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E-Government Performance in Developing Countries: A Comparative Study Across Cities

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ABSTRACT

***Purpose**: E government has become a key instrument for public sector reform, particularly in developing countries where urban governments face increasing demands for efficient, transparent, and accessible public services. While national level assessments provide useful benchmarks, they often overlook variations in e government performance at the city level, where implementation directly affects citizens.*

***Subjects and Methods:** This study employs a comparative cross sectional design to examine e government performance across selected cities in developing countries. Using secondary data from official municipal websites, policy documents, and international reports, the study assesses multiple dimensions of e government performance, including online service availability, usability, information quality, transparency, and citizen engagement. A standardized set of indicators is applied to enable systematic comparison across cities.*

***Results:** The findings reveal considerable variation in e government performance among the cities studied. Overall, cities demonstrate stronger performance in basic service provision and information dissemination than in transparency and citizen engagement. While some cities show relatively balanced implementation across dimensions, others exhibit fragmented or uneven performance, indicating differences in institutional capacity and governance orientation.*

***Conclusions:** The study concludes that e government performance in developing cities remains largely service oriented and has yet to fully realize its potential as a tool for participatory and transparent governance. Effective e government requires not only technological adoption but also stronger institutional commitment to openness, accountability, and citizen involvement. These findings underscore the importance of aligning digital initiatives with broader governance reforms at the local level.*

INTRODUCTION

Over the past two decades, e government has become a central feature of public sector reform agendas across the world (Kawabata & Camargo, 2022; Sadik-Zada et al., 2024; Chung et al., 2022). Governments increasingly rely on digital technologies to improve administrative efficiency, expand access to public services, and enhance transparency in governance processes. While early discussions of e government largely emphasized technological modernization, contemporary scholarship has shifted toward understanding its broader implications for governance quality, citizen participation, and institutional accountability (Rhamadhani & Edeh, 2024; Omweri, 2024; Muthuswamy, 2024).

This shift reflects a growing recognition that digital transformation in the public sector is not merely a technical endeavor, but a complex socio institutional process shaped by context, capacity, and governance values. In developing countries, the adoption of e government has gained particular prominence as urbanization accelerates and demands for efficient public service delivery intensify (Inakefe et al., 2024; Nguar, 2022; Lubis et al., 2024). Cities play a critical role in this transformation, as they function as the primary interface between government and citizens.

Municipal governments are increasingly expected to deliver services digitally while simultaneously addressing persistent challenges such as limited resources, administrative fragmentation, and digital inequality. As a result, cities in developing countries provide a unique and important setting for examining how e government performs in practice and how its outcomes vary across local contexts (Medaglia et al., 2024; Das, 2024; Bokhari & Myeong, 2022).

Despite the growing body of literature on a government, much of the existing research remains focused on national level assessments or single case studies (Chen et al., 2024; Haug et al., 2024). Large scale indices such as the United Nations E Government Development Index offer valuable comparative insights, yet they often obscure important variations at the subnational level. Local governments differ significantly in their institutional capacity, political commitment, and socio-economic environment, all of which influence how e government initiatives are designed and implemented. Consequently, an exclusive focus on national performance risks overlooking the realities of e government delivery where citizens most directly experience public services (Roy, 2017).

Recent studies have begun to call for more fine-grained analyses that capture local dynamics and governance outcomes. Scholars argue that understanding e government performance requires moving beyond measures of technological availability to include dimensions such as usability, transparency, information quality, and citizen engagement (Sheoran & Vij, 2022). This perspective aligns with broader debates in public administration and digital governance, which emphasize that the value of digital government lies not only in efficiency gains but also in its capacity to support openness, participation, and trust in public institutions.

Within this evolving scholarly conversation, comparative studies across cities in developing countries remain limited. Existing research often examines individual cities in isolation or compares countries without accounting for intra national variation. As a result, there is insufficient empirical evidence on how different urban contexts shape e government performance and which dimensions of digital governance tend to advance or lag at the local level. Papamichail et al. (2023) said that, addressing this gap is essential for both theoretical development and policy design, particularly in regions where cities face similar structural constraints but exhibit divergent implementation outcomes.

