

TOWARD EQUAL ACCESS TO PUBLIC SERVICES THROUGH ENHANCED E-GOVERNMENT IN SEMARANG CITY

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Abstract

This research examines the influence of e-Government initiatives on equal access to public services in Semarang City, Indonesia. Quantitative research is used systematically with the aim of describing, confirming and proving hypotheses related to observed phenomena through the collection and analysis of numerical data. This research methodology uses a Structural Equation Modeling (SEM) approach which is used to test and measure the relationship between variables in a model. The results show that e-Government initiatives have the potential to increase equality of access, but their effectiveness is colored by two main factors: digital infrastructure and cultural differences. Digital infrastructure gaps, such as limited internet connectivity and digital literacy, still limit the affordability of e-Government services. Cultural differences in technology adoption, language, and service preferences can also hinder the use of e-Government, especially for older generations and traditional communities. This research analyzes these findings based on the digital divide theory and underlines the importance of developing e-Government initiatives that are inclusive and responsive to the needs of diverse communities. The theoretical implications of this research emphasize the need to consider digital infrastructure and cultural differences in the design and implementation of e-Government to achieve optimal equality of access to public services.

Keywords: Equal access, digital infrastructure, cultural differences, digital divide, e-Government.

1. INTRODUCTION

Public services are crucial functions of the government aimed at fulfilling the needs of the community. Semarang City, as one of the major cities in Indonesia, provides a diverse range of public services, including population administration, education, health, social, and infrastructure services. The Semarang City Government has undertaken initiatives to enhance the quality of public services, and one such effort involves the implementation of the e-government system. This system is designed to streamline public access to various services (Prabowo et al., 2023; Sara & Saputra, 2021). Despite these efforts, several challenges persist in the delivery of public services, particularly concerning disparities in access. This is especially true for individuals in remote areas or those facing economic limitations. While navigating the bureaucratic complexities of public services can be cumbersome for urban dwellers, it presents a

formidable obstacle for those in remote islands. This divide not only undermines trust in governance but also hampers individual progress and social well-being. However, amidst these disparities, there is a promising solution: e-government (e-gov). No longer just a buzzword, e-gov provides a transformative pathway to bridge these gaps and pave the way for equal access for all (Durman, 2019; Adam, 2018; Nag, 2018).

E-Government, defined as a concept that allows the public to engage in decision-making, access public services, and participate in public administration through information and communication technology, has been utilized in Indonesia for the purpose of efficient governance (Muksin & Avianto, 2021; Maulana & Bafadhal, 2020; Ritchi et al., 2016). This initiative aims to improve the efficiency and quality of public services by providing online access to public information. In line with this, the Indonesian government has implemented various e-government initiatives in recent years, including the use of e-procurement. However, the adoption of e-Government in Indonesia and other developing countries faces several challenges (Syahputri & Kusdarini, 2021). These challenges include the impact of technology disruption on traditional public services, citizens' ability to adopt technology, and potential job losses for government employees. To address these challenges, the Indonesian government has established an e-government development task force in every government agency. This task force serves as a starting point for the application of information and communication technology in governance.

The development of an "Industry 4.0-based e-Government System" is a global trend that Indonesia is also following. This model enables public services to be accessed electronically without the need for physical visits to government offices (Luscombe & Duncan, 2023; Durman, 2019; Adam, 2018). This shift towards an e-Government system has the potential to bridge the divide in access to public services and enhance transparency, efficiency, and accountability. Therefore, it is crucial for local governments in Indonesia to ensure that the adoption of e-Government does not leave any citizens behind who are unable to adapt to technology (Zhou et al., 2022). This will require careful consideration of the impact on traditional public services and the potential displacement of government employees. By embracing digital devices and enhancing digital competence, e-Government can become a powerful tool to promote inclusion, equity, equality, and quality in public services (Zhou et al., 2022; Sara & Saputra, 2021; Giulio & Vecchi, 2021; Durman, 2019)

The COVID-19 pandemic showed how crucial online access and inclusion are for public services. Local governments used social media not just to share information but also to chat with citizens and involve them in decisions (Meghana & Chavali, 2023). This makes it vital for the government to prioritize digital inclusion and remove any obstacles that prevent technology use. This means training people, budgeting for e-Government projects, and setting up rules that help people use technology (Utama, 2020; Maulana

& Bafadhal, 2020). By overcoming these challenges and implementing strong e-Government plans, Indonesia can bridge the gap and ensure everyone has equal access to public services. This needs cooperation from the government, businesses, non-profits, and citizens themselves. Ultimately, e-Government in Indonesia can connect the unconnected, give everyone equal access to services, and make things more transparent, efficient, and accountable (Wardana et al., 2022; Gibss et al., 2019).

There are several challenges that hinder the adoption of e-Government and equal access to public services. These challenges include insufficient high-quality human resources, lagging technological infrastructure, low innovative capacity, lack of wealth, unheeded rule of law, and opaque transparency levels. These factors contribute to the digital divide and hinder the effective implementation of e-Government initiatives in the country (Apriliyanti et al., 2021; Amerieska et al., 2021). To address these challenges and promote equal access to public services, it is crucial for the Indonesian government to prioritize digital inclusion (Amerieska et al., 2021; Maulana & Bafadhal, 2020). This includes providing extensive training and usability testing to ensure that e-Government services are accessible to all citizens, regardless of their digital skills or abilities (Rachmawati & Fitriyanti, 2021).

