IOSR Journal Of Humanities and Social Science (IOSR-JHSS)
Volume 30, Issue 7, Series 8 (July, 2025) 35-44
e-ISSN: 2279-0837, p-ISSN: 2279-0845.
www.iosrjournals.org

Exploring Role Of Digital Capabilities In Reducing Social Stratification And Enhancing Public Service Access: A Structural Equation Model Analysis

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Abstract:
The research investigates the impacts of digital enablers such as digital infrastructure, digital literacy, and e-governance accessibility on the reduction of social stratification and the improvement of public services access. Employing structural equation Modeling (SEM) and data from a survey of 202 respondents belonging to different socio-economic gradients, this research seeks to answer how these digital factors, in sum, assist in fostering equitable access to public services. The results show that digital literacy is the most significant predictor of the reduction of social stratification and aided public service access and came before digital infrastructure and e-governance accessibility. Social stratification reduction, furthermore, was found to mediate the effects of social stratification reduction in part and thus confirms the importance of addressing social inequalities alongside digital initiatives to enablers. Measurement model evaluations demonstrate construct reliability and validity alongside confirmatory checks of discriminant validity using the Fornell-Larcker criterion. The model accounts for a considerable portion of the variance in the reduction of social stratification (R2 = 0.535) and access to public services (R2= 0.493), both of which indicate strong predictive value corroborated by Q^2 values. Importance-Performance Matrix Analysis initiated by Q^2 value analysis captures both strong and fair predictive value confirming forward-looking relevance to tested variables. Further, they accentuate digital literacy as an area of policy concentration. The study has practical relevance to policymakers seeking to build comprehensive digital frameworks aimed at advancing social equality and enhancing citizen access to government services which would enable sustainable transformation in the management of public services through technology.

Keywords: *Digital Enablers, Social Stratification, Public Service Access, Structural Equation Modeling, Digital Inclusion*

Date of Submission: 19-07-2025 Date of Acceptance: 29-07-2025

I. Introduction:

Technological progress is profoundly influencing every aspect of people's lives, from economic activities to social participation and the consumption of governmental services in the society. One of the most significant effects of digitalization is its capacity to simultaneously close and widen existing divides within the society, thus transforming the trends of social stratification and the availability of public services. It is important to determine the impact of digital enablers such as infrastructure, data resources and online participation systems on the structural changes aimed to improve governance and service access. This study aims to address this issue with the support of structural equation modelling (SEM), which is a combination of various statistical methods suited for the analysis of complex social issues and phenomena (Rahman et al., 2015).

The analysis from (Bokyong Shin et al. 2024) demonstrates the emergence of a set of tools, from crowdsourcing to participatory budgeting, aimed at increasing citizen engagement. Researchers, however, focused on the digital divide standpoint in regard to citizens' socioeconomic, educational, and technological disparities. As a result, actual engagement is highly stratified, invalidating the promise of these tools. This gap in the literature suggests that the use of digital enablers of participation should be investigated for not just their presence but also for the equity in access and outcomes they engender.

Digital enablers are considered factors or capabilities that foster participation and are defined as any that support and facilitate the transformation of technology. Some examples include digital infrastructure, organizational readiness, human capital, and a policy or legal framework that shall be supportive (Khan, 20221; Quynh et al., 2022). In the government sector, such digital enablers are critical in determining how citizens engage with services, as well as how public institutions transform over time to respond to new pressures or demands. But their impact is not uniform or neutral. While implementing public policies, Tangi et al. (2021) showed that

although digital enablers speed up transformation towards a digital government, they can also increase existing gaps associated with inequitable inclusiveness frameworks.

At the same time, social stratification as the socioeconomic status, class system of hierarchy and access to resources remains a basic issue of public policy. Findings in other studies suggest that digital divides are highly mapped to such existing stratifications, more so in cases where access to digital tools and literacy is not evenly distributed (Carlo Barone et al. 2022; Liu & Chen, 2021). Within the framework of digital governance, this disparity may take place in differentiated levels of access to civic information, participation, services, and the quality of the services which in turn perpetuate the cycle of inequality (Ostrom, 1983).

The lack of adequate public services, especially in the healthcare, education and transport sectors, is increasingly addressed through digital technologies. While the promise of digital interfaces is increased productivity and replication, they also create barriers for disadvantaged aged groups, migrants, and disabled individuals (Gharebaghi et al., 2018; Li & Wang, 2024). This problem is even more acute in low- and middle-income countries with gaps in digital literacy and infrastructure. For example, Chaiyasuk et al. (2025) argue that the existence of digital services is a non-issue for people with disabilities in Thailand, which underlies the absence of interface data accessibility and awareness that inclusion depends on.

