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READINESS OF E-GOVERNMENT IMPLEMENTATION IN DEVELOPING COUNTRIES IN THE PERSPECTIVE OF THE GOVERNMENTAL MODELS: A CASE IN INDONESIA

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ABSTRACT
Studies regarding e-Government readiness have become a mushrooming issue in developing countries. To contribute to discussions in the context of the Indonesian government, this research was designed to analyze 1 specifically) the level of readiness of the Magelang City Government, Indonesia, in implementing e-government from a government model perspective, and 2) obstacles in developing e-government-based public services in the city. Research data was collected through in-depth interviews, documentation, and observation. We used qualitative content analysis to analyze the data. The findings of this research contribute to finding the root cause of the government's unpreparedness to implement smart governance-based public services in Indonesia. The research results show that E-Government is defined as an effort to increase the effectiveness and efficiency of public services by using information and communication technology. The implementation of e-government by the Magelang City Government aims to provide more effective public services. However, the findings show that the implementation of e-government is not yet efficient because it needs to be improved at the interaction stage. Factors inhibiting the development of e-government in Magelang City include very limited human resources with IT qualifications (only 17 people), inadequate archivist staff, disturbed vision, and a strategy that does not have information system integration management in each Regional Apparatus Organization.

Keywords: E-Readiness; E-Government; Public Services; Smart Government

KESIAPAN PENERAPAN E-GOVERNMENT DI NEGARA BERKEMBANG DALAM PERSPEKTIF THE GOVERNMENTAL MODELS: KASUS DI INDONESIA

ABSTRAK
Kajian mengenai kesiapan e-Government telah menjadi isu yang menjamur di negara-negara berkembang. Untuk berkontribusi pada diskusi dalam konteks pemerintahan Indonesia, penelitian ini dirancang untuk menganalisis secara khusus 1) tingkat kesiapan Pemerintah Kota Magelang, Indonesia, dalam menerapkan e-Government dari perspektif model pemerintahan dan 2) hambatan dalam mengembangkan layanan publik berbasis e-Government di kota tersebut. Data penelitian dikumpulkan melalui wawancara mendalam, dokumentasi dan observasi. Kami menggunakan analisis isi kualitatif untuk menganalisis data. Temuan penelitian ini berkontribusi untuk menemukan akar penyebab ketidaksiapan pemerintah dalam menerapkan pelayanan publik berbasis smart governance di Indonesia. Hasil penelitian menunjukkan bahwa E-Government diartikan sebagai upaya peningkatan efektivitas dan efisiensi pelayanan publik dengan menggunakan teknologi informasi dan komunikasi. Penerapan e-Government yang dilakukan Pemerintah Kota Magelang bertujuan untuk memberikan pelayanan publik yang lebih efektif. Namun temuan menunjukkan bahwa penerapan e-Government belum efisien karena perlu ditingkatkan pada tahap interaksi. Faktor penghambat berkembangnya e-Government di Kota Magelang antara lain sangat terbatasnya sumber daya manusia yang berkualifikasi IT (hanya 17 orang), tenaga kearsipan yang belum memadai, penglihatan yang terganggu, dan strategi yang belum adanya manajemen integrasi sistem informasi di setiap Organisasi Perangkat Daerah.

Kata kunci: Tingkat Kematangan, E-Government, Pelayanan Publik dan Smart Government

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INTRODUCTION

Recently, a clean, transparent, and proficient government that effectively responds to change has become a goal of various groups as an effort to answer the community's demand for better public services and acknowledge the community's aspirations, especially in the formulation of public policies (Gberevbie et al., 2018). This government model is known as e-government (Amegavi et al., 2018). Since its initial emergence, e-government has been a powerful strategy for developing countries to develop options for their public service initiatives (Luna-Reyes, L.F. and Gil-Garcia, 2011).

From an academic point of view, results of e-government implementation in developed countries suggest that innovation is required in service management and enhancement of public service quality. In other words, there will be no improvement in public service quality without innovation. Developing countries can use new technologies to create structures of e-government that benefit citizens and their national development processes (Evans, D. and Yen, 2006). Simultaneously, innovation requires IT applications in the bureaucracy using e-government (Said, 2010).

