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| **RESEARCH ARTICLE**

Analyzing Supporting and Inhibiting Factors in the Optimization of E-Government in Pontianak City

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| **ABSTRACT**
This study investigates the potentialities and challenges of e-government optimization in Pontianak City, Indonesia, amidst the pressing demands for efficient and quality public services fueled by globalization. Despite the increased adoption of technology and the high penetration of internet and mobile devices in Pontianak, the implementation of e-government remains suboptimal, contributing to weak governance and limited public services. Employing a qualitative research method with a descriptive approach, this study systematically explores the tangible, intangible, and highly intangible challenges inhibiting e-government optimization, such as inadequate IT infrastructure, financial constraints, limited human resource capabilities, and a lack of standardization and integration in content development. However, the presence of regulations, implementing institutions, and advancements in developer competence in content development emerge as supporting elements for e-government realization. Furthermore, the study identifies connectivity issues, low technological literacy, and insufficient budgets as critical roadblocks. The findings underscore the necessity for multifaceted and comprehensive strategies to overcome the identified barriers and unlock the full potential of e-government in enhancing governance and public service delivery in Pontianak and similar settings, thereby contributing to the literature on e-government and offering valuable insights for stakeholders and policy-makers aiming to foster digital era governance.

1. Introduction
Globalization leads to growing demands from the public for better government performance, especially in public service areas. Therefore, governments everywhere are challenged to provide quality and efficient public services. (Kettl, D. F., 2000) In Indonesia, with the rise of technology and globalization along with new reforms, there is a pressing need for better governance and improved public service as part of wider bureaucratic reforms. E-government can play a crucial role in achieving better governance and improved public services by implementing good governance principles. (Lan. L, 2004).

Governments, as regulators in the concept of good governance, ought to integrate the use of information and communication technology to meet societal demands. This stance aligns with Professor Patrick Dunleavy of the London School of Economics and Political Science, who stated, "New Public Management is Dead, Long Live Digital Era Governance". (Dunleavy, 2006) This emphasizes the urgent necessity of utilizing information and communication technology in government administration, including public services. The high penetration of internet and mobile devices in Indonesia, especially in Pontianak, offers opportunities to strengthen governance and public service through e-government. The implementation of e-government can provide solutions for urban areas facing complex issues and demands from their urban populations.

However, the impacts of e-government implementation in improving governance and public services have yet to be optimally realized. Initial observations in the context of e-government in Pontianak reveal numerous challenges: lack of quality IT-based services, inadequate human resources, limited internet connectivity, infrastructure deficiencies, and a lack of literacy in facing the digital era; weak utilization of information technology to enhance local government performance, and unfulfilled transparency in governance. (Pramono, 2019) The gap is evident considering the population of Pontianak is dominated by Generations Y and Z. This indicates that the Pontianak city government has not been adaptive, particularly in addressing the challenges of the Industry 4.0 revolution.

This discussion outlines various challenges faced by the Pontianak City Government in implementing e-government, which includes tangible, intangible, and highly intangible aspects (Huseini in Muluk, 2001). Tangible challenges involve limitations in telecommunications and electricity infrastructure. Intangible challenges relate to the financial constraints, with the City Government still lacking the necessary budget for e-government implementation. The utilization of e-government technology in governance and public services in Pontianak is still around 40%, indicating it has not been fully utilized. Meanwhile, very intangible challenges include inadequate capability of human resources in managing e-government.

In consideration of these aspects, this study aims to analyze and describe e-government optimization in Pontianak City by exploring what supports and impedes the optimization of e-government. The insights gained from this study can provide valuable inputs for the stakeholders and targets of e-government in Pontianak and other regions.
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2. Literature Review

2.1 Governmental Science
Governmental science studies how to execute management (executive), regulation (legislative), leadership, and coordination of government (both central with regions and citizens with their government) in various events and phenomena of governance properly and correctly (Syafiie, 2017). The government fundamentally has three functions, namely: (1) service function (services), planning and executing activities and services to the public to create fairness in society, (2) development function, conducting planning and execution of development programs to create a prosperous society, and (3) empowerment function, planning and executing community empowerment activities to create an independent society.

