

Impact of Organizational Structure and Culture on E-Government Implementation: A Survey of Local Government Employees in Yogyakarta Special Region, Indonesia

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KEYWORDS

Organizational structure, organizational culture, e-government implementation, local government, employees, regency and city, Yogyakarta, Indonesia

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Abstract: Developed and developing countries have implemented e-government to improve public services, being government organization a key factor influencing e-government effective deployment. Therefore, this study examined variables related to organizational structure and culture and their influence in predicting e-government implementation. This work involved the participation of 400 respondents from regencies and city employees and used a survey data-gathering approach and a purposive sample technique. A Likert scale was used to design the questions. The data were assessed by SEM-PLS for validity and reliability, as well as to test hypotheses and regression. In aspects of organizational structure, unit size and span of control, in contrast to unit grouping, have a positive and significant impact on e-government implementation. In addition, regarding organizational culture, cooperative attitude, obeying social norms, keeping harmony, and prioritizing duty, as opposed to strong ties to the community, empathy, and being honest and trustworthy, showed a positive and significant effect on e-government implementation. Moreover, independent variables had a substantial impact on dependent variables, as evidenced by an R-square of 0.865. This study has as its main limitations the research area, the number of respondents, and the length of the research period. Finally, theoretical and practical implications and suggestions for future studies are assessed.

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IMPACTO DE LA ESTRUCTURA Y LA CULTURA ORGANIZACIONAL EN LA IMPLEMENTACIÓN DEL GOBIERNO ELECTRÓNICO: UNA ENCUESTA A EMPLEADOS DEL GOBIERNO LOCAL DE LA REGIÓN ESPECIAL DE YOGYAKARTA, INDONESIA

Resumen: los países desarrollados y aquellos en vía de desarrollo han implementado el gobierno electrónico para mejorar la prestación de servicios públicos, donde la organización de los entes gubernamentales resulta ser un factor clave. El presente estudio examinó variables relacionadas con la estructura y la cultura organizacional y su influencia para la exitosa implementación del gobierno electrónico. Este trabajo contó con

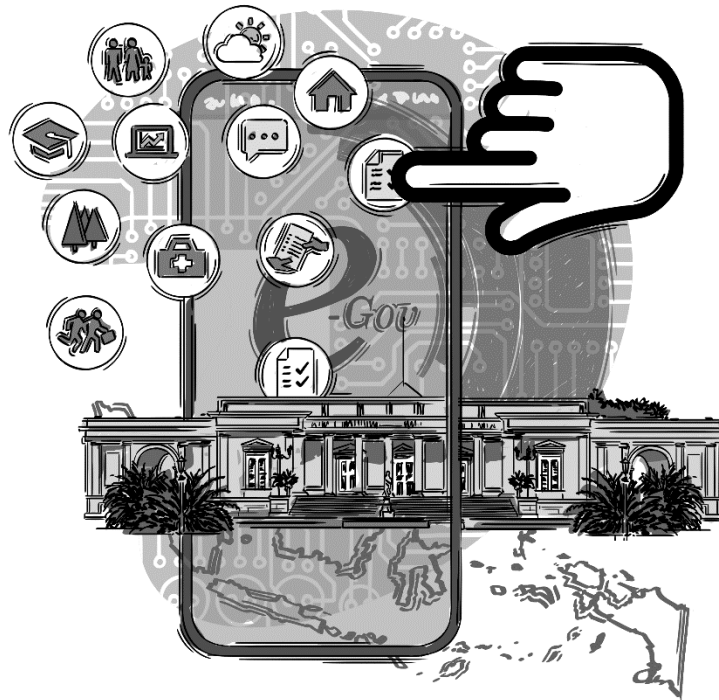
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la participación de 400 funcionarios de empresas públicas de la región especial de Yogyakarta (Indonesia), seleccionados por muestreo intencional, a quienes se les administró una encuesta para la recolección de información clave. Para el diseño de las preguntas incluidas en el instrumento se utilizó una escala tipo Likert. Los datos fueron evaluados mediante SEM-PLS con el fin de asegurar su confiabilidad y validez, así como para probar hipótesis y regresiones. En cuanto a los aspectos de la estructura organizacional, el tamaño del área y la amplitud del control —en contraste con la conformación del área— reportan un impacto positivo y significativo para la implementación del gobierno electrónico. En relación con la cultura organizacional, tener una actitud de cooperación, el cumplimiento de las normas sociales, procurar la armonía y priorizar el deber —en contraposición a las variables fuertes lazos con la comunidad, empatía, honestidad y confianza— mostraron tener un efecto positivo y significativo. De otro lado, se evidencia que las variables independientes tuvieron un impacto significativo sobre las variables dependientes, como lo evidencia un R-cuadrado de 0.865. Esta investigación tiene como principales limitaciones el alcance geográfico de la zona analizada, el número de personas encuestadas y el tiempo de duración. Este trabajo también evalúa las implicaciones teóricas y prácticas de los resultados obtenidos y proporciona una serie de recomendaciones para futuros estudios sobre el tema. Palabras clave: estructura organizacional, cultura organizacional, implementación del gobierno electrónico, gobierno local, funcionarios, regencia y ciudad, Yogyakarta, Indonesia.

IMPACTO DA ESTRUTURA E CULTURA ORGANIZACIONAIS NA IMPLEMENTAÇÃO DO GOVERNO ELETRÔNICO: UM ESTUDO COM FUNCIONÁRIOS DO GOVERNO LOCAL NA REGIÃO ESPECIAL DE YOGYAKARTA, INDONÉSIA

Resumo: tanto os países desenvolvidos como os países em desenvolvimento implementaram o governo eletrônico para melhorar a qualidade dos serviços públicos, sendo a organização dos órgãos governamentais um fator fundamental. Este estudo examinou variáveis relacionadas com a estrutura e a cultura organizacionais e a sua influência na implementação bem-sucedida do governo eletrônico. Este estudo contou com a participação de 400 funcionários das empresas públicas da região especial de Yogyakarta (Indonésia), que foram selecionados por amostragem intencional e aos quais foi aplicado uma enquete para obtenção de informações essenciais. Foi utilizada uma escala de tipo Likert para a elaboração das perguntas incluídas nesse questionário. Os dados foram avaliados utilizando SEM-PLS para garantir a fiabilidade e a validade, bem como para testar hipóteses e regressões. Em relação aos aspectos da estrutura organizacional, a dimensão da área e a amplitude de controle — em contraste com a conformação da área — reportam um impacto positivo e significativo para a implementação do governo eletrônico. Quanto à cultura organizacional, ter uma atitude cooperativa, cumprir as normas sociais, procurar a harmonia e dar prioridade ao dever — por oposição às variáveis laços fortes com a comunidade, empatia, honestidade e confiança — revelaram ter um efeito positivo e significativo. Por outro lado, é evidente que as variáveis independentes tiveram um impacto significativo nas variáveis dependentes, como evidenciado por um R-quadrado de 0,865. As principais limitações desta investigação são o âmbito geográfico da área analisada, o número de pessoas entrevistadas e a duração do estudo. Este trabalho também avalia as implicações teóricas e práticas dos resultados obtidos e fornece uma série de recomendações para estudos futuros sobre o tema.