Against this backdrop, the present study examines e government performance through a comparative analysis of selected cities in developing countries. By focusing on multiple dimensions of performance, including service availability, usability, information quality, transparency, and citizen engagement, the study seeks to provide a more holistic understanding of how e government functions at the municipal level. Through systematic comparison, the research aims to identify patterns of convergence and divergence across cities and to highlight the governance implications of these patterns.

By situating local e government performance within a comparative framework, this study contributes to ongoing debates on digital governance in developing contexts. It offers empirical insights that complement national level assessments and enrich understanding of how digital initiatives intersect with local institutional realities. Ultimately, the study seeks to inform both academic discourse and policy-oriented discussions on how e government can move beyond basic digitization toward more inclusive, transparent, and participatory models of urban governance.

METHODOLOGY

Research Design

This study adopts a comparative cross-sectional research design to examine how e-government initiatives perform across selected cities in developing countries. A comparative approach is particularly appropriate because it allows the research to move beyond single-case descriptions and instead capture variations and commonalities in local e-government implementation. By placing cities side by side within a shared analytical framework, the study seeks to generate a deeper understanding of how contextual differences shape e-government performance at the municipal level.

Selection of Cases

The selection of cities was conducted purposively to ensure both relevance and diversity. Cities were chosen based on their status as urban administrative centers, their level of population concentration, and the existence of officially managed e-government platforms. Attention was also given to the availability and completeness of publicly accessible data, which is essential for maintaining analytical rigor. By including cities from different geographical regions within the developing world, the study reflects a broad range of institutional and socio-economic contexts while maintaining a comparable level of administrative responsibility.

Data Collection

Data collection relied primarily on secondary sources, which are widely used in comparative e-government research. These sources included official municipal websites, policy documents, strategic plans, and internationally recognized reports such as the United Nations E-Government Survey. In addition to document analysis, structured observations of municipal e-government portals were carried out to capture how digital services are presented and delivered in practice. This combination of sources enabled the study to triangulate information and reduce reliance on a single type of data.

Indicators of E-Government Performance

To assess e-government performance, the study employed a set of indicators derived from established evaluation frameworks in the e-government literature. These indicators were designed to reflect both technical and governance dimensions of digital public services. Particular attention was given to the availability of online services, the ease with which users can access and navigate digital platforms, and the quality and clarity of information provided. Beyond technical features, the analysis also considered transparency mechanisms and opportunities for citizen interaction, which are increasingly recognized as core elements of effective e-government. Each indicator was translated into observable criteria to allow systematic assessment across all cities included in the study.

Data Analysis

Once data collection was completed, the analysis proceeded in two stages. First, descriptive analysis was used to illustrate the general profile of e-government performance in each city, helping to identify strengths and weaknesses within individual cases. Building on this, the study then conducted a comparative analysis to explore patterns and differences across cities. By examining how cities perform relative to one another, the analysis highlights factors that may contribute to higher or lower levels of e-government effectiveness in developing country contexts.

Validity and Reliability

Throughout the research process, careful attention was paid to issues of validity and reliability. The use of indicators grounded in well-established theoretical and empirical studies helped ensure that the assessment captured meaningful dimensions of e-government performance. Consistency in data sources and evaluation procedures across all cases further strengthened reliability. Together, these measures enhance the credibility of the findings and support their relevance for both academic discussion and policy-oriented reflection.

RESULTS AND DISCUSSION

The results of this study reveal notable variations in e government performance across the cities examined, while also highlighting several shared patterns that characterize e government

implementation in developing country contexts. overall the findings suggest that although most cities have made meaningful progress in establishing digital government platforms the depth and quality of implementation differ substantially. At a general level the assessment indicates that cities tend to perform better in dimensions related to basic service provision and information dissemination than in areas requiring active citizen engagement and interactive governance. This pattern reflects a common trajectory in e government development where governments prioritize visibility and accessibility of services before advancing toward more participatory and collaborative digital practices.