Bowman and Hampton (in Khoirudin, 2005) stated that no government of a country with vast territory can effectively determine or implement policies and its programs efficiently through a centralized system. Thus, delegating authority, both politically and administratively, to organizations or units outside the central government is crucial to stimulate the dynamics of governance. Regional autonomy is a concept of government and development that aims to restore the supremacy of people's sovereignty over the power and absoluteness of the state (Kaho, 2007). Autonomy means the right and authority to regulate and manage its own household affairs, affairs arising from the initiatives of the region, executed by regional apparatus, and financed with the region's income. Generally, regional autonomy involves the authority of autonomous regions to regulate and manage the interests of the local community on their own initiative based on community aspirations in accordance with applicable laws.

The application of the decentralization principle in governance in Indonesia has been accommodated in Article 18 of the 1945 Constitution. It regulates the authority of autonomous regions in managing and caring for their household affairs. The issue arises in the interpretation of managing and caring for regional household affairs from the perspectives of central government, local government, and the community itself, including the business world and non-governmental organizations. Conflicting perspectives become crucial in implementing the Local Government Law, which executes Article 18 of the 1945 Constitution. (Jeddawi, 2008)

In developing characteristics of decentralization and regional autonomy, two prerequisites need to be considered: Firstly, being given the authority to make decisions on matters concerning its region. Secondly, being given freedom for control and transfer of various potential sources of the concerned region. Of these two measures, the first is mostly adopted, while the second begins to be abandoned. Hence, most of the financial resources from the regions are centrally collected by the Center and then partially redistributed to the regions. Thus, regional autonomy or decentralization will bring several benefits both for the community in the regions and for national governance. (Huda, 2005)

The main consequence of regional autonomy in Indonesia is the division of government affairs between the central government and local governments. The division of government affairs will bring about a balance of power between the central government and local governments.

This research topic is a study within the scope of Governance Science, considering e-government is the implementation of government functions. In the concept of regional autonomy, e-government is a matter of local government, which is the responsibility of the Communication and Information Department.

2.2 Theory of Government

E-government is a manifestation of New Public Management (NPM) that emerged to transform slow public organizations due to traditional administrative systems (paper-based systems) into effective and efficient public organizations by adopting e-commerce concepts into governmental activities. (Huang, Siau, Wei; 2005)

The World Bank defines e-government as the use of information technology by government agencies, such as Wide Area Networks (WAN), the internet, and mobile computing, that can be employed to establish relationships with the public, the business world, and other government agencies.

Buckus (2001) defines e-government as: "a form of e-business in governance and refers to the processes and structures needed to deliver electronic services to the public (citizens and businesses), collaborate with business partners, and to conduct electronic transactions within an organizational entity." It means it's a form of e-business in governance focusing on the necessity for processes and structures to provide services to the private sector and the public, collaborate with business partners, and conduct electronic transactions within an organizational entity. (Buchus, Michale; 2001)

Indrajit (2005) stated that the main drivers for the development of the e-government concept are due to three triggers, namely: first, the Era of globalization came faster than expected, bringing issues such as democratization, human rights, law, transparency, corruption, civil society, good corporate governance, free trade, open markets, etc., to the forefront, which every nation must pay attention to if they do not want to be isolated from the world community. Second, the advancement of information technology (computers and telecommunications) is happening so rapidly that data, information, and knowledge can be created very quickly and can be immediately disseminated to all layers of society worldwide in a matter of seconds. Third, improving the quality of life of people around the world is inseparable from the improving performance of the private sector in conducting its economic activities (Indrajit, 2005).