Palavras-chave: estrutura organizacional, cultura organizacional, implementação do governo eletrônico, governo local, funcionários, regência e cidade, Yogyakarta, Indonésia.



INTRODUCTION

Electronic government has been deployed in various platforms by governments in countries throughout the world. Almost all countries have established e-government development policies (Dias, 2020a). E-government implementation has been a key issue on the agenda of governments in developed and developing economies and nations (Glyptis *et al.*, 2020; Mawela *et al.*, 2017). The rapid evolution of the Internet has drastically altered the way businesses and government entities work, and information and communication technology (ICT) is used in everyday life all around the world to help people live better lives. In that setting, governments strive to make their services more accessible to the general people. Developed and emerging countries use e-government platforms to better and more efficiently engage with the public (Valencia *et al.*, 2019). As an example, digitization of governmental operations has grown at local governments in the United Kingdom (Vogl *et al.*, 2019) and e-government has developed in Andean countries for enhancing public services (Aniscenko *et al.*, 2017). Furthermore, ICT has been applied for increasing the efficiency and effectiveness of public organizations (Cordella & Paletti, 2018).

Dissemination of information and transactions through e-government has significantly reduced the corruption index and has improved good governance at the state and federal district levels (Sour-Vargas, 2017). For example, citizens gain efficiency in using e-government in the property tax online payment service in the town of Orizaba, Veracruz, Mexico (Carrera-Mora *et al.*, 2019). The innovation in the government organization was hoped to enhance efficiency, even if it sometimes fails (Choi & Chandler, 2020). Moreover,

e-government implementation is required to improve e-services consumer happiness, raise the efficiency of the public administration system's operation through the use of new internet technologies, and address social and environmental issues (Shkarlet *et al.*, 2020), while e-government tools are effective for strengthening cooperation between governments and stakeholders (Horák *et al.*, 2021; Panthee & Sharma, 2019).

Regarding electronic-based government systems, the Indonesian government has issued Presidential Regulation No. 95, 2018, which has been used by the national, provincial, and local governments in order to implement e-government and paved the way for local governments to develop several forms of e-government with the aim of ensuring the provision of public services to their citizens.

Scholars have studied the implementation of e-government in Indonesia, a process that has demanded the use of technology and information systems (Mian, 2019; Utama, 2020) and where it was critical to implement information assurance (IA) to support e-government adoption (Utomo *et al.*, 2020). In the Indonesian case, it was necessary to create a blueprint for a public information system in the local districts utilizing the enterprise architecture planning method (Maulani & Lestari, 2020). As part of Web 2.0, social media has shown its potential to encourage greater engagement and public interaction (Budi *et al.*, 2020), while ICTs adoption is needed to facilitate conditions and the right attitudes of government employees (Batara *et al.*, 2017).

From a legal perspective, accelerating e-government deployment must focus on G2G engagement (Faiz & Faiza, 2017). Integrating e-government policies in the procurement of goods and services within local government has been found to enhance the effectiveness of public services (Mustafa *et al.*, 2020; Samad *et al.*, 2020). However, this promising progression is not without its hurdles. Specifically, the work of Ariana *et al.* (2020) highlights how low-quality human resources pose a substantial risk to the successful implementation of e-government, underscoring the crucial role of well-equipped personnel in this transition. Furthermore, acknowledging the significance of perceived risk in this shift is paramount. As Fakhruzzaman and Dimitrova (2020) stressed, this perception could profoundly influence the acceptance and, consequently, the successful realization of e-government initiatives.

The works previously mentioned are mainly under the perspective of technology, economics, legal studies, and psychology, since scholars rarely study the implementation of ICT in Indonesia from an organizational perspective. Hence, this research attempts to close that knowledge gap by studying the implementation of e-government from the perspective of organizational structure and cultural variables, addressing the following research question: Do organizational structure and organizational culture affect e-government implementation positively and significantly in Indonesia?

After this introduction, the paper is structured as follows. First, a literature review of theories of e-government implementation, organizational structure, and organizational culture is presented. The section afterwards describes the research model and the formulated hypotheses, while the section right after delves into the research method. The findings from the questionnaires administered to determine how well the research model may help local governments to implement e-government is presented next, paving the way for the discussion of results and the literature studied. Finally, the conclusions of this research are presented.

LITERATURE REVIEW

Implementation of e-government

In recent years, studies on e-government implementation have developed quite significantly (table 1). E-government is a digital transformation or digital innovation (Hinings *et al.*, 2018) defined as the use of ICT by government offices to offer public services, increase managerial effectiveness, efficiency, openness, and promote transparency, accountability, and democracy (Ingrams *et al.*, 2020; Liywalii & Tembo, 2019; Mosud & Govender, 2020; Shkarlet *et al.*, 2020). The implementation of e-government is intended as i) service “innovation”—formulating strategies and policies for government, business sector, and citizens to modernize public services; ii) “consulting” services—assisting the government in implementing solutions to public problems; and (iii) “project” services—departments can be responsible for cooperating better and faster in completing joint projects (Boldyreva *et al.*, 2019).