The government must also invest in upgrading technological infrastructure to improve connectivity and ensure that all regions have access to reliable internet services (Maulana & Bafadhal, 2020). To bolster the success of e-Government initiatives in Indonesia, the government must allocate ample budget and resources. This should encompass the development of user-friendly platforms, particularly mobile-accessible applications, to align with citizens' needs and preferences. Establishing regulatory frameworks supportive of e-Government adoption is equally crucial (Rachmawati & Fitriyanti, 2021). However, the introduction of e-Government raises concerns, notably regarding data privacy and cybersecurity. As services increasingly rely on digital platforms, the risk of data breaches and cyber-attacks escalates. Citizens may hesitate to engage due to apprehensions about the security of their personal information. Moreover, the digital divide extends to technology and internet access, particularly in remote areas. Bridging this gap requires prioritizing data protection measures and investing in infrastructure development (Rachmawati & Fitriyanti, 2021; Kira et al., 2021; Utama, 2020).

The shift towards e-Government comes with potential challenges, particularly the risk of job displacement for government employees lacking digital skills. This poses substantial social and economic consequences, particularly for those struggling to adapt to the digital work environment. To address this, the government must formulate strategies for retraining and supporting affected workers through the technological transition. The broader implementation challenges in Indonesia encompass the digital divide, low adoption rates, trust issues, data privacy concerns, infrastructure development, and job displacement for government employees (Muksin & Avianto, 2021; Maulana & Bafadhal, 2020).

Overcoming these challenges requires a focus on digital literacy and skills training, especially for older adults less familiar with technology (Kong & Liu, 2023; Morueta et al., 2021). While e-Government initiatives offer potential benefits, comprehensive strategies are needed to address the significant challenges and risks. By prioritizing digital literacy and addressing issues like trust, infrastructure development, and job displacement, Indonesia has the potential to bridge the divide and ensure equal access to public services for all citizens (Rachmawati & Fitriyanti, 2021).

2. LITERATURE REVIEW

In Indonesia, there is a growing acknowledgment of the crucial role that equal access to public services plays for all citizens. This recognition is grounded in the principle of equity, emphasizing that every individual should enjoy equal opportunities to access and benefit from public services, irrespective of their background, socioeconomic status, or geographical location. This principle aligns with the government system's structure, asserting that everyone has the right to convenience and equal treatment under the law (Swartzendruber, 2018; Suparmi et al., 2018). The theory of justice embedded in these principal advocates for the fair distribution of resources and benefits across society. Ensuring equality of access to public services reflects a social justice approach, safeguarding every individual's right to access these services without discrimination. This theory is deeply rooted in the belief that all citizens should have equal access to quality services, spanning education, healthcare, housing, and social welfare (Setianto & Gamal, 2021; Berry-James et al., 2020). The aim is to guarantee that individuals from all social groups, regardless of their location, socioeconomic status, or cultural background, enjoy the same opportunities and resources. This ensures that no one is left behind or disadvantaged due to factors beyond their control. In political philosophy, equality of citizens, a fundamental precondition for justice, requires equal autonomy or opportunities for a dignified life rather than mere biological need satisfaction. Thus, equitable access to public services plays a pivotal role in achieving social justice and reducing inequality within society (Wu et al., 2022; Gooden, 2009; Svava & Brunet, 2005).

Equitable access to public services stands as a crucial element of social justice within public administration, emphasizing fairness for service recipients and in the service delivery process. It ensures that all citizens, regardless of their income, race, or gender, have an equal opportunity to benefit from these services. Social equity underscores the just distribution of public services by committing to fairness, justice, and accessibility for every citizen. This commitment extends to the formulation and execution of public policies, aiming to foster fairness, address disparities, and pursue equal outcomes (Davidovits & Cohen, 2021; Uhaib & Djani, 2018). Additionally, social justice in public services encompasses the principle of equal treatment and dignity. This entails treating all individuals with respect and providing the same level of care and attention, irrespective of their background or circumstances. Rooted in the notion

that every citizen has an equal right to receive quality public services, the theory of social justice in public services acknowledges that essential services should not be restricted by factors such as geography, socio-economic status, or cultural identity (Bent-Goodley & Hopps, 2017).

In essence, social justice in public services strives to establish a level playing field, ensuring that everyone has equal access to the resources and opportunities essential for a dignified life. The integration of technology and digital devices becomes pivotal in this pursuit, enabling efficient and equitable service delivery to prevent anyone from being left behind due to uncontrollable factors. Technology facilitates widespread access to public services, transcending geographical and socioeconomic barriers. This approach fosters social justice by upholding fairness, justice, and equality in service provision (Gadson, 2020). It advocates for equal access based on need and utilization, ultimately leading to improved outcomes for all individuals. Summarily, social justice in public services emphasizes fair distribution and equal treatment for every citizen, irrespective of their background (Davidovitz & Cohen, 2021; Gadson, 2020). This principle underscores the importance of ensuring that no one is disadvantaged or excluded from essential services due to factors like income, race, gender, or geographic location. Prioritizing social justice in public services is essential for creating a more equitable and inclusive society, offering equal opportunities for all citizens to access and benefit from these services (Norman-Major, 2023; Clark, 2017).