Indrajit (2005) observed various cases of e-government project implementations and identified at least 6 (six) crucial components that need meticulous management. These important components are crucial aspects that must be considered and executed effectively as prerequisites for the successful management of e-government. Indrajit detailed them as follows:

1. Content Development concerns the development of applications (software), the selection of technical standards, the use of programming languages, specifications of the database system, agreement on user interfaces, and so forth.
2. Competency Building relates to the training and development of competencies and skills across all levels of human resources in various government lines.
3. Connectivity involves the availability of communication infrastructure and information technology in locations where e-government will be implemented.
4. Cyber Laws pertains to the existence of a legal framework and devices that have been enacted related to the intricacies of e-government activities.
5. Citizen Interface involves the development of various access channels (multi-access channels) that can be used by all community members and e-government stakeholders whenever and wherever they want.\
6. Capital concerns the financing patterns of e-government projects conducted, especially related to costs after the project is completed, such as for maintenance and development purposes. Here, the team has to consider the types of revenue models that are possible to be implemented in government.

In the concept of e-government, various types of relationships are recognized within the e-government process. Idrajit (2002) describes them as follows:
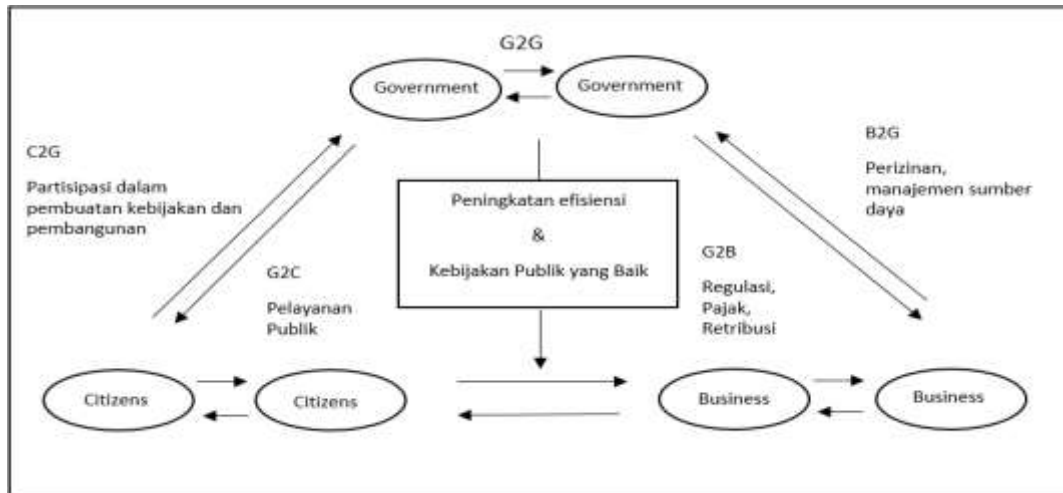
Source: (Indrajit;2002)

2.3 E-Government Optimization

Optimization of E-Government According to Gabriel Almond (in Kurniawan; 2008), optimization in public services aims to establish a stable condition between the state and society to engender societal participation that aligns with the policies promulgated by the state. In its actions, there must be effectiveness and productivity to better realize a government that prioritizes the quality of public services to the people. Thus, optimizing e-government can be interpreted as a series of efforts to maximize the functions, goals, and benefits of various e-government elements that are implemented. According to Winardi (2016), there are several indicators in conducting optimization that need to be identified, as follows:

1. Objective
    The objective can take the form of maximization or minimization. Maximization is used if the goal of optimization is related to profit, revenue, and the like. Minimization is chosen if the goal of optimization relates to cost, time, distance, and the like. The determination of the objective must consider what is to be minimized or maximized.
2. Decision Alternatives
    Decision-making is faced with several choices to achieve the established goals. The available decision alternatives are, of course, options that use the limited resources owned by the decision-maker. Decision alternatives are the activities or actions undertaken to achieve objectives.
3. Limiting Resources
    Resources represent the sacrifices that must be made to achieve the established goals. The availability of these resources is limited. This involvement results in the necessity for an optimization process for the implementers.