To devise solutions for these issues, integrating technological, social, and governance considerations into a single model goes beyond a single framework approach is necessary. This is where Structural Equation Modelling (SEM) comes in handy. It enables the measurement of latent constructs such as "digital readiness" or "social inclusion" along with the intricate causal relationships between them (Niyawanont, 2022). SEM proves to be most beneficial in studies involving the digital transformation of an entity where multiple factors—technological infrastructure, policy framework, social capital—together, shape the outcome. For example, Li et al. (2023) employed SEM to demonstrate how context factors determine the impact of digitalization and network capabilities on sustainability and innovation in turbulent environments.

In addition, the intersection of social stratification and digital enablers is profoundly located in the contemporary debate on equity, diversity, and inclusion (Yeo & Jeon, 2023). It is well documented that citizens' evaluation of public services, the satisfaction they derive from them, and even their subjective wellbeing depend largely on their social class identity and social trust toward the relevant institutions (Zhou et al, 2021). In this case, such perceptions may result from digital encounters like dealing with social welfare, educational, or mobility service portals (Bittencourt & Giannotti, 2023).

This research develops a structural equation model of the relationships between digital enablers and social stratification repercussions on public service accessibility. It aims to fill this literature gap in three substantial ways. Firstly, it expands the scope of digital enablers from mere technological preparedness to governance, institutional frameworks, and user participation. Secondly, it further defines the boundaries of public service accessibility as grounded in the primary context of an inequality structuring system, thus highlighting the impact of digital transformation in either deepening or alleviating stratification. Third, it uses SEM to construct and validate these relationships, thereby establishing a methodological guide for future interdisciplinary inquiries.

The research stems from an increased awareness that digital transformation is not automatically fair or inclusive. Instead, its social results depend on which enablers are turned on, what governance frameworks are put in place, and the socio-economic settings available (Floch et al., 2024; Crăciun et al., 2023). To conclude, this study aims to fill the conceptual and practical void concerning the relationship between digital enablers and social equity in a manner that is empirically sound and useful for public policy.

II. Objective Of The Study:

To examine the relationship between e-governance accessibility and digital inclusion across strata.
To evaluate the effectiveness of digital government services in reducing access barriers to public service.

III. Conceptual Framework & Hypotheses Development:

With the advent of technologies within governance, one of the pivotal issues within public administration and policy studies revolves around digital facilitators like e-governance, digital literacy, infrastructure, and their impacts on mitigating structural inequalities and increasing the accessibility of public services. A vital element in this case is that of 'digital inclusion' which guarantees all individuals, irrespective of socio-economic status, the ability to engage in a society based on technology in a meaningful way. Concerning this matter, the role of e-governance accessibility technology goes far. It is capable of lower social inequalities by enabling access to active participation by all members of the community. The lowering of social barriers is aided by the increased access to online public services. The unavailability of services due to bureaucracy and logistics affects the lower socio-economic groups more than other groups. Authors underline the importance of accessible e-governance platforms in addressing systemic inequities and lifting marginalized groups (Crăciun et al., 2023). Moreover, access to government services is associated with the availability of other services like healthcare, education, and legal aid resulting in better and enhanced service delivery (Li & Wang, 2024). Consequently, it is expected that the presence

of the internet within governmental institutions will reduce social stratification and increase accessibility to public services.

Another key aspect is the identification and application of digital literacy skills, which enhance the use of tools in the navigation of e-services. Digital deficiencies are becoming one of the most severe barriers to universal access, particularly for older people, rural folk, and ethnic minorities (Yeo & Jeon, 2023). Greater possession of digital literacy among citizens increases the likelihood of interaction with public institutions, service provision enjoyment, and participation in democracy which assists in reducing digital divides and social fragmentation. In addition, the ability to exercise digital literacy enables users to participate actively in governance platforms which positively increases the ability to access public services in a government that is increasingly adopting digital service delivery (Zhou et al., 2021).