The Inclusive Public Service Theory underscores the paramount importance of providing accessible and equitable public services (Antoun et al., 2023; Tour et al., 2023). This theory advocates for equal opportunities for all individuals, irrespective of socioeconomic status, race, gender, or other characteristics, to access and benefit from public services. Overcoming barriers, whether physical, financial, informational, or systemic, is crucial to achieving inclusivity (Duque & Otaegui, 2023). To ensure inclusivity, governments and institutions can adopt various strategies such as improving physical infrastructure, providing financial assistance, offering information in multiple languages or formats, implementing non-discriminatory policies, and actively promoting diversity and inclusion within the public service sector (Wendt et al., 2023; Duque & Otaegui, 2023; Antoun et al., 2023). The theory accentuates the importance of addressing barriers and implementing strategies to enable individuals from diverse backgrounds to access and benefit from public services. Strategies include improving physical infrastructure, providing financial assistance, ensuring easy access to information, implementing non-discriminatory policies, and promoting diversity and inclusion within the public service sector. Enhancing accessibility and equality of access to public services, including universal internet access and technology support for seniors, addresses disparities in internet access among older citizens (Ibrahim & Benmoussa, 2023; Morueta et al., 2021; Chohan & Akhter, 2021)

In emphasizing the significance of equal access to public services for all individuals, regardless of their socioeconomic status, race, or gender, the Inclusive Public Service Theory recognizes and seeks to address existing barriers (Tour et al., 2023; Meghana & Chavali, 2023). To tackle inequalities in access, governments and institutions should consider spatial equity and social inclusion principles. This involves ensuring that public services are geographically distributed to allow equal access for all communities and implementing policies that actively promote social inclusion while addressing systemic barriers. Public services should be easily accessible to all individuals, regardless of their location or background, achieved through improving physical infrastructure and offering financial assistance (Antoun et al., 2023; Tour et al., 2023). Enhancing inclusivity involves providing information about public services in various languages or formats. Moreover, public service providers must actively promote diversity and inclusion within their workforce by recruiting a team that mirrors the communities they serve (Morueta et al., 2021).

3. RESEARCH METHODOLOGY

Evaluate and improve equal access to public services in Semarang City, this research utilized a quantitative approach. Specifically, it examined the effectiveness of e-Government initiatives in overcoming public access gaps by applying this method. This is expected to lead to a deeper understanding of the role of e-Government in bridging these gaps. In this research, the objective is to explore and address the issue of unequal access to public services in Indonesia through the improvement of e-Government. The researchers can use a quantitative approach to gather data on the current state of access to public services in Indonesia and measure the impact of e-Government initiatives on reducing the gap (Xing & Yang, 2023; Jampachaisri & Tinochai, 2019). By surveying a representative sample of the population, researchers can collect numerical data on individuals' access to and satisfaction with public services. This approach enables statistical analysis, like correlations and regression analyses, to test the hypothesis that improving e-Government can bridge the gap in access to public services. And methodology uses a Structural Equation Modeling (SEM) approach which is used to test and measure the relationship between variables.

The researchers can also utilize existing data sets from government records and online platforms to gather quantitative data on the availability and utilization of public services, objectively measuring the effectiveness of e-Government initiatives in improving access and identifying any disparities across demographic groups. (Kodithuwakku, 2022). This approach will offer valuable insights into the impact of e-Government on addressing access to public services in Semarang City. This enables policy makers and stakeholders to make informed decisions and strategies to improve service delivery. Researchers can collect numerical data on variables such as service quality, e-health literacy, licensing and population served online through statistical analysis to identify patterns, relationships and trends (Ahsan et al., 2021).

This approach will provide a comprehensive understanding of the current state of access to public services in Semarang City and the potential impact of e-Government initiatives. This study proposes the following practical implications. By using a quantitative approach, policymakers and stakeholders can identify specific areas of improvement in e-Government initiatives to enhance access to public services (Kodithuwakku, 2022). They can also track the progress and effectiveness of these initiatives over time by collecting and analyzing quantitative data on access and satisfaction with public services (Rachmawati & Fitriyanti, 2021). This information can then be used to inform policy decisions, allocate resources effectively, and improve overall service delivery for the population (Ahsan et al., 2021). Using a quantitative approach enables researchers to objectively measure the impact of e-Government initiatives on bridging the gap in access to public services (Kodithuwakku, 2022). This approach allows for a systematic and rigorous evaluation of the effectiveness of e-Government initiatives, providing concrete evidence of the outcomes and potential benefits. The data collected through a quantitative approach can be used to identify disparities in access to public services among different demographic groups, allowing policymakers to target interventions and resources where they are most needed (Rachmawati & Fitriyanti, 2021; Ahsan et al., 2021).