3. Methodology

In this study, a qualitative research method with a descriptive approach is utilized to discern and illustrate the supportive and obstructive factors in the optimization of e-government. The qualitative approach aims to depict the social world and its varied perspectives, elucidating human behaviors, perceptions, concepts, and challenges observed within. According to Moleong (2009), qualitative research strives to articulate the intricate relationship between societal elements and their manifestations, while the descriptive method, as explained by Nazir.M (1988), serves to systematically and accurately portray the factual circumstances, properties, and interrelationships among the phenomena under investigation.

For the determination of informants, a purposive sampling technique is applied. This technique involves the selection of sample data sources based on specific considerations, such as choosing individuals perceived as the most knowledgeable about the subject matter or those in authoritative positions, facilitating in-depth exploration of the social objects/situations under study. This is particularly pertinent to exploring the implementation of e-government in governance and public services in the Pontianak City Government, West Kalimantan Province.

The data in this research are collected using varied techniques, including interviews, observations, and documentation, enriching the dataset with multifaceted insights. Subsequently, the analysis of data is conducted using the Miles and Huberman Analysis Technique (Miles, M. B., Huberman, A. M., and Saldana, J., 2018). To validate the data, a Triangulation Technique is employed to ensure the robustness and reliability of the findings.

4. Results and Discussion
4.1 Supporting and Inhibiting Factors for E-government Optimization in Pontianak City
4.1.1 Content Development
In the dimension of Content Development, components consist of application development (software), selection of technical standards, database system specifications, and user interface agreements.

Based on interview results, the Mayor of Pontianak emphasizes the importance of technology integration in government to maintain sustainability and relevance. He, along with application developers, believe that the ease of developing e-government applications is already supported by the availability of various platforms and programming languages. However, there are challenges in technical standards and SOPs, which, according to informants from the Communication and Informatics Service and academics, are not yet definitive and are still in the refinement process. The SPBE architecture under development is an integral part of future e-government, and uncertainty in technical standards and SOPs is a hindrance to the implementation of e-government.

Further, from interviews with informants, a weakness in database specifications was revealed, which is not yet well integrated and connected, causing obstacles to the optimization of the use of e-government applications. Informants from the community find difficulty in using applications like Jepin, whose several features are not well connected. Nonetheless, on the user interface aspect, informants from the community, application developers, and officials of Diskominfo Kota Pontianak express satisfaction with a user interface that is good, simple, and easy to learn. This is supported by strict selection in choosing competent application developer contractors producing applications with user interfaces that minimize complaints from users and clients.

Various informant statements related to the content development dimension identified several supporting and inhibiting factors for the optimization of e-government in Pontianak City. The availability of platforms and the competence of application creators are factors that support the optimization of e-government. Meanwhile, the absence of SOPs or standard technical standards and efforts at data integration and interoperability that have not been maximized are factors that inhibit e-government optimization. The strategic position of content development in e-government implementation, as stated by Budi Rianto and Tri Lestari (2012), is that one of the indicators of e-government success is the availability of e-government applications supporting office work and public services. Thus, the researcher views the availability of applications in the content development dimension as relevant to efforts to strengthen interactions between the government as a provider of public services and the community as users of public services.

This is in line with Gane & Beer (in Nasrullah, 2017) that substantial interaction is relevant in the context of content development in e-government implementation. Interaction is a structure that connects the audience and its technology, built from hardware and software from various media systems. Interaction requires individuals as human agencies. Interaction shows a concept of communication that occurs between users mediated by new media and provides new possibilities that have existed in interpersonal communication processes.

Content development in e-government implementation is not only directed at impacting the government as a service provider but also for the community and various parties affected by the implementation of e-government. This is because e-government brings about change. With the application of e-government, the relations and closeness between the government and various parties will be easier. This demands a government organization to compete to be the best. Because now, the information technology used in e-government not only connects local governments and communities but also with the international world. Not only must the government make changes, but administrative service elements and society must also accept these changes. (Grönlund, 2002)

4.1.2 Competency Building
According to Indrajit (2002), Competency Building is crucial in the implementation of e-government. The competency referred to here relates to the availability of Human Resources who are experts in their fields. For example, the availability of operational staff capable of managing operating e-government applications. Competency Building includes human resources procurement as well as training and competence development.

