly, making it easier to draw valid and verifiable conclusions. This research was carried out in Bogor Regency. Research subjects include elements from agencies and sub-districts that have not yet used TTE in government business processes. In addition, this research uses triangulation techniques to check the validity of the data in the research.

RESULT AND DISCUSSION

1. Communication Variables

Implementation of the use of TTE in regional apparatus has been stated in Bogor Regent Regulation Number 77 of 2021 concerning Management of the Use of Electronic Certificates within the Bogor Regency Government. However, in implementation, not all regional apparatus in Bogor Regency have implemented TTE. This regulation aims to provide security for information and electronic systems in the Bogor Regency Government. Apart from that, this regional regulation also supports the implementation of the Electronic Based Government System (SPBE).

Based on information obtained from a source at the Bogor Regency Diskominfo Encryption Section, the Regent, as Regional Head, has communicated to all regional officials in the Bogor Regency to start implementing TTE in government business processes. Since this Perbup was issued in 2021, new TTE users have been limited to four Regional Public Hospitals (RSUD) and the Bogor Regency Diskominfo. With a clear legal umbrella through the Regency Regulation, Diskominfo consistently assists in disseminating the use of TTE in regional apparatus in stages. The TTE that applies in Bogor Regency can be accessed via the esign.bogorkab.go.id page. In practice, many still need help understanding the use of TTE. An obstacle to using TTE is that TTE users are still limited to the State Civil Apparatus (ASN) in Bogor Regency. TTE was stated by an official at the Bogor Regency Diskominfo as follows:

"The regulations for using TTE are clear. There is already a regional regulation, namely regional regulation 77/2021. All regional apparatus must carry out its implementation. Those required to use TTE are regents, deputy regents, and ASN."

This statement is supported by information from the General and Personnel Subdivision (Umpeg) sources at the Bogor Regency Disdukcapil. He explained that the use of TTE in Bogor Regency government agencies had become mandatory, as stated in the following statement:

"...because according to the regulations, it must be done immediately. We must also immediately implement this TTE for all employees..."

Another thing was also conveyed by a statement from the Treasury Officer at the Bogor Regency Regional Financial and Asset Management Agency (BPKAD), who stated that the Head of BPKAD supports the use of TTE in government business processes, as in the following statement:

"The leader will support, thank God for the support, yes, in the end, it's technical, yes, what is the technical, is it ready or not..."

Applicants who already have a TTE account are required to maintain the account. However, in practice, several officials gave access accounts to non-ASN implementers. Providing a TTE account has several risks, such as misuse. They were giving the account because the leader needs more time to control the TTE account and feels it is a hassle to remember the two passwords that will be used. This activity is in contrast to article 18 paragraph (1) in the regional regulation, namely "Users or owners of Electronic Certificates must fulfill the requirements and criteria for protecting private keys..." and article 19 point d "...protecting the confidentiality of private keys...". Apart from that, tiered initials are still used. The statement is confirmed by the opinion of Encryption Section officials that many leaders provide TTE accounts to subordinates, as in the following statement:

"Most of the accounts are held by the staff. In the department there is usually one staff appointed by the leader to handle the account..."

This opinion is in contrast to the official at the Disdukcapil that the leader TTE account is held directly by the account owner, as stated in the following statement:

"Yes, the account is held by the head himself, for those in the UPT it is held by the Head of the UPT."

The presence of TTE in government business processes is expected to eliminate manual-level initials because it aims to improve the efficiency of printed materials. However, during implementation, some leaders still needed manual-level initials because they were more comfortable reading on printed paper than reading via mobile devices and correcting documents if there were errors. Implementation like this results in inconsistency in the leader's ability to carry out the regent's orders that have been made. The statement reinforced by the statement by the BPKAD Treasury Officer that the implementation of TTE is still not optimal, as in the following statement:

"It's not optimal either, because at first it was just for correspondence, that's just the steps, it's so long."

The use of TTE on documents is also strengthened by the informant's opinion that the Diskominfo Encryption Section still requires printed official notes. The printed official notes are needed because it is easier for leaders to correct directly rather than having to correct via mobile device or computer, as in the following statement:

"Here there are still several areas where the heads of division still use printed level initials and there are still some official note reports that are also printed, so corrections are easier than using a cellphone or computer."