There were various types of e-government implementation, such as government-to-government (G2G), government-to-employees (G2E), government-to-business (G2B), and government-to-citizen (G2C) (Nawafleh, 2020). The electronic sharing of data or information systems between government agencies, departments, or organizations is known as government-to-government (G2G), whose objective is to help e-government programs succeed by enhancing communication, data access, and data exchange. The relationship between the government and its employees is referred to as G2E, whose main goal is to support employees by providing online services such as applying for annual leave online, monitoring leave balances, and analyzing salary payment records, among other things. G2B is a category of e-government that includes interactions between governments and enterprises. In this case, the government provides services to the business sector and businesses offer goods and services to be utilized by the government. Example areas of G2B included e-procurement, tax collection, and e-auctions. For its part, G2C is a category of e-government that comprises all interactions between government agencies and their citizens. Examples of G2C areas include various downloadable citizen data forms, government policy information, project offers of goods and services from the government, tourist and recreation mapping information systems, and information on research and education, health, and security.

E-government implementation was related to tools and resources, human and ICT skills, leadership, and budget (Mawela *et al.*, 2017). In e-government, the application of ICT in public administration is an essential tool to make administrative changes and bureaucratic reforms (Alcaide Muñoz *et al.*, 2017). E-government refers to ICTs applied in public organizations that can improve a culture of transparency and openness of information for users (Delgado Jalón *et al.*, 2017). Implementation of e-government was sometimes hampered by ICT infrastructure, electrical supply, and financially-driven situations (Gyamfi *et al.*, 2019). Websites owned by the Alentejo region municipalities, in Portugal, for example, provide a variety of information to promote entrepreneurship, so the local government has used new technology to facilitate information access by users (Nevado Gil *et al.*, 2019). In sum, the successful implementation of e-government requires addressing issues related to staff, leadership support, technology, security, and partnerships.

Moreover, e-government implementation comprises several meanings. First, it is related to the implementation of a policy that has been agreed on. Second, e-government implementation depends on

internal government factors that include infrastructure, leadership, the knowledge possessed by employees, and advanced technology, as well as government external factors such as the knowledge possessed by citizens; these are all called readiness to adopt e-government. Third, the implementation of e-government through an institutionalization process is the arrangement of government organizations and their relationships with stakeholders (Dias, 2020b). This implementation also depends on factors such as top management support, ICT infrastructure, legislation, and partnerships.

E-government also concerns resources, target standards, characteristics of the implementing agency, and relationships between organizations' services (Samad *et al.*, 2020). The adoption of e-government involves infrastructure facilities, technological innovation, level of e-readiness, finance, and political and legal frameworks (Glyptis *et al.*, 2020). Factors that can generally affect the success of e-government implementation include i) leadership, which means the vision and action to encourage employees to implement e-government systems; ii) cooperation, coordination, and collaboration between government agencies to mobilize resources and management to implement e-government; iii) the skills of managers to make decisions and the skills of employees to operationalize ICTs; and iv) partnerships between government and the private sector and NGOs in sharing resources (Al-Shuaili *et al.*, 2019).

Based on the above, this study examines the impact of organizational structure and culture on the implementation of e-government through the case study of Indonesia. The organizational structure is the result of an institutional arrangement that is a continuation of organizational change and bureaucratic reform, whereas organizational culture is the values of life in local government organizations that influence the behavior of civil servants.

Organizational structure and e-government implementation

The term organizational structure refers to the rules and procedures that govern decision-making, reporting mechanisms, and control systems, and range from informal and decentralized to formal and centralized (Eva *et al.*, 2021). Differentiation and integration were the organizational structures, division, responsibility, task specialization, and spans of control were all examples of differentiation. Integration, on the other hand, refers to the coordination and integration of various divisions and duties. Interdepartmental task forces, liaison people, and interdepartmental committees were used to assess the integration (Naruetharadhol *et al.*, 2021). The organizational structure displayed how departments, processes, and activities are interconnected (Shahzad *et al.*, 2018). Based on this, organizational cells were organized into groups or teams called organizational units. The above-mentioned elements were linked by hierarchical (vertical, ordering) and functional relationships (horizontal, being the result of the division of work, operational, advisory, and informative relations) (Trąbka, 2017), where the operational core, strategic apex, middle line, technostructure, and support personnel were the major parts of Mintzberg's organizational structuring (Kiruba Nagini *et al.*, 2020).

The intention to pursue e-government transformation was influenced by the organizational structure (Batara *et al.*, 2017), where one of the organizational elements that shaped inter-organizational information exchange in the public sector were the organizational boundaries established by bureaucracy (Karlsson *et al.*, 2017), making it necessary to have a framework for organizational structuring in the development and implementation of the e-government services (Sta, 2018). Institutional/inter-organizational administrative

interdependence had an impact on the effectiveness and accountability of cross-border e-government systems (Chen *et al.*, 2019), with cross-border information sharing being influenced by the clarity of roles and responsibilities (Gil-Garcia *et al.*, 2019). Cross-border information exchange activities were influenced by authority and hierarchical organizations (Gharawi & Alneami, 2020). Moreover, organizational structure, including the degree of centralization/decentralization of responsibilities, degrees of flexibility, and hierarchy influenced the digital government transformation (Tangi *et al.*, 2021). In this context, the organizational structure could be a factor that causes the failure of the e-government innovation implementation (Choi & Chandler, 2020).

Organizational culture and e-government implementation

Culture encompasses values, beliefs, artifacts, and core assumptions (Cole & Martin, 2018). Organizational culture involves a set of shared values, ideas, and assumptions that enable individuals and groups to perform effectively inside the organization, whose orientations were hierarchy, adhocracy, clan, and market (Chen *et al.*, 2018). Organizational culture is about the “way of life,” essential assumptions, formal and informal practices, and shared beliefs among organizational members (Porter *et al.*, 2018). In this sense, organizational culture has been defined as a common set of values, beliefs, and behaviors within a group of people from an organization (Golden & Shriner, 2019), also including values, norms, rules, and regulations that guide attitudes and behaviors (Rehman *et al.*, 2019).

The organizational culture of a government plays a crucial role in the successful implementation and adoption of e-government systems (Batara *et al.*, 2017; Jackson & Wong, 2017). Efficient and accountable cross-border e-government systems tend to have an organizational culture that is citizen-centric and fosters innovation (Chen *et al.*, 2019), where the exchange of information across borders is influenced by the organizational culture and leadership (Gharawi & Alneami, 2020). The values, actions, and behaviors of individuals and society also have a significant impact on the transformation of digital government (Tangi *et al.*, 2021). However, it is important to note that certain behavioral factors can hinder the successful implementation of e-government innovations (Choi & Chandler, 2020).