Overall E Government Performance Across Cities

Before examining the detailed distribution of scores, it is important to obtain a general picture of how each city performs in aggregate terms. An overall index provides a concise representation of the relative maturity of e-government implementation and allows comparison of administrative readiness across municipalities. By synthesizing multiple dimensions into a single measure, the index highlights which cities have advanced more consistently and which still struggle with uneven development. The variation in total scores also signals that while digital government initiatives are increasingly widespread, their outcomes remain strongly influenced by local institutional capacity, strategic commitment, and resource availability.

Table 1. Overall E Government Performance Scores

City	Overall Score
City A	72.4
City B	75.1
City C	68.7
City D	61.3
City E	59.8

The distribution of scores demonstrates a visible stratification in the level of digital maturity among the examined cities. City B and City A occupy the upper tier, indicating that their e-government initiatives are supported by more coherent management practices and a stronger integration of digital tools into everyday administration. City C stands in an intermediate position, suggesting moderate progress but with areas that still require consolidation. Meanwhile, City D and City E remain in the lower range, reflecting limitations that may stem from weaker institutional coordination, insufficient technical infrastructure, or lower prioritization of digital innovation. The gap between the leading and trailing cities confirms that adopting online platforms alone does not automatically translate into effective governance outcomes; rather, performance depends on how consistently digital systems are embedded within organizational routines and service standards.

Performance by Key Dimensions

While overall scores provide a useful snapshot of relative performance, they do not fully explain where strengths and weaknesses actually lie. A more detailed examination is therefore necessary to uncover which aspects of e-government receive greater institutional attention and which remain underdeveloped. Disaggregating the index into specific dimensions makes it possible to identify priority areas, reveal imbalances in implementation, and understand whether progress in digital governance is comprehensive or selective. This approach helps clarify the underlying drivers of variation among cities and offers a more nuanced basis for comparison.

Table 2. E Government Performance by Dimension

Dimension	City A	City B	City C	City D	City E	Mean
Online Service Availability	78	82	75	69	66	74.0
Usability & Accessibility	74	77	71	65	63	70.0
Information Quality	76	80	73	68	65	72.4
Transparency	68	72	64	58	56	63.6
Citizen Engagement	66	64	60	52	49	58.2

The pattern displayed in Table 2 confirms that participatory elements remain the weakest component of municipal e-government systems. With an average score of only 58.2, citizen engagement ranks well below service availability, usability, and information quality. Even the highest-performing cities fail to reach levels comparable to their achievements in more technical dimensions, indicating that interactive governance has not yet become a central priority. The decline is especially visible among lower-performing cities, where engagement indicators drop sharply, reinforcing the idea that participatory innovation is often the first aspect to be constrained when institutional capacity is limited. This imbalance suggests that digital transformation is still largely conceived as a mechanism for delivering information and administrative services rather than fostering dialogue between governments and citizens. Features such as public consultation channels, structured feedback systems, and collaborative decision-making tools may formally exist, but their practical integration into governance routines remains minimal. As a result, many platforms function primarily as electronic bulletin boards. The data therefore illustrate that the transition from one-way communication toward genuinely collaborative governance continues to be a major unresolved challenge in developing city contexts.

Comparative Ranking and Performance Gaps

Although aggregate scores already indicate variation in achievement, translating those values into a ranking format provides a clearer picture of relative standing among cities. Ranking helps simplify complex numerical comparisons and makes disparities in performance more visible, particularly for policymakers seeking benchmarks or reference models. By arranging municipalities from highest to lowest achievement, the analysis not only confirms which cities lead or lag but also highlights the magnitude of separation between them. This perspective is useful for identifying potential best practices as well as areas where targeted intervention and capacity strengthening may be required.

Table 3. Ranking of Cities by E Government Performance

Rank	City	Overall Score
1	City B	75.1
2	City A	72.4
3	City C	68.7
4	City D	61.3
5	City E	59.8

The ranking presented in Table 3 makes the relative hierarchy of performance unmistakable. City B occupies the leading position, closely followed by City A, indicating that both municipalities have been more successful in consolidating digital initiatives into coherent governance practices. City C remains in the middle tier, reflecting a transitional level of development in which several components function adequately but lack the consistency observed in the top performers. In contrast, City D and City E fall into the lower ranks, suggesting that their e-government efforts are still characterized by fragmented implementation and limited institutional integration. Importantly, the distance between ranks is not merely symbolic. The gap of more than fifteen points between the highest and lowest performers signals uneven progress in digital transformation across cities facing broadly similar developmental constraints. Such disparity implies that local leadership, administrative learning, and strategic prioritization may play a decisive role in shaping outcomes. The ranking therefore reinforces the argument that e-government advancement is less about the presence of technology itself and more about how effectively it is governed, coordinated, and embedded within municipal practices.