Digital infrastructure, including internet connections, the availability of hardware, and data infrastructure, is the very basis upon which digital transformation is built. The level of adequacy and spatial distribution has both direct social inclusion impact and service accessibility. A strong and holistic infrastructure, on the other hand, fuels marginalization especially in remote and economically deprived zones (Gharebaghi et al., 2018). Enhanced infrastructure narrows borders of socio-economic and geographical divides, thereby improving the social structure and access to government programs, services, and aids. In addition, the lessening of social stratification can serve as the best mediator in the connection involving enablers of technology and their access to services. With the removal of inequality gaps regarding access and digital competence, the delivery of many public services becomes easier. This mediating role illustrates the perception that even effective e-governance systems or developed infrastructure cannot operate at their optimum level unless accompanying social constraints are equally dealt with (Barone et al., 2022). By addressing disparities in the provision of education about technology and the availability of information technologies, more equitable results can be achieved whereby participation is not limited to the digital arena, but extends to accessing vital public services in person, and through information systems. Following the research's conceptual framework and literature review, several hypotheses are formulated to examine both direct and indirect effects of various factors—accessibility to e-governance, digital literacy, digital infrastructure, and social stratification on the gateways to public services.

H1: E-Governance Accessibility has a significant positive effect on Social Stratification Reduction.
H2: E-Governance Accessibility has a significant positive effect on Public Service Access.
H3: Digital Literacy has a significant positive effect on Social Stratification Reduction.
H4: Digital Literacy has a significant positive effect on Public Service Access.
H5: Digital Infrastructure has a significant positive effect on Social Stratification Reduction.
H6: Digital Infrastructure has a significant positive effect on Public Service Access.
H7: Social Stratification Reduction has a significant positive effect on Public Service Access.

Mediation Hypotheses via Social Stratification Reduction
H8: Social Stratification Reduction partially mediates the relationship between E-Governance Accessibility and Public Service Access.
H9: Social Stratification Reduction partially mediates the relationship between Digital Infrastructure and Public Service Access.
H10: Social Stratification Reduction partially mediates the relationship between Digital Literacy and Public Service Access.

IV. Methods And Materials

This research utilizes a quantitative approach deploying Structural Equation Modelling (SEM) to evaluate the impact of digital enablers on social stratification and public service access. A multi-stage stratified random sampling method captures all socio-economic levels and geographical areas (60% urban, 40% rural), age demographics (18–35: 40%, 36–55: 35%, 55+: 25%), with equal gender representation and varying education levels. This sample consists of 202 citizens (33% low-income, 42% middle-income, 25% high-income), 150 government officials participating in e-governance projects, 100 NGO representatives advocating for digital inclusion, and 50 digital service vendors. Data will be gathered through structured questionnaires distributed online and through face-to-face surveys in non-digitally accessible areas. SEM will be conducted using SmartPLS Software. The assessment of measurement models will focus on reliability (indicator loading, Cronbach's alpha, Composite Reliability), convergent validity (AVE), and discriminant validity achieved through the Fornell–Larcker Criterion. Structural model analysis will focus on path coefficient evaluation, effect size determination (f^2), R^2 and Q^2 relevance evaluation with significance testing levels defined. Mediation analysis will assess the direct impact of digital enablers through social stratification reduction. IPMA will be used to locate the most crucial predictors of public service access.

V. Analysis And Interpretation:

Table-1 Demographics Characteristics of the Respondents under study

Demographic Variable	Category	Frequency (n)	Percentage (%)
Income Level (Citizens)	Low-income	22	33
	Middle-income	28	42
	High-income	17	25
Residence Location	Urban	121	60
	Rural	81	40
Age Group	18 - 35 years	81	40
	36 - 55 years	71	35
	55+ years	50	25
Gender	Male	101	50
	Female	101	50
Respondent Type	Citizens	67	33
	Government Officials	75	37
	NGO/Civil Society	40	20
	Digital Service Providers	20	10

***Source**: Field Survey*

The study's sample of 502 respondents, stratified socio-economically and by geography, age, and gender, ensures comprehensive coverage. Citizens account for 40.2%, (202), including the low-income (33%), middle-income (42%), and high-income (25%) groups, depicting crucial economic diversity needed for understanding social stratification. Urban respondents (60%) outnumber rural respondents (40%) capturing diverse digital access contexts. Age distribution (18–35: 40%, 36–55: 35%, 55+: 25%) is accompanied by equal gender representation (50/50), allowing balance on other demographic variables. This stratification enhances generalizability and validity. The level of confidence of 95% paired with a margin of error of 3% validates the sample statistically with SEM analysis which is useful for testing the direct and mediated relationships.