This study considered the Javanese culture, a special region in Indonesia, which has long influenced the attitudes and behavior of Indonesian government civil servants. The relevance of Javanese culture has recently been recognized by the local administration of Yogyakarta’s Special Region. The Governor’s Regulations No. 72 of 2008 and No. 53 of 2014 set out standards for implementing “government culture,” “strong ties to the community,” “empathy attitude,” “cooperative attitude,” “obeying social norms,” “keeping harmony,” “being honest and trustworthy,” and “giving priority to duty” as part of the Javanese culture (Pribadi & Kim, 2021). Strong ties to the community allude to public servants’ willingness to help residents as community members and to prioritize the community’s interests over their own. Empathy attitude refers to the willingness of public employees to be active listeners and manage the expression of sentiments and impulses. A cooperative attitude tends to the willingness of civil workers to share their knowledge and collaborate with citizens. Obeying social norms means that city workers are ready to accept existing social ties and not impose laws and regulations. Keeping harmony refers to civil employees’ willingness to avoid fights and conflicts by prioritizing deliberation to establish a consensus. Honesty and trustworthiness refer to a civil servant’s attitude and behavior that is consistent in both words and deeds and adheres to universal good standards. Prioritizing duty refers to civil employees’ attitudes and behavior

in which they emphasize service commitments and effectiveness while adhering to regulations when providing public services.

Table 1.

Main sources on e-government implementation reviewed for this study.

| Author(s) | Variables/constructs | Method | Geographic coverage |
|----------------------------|--|-------------------------------|---------------------------------|
| Jackson and Wong (2017) | Hierarchism, fatalism, individualism, egalitarianism | Qualitative | Malaysia |
| Batara et al. (2017) | Performance expectancy, effort expectancy, social influence, facilitating conditions, anxiety, attitude, age, length of work experience | Quantitative | Indonesia and the Philippines |
| Mawela et al. (2017) | Resources, leadership, ICT skills, fund | Interview and workshop | South Africa |
| Karlsson et al. (2017) | Organization boundaries, concerns of information, trust, operation procedures, resources | Case study | Sweden |
| Aniscenko et al. (2017) | E-government Development Index (EGDI) | Documentary-descriptive | Andean Countries |
| Hinings et al. (2018) | Digital organizational forms, digital institutional infrastructures, digital institutional building blocks | Qualitative | Austria |
| Sta (2018) | Coordination, interoperability | Qualitative | Tunisia |
| Liywalii and Tembo (2019) | Privacy, security, computer crime, trust, fairness | Questionnaires and interviews | Zambia |
| Gyamfi et al. (2019) | Electricity power source, ICT infrastructure, financial constraints, security threats | Quantitative | Ghana |
| Gil-Garcia et al. (2019) | Collaboration, coordination, and communication | Survey | u.s. State and local government |
| Panthee and Sharma (2019) | Technology, staff, knowledge, privacy, support elected officials | Qualitative | Nepal (Continue) |
| Chen et al. (2019) | Technical, managerial/organizational, institutional/inter-organizational | Quantitative | Taiwan |
| Gharawi and Alneami (2020) | Goals and interests, trust, executive support, risks, costs, benefits, authority and hierarchical structures, organizational culture, leadership | Interviews and documentation | Saudi Arabia |
| Mosud and Govender (2020) | Technology, organizations, environment, perceived barriers, perceived risks | Qualitative | Nigeria |
| Nawafleh (2020) | Service quality, citizens' trust | Quantitative | Jordan |
| Choi and Chandler (2020) | Pushing forces, pulling forces | Qualitative | Hawaii |
| Glyptis et al. (2020) | Economic, technical, social, organizational, and institutional, legal and regulation systems | Case study | Cyprus |
| Tangi et al. (2021) | Structure, culture, process, people, information system | Quantitative | Italy |

Source: author.

RESEARCH MODEL AND HYPOTHESES DEVELOPMENT

Based on the literature review, the research model presented in figure 1 and the hypotheses described below were developed.

The hypotheses formulated for this study are as follows:

- H1.** Unit grouping positively and significantly influences e-government implementation.
- H2.** Unit size positively and significantly influences e-government implementation.
- H3.** Span of control positively and significantly influences e-government implementation.
- H4.** Strong ties to the community positively and significantly influence e-government implementation.
- H5.** Empathy positively and significantly influences e-government implementation.
- H6.** Cooperation positively and significantly influences e-government implementation.
- H7.** Obeying social norms positively and significantly influences e-government implementation.
- H8.** Keeping harmony positively and significantly influences e-government implementation.
- H9.** Honesty and trustworthiness positively and significantly influence e-government implementation.
- H10.** Giving priority to duty positively and significantly influences e-government implementation.