The rapid development of information and communication technology (ICT) has also penetrated various sectors, including the government sector. Information and communication technology is one form of revolution in the relationship and interaction between citizens and the government, carrying a new form of government called e-government (Rehman et al., 2012). In Indonesia, the use of ICT by government institutions (e-government) has been enhanced under the legal umbrella, namely Presidential Instruction No. 3, issued in 2003 regarding national policies and strategies for the development of e-government. Subsequently, it was amended with Presidential Regulation Number 95 of 2018 concerning an electronic-based government system.

The issuance of this presidential instruction represents government effort in realizing the potential and opportunities of ICT utilization, especially in administering government and improving effective and efficient public services. The development of e-government is one of the nation's solutions to address the problems caused by the demands of change. It positions the use of advanced ICT as a very important factor. The advantages of e-government applications include a more effective and efficient system, reducing the error rate in providing services to citizens, and improving the government's reputation in the community's eyes (K. P. Gupta et al., 2018; Sharma, 2016).

The main problem of regional autonomy government is the limited means and infrastructure of information communication to disseminate various policies from the central and local governments to the public. Meanwhile, information communication facilitates a more effective, efficient, transparent, and accountable process of governance, development management, and community empowerment. Therefore, the development and implementation of e-government is a strategic alternative to enhance regional autonomy since it expedites information dissemination between the government and the business community, along with the communication among the government itself (Johnson, 2012; Kalsi et al., 2008; Kalsi & Kiran, 2013; Kalsi, N.S., Kiran, R and Vaidya, 2008, 2009; Luna-Reyes, L.F. and Gil-Garcia, 2011).

This expeditious information technology development, accelerated by the presence of the Internet, has encouraged the optimum use of technology. Utilization of the Internet in government aspects encourages the realization of e-government, which is expected to empower the community through increasing access to information, improving government services to the community, accelerating interaction between business and government in related industries, improving government management more efficiently and transparently (Gilbert, D., Balestrini, P. and Littleboy, 2004; Gupta, B., Dasgupta, S. and Gupta, 2008; Gupta, K.P., Singh, S. and Bhaskar, 2016; Xu, 2012).

The transformation of a district or municipal towards e-government is a gradual process, as happened in Magelang City. In this process, government and community readiness, both from individuals and businesses, is needed to achieve each specified stage. Government readiness needs to be measured as they are the leading actor in the development of e-government. Meanwhile, the user community needs to be measured, considering that they are the main market for e-government (Al-Omari, 2006; Yusuf et al., 2016).

Government readiness measurement is critical due to the high rate of e-government failure, especially in developing countries. (Heeks, 2003; Heeks & Bailur, 2007) Observe that 85% of e-government implementations in developing countries fail (35% total failure and 50% partial failure), while only 15% are considered successful. To further improve the use of information technology in Indonesia, the government has issued Presidential Decree No. 50/2000 on the Indonesian Telematics Coordination Team, which was further

strengthened by Presidential Instruction No. 6/2001 on References and Basis for Telematics Development in Indonesia. Although this tool does not specifically regulate e-government, it is expected to be a strong foundation for developing information technology in the future.

Therefore, this study seeks to examine and analyze the readiness of the Magelang City Government in implementing e-government as well as identify the obstacles faced. However, in order to make the research analysis sharper, it is necessary to formulate explicit and structured research questions, for example: what is the level of readiness of the Magelang City Government in implementing e-government, what factors are obstacles in the development process, and what governance models are relevant to encourage the success of the transformation. The formulation of this problem is important because the focus on the "model of governance" has so far not been theoretically explained nor classified in a specific conceptual framework. In fact, various models such as good governance that emphasizes transparency and accountability, new public management that is oriented towards efficiency and innovation, and collaborative governance that prioritizes the synergy of the government, society, and the private sector can be used as a framework for analysis. Thus, this study not only describes the conditions of e-government implementation in Magelang City, but also analyzes it from the perspective of a more comprehensive governance model.

METHOD

This study employs a qualitative research design with a case study approach, focusing on the implementation of e-government in Magelang City. The case study approach was chosen because it enables an in-depth exploration of government readiness, institutional challenges, and user experiences within a specific local context, rather than providing a general descriptive overview. By using this approach, the study is able to capture the complexity of e-government development as a multidimensional process involving policies, organizational capacity, and public interaction.