Table-2 Main Constructs of the Study

Construct Name	Type	Description
E-Governance Accessibility (EGA)	Independent Variable (IDV)	Availability and usability of government services via digital platforms
Digital Literacy (DL)	Independent Variable (IDV)	Citizens' ability to understand, use, and navigate digital platforms
Digital Infrastructure (DI)	Independent Variable (IDV)	Availability of internet, devices, and service support in the community
Public Service Access (PSA)	Mediator	Level of ease in accessing services like education, health, and welfare
Social Stratification Reduction (SSR)	Dependent Variable (DV)	Reduction in inequality across income/social groups (SDG 10 alignment)

***Source**: Review Literature*

Table - 3 Measurement Model Assessment – Indicator Loadings, Reliability, and Convergent Validity

Construct	Item	Details	Loading
Digital Infrastructure	DI1	My locality has consistent internet access.	**0.714**
	DI2	The speed of internet service in my area is sufficient for e-services.	**0.830**
	DI3	Most households in my area have access to a smartphone or computer.	**0.752**
	DI4	There is adequate technical support or service centres near me.	**0.752**
	DI5	There are public facilities (libraries, kiosks) that support digital service access.	**0.763**
Cronbach's alpha = 0.82, CR = 0.874, AVE = 0.582			
Digital Literacy	DL1	I am confident in using digital tools (e.g., smartphones, apps, internet browsers).	**0.738**
	DL2	I can complete online forms without assistance.	**0.730**
	DL3	I can access and interpret online information for personal or official use.	**0.792**
	DL4	I know how to protect my personal data when using online services.	**0.790**
	DL5	I can teach others how to use digital services.	**0.783**
Cronbach's alpha = 0.825, CR = 0.877, AVE = 0.588			
E-Governance Accessibility	EGA2	I can easily access government services online (e.g., tax, ID, welfare).	**0.756**
	EGA3	Most of the services I need are available through digital platforms.	**0.735**
	EGA4	I trust the reliability of online government portals.	**0.733**

	EGA5	Government websites are easy to navigate and user-friendly.	**0.862**
	EGA1	I receive prompt support or information when using e-governance services.	**0.752**
Cronbach's alpha = 0.827, CR = 0.878, AVE = 0.592			
Public Service Access	PSA1	I can easily access public services without visiting offices physically.	**0.801**
	PSA2	Government welfare schemes are more accessible through online portals.	**0.864**
	PSA3	Online services reduce the waiting time to get public services.	**0.767**
	PSA4	I feel included in government schemes due to digital access.	**0.871**
	PSA5	My interaction with government departments has improved due to online systems.	**0.818**
Cronbach's alpha = 0.882, CR = 0.814, AVE = 0.681			
Social Stratification Reduction	SSR1	I can easily access public services without visiting offices physically.	**0.730**
	SSR2	Government welfare schemes are more accessible through online portals.	**0.771**
	SSR3	Online services reduce the waiting time to get public services.	**0.790**
	SSR4	I feel included in government schemes due to digital access.	**0.799**
	SSR5	My interaction with government departments has improved due to online systems.	**0.803**
Cronbach's alpha = 0.838, CR = 0.885, AVE = 0.607			

Table 3 Measurement model assessment evidence that the five latent constructs: Digital Infrastructure, Digital Literacy, E-Governance Accessibility, Public Service Access, and Social Stratification Reduction have strong psychometric properties as discussed before. Whether each construct is distinguished from one another, all composite measures ought to be demonstrably valid meaning that each item block should yield values greater than 0.70 which they do. Digital Infrastructure illustrates item loadings between 0.714 and 0.830, corroborated with Cronbach's alpha of 0.82, composite reliability (CR) of 0.874, and average variance extracted (AVE) of 0.582 demonstrating sufficient internal consistency and convergent validity. Digital Literacy showcases similarly high performance with loadings in the range of 0.730 and 0.792 alongside satisfactory reliability metrics. E-Governance Accessibility shows consistent item performance with loadings spanning from 0.733 to 0.862, supported with high values of Cronbach's alpha and CR as well as AVE of 0.592 confirming scale reliability and construct validity. Public Service Access shows particularly strong item loadings (0.767–0.871) along with Cronbach's alpha of 0.882 and AVE of 0.681 marking great internal consistency and convergent validity. Finally, Social Stratification Reduction is reported with item loadings between 0.730 and 0.803 while supported by Cronbach's alpha of 0.838 and AVE of 0.607. These results demonstrate the reliability and validity of all measurement scales and thus renders them fit for further structural model analysis.