TABLE 1- NUMBER OF "SI D'NOK APPLICATION" USERS SUB-DISTRICT LEVEL CITY

Sub-district	Amount	Percent (%)
Mijen	1.818	5,25
Gunungpati	1.674	4,83
Banyumanik	2.319	6,70
Gajah Mungkur	940	2,71
Semarang Selatan	1.212	3,50
Candisari	2.461	7,11
Tembalang	3.480	10,05
Pedurungan	3.125	9,02
Genuk	1.696	4,90
Gayamsari	834	2,41
Semarang Timur	927	2,68
Semarang Utara	3.054	8,82
Semarang Tengah	833	2,41
Semarang Barat	4.915	14,19
Tugu	790	2,28
Ngaliyan	4.553	13,15
	34.613	100

3.1. Research Population

The research population is the group of individuals or entities under study, directly influencing the generalizability and relevance of research findings. In the context of e-Government in Indonesia, the population may include citizens, government officials, and other stakeholders involved in or impacted by public service provision. Recognizing the diverse socio-economic, cultural, and geographical backgrounds within the Indonesian population is crucial. Ensuring representation across various

demographics guarantees a comprehensive understanding of the challenges and opportunities associated with e-Government adoption. The target population in this research is people who use electronic services (SI D'nok application) at the Population and Civil Registration Service (Disdukcapil) Semarang City. Meanwhile, for supporting data used interviews with government officials, e-Gov policymakers, provider e-Gov, and public service delivery. The number of service users who are the target population for this research are people who are recorded as having accessed "SI D'nok application" who identified is 34,613 people, presented per each sub-district in Semarang City.

3.2. Sampling

Based on the number of users in Table 1, the calculation of the research sample is carried out by determining the size of the sample size first through a table that can ensure a good decision model (Strack, 2018; Kumar, 2018). So, the sample size for the target population is 34,613 with margin of error 5 percent is 385. Then, the proportion of samples based on each sub-district will be made as follows:

$$n = \frac{(Z^2)(p)(q)}{(e^2)} \quad n = \frac{(1.96^2)(0.5)(0.5)}{(0.05^2)} \quad n = 384.16 = 385$$

Information:

- n = sample size
- z = z-score for the desired confidence level
- p = Proportion of the Expected Population
- q = 1-p
- e = margin error

TABLE 2-SAMPLING DISTRIBUTION

Area Distribution: 1	Area Distribution: 2
- Sub-district Mijen (SM) (SM) = $\frac{1.818}{34.613} \times 385 = 21$	- Sub-district Genuk (SGe) (SM) = $\frac{1.696}{34.613} \times 385 = 19$
- Sub-district Gunungpati (SG) (SG) = $\frac{1.674}{34.613} \times 385 = 19$	- Sub-district Gayamsari (SGa) (SM) = $\frac{834}{34.613} \times 385 = 9$
- Sub-district Banyumanik (SBu) (SB) = $\frac{2.319}{34.613} \times 385 = 26$	- Sub-district Semarang Timur (ST) (SM) = $\frac{927}{34.613} \times 385 = 10$
- Sub-district Gajah Mungkur (SGM) (SGM) = $\frac{940}{34.613} \times 385 = 10$	- Sub-district Semarang Utara (SU) (SM) = $\frac{3.054}{34.613} \times 385 = 34$
- Sub-district Semarang Selatan (SS) (SS) = $\frac{1.212}{34.613} \times 385 = 13$	- Sub-district Semarang Tengah (ST) (SM) = $\frac{833}{34.613} \times 385 = 9$
- Sub-district Candisari (SC) (SC) = $\frac{2.461}{34.613} \times 385 = 27$	- Sub-district Semarang Barat (SB) (SM) = $\frac{4.915}{34.613} \times 385 = 55$
- Sub-district Tembalang (STe) (SB) = $\frac{3.480}{34.613} \times 385 = 39$	- Sub-district Tugu (STg) (SM) = $\frac{790}{34.613} \times 385 = 9$
- Sub-district Pedurungan (SP) (SP) = $\frac{3.125}{34.613} \times 385 = 35$	- Sub-district Ngaliyan (SN) (SM) = $\frac{4.553}{34.613} \times 385 = 51$
Sum = 190	Sum = 195
Total = 385	

3.3. Hypothesis

H1: Enhanced e-Gov initiatives will positively affect equal access to public services

H2: Improved digital infrastructure will moderate the relationship between e-Gov initiatives and equal access, potentially strengthening the positive effect.

H3: Cultural differences may moderate the relationship between e-Gov initiatives and equal access, potentially weakening the positive effect in regions with low tech adoption or specific preference for offline services.

3.4. Primary and Secondary Data Sources

The primary data in this study was obtained from respondents' answers to questionnaires distributed to users of electronic services in Disdukcapil Semarang City to find out respondents' opinions regarding:

- Independent variable: Enhanced e-Gov initiatives (X-EGI), This latent construct can be measured by indicators like the availability of user-friendly platforms, mobile accessibility, online service variety, and service efficiency.
- Moderating variables: digital infrastructure (Y1-DI), cultural differences (Y2-CD). this could include internet connectivity, hardware access, and digital literacy programs.
- Dependent Variable: equal access (Z-EqA), This could involve factors like regional variations in tech awareness, preferred service delivery channels, and language barriers.

While secondary data were obtained from academic manuscripts, documentation, work reports of Semarang City Disdukcapil as well as interviews with government officials, e-Gov policymakers, e-Gov providers, and public service delivery.

3.5. Collection of research instruments

The collected questionnaire data will be used as valid and representative information material for further analysis. The scale developed in this research instrument is a reference to determine the short length of the interval in the measuring instrument, so that the measuring instrument when used in measurement will produce quantitative data.