The sampling strategy combines purposive sampling and snowball sampling. Purposive sampling is used to select informants who are considered to have strategic positions or relevant knowledge, such as government officials responsible for IT and public service delivery, while snowball sampling is employed to identify additional informants through referrals, particularly within the bureaucracy and user community. This combination is justified because e-government implementation involves multiple stakeholders whose insights may not be accessible without initial networks. The research involved approximately 15 informants, consisting of local government officials, community members who use e-government services, and other stakeholders directly connected to the research problem.

To ensure the validity of the findings, this study applies source triangulation by cross-checking data obtained from different types of informants and sources. For example, interviews with government officials are compared with the perspectives of users, as well as with official documents such as local regulations, annual reports, and national policies. Furthermore, direct observation of the Magelang City government website is also used as supporting evidence. This multi-source verification allows the researcher to avoid reliance on a single perspective and strengthens the credibility of the data.

In addition, ethical considerations were carefully observed. Informants were provided with information regarding the objectives of the study and asked to give informed consent before participating. Their identities are kept confidential, and the data collected are strictly used for academic purposes. Beyond triangulation, the study also adopts a member check procedure by sharing preliminary interpretations with informants to confirm the accuracy of the findings. To further reduce bias, peer debriefing was conducted, whereby the researcher discussed analytical results with academic peers to refine interpretations.

Finally, data were analyzed using the interactive model of Miles and Huberman (1994), which consists of three interconnected stages: data reduction, data display, and conclusion drawing/verification. Data reduction involves selecting and focusing on relevant information, while data display organizes the material into thematic categories. The last stage, conclusion drawing and verification, ensures that interpretations are supported by sufficient evidence and verified against the data collected throughout the study.

RESULTS AND DISCUSSION

Magelang City Government Readiness In Implementing E-Government

The adoption of digital technology (electronic digital services) by developed countries has brought up a new form of government mechanism known as electronic government. Various definitions of e-government concede that it represents the transformation of interaction between the government and its people into more amicable interactions. Readiness in adopting and utilizing ICT in e-government implementation is

referred to as e-readiness. However, E-readiness carries distinctive definitions for different people, contexts, and purposes (Averweg, 2011; Bagui & Bytheway, 2012; Jukic et al., 2009; Oreku & Mtenzi, 2012; Ramaswamy, 2009; Seliger, 2009).

United Nations University (Nento et al., 2017) states that e-readiness measures people's preparedness to take advantage of ICT. Its critical components include human capital, regulations, policies, and internet proliferation. The transformation of a district or municipality's government to e-government is a gradual process. To achieve each determined stage, readiness from the government and the user community is required. Therefore, government readiness needs to be measured because the government is the leading actor in the development of e-government.

Preparation

This study applies a qualitative descriptive approach with a specific emphasis on a case study design to capture the complexity of e-government development in Magelang City. The case study approach is considered appropriate because it allows the researcher to explore the phenomenon in its real-life context, rather than relying on generalized patterns. While the research has been labeled "qualitative descriptive," clarification is provided here to explicitly state that the study is framed as a case study focusing on the government's strategy, institutional readiness, and public-facing outcomes.

The selection of informants was conducted using purposive sampling, targeting individuals with strategic relevance to e-government development, such as local government officials responsible for IT, communication, and service delivery. This was complemented by snowball sampling, where additional informants were identified through recommendations from initial participants, enabling access to actors who may not have been visible at the outset. The use of these methods is justified by the fact that e-government implementation involves multiple levels of actors, both administrative and technical, who hold complementary insights. In total, around 15 informants were included, consisting of policymakers, implementing staff, and community members directly engaged with the city's e-government platform.

To strengthen the trustworthiness of the findings, triangulation was employed through three strategies: (1) source triangulation, by comparing data from government officials, website managers, and users; (2) method triangulation, by combining in-depth interviews, direct observation of the Magelang City government website, and analysis of policy documents such as the city's RPJP/RPJM and e-procurement reports; and (3) document triangulation, by cross-checking interview data with official records, reports, and online archives. This provides a concrete strategy to minimize bias and ensure the credibility of interpretations.