Figure -1 Structural Model with Standardised Path Coefficients and Significance Levels

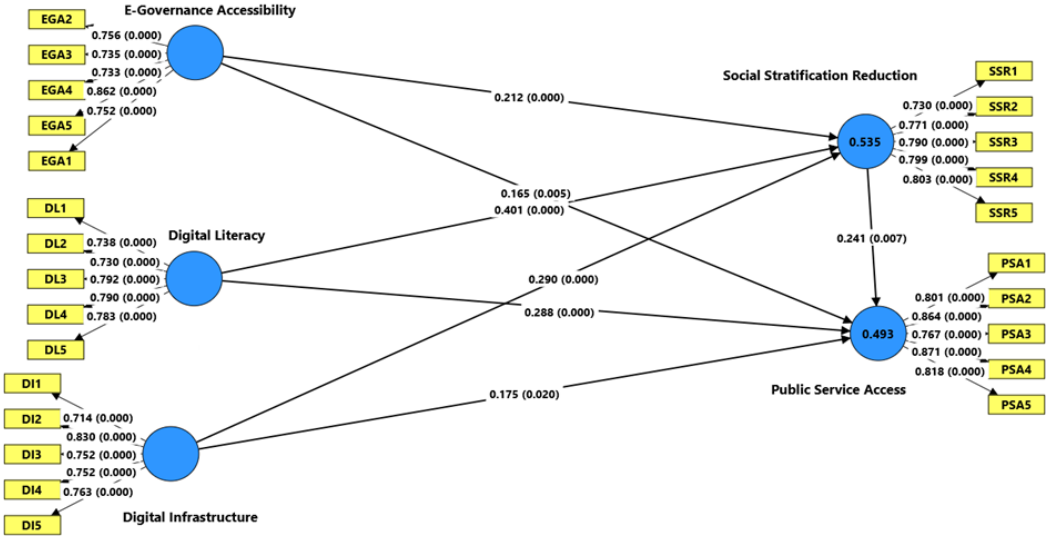

Table -4 Discriminant Validity Assessment Using the Fornell–Larcker Criterion

Construct	DI	DL	EGA	PSA	SSR
Digital Infrastructure	**0.763**				
Digital Literacy	0.562	**0.767**			

E-Governance Accessibility	0.452	0.346	**0.769**		
Public Service Access	0.559	0.597	0.46	**0.825**	
Social Stratification Reduction	0.611	0.637	0.482	0.611	**0.779**

Source: SPSS

Table 4 contains important results of the Fornell–Larcker criterion which was used to evaluate discriminant validity of the five constructs: Digital Infrastructure, Digital Literacy, E-Governance Accessibility, Public Service Access, and Social Stratification Reduction. The bold numbers represent the diagonal elements which are the square roots of the Average Variance Extracted (AVE) for each construct. The off-diagonal elements are the correlations of these constructs with one another. According to the Fornell–Larcker criterion, discriminant validity is confirmed if the square root of the AVE for each construct is greater than its correlations with the other constructs in the model.

The construct Digital Infrastructure has an associated AVE of 0.763, which is greater than the correlation values with 0.562, 0.452, 0.559, and 0.611 reducing correlation values (respectively) for Digital Literacy, E-Governance Accessibility, Public Service Access, and Social Stratification Reduction, thereby showing sufficient discriminant validity. This holds true for Digital Literacy which has a lower bound Inter C-Construct correlation score of 0.767. E-Governance Accessibility (0.769), Public Service Access (0.825) and Social Stratification Reduction (0.779) have greater value than the correlation values they bear with other constructs. Overall, these results demonstrate that the five constructs are disjoint at the model level and therefore show satisfactory discriminant validity making them empirically distinct in the measurement model.

Table -5 R-square and Q^2 Predict Values for Endogenous Constructs

Endogenous Construct	R-square	Q^2predict
Public Service Access	0.493	0.45
Social Stratification Reduction	0.535	0.516

Source: SPSS

As seen in table 5, the two endogenous constructions: Public Service Access and Social Stratification Reduction, have their respective coefficients of determination (R^2) and predictive relevance (Q^2 predict) values recorded. In the case of Public Service Access, it is 0.493 which means that approximately 49.3% of the variance for this construct can be explained by the promoters that have been given. These results reflect moderately low explanatory power which implies that the model captures the important determinants of access to public services. Likewise, Social Stratification Reduction has a value of R^2 equal to 0.535 which means that 53.5% of his variance is explained by the model which indicates a significant amount of explanatory strength. Furthermore, the Q^2 predict values corroborate still further the ability of the model to make predictions. A Q^2 greater than zero indicates strong predictive relevance for the constructs in question. There is therefore considerable concern about how the model has credibility in terms of fulfilling its purpose by explaining the trends of digital inclusion and social equity as an outcome. Therefore, the model is appropriate to guide policies that would increase the e-governance results and reduce the digital gaps.