Regarding human resource procurement, the conditions described are through the statement of the Mayor of Pontianak, who emphasizes the importance of human resource competence in operating e-government, with an urgency to recruit professionals and improve the qualifications of existing human resources so they can compete with the private sector. However, Diskominfo Kota Pontianak revealed a deficiency in internal human resources, especially those who have Information and Communication Technology (ICT) competence, with most being contract workers, showing a competence gap between contract workers and Civil

Servants. From the Regional House of Representatives of Pontianak City, it was also acknowledged that the limited budget is one of the obstacles in procuring ICT-competent human resources.

From the application developer's side, a preference was revealed for ICT professionals to pursue careers outside the government sector due to differences in incentives and the increasing trend in the startup industry. On the other hand, training and development of human resources, a critical aspect of competency building, are still not intensive and are limited by the budget. Diskominfo prefers to contract proven competent consultants rather than investing in internal human resource development.

The academics' view concludes that reliable and competent human resources in ICT are the answer to the challenges of rapid and unpredictable changes, and for effective e-government implementation, a good quantity and quality of ICT human resources are needed, along with understanding policies and management from stakeholders. This creates a portrayal that adequate human resource competence and intelligent policy understanding are crucial factors in optimizing the implementation of e-government in Pontianak City.

From several informant statements, it's identified that based on the competency-building dimension, the inhibiting factor is the budget limitation in human resources procurement and the execution of training and competency development activities. Additionally, the perspective or attitude of the community, who have ICT competencies, prefer to pursue careers in ICT outside of government due to less income compared to working in companies or the private sector. Competency building has a strategic position in e-government implementation because operating and managing e-government requires competent human resources, impacting significantly on the success of e-government implementation. It is in harmony with the notion that at the government level, with the application of e-government, officials and government apparatus must be technologically literate; there's no excuse for not knowing or not having knowledge about the use of applications, often known as technologically clueless. The government must create applications that suit the needs of public services and must also prepare infrastructure support like internet networks and human resources that have specialized skills in the field of information technology. (Nawafleh, Obiedat, Harfoushi, 2012) It is also stated that the availability of human resources with the needed competence and expertise in the application of e-government is essential. (Indrajit, 2013)

4.1.3 Connectivity

The dimension of connectivity includes the aspect of the availability of Information and Communication Technology (ICT) infrastructure. Based on the researcher's observations, it was found that there is a deficiency in the aspect of network infrastructure owned by the local government; it's still minimal. Several agencies in the Pontianak City Regional Government do not yet have supporting network infrastructure backup, as seen in the following data table:

Tabel 1
Network Infrastructure Supporting the Implementation of E-government Pontianak City

No.	Type of Connection	Quantity
1	Unavailable	1
2	Indihome	37
3	ASTInet	2
4	Indihome & ASTInet	16
5	Others	5
	Total	61

Sumber: Pontianak City Communication and Information Agency, 2022

The field data collection reveals the condition of Information and Communication Technology (ICT) infrastructure in Pontianak City, highlighting various views and identified obstacles. It is acknowledged by the Diskominfo City of Pontianak that there's a lack in the city's infrastructure, emphasizing the non-uniformity and suboptimal coverage of the internet in various regions, especially in remote areas where the quality of connection is still inadequate.

The Local Representative Council (DPRD) of Pontianak City also highlights this situation, pointing out areas where internet connectivity is scarce or even poor, with a scarcity of transmitter towers affecting connection quality, particularly in areas with only one suboptimally placed tower. Informants from telecommunications operators emphasize business considerations in establishing transmitter towers, spotlighting inefficiencies in constructing towers in areas with minimal user base and device ownership and revealing a reluctance from operators to invest in areas with no customer base due to financial inefficiency.