In addition, ethical considerations were addressed throughout the research process. Informants were informed of the study objectives and gave their consent before participation. Their identities remain confidential, and all information collected is used strictly for academic purposes. Furthermore, member checks were conducted by returning preliminary interpretations to selected informants for validation, and peer debriefing was used to refine the analysis through feedback from academic colleagues.

For data analysis, the study adopts the Miles and Huberman interactive model, which includes three interrelated processes: data reduction (selecting and simplifying raw data), data display (organizing information into themes), and conclusion drawing/verification (ensuring findings are supported by sufficient evidence). This analytical framework enables a systematic interpretation of how Magelang City's e-government emerged, particularly in its early stages of development.

Maturation

In the theory of government readiness, Maturation refers more to the level of institutional maturity, policies, and organizational capacity in managing the e-government system in a sustainable manner. This means that maturation is not just about assessing whether there is a neat website, but also includes:

Table 1. Maturation in Magelang City

Maturation Aspect	Findings in Magelang City	Maturity Level Analysis	Implications/Follow-up Actions
Institutional & Regulatory Framework	No comprehensive vision, strategy, and e-government policy; lack of legal instruments to delegate roles across agencies (OPDs).	Low – absence of binding regulations leads to weak inter-agency coordination.	Formulate a comprehensive vision, strategy, and formal regulation binding all OPDs.
Organizational Capacity & Human Resources	Limited capacity of related agencies (OPDs), especially in technical and managerial aspects of e-government.	Medium – some active agencies exist, but uneven and without standardized competencies.	Enhance HR skills through training, mentoring, and capacity building programs.
Interoperability & Integration	Connectivity between local agencies is described as "adequate," but data integration across sectors is not yet optimal.	Medium – infrastructure exists, but information systems still operate in silos.	Develop an integrated system to enable real-time data sharing across OPDs.
Public Participation & Interaction	Government website mainly provides news (politics, tourism, entertainment), with limited interactive public service features.	Low – interaction remains one-way (information only), not participatory.	Add digital service features, consultation forums, and citizen complaint channels.
Transparency & Accountability	Website does not provide accessible links to public policy	Low – transparency is weak, limiting accountability.	Improve by adding policy documents, performance reports,

Maturation Aspect	Findings in Magelang City	Maturity Level Analysis	Implications/Follow-up Actions
	documents or government regulations.		and open public data menus.

Source: Primary Data Processed, 2024

Stabilization

The stabilization stage is an interactive process carried out in two directions and obtains information. Network infrastructure is one of the essential infrastructures in the development of e-government. The obtained data suggest that Magelang City's e-government coordination and facilitation process has not been effectively carried out by the local Department of Transportation, Communication, and Information. Until the end of 2015, the target of WAN development, site ownership, and the use of software legal/OSS in each OPD was not achieved. The only indicators that have been fulfilled are the implementation of e-procurement and the use of information systems in each OPD. This finding signifies that not all agencies provide real support or commitment to implementing e-government.

Table 2. Evaluation of the Implementation of Regional Planning Obligatory Affairs of the Ministry of Communication and Information Magelang City

Program	Indicators	Target RPJM	Performance Achievement
Development of communication, information, and mass media	Application of e-procurement	100 %	100 %
	Application of e-government		
	a. Number of OPDs that use information systems	46 OPD	46
	b. OPD has a website	46 OPD	22
	c. WAN in each OPD area	60 %	46 %
	d. Number of operator communication networks in good condition	8	8
	e. Number of information provider networks through information media	13	13
	f. Number of community information groups (KIM)	14	13
	g. The ratio of the Internet cafe to population	0,07	0,45
Facilitation of human resources improvement in the field of communication and information	Use of illegal software / OSS in every OPD	100 %	25 %

Source: Primary Data Processed, 2019

The findings indicate that although Magelang City has expressed a strong policy commitment toward e-government, its implementation remains less effective due to the absence of a clearly defined model, timeframe, and comprehensive strategy to build shared understanding across all levels of bureaucracy. One of the informants emphasized that while programs exist, there is no structured socialization plan, and support from resources is still fragmented. This condition aligns with what Heeks (2003) describes as the "design–reality gap" in e-government, where the ambitious design of digital governance initiatives often fails to match the actual administrative, technical, and social realities on the ground. Without narrowing this gap, local governments tend to struggle in turning e-government initiatives into sustainable practice.