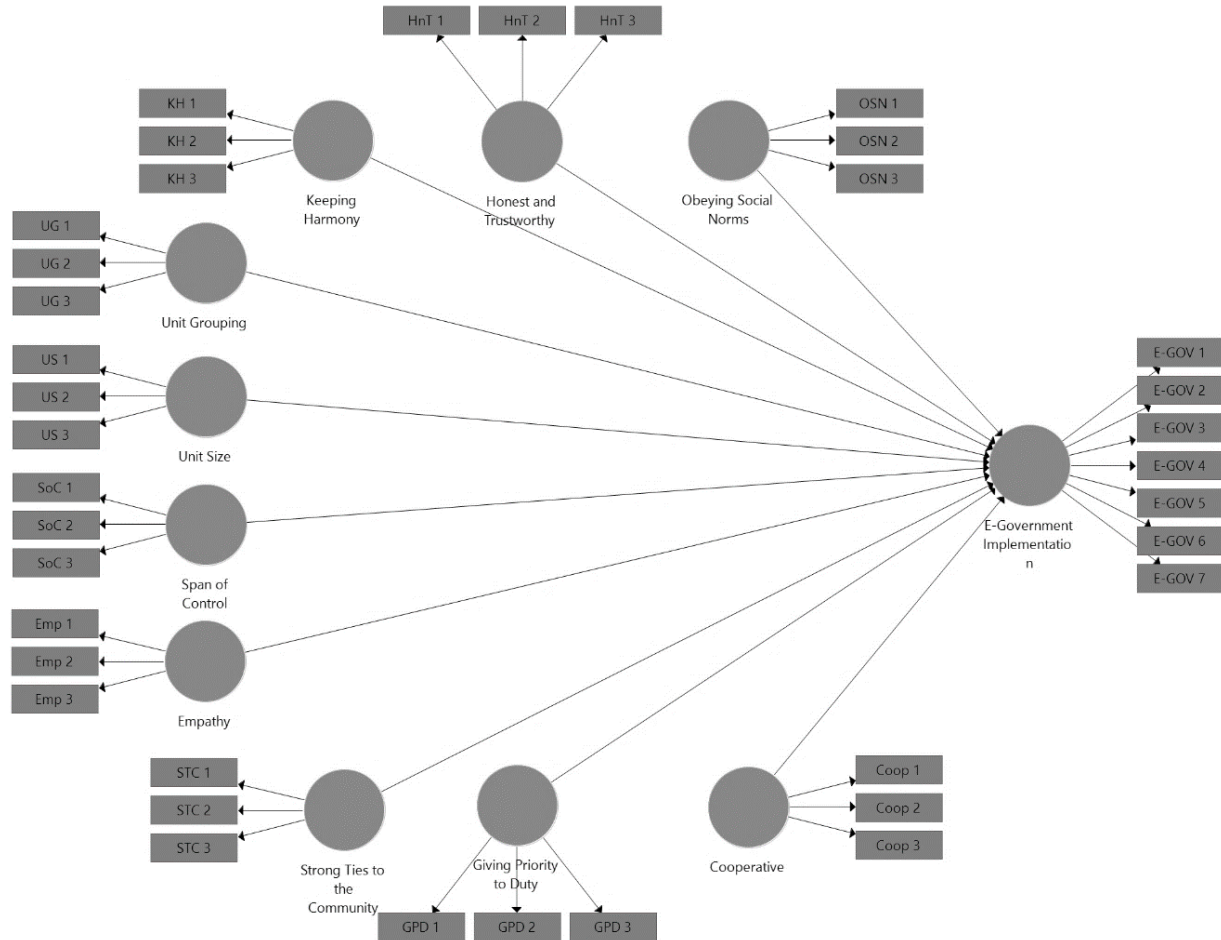


Figure 1. Research model. **Source:** author.

The preceding hypotheses are explained in the following lines. First, the more organizational units are formed based on the needs of public services, the better the implementation of e-government. Second, the more organizational units are formed based on managerial functions, the better the implementation of e-government. Third, the more the span of control has automation, the better the e-government implementation. Fourth, the more civil servants have the desire to help others, the better the implementation of e-government. Fifth, the more civil servants have the will to understand the situation faced by others, the better the implementation of e-government. Sixth, the more civil servants enjoy working with others, the better the implementation of e-government. Seventh, the more civil servants comply with social norms in their environment, the better the implementation of e-government. Eighth, the more civil servants have the desire to reach a consensus, the better the implementation of e-government. Ninth, the more civil servants have the desire to be trusted by others, the better the implementation of e-government. Tenth, the more civil servants have the desire to put their obligations first, the better the implementation of e-government.

RESEARCH METHOD

Data collection

To collect primary data on local government employees involved in e-government implementation, a survey approach design was devised. As a research tool, this study used a self-administered questionnaire to collect primary data. Participants in this study worked for the municipal and regency governments of the Special Province of Yogyakarta at the time of being surveyed. Yogyakarta City, Sleman Regency, Bantul Regency, and Kulonprogo Regency were the cities and regencies selected for conducting this research.

The Special Region of Yogyakarta is the center of Javanese culture, and its Provincial Government has received two e-government-related awards, namely the implementation of e-Government and the best provincial website in Indonesia (<https://nasional.tempo.co/>).

Sampling technique

This study used purposive sampling, which is a type of non-probability sampling, whose primary purpose was to target respondents who shared certain traits. Local government employees in each of the municipal and regency agencies who were directly assigned to e-government implementation were the target respondents. The city and regencies in the Special Region of Yogyakarta have almost the same characteristics in terms of organizational structure, a very strong Javanese culture, and quite a long history in the implementation of e-government. Based on these considerations, this study, which was conducted from January to June 2021, engaged 100 respondents in each city and regencies, bringing the total number of respondents to 400 individuals.

Measurement and analysis technique

Quantitative survey questions were used to collect data. These questions were created using a Likert scale through which the opinions by respondents were ranked from 1 to 5 (1 denoting strong disagreement, 2 disagreement, 3 neutralities, 4 agreement, and 5 strong agreement) SEM-PLS looked at the data to see if it was valid and reliable, as well as to test hypothesis and regression.

Research instrument

This study used variables and indicators developed by scholars. E-government implementation variables include indicators of infrastructure, equipment, human resources, and finance. Organizational structure variables comprise unit grouping, unit size, and span of control. Finally, organizational culture variables, especially Javanese culture, include strong ties to the community, empathic attitude, cooperative attitude, obeying social norms, keeping harmony, honesty and trustworthiness, and giving priority to duty (table 2).

Table 2.

Research instrument.

| Variables | Indicators | Selected references |
|------------------------------|---|---|
| E-government implementation | Sufficient number of computers | Mawela <i>et al.</i> (2017), Panthee and Sharma (2019), Mosud and Govender (2020), Samad <i>et al.</i> (2020), Glyptis <i>et al.</i> (2020) |
| | Strong internet network | |
| | Complete telecommunications equipment | |
| Unit grouping | Employees attended education and training about the website | |
| | Sufficient budget in each agency | |
| | Information is complete | |
| Unit size | The website is easy for users to access | |
| | Organizational units are formed based on service functions | |
| | The organizational unit has a work team | |
| Span of control | The organizational unit has a network with other organizational units | |
| | Strategic apex | |
| | Middle line dan operating core | |
| Strong ties to the community | Techno structure dan support staff | |
| | Hierarchy level | |
| | Number of subordinates | |
| Empathic attitude | Reporting | |
| | Desire to help others | |
| | Prioritizing the public interest | |
| Cooperative attitude | Collective life | |
| | Willingness to hear other people's thoughts | |
| | Willingness to understand other people's situations | |
| Obeying social norms | Take care of other people's feelings | Sta (2018), Chen <i>et al.</i> (2018, 2019), Golden and Shriner (2019), Liywalii and Tembo (2019), Tangi <i>et al.</i> (2021), Pribadi and Kim (2021) |
| | Not individualistic | |
| | Desire to share with others | |
| Keeping harmony | Desire to cooperate with others | |
| | Desire to respect norms | |
| | Desire to obey the rules | |
| Honesty and trustworthiness | Desire to maintain good relationship | |
| | Desire to reach consensus | |
| | Desire to avoid conflict | |
| Giving priority to duty | Desire to avoid debate | |
| | Desire to uphold honesty | |
| | Desire to be trusted by others | |
| | Desire to say what it is | |
| | Desire to put obligations first | |
| | The desire to immediately carry out the task | |
| | Shame to claim rights | |

Source: author.