3.6. Test the validity of research instruments

Testing the validity of the instrument in this study uses criteria by comparing the calculated r value with the r table for degree of freedom $(df)=n-2$, where n is the number of samples. If r count is greater than r table, then the item or instrument is declared valid. Conversely, if r count is smaller than r table, then the item or instrument is declared invalid. Based on the output "correlations known value $r=0.113$ with $n=385$ and the level of significance 5% (all item cases valid).

3.7. Test the reliability of research instruments

Reliability testing criteria can be seen from the correlation value *r* and reliability coefficient (Cronbach's Alpha). If the correlation value *r* is greater than 0.3 and the reliability coefficient is greater than 0.6, then the grain or instrument is considered reliable. Conversely, if the correlation value *r* is smaller than 0.3 and the reliability coefficient is smaller than 0.6, then the item or instrument is declared unreliable (Strack, 2018; Kumar, 2018). The results showed all variables Enhanced e-Gov initiatives (X-EGI), digital infrastructure (Y1-DI), cultural differences (Y2-CD), and equal access (Z-EqA), scale all variables in reliability Cronbach's Alpha 0.957 (Valid cases 99.7%).

Case Processing Summary

		N	%
Cases	Valid	384	99.7
	Excluded ^a	1	.3
	Total	385	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.957	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
VAR_X_EGI	153.85	663.862	.993	.941
VAR_Y_DI	193.28	1073.952	.985	.946
VAR_Y_CD	200.51	1136.700	.971	.960
VAR_Z_EqA	161.19	757.155	.989	.918

Convert path diagram into structural model: Partial Least Squares Structural Equation Modeling (PLS-SEM):

- Independent Variables: e-Gov initiatives (X-EGI);
 - Availability platforms (X₁) = λ_{X1} EGI + δ₁
 - Mobile accessibility (X₂) = λ_{X2} EGI + δ₂
 - Online service variety (X₃) = λ_{X3} EGI + δ₃
 - Service efficiency (X₄) = λ_{X4} EGI + δ₄
 - λ_{Xn} = Coefficient of EGI indicator
 - δ_{1-n} = Residual

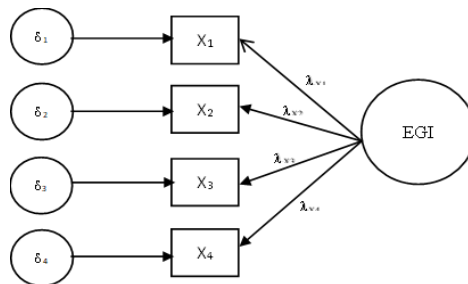


FIGURE 1- E-GOV INITIATIVES (EGI) MEASUREMENT MODEL

- Moderating Variables: Digital infrastructure (Y₁-DI)
 - Internet connectivity (Y_{1.1}) = $\lambda_{Y1.1} DI + \alpha_1$
 - Hardware access (Y_{1.2}) = $\lambda_{Y1.2} DI + \alpha_2$
 - Digital literacy programs (Y_{1.3}) = $\lambda_{Y1.3} DI + \alpha_3$
 - λ_{Xn} = Coefficient of DI indicators
 - α = Residual

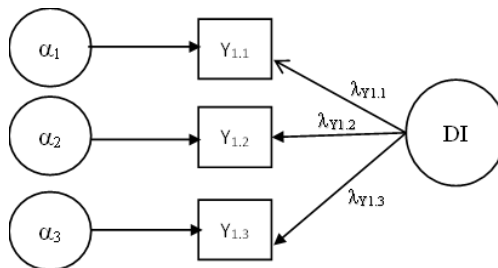


FIGURE 2 - DIGITAL INFRASTRUCTURE (DI) MEASUREMENT MODEL

- Moderating Variables: Cultural differences (Y₂-CD)
 - Regional variations in tech awareness (Y_{2.1}) = $\lambda_{Y2.1} DI + \gamma_1$
 - Preferred service delivery channels (Y_{2.2}) = $\lambda_{Y2.2} DI + \gamma_1$
 - Language barriers (Y_{2.3}) = $\lambda_{Y2.3} DI + \gamma_1$
 - λ_{Xn} = Coefficient of CD indicator
 - γ = Residual

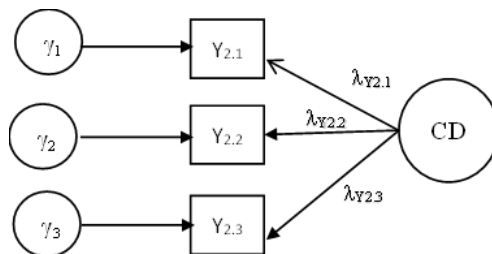


FIGURE 3 - DIGITAL INFRASTRUCTURE (CD) MEASUREMENT MODEL

- Dependent Variable: Equal Access (Z-EqA)
 - Service utilization (Z1) = $\lambda_{Z1} EqA + \phi_1$
 - satisfaction levels (Z2) = $\lambda_{Z1} EqA + \phi_1$
 - Perceived fairness of service delivery (Z3) = $\lambda_{Z1} EqA + \phi_1$
 - Reduction in disparities across regions (Z4) = $\lambda_{Z1} EqA + \phi_1$
 - λ_{Xn} = Coefficient of EqA indicator
 - ϕ = Residual