Moreover, the government's budget limitations make it impossible to comprehensively establish transmitter towers in every area, especially in remote locations. Academic viewpoints emphasize the crucial role of connectivity infrastructure in ensuring the

smooth operationalization of e-government, which is vital to manage rapid and unpredictable changes. Adequate infrastructure support is deemed essential for e-government so that the impacts of future changes can be effectively addressed.

From the aforementioned, it can be concluded that in the connectivity dimension, which includes the availability of ICT infrastructure, a hindering factor that emerged is the budget limitations in procuring ICT network infrastructure.

The significance of infrastructure that greatly influences the implementation of e-government is in line with what Kettinger said, that IT infrastructure is an organization's ability to use IT resources to achieve competitive excellence (Kettinger &Lee, 1994). IT infrastructure consists of sub-parts such as Network Environment, Computing Environment, Development Environment, IT human competence, and Business Applications, each having its capability and role. IT human competence represents both technical and management ability to support the process of service quality improvement. Business application is the ability of an IT infrastructure application to manage services for the internal and external of a government and private agency (Liu, 2002).

An organization's ability to use Information Technology (IT) resources to achieve competitive excellence in e-government is crucial. Organizations need to have reliable and advanced IT infrastructure to support the development and operation of e-government systems. This includes reliable networks, secure data centers, adequate hardware and software, and effective IT management systems.

The government, as a public service provider, needs to have skilled and trained human resources in the field of IT and e-government. Strong technical abilities in system management, IT security, data analysis, application development, and project management are essential for achieving competitive excellence. To attain competitive excellence in e-government, organizations need to utilize IT resources effectively, have directed strategies, and focus on the interests of the community. Flexibility, adaptability, and innovation are also vital in facing ongoing technological changes and evolving community demands.

4.1.4 Cyber laws

Cyber laws are a dimension related to the presence of a framework and legal instruments concerning the implementation of e-government in Pontianak City. Regarding the legal framework for implementing e-government, the Mayor of Pontianak gives crucial insight into the existing conditions and foundations. He mentioned that e-government has a robust legal basis, both from the central government through laws and presidential instructions, as well as from local regulations such as the Mayor of Pontianak's Regulation. Academic informants also agree that a representative legal foundation is already available and acts as a strong supporting factor for the implementation of e-government, reinforcing existing policies and programs and creating certainty in dealing with future uncertainties.

On the other hand, institutional aspects also play a critical role in the implementation of e-government. Diskominfo Pontianak City highlights the presence of the Steering Team for the Electronic-Based Government System (SPBE) and the Smart City Coordination Team as forms of institutions that strengthen the process of communication, coordination, and collaboration in the implementation of e-government. This is in line with the views of academic informants who suggest that institutions are supporting factors for the optimization of e-government. The existence of agencies or organizations implementing policies and program plans is essential in the coordinated and structured execution of e-government.

Overall, the legal framework and institutions are two fundamental aspects determining the success of implementing e-government. Both provide the structure, coordination and legal certainty needed to run various programs and initiatives related to e-government at the city level, addressing arising uncertainties and challenges and ensuring that the execution of e-government can operate effectively and efficiently in accordance with established regulations and policies.

The statements from the informants mentioned above can provide insight to identify that the dimension of Cyber laws, encompassing aspects of the legal framework and legal instruments or institutions, are supported by existing rules or regulations and institutions at the regional level.

The importance of regulation as a reference in the implementation of e-government is emphasized by the assertion that one of the considerations in applying a policy in the public sector is being supported by applicable rules. A public organization will not be able to create public value if there is no support and authority in the form of agreed-upon regulations by the power holders. (Moore.2007)

Law Number 23 of 2014 concerning Regional Government, articles 386-390, along with Government Regulation number 38 of 2017 concerning Regional Innovation, motivate Regional Governments in Indonesia to innovate in providing public services to the community. These regulations aim to encourage and expedite regions to innovate, including activities of development, facilitating

the implementation of regional innovations, replication of regional innovations, evaluation and awarding, and/or provision of regional incentives.