RESULTS

Demographic profile of respondents

Table 3 shows the demographic profile of survey respondents. As observed, most of them reported undergraduate education attainment, working experience of less than 16 years, and over 3 years of experience using e-government platforms.

Table 3.

Respondents' demographic profile (n = 400).

| Characteristic | Yogyakarta City | | Kulon Progo Regency | | Bantul Regency | | Sleman Regency | |
|-------------------------------|-----------------|----|---------------------|----|----------------|----|----------------|----|
| | Freq | % | Freq | % | Freq | % | Freq | % |
| Age | | | | | | | | |
| < 35 years | 40 | 40 | 23 | 23 | 49 | 49 | 38 | 38 |
| 36-45 years | 45 | 45 | 43 | 43 | 42 | 42 | 36 | 36 |
| > 45 years | 15 | 15 | 34 | 34 | 9 | 9 | 26 | 26 |
| Education level | | | | | | | | |
| High school | 11 | 11 | 13 | 13 | 11 | 11 | 11 | 11 |
| Diploma | 5 | 5 | 3 | 3 | 9 | 9 | 10 | 10 |
| Undergraduate | 57 | 57 | 59 | 59 | 61 | 61 | 61 | 61 |
| Graduate | 27 | 27 | 25 | 25 | 19 | 19 | 18 | 18 |
| Working experience | | | | | | | | |
| 0-15 years | 53 | 53 | 64 | 64 | 54 | 54 | 53 | 53 |
| 16-30 years | 37 | 37 | 36 | 36 | 46 | 46 | 42 | 42 |
| > 30 years | 10 | 10 | 0 | 0 | 0 | 0 | 5 | 5 |
| Experience using e-government | | | | | | | | |
| < 1 years | 46 | 46 | 8 | 8 | 47 | 47 | 24 | 24 |
| 1-3 years | 50 | 50 | 32 | 32 | 45 | 45 | 21 | 21 |
| > 3 years | 4 | 4 | 60 | 60 | 8 | 8 | 55 | 55 |

Source: author.

Research variable reliability

A variable is reliable when the values of composite reliability or Cronbach's Alpha reach values over 0.700 (Sarstedt & Cheah, 2019). Consequently, as observed in table 4, all the variables examined in this study are reliable.

Table 4.

Research variable reliability.

| Variables | Cronbach's Alpha | rho_A | Composite reliability | Average variance extracted (AVE) | Outcome |
|------------------------------|------------------|-------|-----------------------|----------------------------------|----------|
| Unit grouping | 0.717 | 1.001 | 0.713 | 0.539 | Reliable |
| Unit size | 0.875 | 0.748 | 0.627 | 0.596 | Reliable |
| Span of control | 0.875 | 0.885 | 0.923 | 0.800 | Reliable |
| Empathy | 0.835 | 0.838 | 0.901 | 0.752 | Reliable |
| Strong ties to the community | 0.761 | 0.798 | 0.816 | 0.601 | Reliable |
| Giving priority to duty | 0.722 | 0.708 | 0.798 | 0.578 | Reliable |
| Cooperative | 0.828 | 0.835 | 0.897 | 0.745 | Reliable |
| Keeping harmony | 0.810 | 0.826 | 0.887 | 0.725 | Reliable |
| Honesty and trustworthiness | 0.838 | 0.839 | 0.910 | 0.755 | Reliable |
| Obeying social norms | 0.852 | 0.751 | 0.913 | 0.772 | Reliable |
| E-government implementation | 0.935 | 0.938 | 0.897 | 0.723 | Reliable |

Source: author.

Hypothesis test

Table 5 below displays the results of hypothesis testing, where each hypothesis is accepted when the T-s value is more than 1.96 and the P-Value is below 0.05. H1 hypothesis, which stated that unit grouping positively and significantly influences the implementation of e-government, was rejected. Based on the findings, it can be interpreted that local government employees continue to implement e-government according to a defined plan, even though organizational units are not formed based on service functions, the organizational unit does not have a work team, and the organizational unit does not have a network with other organizational units.

Table 5.

Hypothesis testing.

| Variables | Original sample | Sample mean | Standard deviation | T Statistics | P-Values | Outcome |
|------------------------------|-----------------|-------------|--------------------|--------------|----------|-----------|
| Unit grouping | 0.004 | 0.003 | 0.069 | 0.058 | 0.954 | Rejected |
| Unit size | 0.150 | 0.130 | 0.149 | 2.280 | 0.011 | Supported |
| Span of control | 0.124 | 0.116 | 0.096 | 2.053 | 0.046 | Supported |
| Strong ties to the community | 0.109 | 0.097 | 0.107 | 1.019 | 0.308 | Rejected |
| Empathy | 0.071 | 0.103 | 0.106 | 0.665 | 0.506 | Rejected |
| Cooperative attitude | 0.451 | 0.459 | 0.115 | 3.928 | 0.000 | Supported |
| Obeying social norms | 0.260 | 0.258 | 0.092 | 2.812 | 0.005 | Supported |
| Keeping harmony | 0.009 | 0.045 | 0.117 | 2.107 | 0.041 | Supported |
| Honesty and trustworthiness | 0.019 | 0.010 | 0.064 | 0.299 | 0.765 | Rejected |
| Giving priority to duty | 0.368 | 0.350 | 0.111 | 3.327 | 0.001 | Supported |

Source: author.

H2, which stated that unit size positively and significantly influences the implementation of e-government, was supported. This result can be interpreted through the following relationship: the more strategic apex (top leadership in public organizations), middle line (managers who bridge between the upper and lower groups in project planning and implementation), operating core (those in charge of carrying out the project operationally), technostructure (people in charge of providing ideas and thoughts), and supporting staff (those who provide various technical facilities provide full support), the better and smoother e-government implementation is conducted in local governments.