Human resource capacity emerges as a critical challenge in Magelang City. The survey conducted by the Department of Transportation, Communication, and Information shows that out of 1,872 employees, only 53% are accustomed to using the Internet, 52% are proficient in office applications, and very few (25 individuals) possess computer maintenance skills. Compared to other studies, such as Ndou (2004), the lack of ICT skills among public servants is one of the most common barriers to successful e-government in developing countries, leading to dependence on external support and underutilization of technology. (K. P. Gupta et al., 2018; Sharma, 2016). argue that e-government implementation requires not only technical infrastructure but also "digital literacy" among bureaucrats, since technology adoption is strongly mediated by human capital.

These findings also resonate with the World Bank's (2016) framework on digital governance, which emphasizes that institutional capability—particularly HR capacity—is just as important as financial or technological investment. For example, comparative studies in Indonesia show that cities such as Surabaya and Jakarta managed to accelerate e-government adoption by combining infrastructure development with continuous training programs for civil servants (K. P. Gupta et al., 2018; Sharma, 2016).In contrast, regions that focused only on website development without parallel investment in HR capacity faced stagnation.

Thus, the Magelang City case illustrates that e-government initiatives cannot rely solely on political statements or the establishment of online platforms. Instead, they must be supported by systematic capacity-building programs, clear long-term strategies, and inclusive socialization efforts that build shared ownership across agencies. Without addressing these human and organizational factors, the implementation risks remaining symbolic rather than transformative.

Utilization

The obtained data indicate that the Magelang City Government has not provided a two-way interaction between the community and the government, similar to the integration stage (seamless). The Magelang City website has not been able to respond to its citizens' needs and complaints by developing an integrated infrastructure office. Similar to the classification of e-commerce applications B to B and B to C, e-government also has four categories, namely G2C, G2B, G2G, and G2E.

Our question was, "How is the availability of links connecting local governments with other institutions or agencies assessed in reaching the third and fourth stages in e-government development, and have there been efforts to improve data? integration?"One of the informants stated, "The availability of links that connect the local government with other institutions or agencies related to the needs and interests of the community is essential to achieve the third and fourth stages of e-government development. The links include Government to Government (G2G), Government to Business (G2B), and Government to Consumers (G2C). The finding shows that almost all local government websites provide links between local governments and the public, institutions engaged in business, and other local governments. However, although there are interagency relationships, most of them are still in the form of links to institutions within the scope of each local government itself. There is a minimum local government website that has an interagency with other local governments. The interagency with other local governments is mostly in the form of ordinary links, without data linkages or interchange and integrated data".

The next question we ask is, "How is the Magelang City Government trying to bring the government closer to the community through the G2C-type e-government application, and what access channels have been developed for the community to provide complaints and get services?".

One of the informants explained, "This G2C is the most common e-government application, where the government builds and implements various portfolios of information technology to improve interaction relations with the community (the people). In other words, the primary purpose of building a G2C e-government is to bring the government closer to its people through various channels to ease the community's access to government services. An accessible social media menu has been developed by the City of Magelang so that the community can aspirate their complaints, such as through email (monggolapor@gmail.com), WhatsApp number (082222202010), Facebook and Twitter (@Laporwalikotamg), as well as Instagram (Please Report). In addition to these accessible social media menus, the Magelang City Government has also developed 59 information system applications".

In conclusion, the e-government business model has actually been developed by the Magelang City Government. Still, the majority of the model is in the form of G2G for managing internal OPD data and information, so it has not shown real benefits for the community or the private sector. Initially, there were 59 applications or information systems, which increased to 103 in 2018, with no more than 50 % in the form of G2C. Some of the G2C applications have accommodated information transactions between the government and the community, such as the application in the Population and Civil Registration Office for online birth certificate registration services, but some applications only disseminate information.