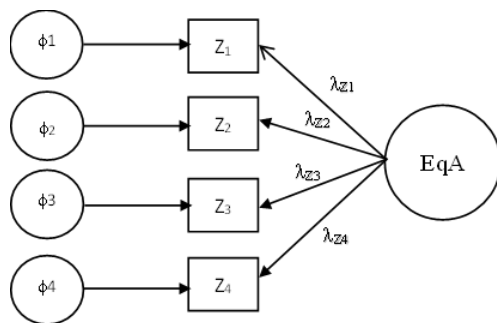


FIGURE 4: EQUAL ACCESS (Z-EQA) MEASUREMENT MODEL

3.8. Hypothesis Testing

Hypothesis testing is carried out to find out whether each hypothesis proposed in the study can be accepted / supported or not. Hypothesis testing in this study was carried out by: (1) Determining the significant level or critical value (α) of 5% (2) Comparing the t-statistical value on the bootstrapping output display of the smart-PLS program with the t-table value. If the value of t-statistic is greater than the value of t-table then the hypothesis is accepted or supported, conversely if the value of t-statistic is less than the value of t-table then the hypothesis is rejected or not supported. Based on the research hypothesis proposed earlier, testing the statistical hypothesis for the inner model, namely the influence between latent variables, specifically for exogenous variables on endogenous is as follows:

$$H_0: \alpha_i = 0 \text{ or } H_1: \alpha_i \neq 0$$

While the statistical hypothesis for the inner model: the effect of latent variables specific to endogenous variables on endogenous is as follows:

$$H_0: \beta_i = 0 \text{ or } H_1: \beta_i \neq 0$$

Testing for the hypothesis of influence between variables is done by looking at the value of the t-test, by comparing the value of the t-statistic with the t-table (1.96). If the value of the t-statistic is found above the t-table (1.96) then the value of the coefficient of influence is stated to be significant or significant, and vice versa.

Normality Test is a statistical procedure used to test whether a sample of data comes from a normal distribution. In a normality test, the main goal is to determine whether the observed data has a normal distribution or not. Testing the normality of the data obtained in this study was carried out by observing CR values in a multivariate manner. The criteria used if the multivariate critical ratio value is in the range between -5.635 to 5.440, then the distribution of research data can be declared.

TABLE 3 - NORMALITY ASSESSMENT TEST RESULTS

Residuals Statistics ^a					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	43.08	103.76	75.09	12.337	384
Std. Predicted Value	-2.594	2.324	.000	1.000	384
Standard Error of Predicted Value	.095	.387	.174	.060	384
Adjusted Predicted Value	43.08	103.81	75.09	12.337	384
Residual	-9.694	9.268	.000	1.793	384
Std. Residual	-5.385	5.149	.000	.996	384
Stud. Residual	-5.420	5.246	.001	1.004	384
Deleted Residual	-9.820	9.623	.002	1.823	384
Stud. Deleted Residual	-5.635	5.440	.000	1.016	384
Mahal. Distance	.080	16.712	2.992	2.962	384
Cook's Distance	.000	.264	.004	.017	384
Centered Leverage Value	.000	.044	.008	.008	384

a. Dependent Variable: VAR_Z_EqA

Outlier test, Mahalanobis Distance Squared, if Mahalanobis distance squared is greater than the chi-square value at $df = \text{number of indicators}$ and significance level 0.001, then the data can be categorized as an outlier.

TABLE 4 - OUTLIER TEST RESULTS

Residuals Statistics ^a					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	42.0674	105.0573	75.6026	12.95980	385
Std. Predicted Value	-2.588	2.273	.000	1.000	385
Standard Error of Predicted Value	.038	.397	.062	.029	385
Adjusted Predicted Value	42.0688	105.0583	75.5890	12.97110	385
Residual	-3.10894	8.91100	.00000	6.6712	385
Std. Residual	-4.642	13.305	.000	.996	385
Stud. Residual	-4.669	16.509	.009	1.120	385
Deleted Residual	-3.14514	13.71949	.01361	.86076	385
Stud. Deleted Residual	-4.802	30.903	.046	1.744	385
Mahal. Distance	.245	133.589	2.992	7.616	385
Cook's Distance	.000	36.768	.099	1.874	385
Centered Leverage Value	.001	.348	.008	.020	385

a. Dependent Variable: Z_EqA

Examination of multivariate outliers was carried out using the Mahalanobis criterion at the level of $\rho < 0.000$. Mahalanobis distance (Md) is evaluated using 2χ at free degrees equal to the number of parameters in the model used, namely 87 where from the statistical table obtained $2\chi = 133.589$ decision making rules, if Md from the observation point > 133.589 then it is said that the observation point is an outlier, while if Md from the observation point is < 133.589 then it is said that the observation point is not an outlier. From the Mahalanobis distance table, it can be seen that the most distant observation point is the 245th respondent with a value of $Md = 2,992$. So, it is concluded that all observation points are not outliers. Goodness Fit Test; The test below shows a statistical value of X_EGI Chi-Square of 657.187 with $df = 43$ probability of 0.000, VAR_Y_DI of 910.961 with $df = 30$ probability of 0.000, VAR_Y_CD of 315.808 with $df = 26$ probability of 0.000 and VA_Z_EqA of 546.396 with $df = 51$ probability of 0.000 then it can be concluded that all variables cannot reject H_0 .