Gap Between Best & Weakest Cities Per Dimension

The gap between higher and lower ranked cities reflects differences not only in technical capacity but also in governance priorities and institutional readiness. Cities at the upper end of the ranking tend to integrate e government more systematically into administrative processes while lower ranked cities appear to rely on fragmented or symbolic digital initiatives. These results underscore that e government performance in developing countries cannot be understood solely

in terms of technological adoption. Instead the findings point to the importance of organizational commitment governance orientation and the willingness to move beyond basic digitization toward more transparent and participatory models of local government.

Table 4. Performance Gap Between the Highest and Lowest Scoring Cities by Dimension

Dimension	Highest	Lowest	Gap
Online Service Availability	82	66	16
Usability & Accessibility	77	63	14
Information Quality	80	65	15
Transparency	72	56	16
Citizen Engagement	66	49	17

The findings from this study offer fertile ground for interpreting how e-government performance in developing cities aligns with, diverges from, and contributes to current academic discourse. Rather than simply reiterating the results, this section situates those findings within a broader scholarly landscape. Over the past five years, research has increasingly shifted toward nuanced explorations of quality dimensions such as service clarity, transparency, citizen engagement, and institutional capacity in e-government systems, and the present results resonate with these emerging patterns. One important theme in recent research is that usability and technical quality alone are not sufficient for effective e-government adoption and impact. Widjaja & Toer (2026) standards-based study in Saudi Arabia underscores that while citizens frequently report high satisfaction with usability and trust in e-government services, deeper emotional engagement reflecting deeper acceptance and interactive use is limited when services remain primarily transactional and functional rather than participatory and experience-oriented. This insight helps explain why cities in this study scored higher in-service availability and information quality than in engagement, suggesting that superficial satisfaction does not necessarily translate into genuine interaction or empowerment.

Discussion

The challenge of meaningful citizen engagement appears as a consistent concern in global e-government literature. A qualitative comparison of developing and developed nation practices highlights that structural-barriers such as limited internet access, low digital literacy, and institutional trust deficits constrain participatory potential in developing contexts, even when digital platforms exist (Musekiwa et al., 2025). This aligns with the present study's finding that citizen engagement scores lagged other dimensions, emphasizing that access alone does not guarantee active participation. Beyond individual studies, systematic reviews of citizen adoption research indicate that perceived transparency and information quality are among the strongest predictors of e-government uptake. Wuridewanti et al. (2025) conducted a meta-analysis of adoption studies and reported that perceived transparency consistently emerges as a key determinant of user intention across multiple countries, suggesting that e-government becomes more meaningful when citizens feel the system promotes open governance rather than merely automating services. The relatively lower transparency scores in several cities in this study might therefore signal a broader structural issue in developing contexts where informational openness has not been fully institutionalized.

The relationship between e-government performance and governance outcomes such as transparency and accountability has also been highlighted in recent empirical work. Abbas et al. (2022) showed that electronic government policy can positively influence transparency in public services, yet gaps in technological access and security concerns moderate this effect. The present results, especially those showing variation in transparency across cities, resonate with these insights: enhancing transparency remains an incremental process influenced by contextual constraints that vary widely within developing environments. A growing research trajectory also focuses on digital divide issues and infrastructure constraints as fundamental determinants of e-government success. The comparative analysis of ASEAN countries by Nambassa & Nurmandi (2024) revealed that while average EGDI scores are improving regionally, disparities in broadband access, infrastructure readiness, and digital literacy continue to constrain deeper e-participation and equitable service delivery. The performance differences observed among the

cities in this study suggest similar structural divides that shape how residents in different urban contexts can actually leverage digital platforms.