The Umpeg Disdukcapil Subdivision Officer also expressed another opinion that using TTE in correspondence is still being implemented. This implementation is due to the problem of having to use a laptop or computer. Apart from that, using TTE requires entering all files or documents into the system, so it still requires adjustment time, as stated in the following statement:

"...because the first problem is having to use a laptop. So, every time there is an incoming letter, input it on the laptop, and it is entered into the TTE. Then, there will be a disposition through there. Well, this is what we still need."

2. Resource Variables

TTE users and owners in the Bogor Regency Government are regulated by Bogor Regent Regulation Number 77 of 2021 concerning the Management of the Use of Electronic Certificates within the Bogor Regency Government. The regional regulation states that "Users of Electronic Certificates within the Regional Government consist of: a. Regent and Deputy Regent; b. ASN; and c. other parties in accordance with the policies of the Registration Authority (OP) which are determined in accordance with the provisions of statutory regulations."

From this regional regulation, the policy implementers on the use of Electronic Signatures are the Regent, Deputy Regent, ASN, and other parties in the Bogor Regency government. Additional information from the Bogor Regency Diskominfo Encryption Section Officer: Most ASNs who already have TTE have mastered the procedures for using TTE because they do not need special skills to use it. The Encryption Section currently has two Standard Operating Procedures (SOP): the SOP for Registration for Issuance of Electronic Certificates and the SOP for IT Security Assessment Services. No Standard Operating Procedure (SOP) specifically discusses the use of TTE in government agency business processes. The two SOPs, which contain the required implementing qualifications, have been approved by the Head of Communication and Information Technology. There are no special qualifications required for implementation, as stated below:

"...it doesn't say anything in the regional regulation, if TTE users just need to be trained on how to use it, there is no SOP specifically for TTE either..."

Only a few are needed in the TTE process because many TTE officials have personal secretaries. One of the duties of a personal secretary is to inform and recapitulate outgoing or incoming letters. In this way, leaders can find out quickly. The statement was conveyed by the

Head of the Encryption Section of the Bogor Regency Diskominfo, as stated in the following statement:

"Usually they are their personal secretaries so if there is an outgoing or incoming letter they can report it directly to the leader, sir/madam, this is an outgoing or incoming letter..."

Almost all regional apparatus have assisted in using TTE, so implementers already know the procedures for using TTE. Several regional apparatuses still have not been facilitated for assistance due to time and budget limitations. This will be a severe concern if TTE is implemented immediately in all regional apparatuses. The statement was conveyed by the Bogor Regency Diskominfo Encryption Section Officer as follows:

"Currently, the ones that still need assistance are the agencies whose activities are technical in the field, such as the Fire and Rescue Service (Damkar), the Regional Disaster Management Agency (BPBD), or the Education Service (Disdik).

Implementing TTE for leaders and implementers does not require special equipment because the TTE process can be carried out via electronic devices such as laptops, cellphones, or tablets so that the TTE process can be carried out anywhere and at any time. However, from the server side, there are still problems, such as server quality, which could be more optimal because the specifications still need to be improved. Apart from that, the quality of the network connected to the BSrE server also experiences problems, so if they have many documents that must be signed electronically, the process takes time. This information is reinforced by the opinion of the Head of the Encryption Section that:

"The facilities for leaders or executives can be straightforward if they can sign via the gadget, tab, or computer they use. The problem is that we have a server not of high spec, so that access may be slow. This is also slow because our system is connected to the BSRE system, so yes, if there are many documents, it can take a long time to load."

The results of the interview with the Head of the Umpeg Subdivision of the Bogor Regency Disdukcapil also stated that obstacles to the facilities for using TTE, such as an incapacitated network or server, could hinder work performance such as loss of time and documents. Loss of time explains that if sending via the application is not followed up with a notification via short message, it can cause the letter to be missed or ignored. Loss of documents has occurred in cases in other districts because the TTE server experienced problems so that printed documents were still needed, as stated in the following statement:

"Starting to have problems, you can lose track for a day or two. That's the problem there. Lost track of it. Then it was never physically written there. Where's the note? There isn't any."

The Regent has implemented the TTE policy as part of the Electronic Based Management System (SPBE) index. However, there are problems regarding ownership of the TTE account because, ideally, the leader should hold the account. The Regional Regulation does not state the authority to provide TTE accounts to implementers. This shows that there are challenges in implementation related to TTE account management. While there are solid instructions for TTE, issues regarding TTE account ownership are resolved to comply with applicable guidelines.