4. RESULTS AND DISCUSSIONS

4.1. *The influence of e-Gov initiatives on equal access through digital infrastructure and cultural differences*

E-Government initiatives have the potential to improve equal access to public services. However, its effectiveness is influenced by factors such as digital infrastructure and cultural differences. Digital infrastructure, including internet connectivity, digital literacy, and hardware access, is a key prerequisite for utilizing e-Government services. In Semarang City, digital infrastructure is developing, but there are still gaps in some areas, such as internet connectivity in rural areas and small communities. This inequality can complicate access to e-Government services (Prabowo et al., 2023; Finger & Montero, 2023; Wyanan & Dai, 2019). Diverse levels of digital literacy are also obstacles, with most people having only basic literacy. This can make it difficult to understand and utilize e-Government services, especially for those with low digital literacy. In addition, cultural differences, such as technology adoption, language, and service preferences, also affect the effectiveness of e-Government initiatives. Younger generations are quicker to adopt technology, while older generations need additional support. Some communities may prefer to communicate in the local language, emphasizing the importance of multilingual interfaces and support. Differences in technology and language adoption can complicate access to e-Government services, creating barriers to communication and understanding for people who have not adopted technology or do not understand Indonesian (Sara & Saputra, 2021; Bailey & Ngwenyama, 2016).

These findings suggest that, although technology has changed the way public services are delivered, timely service is critical in meeting people's expectations of government services (Muksin & Avianto, 2021; Wyanan & Dai, 2019). In addition, the main drawback found was the low availability of complaint handling services, which indicated that people tend to find it difficult to submit complaints related to e-government services. Although the SI D'nok Semarang portal has the potential to accelerate service delivery, improvements are needed in providing a two-way communication channel to receive feedback and complaints from service users. In addition, this researcher also revealed that digital infrastructure and cultural differences in the context of e-government are strongly influenced by certain aspects (Safarov, 2021; McBride & Draheim, 2020; Nag, 2018; Bailey & Ngwenyama, 2016). Digital infrastructure is more determined by the availability of internet connectivity, hardware access, and digital literacy programs. While cultural differences, this could involve factors like regional variations in tech awareness, preferred service delivery channels, and language barriers. Thus, this study highlights the importance of managing public expectations, improving services on time and increasing the availability of communication channels to increase equal access to public services.