Table -6 Structural Model Assessment Path Coefficients, Effect Sizes, and Hypothesis Testing

Hyp	Path	Beta	SE	t-value	p-value	Supported	f 2	Effect size
H1	EGA -> SSA	0.21	0.04	5.14	0.00	Yes	0.076	Small
H2	EGA -> PSA	0.22	0.06	3.94	0.00	Yes	0.039	Small
H3	DL -> SSR	0.40	0.05	8.01	0.00	Yes	0.233	Large
H4	DL -> PSA	0.39	0.07	5.94	0.00	Yes	0.090	Small
H5	DI -> SSR	0.29	0.05	5.40	0.00	Yes	0.110	Medium
H6	DI -> PSA	0.25	0.07	3.62	0.00	Yes	0.033	Small
H7	SSR -> PSA	0.24	0.09	2.72	0.01	Yes	0.053	Small

Source: SmartPLS

The evaluation of the results from the assessment of the structural model reported in Table 6 indicates that all relationships within the model are supported empirically and all of them along with the model's relationships are statistically confirmed. The pathway from E-Governance Accessibility to Social Stratification Reduction is confirmed to be positive ($\beta = 0.21$, $t = 5.14$, $p < 0.001$), albeit a smaller effect size ($f^2 = 0.076$), suggesting that greater levels of accessibility in digital governance assists, albeit to a small extent, in reducing social inequalities. Notably, E-Governance Accessibility has also a statistically significant effect on Public Service Access ($\beta = 0.22$, $t = 3.94$, $p < 0.001$), with a small effect size $f^2 = 0.039$, confirming its relevance for improving

public services accessibility. Its impact on the model components is remarkable regarding Digital Literacy. The effect that it has on Social Stratification Reduction is confirmed to be strong and significant ($\beta = 0.40$, $t = 8.01$, $p < 0.001$) with a large effect size ($f^2 = 0.233$), justifying the claim that digital skills have a mitigating impact on structural inequities. Additionally, the impact on Public Service Access is confirmed as well, for the effect is statistically significant ($\beta = 0.39$, $t = 5.94$, $p < 0.001$) albeit small in effect size ($f^2 = 0.090$).

The influence of Digital Infrastructure on Social Stratification Reduction is statistically significant ($\beta = 0.29$, $t = 5.40$, $p < 0.001$) and shows, moderated by a medium effect size ($f^2 = 0.110$). Additionally, the impact is positive, yet small ($f^2 = 0.033$) on Public Service Access ($\beta = 0.25$, $t = 3.62$, $p < 0.001$). Finally, Social Stratification Reduction has an impact on predicting Public Service Access, which is also significant ($\beta = 0.24$, $t = 2.72$, $p = 0.01$) and contains a small effect size ($f^2 = 0.053$). These results, together, support the suggested structural pathways from the model that shifts focus on the enhancement of infrastructure, literacy, governance, and stratified services—with the aim of achieving social equality and inclusion digitally.

Table-7 Mediation Analysis – Total, Direct, and Indirect Effects via Social Stratification Reduction

Hyp	Path	Total Effect	Indirect Effect	Direct Effect	T Value (Indirect)	Mediation Type
H8	EGA -> SSA -> PSA	0.216**	0.051**	0.165**	2.308	Partial Mediation
H9	DI -> SSA -> PSA	0.245**	0.07**	0.175**	2.288	Partial Mediation
H10	DL -> SSA -> PSA	0.385**	0.097**	0.288**	2.558	Partial Mediation

Source: SmartPLS

The results derived from the mediation analysis that examines the indirect role of Social Stratification Reduction and its relation to three key antecedents: - E-Governance Accessibility, Digital Infrastructure, Digital Literacy, and the outcome variable of Public Service Access, is displayed in Table 7. The findings affirm that, in all three pathways, significant partial mediation was confirmed, which means both direct and indirect effects were present simultaneously, hence attesting to the solidness of the proposed framework.