3. Disposition Variables

The results of interviews with sources from the Diskominfo Encryption Section show that the regent is firmly committed to implementing Electronic Signatures (TTE) within government agencies. The main aim of using TTE is to make government business processes more efficient in terms of time and cost. Regional apparatus leaders also conveyed the importance of using TTE, and this instruction has been conveyed to the implementing level. Although there may be some implementers who are still reluctant to accept this change, there are efforts to ensure that this policy is implemented consistently, as stated by the Encryption Section Officer:

"The leader has instructed all regional apparatus to use TTE. The aim is to ensure efficiency first, both time and cost efficiency. If the sub-district head says to use TTE, then the staff will use TTE, even though some staff may refuse. He refused because he usually gets transport accommodation to take documents to Cibinong now via TTE, so he cannot. The sub-district head or head of the district itself, if there is a staff like that, is usually shifted to someone else. Here, the leader's role is to ensure that the TTE policy is implemented."

The results of interviews with officials in the Treasury Sector reinforce the above. The Head of BPKAD stated a solid commitment to implementing Electronic Signatures (TTE) within the regional government environment. Even though the instructions from the Head of BPKAD are currently verbal, the involvement of the Treasury Sector is an example of an implementation that will be implemented in stages. Although not all government agencies use TTE, BPKAD is aware of the great benefits that can be gained through time and cost efficiencies, which have been conveyed to leader. With the existence of the Regional Regulation and clear leader direction, the support from the leader becomes very strong, as stated in the following opinion:

"I thought that because I felt for myself that there were so many files, I had to sign a lot, right? In the end I pushed, at least I used my TTE, that's okay."

The Treasury Department stated that it had not experienced any significant obstacles or problems regarding implementation. Work on the TTE use project is carried out with assistance from the Head of Sub-Division and implementers who have been empowered according to their competence. Obstacles in implementation are not significant obstacles, and all parties understand the work objectives to be achieved. In addition, the incentives for implementing TTE are explained that the incentives are by salary standards.

4. Bureaucratic Structure Variables

Based on information obtained from the Executive in the Coding Section, the Standard Operating Procedures (SOP) related to the use of TTE in business processes have yet to be made available. If there are problems in using TTE, regional officials will contact the Encryption Section directly and provide a solution. The implementation of TTE infrastructure provision involves the Infrastructure and Technology (IT) Sector as well as the Application and Informatics Sector (Aptika) because the use of TTE works collaboratively, as stated by the Head of the Encryption Section below:

"There is no specific SOP regarding TTE yet, so far if there are problems they contact us."

Information provided by the BPKAD Treasury Division and the Head of the Umpeg Sub Division of the Disdukcapil stated that their respective departments still need a specific SOP to use TTE. SOPs are needed because they need guidelines for implementers to complete tasks effectively and efficiently. Apart from that, it can improve the quality of work and improve work discipline. SOP also guarantees that each work unit can carry out its activities precisely, quickly, effectively, and efficiently and avoid errors.

CONCLUSION

The implementation of the policy on using TTE in government agencies has been communicated to all regional officials in the Bogor Regency through Bogor Regent Regulation Number 77 of 2021. However, it still needs to run optimally. Based on research conducted, some factors influence the level of optimization of TTE implementation in the Bogor Regency Government. These factors are communication, resource, disposition, and bureaucratic structure variables, as explained in the theory of George C. Edward III (1980).

These factors are in the communication variable that the official's TTE account is still given to the staff because they do not need more time to remember the two keywords. Apart from that, some departments still use tiered service notes manually. The notes are manually needed because it is easier for leaders to read and correct them directly. Apart from that, using printed service notes can reduce work efficiency, and ultimately, e-Government goals have yet to be achieved in terms of efficiency.

The next factor is the resource variable, such as constraints on the facilities side, which explains that additional server capacity and adequate capabilities are still needed so that the TTE application can run smoothly. The server must also be maintained or maintained so that it does not experience problems when used. Some users have concerns about time inefficiency due to the server running slowly or losing stored data.

Factors in the disposition variable concluded that there were still implementers who were reluctant to accept changes, so adjustments were needed by replacing implementers arranged directly by the leadership.

Factors in bureaucratic structure variables concluded that no SOP was regulating the use of TTE in each regional apparatus, so the implementation of TTE could not run optimally.

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