H3, which stated that span of control positively and significantly influences the implementation of e-government, was also supported. It can be stated that the lower the level of the organizational hierarchy, the greater the number of subordinates that need to be coordinated, and the easier it is for reports to be

submitted by subordinates to superiors, which means that the more vertical and horizontal collaboration is created, the easier the implementation of e-government can be.

H4, according to which strong ties to the community positively and significantly influence the implementation of e-government, was rejected. It can be concluded that government employees have or do not have the desire to help others, prioritize or not prioritize the public interest, and highlight or not traditional collective life in their work environment, so they still conduct plans to implement e-government in their offices.

H5, which stated that empathy positively and significantly influences the implementation of e-government, was rejected. It is possible to conclude that whether or not civil servants have the willingness to hear other people's thoughts, have or do not have the willingness to understand other people's situations, have or do not have concerns for other people's feelings, they still implement new technologies in local government.

H6, which stated that a cooperative attitude positively and significantly influences the implementation of e-government, was supported. It means that the less civil servants are individualistic in their work environment, the more they desire to share information and important data with other workers, and the more they desire to cooperate with others, the easier it is for them to implement the ICTs in local government.

H7, which implied that obeying social norms positively and significantly influences e-government implementation, was also supported. This indicates that the more the public servants desire to respect social life norms, the more desire to obey the rules in their organization, and the more desire to maintain good relationships with others, the more they are willing to carry out tasks related to implementing e-government in the public organization.

H8, which declared that keeping harmony positively and significantly influences the implementation of e-government, was supported, which means that the more public servants desire to reach a consensus on various issues, the more they desire to avoid conflict in doing their work, and the more they desire to avoid debate against colleagues in the organization, the more they can perform their obligations in implementing today's advanced technology.

H9, which stated that honesty and trustworthiness positively and significantly influence e-government implementation, was rejected. This finding implies that whether bureaucrats have or do not have the desire to uphold honesty, have or do not have the desire to be trusted by others, and have or do not have the desire to say what it is, they still implement e-government projects. This result raises concerns regarding public workers secretly engaging in corruption acts in completing the project, a habit that is commonly observed in developing countries.

Finally, H10, which proposed that giving priority to duty positively and significantly influences e-government implementation, was supported. This result can be interpreted as the more officials in government organizations desire to put obligations first rather than waiting to be ordered by their superiors, desire to immediately carry out the task rather than delaying doing it, and feel shame about claiming rights instead of running the job, the more they can play a role in applying ICT-related projects.

Validated research model

Figure 2 depicts the validity of the indicators that have been established as questionnaires. When an indicator's value was more than 0.5, it was regarded as valid. In figure 2, there are three indicators with a value below 0.5, namely ug2, us1, and us2. Thus, these three variables are considered invalid.

The degree of influence of the variables was determined using regression analysis, which was divided into three R-square scales: 19-33% is considered low (weak), 34-67% moderate, and over 67% strong (substantial). The findings for regression analysis are shown in figure 2, where one can see that e-government implementation was influenced by unit grouping, unit size, span of control, strong ties to the community, empathy, cooperation, keeping harmony, honesty and trustworthiness, and giving priority to duty in 86.5%. From these results, it appears that independent variables had a strong/substantial impact on the dependent variable.

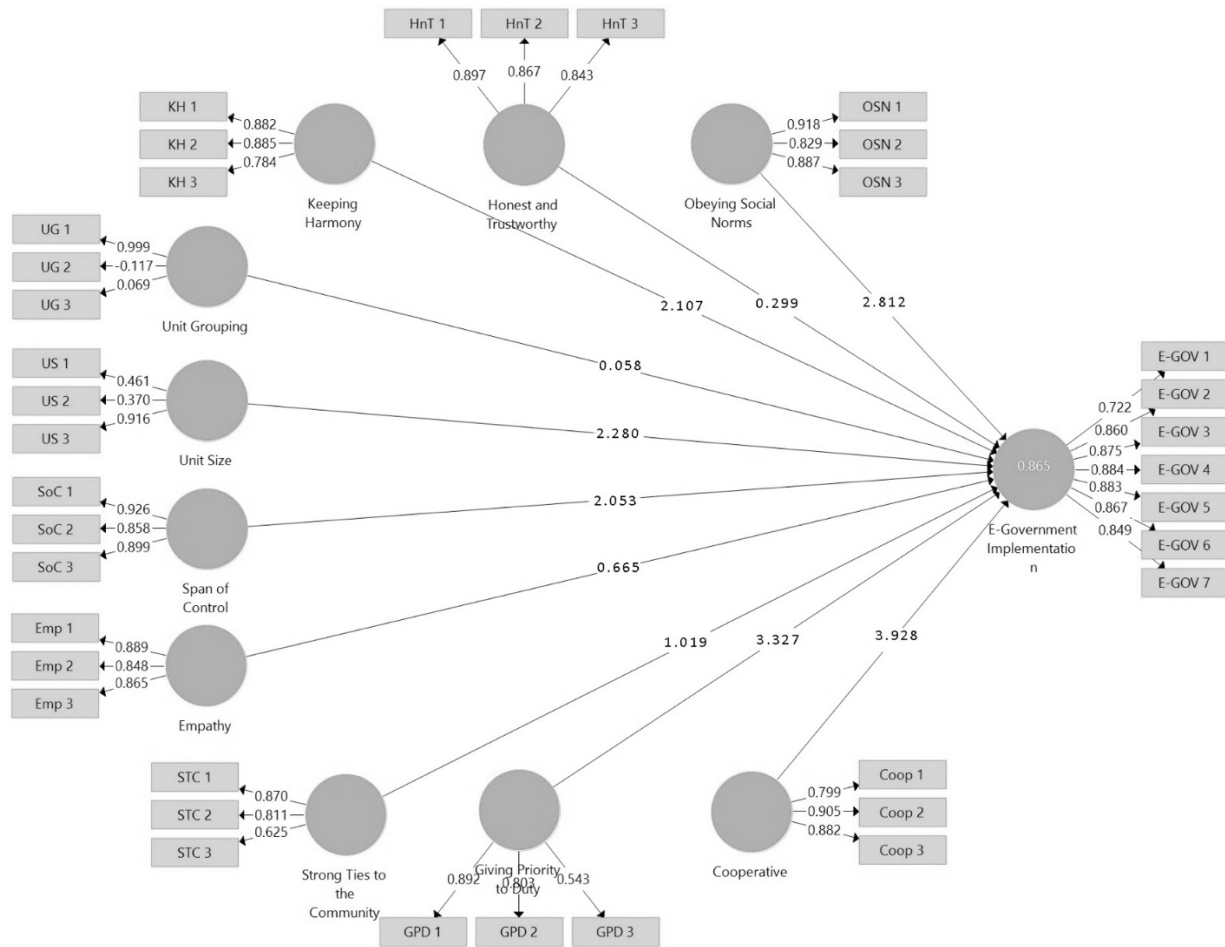


Figure 2. Validated research model. Source: author.