For E-Governance Accessibility (H8), the total effect on Public Service Access is 0.216 ($p < 0.01$), where direct and indirect effects are also included: A direct effect of 0.165 ($p < 0.01$), and an indirect effect through Social Stratification Reduction of 0.051 ($p < 0.01$) gained from a t-value of 2.308. This indicates that social stratification does indeed mediate, if only to a limited extent, the enhancement of service access via governance measures.

Confirmation is found for Digital Infrastructure (H9) where the total effect is noted at 0.245 ($p < 0.01$). An indirect effect of 0.07 ($p < 0.01$) and a direct effect of 0.175 ($p < 0.01$) was validated with a t-value of 2.288. These findings suggest that improvements in this type of access do have a relationship with alleviating underlying structural disparities.

The most pronounced mediation is Digital Literacy (H10), as it has total effect of 0.385 ($p < 0.01$), with an indirect effect of 0.097 ($p < 0.01$), a direct effect of 0.288 ($p < 0.01$), and a t-value of 2.558. These findings highlight the importance of digital skills in service access, as they facilitate access directly, while also indirectly through mitigating social stratification.

In combination, the findings suggest that Social Stratification Reduction poses a meaningful mediating effect, whereas the enduring significance of direct paths confirms that digital enablers—governance, infrastructure, and literacy—exercise considerable primary influence, reaffirming the partial mediation of social stratification reduction and strengthening the framing of relations between digital inclusion and public service access.

Table-8 Importance–Performance Matrix Analysis for Predictors of Public Service Access

Construct	Importance	Performance
Digital Infrastructure	0.29	66.344
Digital Literacy	0.401	68.116
E-Governance Accessibility	0.212	62.732

Source: SPSS

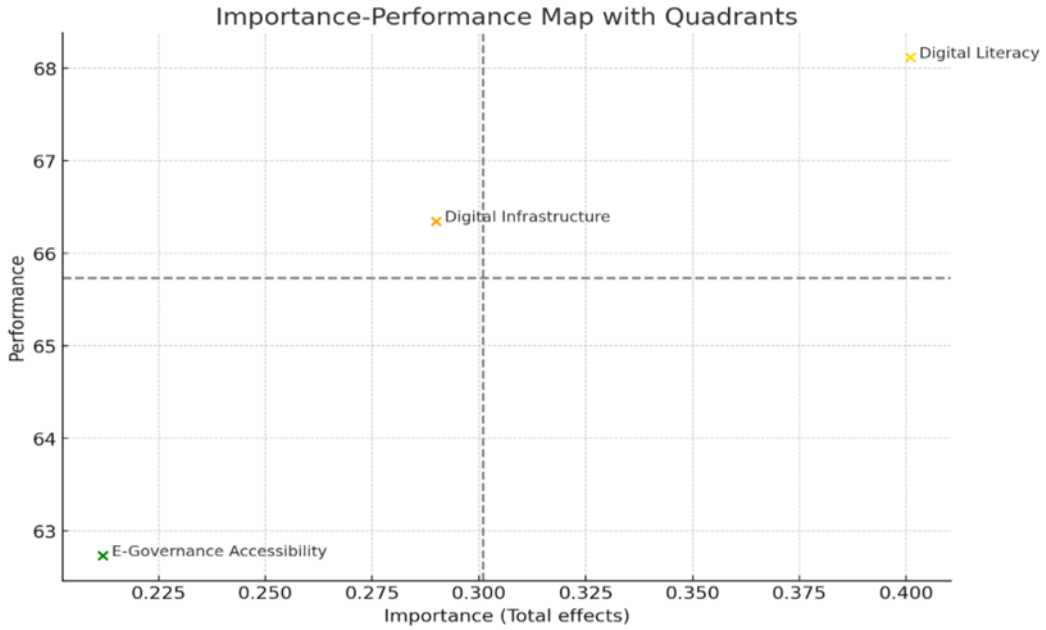

Figure-2 Importance–Performance Map with Quadrants for Key Predictors of Public Service Access

Analysis of the importance-performance ratio (IPMA) from Figure 2 allows us to examine the three major constituents that influence public service access: Digital Literacy, Digital Infrastructure, and E-Governance Accessibility. This application gives a different approach as it assesses everything from the contribution of each construct which is evaluated by the total effect of the dependent variable to the potential of evaluation as expressed in the average latent variable scores on the construct, hence focusing on guiding policy intervention prioritization.

Digital Literacy is positioned as the most critical determinant among the three predictors, with the highest importance score of 0.401 and performance score of 68.116. Its position in the top-right quadrant of the matrix indicates that it is both a high-impact and high-performing factor. This indicates that efforts towards enhancing digital competencies among citizens are effective and that further investment in this area will significantly enhance public service access.