In the context of cyber laws, regulation also encompasses the issues of public information disclosure, where the principles of Public Information Openness are regulated, including:

1. Every piece of public information is open and accessible by every user of public information.
2. Excluded public information is strictly and limitedly confidential.
3. Every piece of public information should be obtainable by every applicant of public information quickly, timely, at a low cost, and in a simple manner.
4. Excluded information is confidential according to the law, propriety, and public interest, based on the assessment of the consequences arising when information is provided to the public, and after careful consideration that, withholding public information can protect greater interests than disclosing it or vice versa. (Suprawoto,2018)

Regulations concerning information openness fundamentally contain objectives to ensure the citizens' rights to know about the plans for making public policies, public policy programs, and the process of public decision-making, as well as the rationale behind a public decision. It encourages public participation and enhances the management and service of information within public bodies to produce high-quality information services.

4.1.5 Citizen Interfaces
According to Indrajit (2005), the citizen interfaces dimension includes aspects of Human Resource procurement and the development of various access channels (multi-access channels) that can be used by all communities and e-government Stakeholders wherever and whenever they want. The aspect of human resource procurement can be articulated with the level of participation in the use of systems/applications of available e-government.

Regarding the aspect of the participation level of e-government usage, both G2G and G2C, to provide an overview of the condition of e-government implementation, a statement that opens insights about this situation comes from an official of Diskominfo, highlighting the need for an increase in the usage of e-government service applications by government apparatus and the community, emphasizing that there are still segments of the population in Pontianak City who are not fully willing or accustomed to using such services.

Academic parties also confirm this, highlighting findings that technology literacy among the public is still relatively low, causing many to opt for conventional services. It is known low technology literacy becomes an obstacle even though technology device penetration has spread widely and become inclusive. Therefore, it is crucial to enhance understanding, literacy, and public awareness of technology to address the continuously evolving complexities of the era.

Regarding the availability and development of access channels, which are a crucial part of the citizen interface dimension, a Diskominfo informant stated that many portals or e-government applications have been provided to facilitate community and government access. However, the utilization of these channels is still not optimal. This is agreed upon by application developer informants who also identify hindering factors such as outdated information and less responsive application managers in updating information or responding to interactions from the community.

Viewing the overall picture, it becomes clear that the level of participation and utilization of e-government in Pontianak City still requires attention and enhancement. Although infrastructure and accessibility have started to be available, factors such as technology literacy, community readiness, and the quality of interaction between managers and users affect the optimization of e-government implementation. Therefore, concrete efforts to address these barriers are crucial to support the creation of more open, inclusive, and participatory governance through the implementation of e-government.

Based on the statements of several informants above, it can be identified that in the aspect of the level of use of e-government services, the inhibiting factor is the still low technology literacy of the community. Meanwhile, in the aspect of multi-access channels, the inhibiting factor is the lack of responsiveness of e-government application managers in responding to community interaction or updating information.

Budi Rianto and Tri Lestari (2012) state that one of the indicators of the success of e-government is the availability of public dialog applications aimed at enhancing communication between governments, between government and the private sector and the community through applications such as e-mail, SMS, or teleconference. The reality on the ground shows that public information

services in each agency that are manual or face-to-face communication have very poor service performance or quality. (Mulyadi, 2016)

Therefore, the development of multi-access channels is aimed at fostering community participation so that together with the government, they can successfully implement e-government. This is because it is stated that 1) community participation is pseudo; 2) the commitment of local governments in using e-government as a medium of interaction between the government and the community and its utilization to increase community participation in sustainable development is still not optimal; 3) the website is still considered merely as a tool/technology; 4) the suboptimal follow-up analysis of job-related human resource capacity in using information and communication technology and quality public services. (Abadi, Prajarto, and Guntoro, 2014)

4.1.6 Capital

According to Indrajit (2002), the implementation of e-government involves the pattern of project capitalization carried out, especially relating to costs after the project is completed, such as for maintenance and development purposes. Here, the team needs to think about the types of revenue models that might be applied in government.