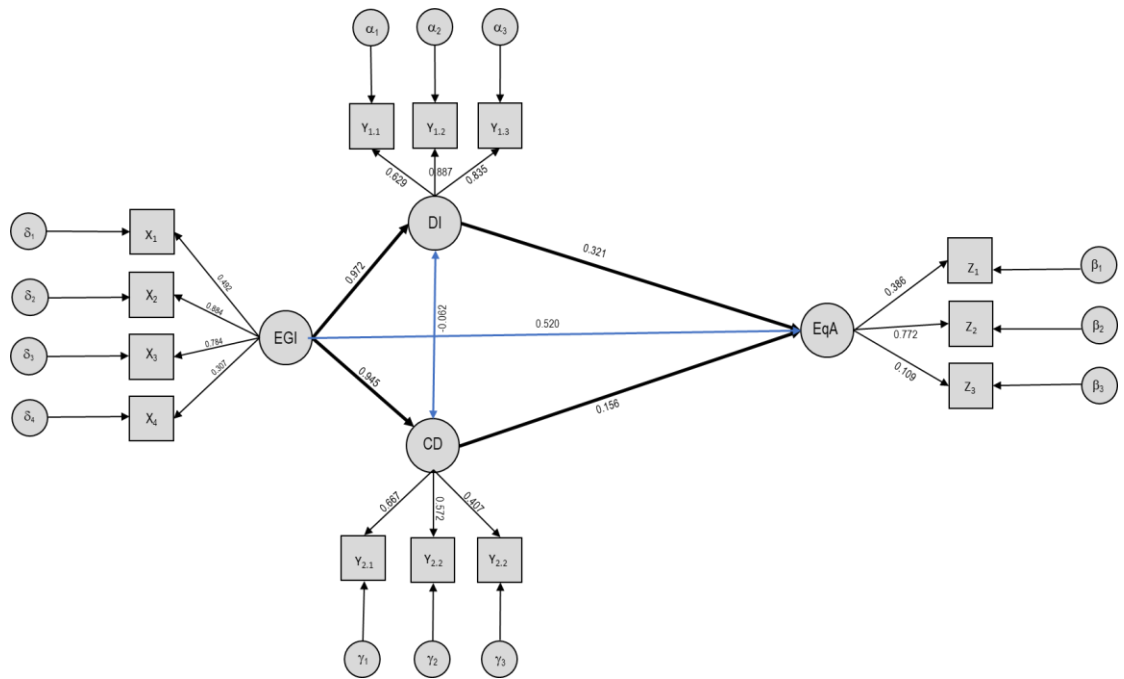


FIGURE 5- THE MODEL OF MEDIATION OUTCOME FACTOR WEIGHT VALUES

4.2. Cultural differences may moderate the relationship between e-Gov initiatives and equal access (H3)

Cultural differences can moderate the relationship between e-Gov initiatives and equality of access, potentially undermining positive impacts in regions with low technology adoption rates or special preferences for offline services. In this context, e-Gov initiatives refer to the use of internet technology in service procedures organized by government organizations. The transformation of traditional government into electronic government (e-government) is one of the public policy issues that continues to be developed (Wu et al., 2022; Davidovitz & Cohen, 2021; Bent-Goodley & Hopps, 2017). In many literatures, e-government is also associated with the digital concept of e-government usually discussed in the context of transformational e-government, namely the use of internet technology which is expected to be a vehicle in the process of exchanging information, providing facilities for services and transaction activities with the public, business people and the government itself. Efforts made prioritize improving the digital infrastructure landscape to expand digital access, especially encouraging equitable distribution of internet availability (Norman-Major, 2023; Clark, 2017; Davidovitz & Cohen, 2021; Shattuck & Risse, 2021). In this context, cultural differences can affect technology adoption rates and specific preferences towards offline services, thereby moderating the relationship between e-Gov initiatives and equity of access. In regions with low technology adoption of offline services, e-Gov initiatives can potentially undermine their positive impact (Chohan & Akhter, 2021). Although the local government developed e-

Gov services in Indonesian, the area has a population that mostly speaks local languages. This can create barriers for the public to understand the information and guidance provided in e-Gov services.

The influence of e-Gov initiatives (X-EGI) through cultural differences (Y2-CD) on equal access (Z-EqA) in Semarang City still needs further study. However, in general, it can be concluded that cultural differences can be a factor that encourages the government to develop e-Gov initiatives that are more inclusive and responsive to the needs of the community. However, cultural differences can also be a factor that hinders equal access to e-Gov services, especially in regions with low technology adoption rates or special preferences for offline services.

4.3. Research Finding and Implications

Digital infrastructure, encompassing internet connectivity, digital literacy, and hardware access, serves as a crucial prerequisite for effectively utilizing e-Government services. While Semarang City witnesses ongoing development in its digital infrastructure, gaps persist in certain areas, notably internet connectivity in rural and small communities, potentially hindering access to e-Government services. The study identifies varying levels of digital literacy as an additional barrier, with a majority possessing only basic skills, complicating the understanding and utilization of e-Government services, particularly for those with low digital literacy. These findings align with the digital dividend theory, emphasizing that disparities in digital technology access can result in unequal access to public services. To address this digital divide, improving digital infrastructure is essential, enhancing internet access and the availability of internet-connected devices (Luscombe & Duncan, 2023; Wardana et al., 2022; Safarov, 2021; Uhaib & Djani, 2018)

Furthermore, cultural differences, encompassing technology adoption, language, and service preferences, significantly impact the effectiveness of e-Government initiatives. The generational gap in technology adoption, with younger individuals adapting more swiftly, requires additional support for older generations. Additionally, preferences for local languages in some communities highlight the need for multilingual interfaces and support. These cultural disparities can complicate access to e-Government services, posing communication and comprehension barriers for those unfamiliar with technology or lacking proficiency in Indonesian (Luscombe & Duncan, 2023; Giulio & Vecchi, 2021; Uhaib & Djani, 2018). The study aligns with the digital dividend theory, emphasizing that digital technology gaps can contribute to inequality in public service access. Cultural differences, particularly in regions with low technology adoption rates or a preference for offline services, can exacerbate the digital divide.

The theoretical implications of this study underscore the significance of considering digital infrastructure and cultural differences in the development of e-Government initiatives to enhance equal access. The findings emphasize that mere upgrades to digital infrastructure are insufficient to address the digital

divide; attention to cultural disparities is equally critical. Governments must account for cultural differences when designing e-Government initiatives to ensure inclusivity across diverse communities. These insights lay the groundwork for future in-depth studies exploring the influence of digital infrastructure and cultural differences on equal access through e-Government initiatives.

5. CONCLUSIONS

Based on the results of research that has been conducted, it can be concluded that e-Government initiatives have the potential to improve equality of access to public services. However, its effectiveness is influenced by factors such as digital infrastructure and cultural differences. Digital infrastructure, including internet connectivity, digital literacy, and hardware access, is a key prerequisite for utilizing e-Government services. In Semarang City, digital infrastructure is developing, but there are still gaps in some areas, such as internet connectivity in rural areas and small communities. This inequality can complicate access to e-Government services. Diverse levels of digital literacy are also obstacles, with most people having only basic literacy. This can make it difficult to understand and utilize e-Government services, especially for those with low digital literacy. Improving digital infrastructure can overcome the digital divide by increasing access to the internet and internet-connected devices by increasing internet network coverage in previously unreachable areas. Cultural differences, such as technology adoption, language, and service preferences, also affect the effectiveness of e-Government initiatives. Younger generations are quicker to adopt technology, while older generations need additional support. Some communities may prefer to communicate in the local language, emphasizing the importance of multilingual interfaces and support. Differences in technology and language adoption can complicate access to e-Government services, creating barriers to communication and understanding for people who have not adopted technology or do not understand Indonesian. In regions with low technology adoption rates or a particular preference for offline services, e-Gov initiatives can potentially undermine their positive impact.

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