With moderate importance (0.29) and performance (66.344), Digital Infrastructure occupies a central position in the matrix. While it is working at an adequate level, its performance serves as an opportunity for improvement. Targeted funding towards Enhanced technological infrastructure, especially in rural or economically disadvantaged areas, stand to benefit not only performance but also synergize with literacy initiatives. E-Governance Accessibility demonstrates the lowest importance (0.212) and performance score (62.732), which positions it in the bottom-left quadrant. Its current runway for impact on other public services is low, but increased attention to functional aspects, language(s) inclusivity, and public awareness will improve service efficiency. Concisely, the outputs from IPMA propose a three-tier strategy: (1) maintain and grow initiatives to promote digital literacy; (2) develop infrastructure for wider and more reliable access; and (3) gradually enhance e-governance systems to improve public use and interaction. This approach can effectively optimize resource distribution while maximizing outcomes for achieving digital equity.

VI. Implications Of The Study:

This study provides new perspectives on the complex interplay between digital factors and the provision of public services, highlighting both practical and theoretical aspects. From a theoretical standpoint, the empirical examination of the relationships between digital infrastructure, its literacy, e-governance, and social stratification easing contributes to the growing literature on digital inclusion. This study contributes to the discourse on access equity by illustrating the way digital factors impact access, not as independent determinants, but as networks of interrelated influences, thus enhancing digital governance and social equity theory.

From a practical perspective, the study emphasizes the need to address digital literacy because of its strong dominating effect on public service access. This underscores the importance of funding digital education initiatives aimed at vulnerable populations, particularly in rural, low-income, and older age groups. Although the impact of digital infrastructure is moderate, it requires ongoing development to achieve acceptable standards of coverage and equitable access, particularly in areas suffering from chronic technological underdevelopment.

The lower performance metrics linked to the accessibility of e-governance services indicates the need for design focused on users, multi-channel services, active dialogue interfaces, market identification frameworks,

and promotion to enhance platform utilization. In addition, the alleviation of social stratification gap does modify the outcome, reinforcing the result's relevance as a strategic intermediary for addressing systemic inequalities. Therefore, policymakers and providers of services through digital technologies need to consider social inclusion alongside technological adoption frameworks in terms of a fundamental societal change driven by social innovation.

These findings support NGO and civil society strategies at the level of advocacy for targeted action at the community level. In this regard, the study seeks to provide guidance for the development of holistic and participatory designed frameworks that facilitate unobstructed access to, and the utilization of, public services on a digital platform while narrowing the socio-digital gap, in alignment with overarching developmental frameworks such as the ninth and tenth sustainable development goals.

VII. Potential Limitations:

This study has some drawbacks, despite its strong approach. The first concern is the cross-sectional data lacks temporal depth to explore potential causal relationships across varying time periods. Second, although stratified sampling helped capture demographic representation, the modest sample size of 202 participants is limited in their applicability to broader populations. Third, the use of self-reported information may be subject to social desirability bias and recall inaccuracies. Furthermore, some contextual dimensions, such as subnational digital policies, infrastructure inequalities by region, or regional digital policies, were not thoroughly analyzed and could impact results. Future studies might consider longitudinal or cross-regional comparative approaches and address qualitative dimensions to portray more complexities of digital inclusion processes.

VIII. Conclusion:

This research analyses the reciprocal relationships between different constructs such as e-governance, public service access, literacy, and infrastructure while focusing on stratification for social inequality. Following SEM analysis using SmartPLS, the findings validate all hypothesized relationships as significant, confirming their expectations. Digital literacy claimed the biggest impact as an enhancing factor for public service accessibility and reduction of social inequalities, supported by its performance metrics during Importance-Performance Matrix Analysis (IPMA). Also, digital infrastructure significantly contributed to social stratification mitigation alongside increase of public service accessibility, whereas e-governance accessibility had a notable but lesser impact on the two outcomes.

The research highlights that social stratification mediates the relationship between digital enablers and public service access. This confirms that inequality requires attention alongside other systemic reforms that integrate digital technologies. The measurement and structural models confirm the accuracy, effectiveness, and credibility of the proposed concepts. The findings of this work suggest that enhancing the digital capabilities of the citizenry, alongside providing equitable access to the digital infrastructure, is essential for fostering inclusive governance. In any case, the research works toward strengthening the discourse on inclusive practices by offering an empirically backed model for public service access in digitizing societies.

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