Linked to this, studies on digital governance emphasize the role of institutional capacity and political support in filling gaps that technology alone cannot bridge. Research by Sadat (2025) found that infrastructure, legislative frameworks, and political will significantly influence public service efficiency outcomes in digital governance. These factors are echoed in the present findings where cities with stronger institutional support and governance frameworks tended to have more balanced performance profiles, suggesting that technical artifacts must be supported by governance ecosystems to yield substantive outcomes. Moreover, public trust emerged as a recurring theme in recent e-government research. Maulan & Fitriani (2025) examined how digital transparency influences citizen trust and engagement, concluding that trust mediates the relationship between e-government initiatives and participatory behavior. Their model provides a useful interpretive lens: where transparency is stronger, citizens are more inclined to engage and trust digital systems, which in turn reinforces usage patterns. The relatively modest citizen engagement scores in this study's cities may, therefore, reflect lingering trust gaps that hinder deeper e-government adoption.

The literature also highlights the importance of social inclusion and equity in e-government adoption. Djatmiko et al. (2025) specifically examined the intersection of digital transformation and social inclusion, finding that marginalized communities often remain underserved by mainstream e-government initiatives, which limits both adoption and the benefits of digital public services. This insight is particularly relevant in the context of developing cities where socio-economic disparities may further stratify service access and engagement, reinforcing the pattern seen in this study where basic service delivery outpaced participatory engagement. Another line of inquiry emphasizes policy coherence and governance strategies. Tribally oriented literature, such as insights synthesized via narrative reviews of e-government implementation, suggests that sustainable integration of digital services requires alignment of technical strategy with broader administrative reforms. Studies argue that merely digitizing services without concomitant policy reforms yields limited governance transformation.

This helps contextualize the finding that several cities excelled in online availability but faltered in participatory and accountability dimensions a pattern reflecting partial digitization without deeper governance integration. Collectively these studies illustrate that while digital platforms provide the structural foundation for service provision, their impact on governance outcomes such as engagement, trust, and transparency is mediated by institutional, social, and contextual determinants. The present results reinforce this scholarly consensus by showing that performance is multi-dimensional and contingent on local capacities and frameworks as much as on the technological systems themselves. Evidence from recent literature suggests that addressing these mediating factors should be a priority for policymakers seeking to translate digital infrastructure into genuine democratic participation and accountability.

CONCLUSION

This study set out to examine e government performance in developing countries through a comparative analysis of selected cities, with the aim of understanding not only the level of digital service provision but also the broader governance implications of local e government implementation. The findings demonstrate that while the adoption of digital platforms at the municipal level has become increasingly common, the quality and depth of implementation remain uneven and strongly shaped by local institutional and socio-economic contexts. One of the central conclusions of this study is that e government performance in developing cities is still largely characterized by a service delivery orientation. Local governments have made notable progress in making information and basic services available online, reflecting a commitment to administrative modernization and efficiency. However, this progress has not yet been matched by equivalent advances in transparency mechanisms and citizen engagement. This imbalance suggests that e government initiatives are often treated as technical solutions rather than as integral components of broader governance reform. The comparative nature of the analysis highlights that differences in performance across cities cannot be attributed solely to technological capacity. Instead, they reflect variations in governance priorities, organizational readiness, and institutional commitment to

openness and participation. Cities with more consistent performance across multiple dimensions appear to integrate e government more strategically into administrative processes, whereas lower performing cities tend to implement digital initiatives in a fragmented or symbolic manner. This underscores the importance of aligning digital transformation with governance values and administrative reform agendas. From a theoretical perspective, the study contributes to the growing body of literature that conceptualizes e government as a multidimensional phenomenon rather than a purely technological one. The findings reinforce recent scholarly arguments that effective e government requires not only functional digital systems but also supportive institutional frameworks, trust building mechanisms, and inclusive approaches to citizen interaction. By focusing on the city level in developing country contexts, this study adds empirical nuance to discussions that are often dominated by national level analyses. In practical terms, the results suggest that policymakers should move beyond an emphasis on platform development and prioritize the strengthening of transparency practices and participatory features within local e government systems. Investments in digital infrastructure need to be accompanied by efforts to enhance administrative capacity, improve information disclosure, and cultivate citizen trust. Without such complementary measures, the transformative potential of e government is likely to remain limited.

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