Readiness to Implement E-Government

The preparatory stage, related to the capacity of human resources, represents the local government's capability to realize an e-government system (Lee, 2009; Sharda, Ramesh; Voß, 2011). In this aspect, the Government of Magelang City, Indonesia, should consider a number of elements. First, there is a lack of sufficient resources to carry out various e-government initiatives, especially those related to financial resources. Second, the availability of human resources with the required competencies and expertise so that the implementation of e-government can be in accordance with the expected benefits principle. This study results show that (1) the average human resources who can use computers are still at the operator level; (2) the absence of expert system analysis and design; and (3) the lack of analytical personnel in each work unit.

At the maturation stage, vision and strategy are essential (Lee, 2009; Moon, 2002). Although it does not yet have a clear vision and strategy for implementing e-government, the Magelang City Government's commitment to implementing e-government in the coming years is observed from the plan to prepare the Smart City Masterplan since 2016. This plan is also expected to strengthen Magelang City's position as one of the smart cities in Indonesia.

At the stabilization stage, the observed obstacles in e-government implementation include limited human resource competencies, inadequate infrastructure and limited access, low government commitment, low government integration, low public transparency, lack of a culture of information sharing and orderly documentation, and resistance to change (Nento et al., 2017). The findings suggest that the current capacity and quantity of human resources are still insufficient for e-government implementation. Only about half of the employees are accustomed to using the Internet. Meanwhile, ideally, all personnel should be Internet literate to understand the flow of work execution and recognize their authorities and responsibilities to avoid difficulties in carrying out their duties. Moreover, every OPD should have computer skills, network

maintenance, and programming skills. However, the operators in some working units still have limited mastery of information technology. None of the operators have system analyst or programmer mastery, so there is still a need to improve the quality of human resources. To overcome this, in 2016, the Department of Transportation, Communication and Information began to allocate a budget for IT training.

At the utilization stage, the potential barriers to e-government implementation are legislative and regulatory. Legislative barriers cover the appropriate laws, regulations, and directives that facilitate the implementation of e-government (Vassilakis, 2005). The finding indicates that although there have been initiatives to develop information systems, there is no clear regulation regarding the management of information system integration between OPDs. Consequently, it increases the burden on the government's performance because the same data must be entered into several systems to meet the needs of each OPD. In addition, data exchange between agencies is also difficult because of the different platforms.

Policy Recommendations for the Magelang City Government

The bureaucratic reformation in the public sector should be carried out. However, the reformation process can be complex as it takes a clear and well-directed concept to select a target, strategy, approach, or model. In relation to efforts to improve e-government-based public services in Magelang City, several policy recommendations have been formulated, including 1) preparation of a clear policy or special legal umbrella as a form of leadership commitment to the development of e-government in Magelang City, integrated into every OPD, 2) formulation of strategies related to the provision of internet infrastructure and e-government applications for each OPD, and 3) resources allocation, especially, financial, human resources, and time, to build e-government in the framework of bureaucratic reformation.

CONCLUSION

The findings of this study demonstrate that the implementation of e-government in Magelang City is still at a relatively early stage of development, constrained by limited IT-qualified personnel, insufficient integration of information systems across agencies, and the absence of a clear strategic vision. While these results confirm the challenges commonly observed in many local governments, this study contributes to the broader discussion of e-government readiness in Indonesia by highlighting how organizational capacity and vision-setting are equally critical as technological investment. Specifically, the case of Magelang reveals that readiness gaps are not merely technical but institutional, pointing to the importance of governance frameworks that ensure inter-agency coordination and sustainable capacity building.

From a policy perspective, the findings suggest that the Magelang City Government should move beyond generic resource allocation and adopt an operational roadmap that details measurable steps—such as structured ICT training programs, integrated data-sharing systems across OPDs, and enforceable regulations to strengthen coordination. These recommendations are intended not only to address immediate barriers but also to align local practices with national digital transformation goals.

This study, however, has limitations, particularly the reliance on qualitative interviews with a relatively small set of informants, which may not capture the full diversity of perspectives within the bureaucracy and civil society. Future research could expand by incorporating quantitative performance indicators or comparative analyses with other Indonesian cities at different stages of e-government development. By doing so, scholars and practitioners will be better positioned to refine models of e-government readiness that are sensitive to the institutional and cultural contexts of Indonesia.

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