The capital dimension in e-government in Pontianak City includes two key aspects: project capitalization and maintenance, as well as development. Informants from Diskominfo mentioned that many required applications could not yet be realized due to budget limitations. Some information implies that the lack of funds not only affects the creation of applications but also affects the needed facilities and infrastructure, as well as the management and ongoing development of the existing e-government system. Furthermore, it was mentioned that these limitations could affect choices and preferences in application procurement, where urgent needs might not be prioritized. Often, e-government projects are awarded to third parties through contract systems, a practice that can lead to inefficiencies in the process and outcomes.

In the aspects of maintenance and development, there is a shortage in the budget allocation for ongoing maintenance and development, posing challenges to the continuity of e-government management. As stated by academic informants, the limitation of human resources with adequate ICT competence is a major factor causing delays in maintenance and development, especially related to security aspects. In addition, budget limitations mean applications are often neglected, poorly maintained, and outdated, implying the importance of sufficient investment to respond to rapid and unpredictable changes in the environment, allowing the implementation of e-government to move optimally to respond to such changes.

Several informant statements above can provide an overview to identify that in the aspect of e-government project capitalization, a limiting factor is found in budget constraints. Meanwhile, in the aspects of maintenance and development, the identified limiting factors are the lack of competent human resources in the ICT field and also the budget constraints possessed by local governments in the implementation of e-government.

Regarding the importance of capital in the implementation of e-government, it is stated that the allocation of a number of resources (human, financial, energy, time, information) at every level of government to build this concept with a cross-sectoral spirit must be owned by local governments, namely the availability of sufficient resources to carry out various e-government initiatives, especially those related to financial resources.

5. Conclusion

From the consolidation of previous research findings, it has been summarized that the achievement of e-government optimization is confronted with a series of elements, both supporting and inhibiting. On the one hand, the supporting factors for e-government optimization include the increased availability of platforms and developer competence in content development, as well as the presence of regulations and implementing institutions of e-government, both at central and regional levels, according to the perspective of cyber laws, ensuring there is a legal and structural framework for effective implementation of e-government.

However, on the other hand, there are also inhibiting factors that hinder e-government optimization. The unavailability of technical standards and low integration of databases in the perspective of content development indicates a lack of consistency and a unified approach to content creation and management. From the perspective of competency building, budget limitations in recruiting competent ICT human resources and the lack of interest from ICT professionals to work in the government sector become the main obstacles to developing information technology competence in government environments.

Meanwhile, from the perspective of connectivity, the minimal budget for developing communication and information network infrastructure limits the scope and accessibility of e-government services, especially in remote areas. The low level of technology literacy of the community and the lack of responsiveness of e-government managers, from the citizen interface perspective, create the potential for alienating citizens and reduce public participation and involvement in e-government initiatives. In the capital

perspective, budget constraints in creating and maintaining e-government applications hinder the development, sustainability, and enhancement of e-government services. These inhibiting factors as a whole reflect the multifaceted challenges faced by e-government initiatives and require comprehensive solutions to realize optimal e-government in improving public services and governance.

Based on the research results, the author offers several suggestions, including To ensure more optimal implementation of e-government in the city of Pontianak, the Pontianak City Government can develop strategies or optimization models by maximizing what has been identified as supporting factors and minimizing the inhibiting factors that the researcher has mentioned. This study has several limitations. The purposive sampling method used might not fully reflect the views of all stakeholders related to e-government in Pontianak. Resource constraints and information access might have influenced the depth of our analysis. These findings are specific to the context of Pontianak and may not be universally applicable. Moreover, rapid advancements in technology can impact the relevance of our findings in a short period. Nonetheless, we believe these findings are beneficial for stakeholders in the e-government field. Then, for subsequent research, different methods and research locations can be used to enrich the concept related to supporting and inhibiting factors in the optimization of e-government.

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