DISCUSSION

This study empirically examined organizational structure variables (unit grouping, unit size, span of control) and organizational culture variables in the context of Indonesia (strong ties to the community,

empathy attitude, cooperative attitude, obeying social norms, keeping harmony, honesty and trustworthiness, and giving priority to duty) and their role in predicting e-government implementation.

Based on the results obtained, the more encouragement from the strategic apex and middle managers and assistance from experts and technicians, as well as the narrower the span of control, and the more cooperation, coordination, and collaboration between organizational units, the more eager civil servants will be in adopting e-government. This insight justifies the findings of previous scholars regarding the influence of government organizational structure on e-government implementation. As an example, Batara *et al.* (2017) found that organizational structure influenced the decision to seek e-government reforms. In addition, Karlsson *et al.* (2017) stated that bureaucratic organizational boundaries are factors that impact the exchange of information and communication between organizations in the public sector in the current era of modern technology. Sta (2018) suggested that the creation and implementation of e-government services in government organizations aimed at improving the quality of public services, requires a new organizational structuring framework capable of supporting governments in operating new technologies. Furthermore, Chen *et al.* (2019) concluded that the effectiveness and accountability of cross-border e-government systems are influenced by institutional designs that involve interdependencies between organizational units.

Moreover, Gil-Garcia *et al.* (2019) stated that the clarity of roles and tasks in organizational units affects the smooth exchange of information and communication across organizational stakeholders, while Gharawi and Alneami (2020) identified that authority or power and organizational hierarchy or span of control affect the information exchange and communication activities across the boundaries of public organizations. For their part, Tangi *et al.* (2021) found that the transformation of digital governance through the application of advanced technology is influenced by the organizational structure, particularly the level of centralization and decentralization, the level of flexibility in organizational behavior, and the span of control that describes the relationships between organizational units. Choi and Chandler (2020) assumed that the success or failure of implementing e-government innovation in public organizations can be caused by an organizational structure including authority, unit grouping, power relationships, and collaboration between organizations.

Pribadi and Kim (2021) examined the impact of civil servants' cultural behavior on public services from the perspective of citizens with access to these services. They concluded that all of the cultural aspects addressed positively and significantly impacted the quality of public services. In contrast to these findings, the present study, examining the influence of culture on employee behavior in implementing e-government, identifies that not all aspects related to culture affect e-government implementation. Cultural variables that positively and significantly affect the implementation of e-government include cooperative attitude, obeying social norms, keeping harmony, and giving priority to duty. Meanwhile, cultural variables that do not significantly affect the implementation of the ICT are strong ties to the community, empathy, and honesty and trustworthiness.

Other scholars also addressed the impact of cultural dimensions on the adoption of e-government, although they did not mention the detail of the examined dimensions. Jackson and Wong (2017) and Batara *et al.* (2017) found that e-government deployment and uptake were influenced by organizational culture. Chen *et al.* (2019), in turn, assumed that when cross-border e-government systems featured a citizen-centric and innovative organizational culture, they become more efficient and accountable. Gharawi and Alneami

(2020) stated that organizational culture and leadership had an impact on cross-border information exchange activities, and Tangi *et al.* (2021) claimed that the digital government revolution was affected by values, as well as individual and societal activities. Finally, Choi and Chandler (2020) expressed that the application of e-government innovation could be hampered by behavioral antecedents.

CONCLUSION

The theoretical contribution of this study can be explained as follows. Scholars argued that organizational structure and organizational culture influence e-government implementation. However, this study, which studied the Indonesian case, shows that some aspects of organizational structure and organizational culture influence e-government adoption. This finding provides a new insight showing that a given element of organizational structure (i.e., unit grouping; span of control; unit size; and culture; strong ties to the community; empathy attitude; cooperative attitude; obeying social norms; keeping harmony; honesty and trustworthiness; giving priority to duty) may or may not have an effect on the application of technology in government agencies. The reflection of thoughts that can be raised from the results of this study located in Indonesia is that we must consider the details of the structural and cultural aspects that affect or do not affect the implementation of e-government. Moreover, it is identified that certain aspects of organizational structure and culture have a positive and significant effect on the application of e-government, although some aspects generate no effect at all.

The practical implications of these results can be summarized as follows. First, local government officials should look back at the organizational unit grouping and rearrange the formation of organizational units so that these are formed based on public service functions. Second, local government leaders must seek strengthening the unit size and span of control of the organization. To do so, these leaders need to introduce new patterns of coordination and integration between government agencies and collaboration between government agencies and their stakeholders. Third, the heads of local government must sort out which organizational culture variables support (or not) the implementation of ICTs. Employee behavior in the form of cooperative attitudes toward citizens, adherence to social norms, compromise attitudes, and attitudes to prioritize duties over rights, need to be encouraged and developed.

On the other hand, this study had certain limitations, including the number of research locations, which are only 4 districts and cities. Hence, findings may not be generalized to the entire Indonesian territory. Additionally, the relatively small number of respondents may not represent the real state of government employees, and the duration of the study was not sufficiently long enough.

Further research on the subject should examine new independent variables, such as transparency, participation, and accountability of local governments, and how they affect the adoption of modern technologies. Future studies should engage a wide range of local government entities to cover a larger geographical area and involve a larger number of participants in order to determine the consistency of their perceptions. Finally, longitudinal data might be employed in future studies to confirm the effectiveness of the proposed model.

DISCLOSURES

Author declare no institutional or personal conflicts of interest.

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