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Comparative Study on E-Government Implementation: Lessons from Developed and Developing Countries

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Abstract: This study uses a Systematic Literature Review (SLR) approach to compare e-government implementation in developed and developing countries based on 2014-2025 literature. The findings show that developed countries excel in digital infrastructure maturity, integrated policies, use-centric services, and strong data protection. In contrast, developing countries continue to face various challenges. The success of e-government is not only determined by technology, but also institutions, digital leadership, and public participation. This study recommends the formulation of an inclusive national e-government strategy, strengthening regulations, and public engagement as the key to effective and sustainable public sector digital transformation.

Keyword: E-Government Developed Countries, E-Government Developing Countries, Challenges Success Factors of E-Government, Best Practices of E-Government, & E-Government Cross-country Comparison.

INTRODUCTION

Electronic government (e-government) refers to the utilization of digital communication technologies such as computers and the internet to deliver public services to citizens and individuals in a region or country. (Morte-Nadal & Esteban-Navarro, 2022). The adoption of e-government has become an essential part of modern public administration, aiming to enhance the efficiency, transparency, and accessibility of government services. (Yakhshiboyev & Kudratillayev, 2024). E-government is now an vital feature of government, playing a central role in how policymakers carry out their duties at various levels.

Nowadays, almost all countries and governments around the world have implemented e-government across various sectors. Although most governments has many similarities in terms of structure, function, and process, the implementation of e-government faces different challenges in each country. In developed countries, it is not difficult to envision a condition where all interactions with the government can be done through a single portal that is available 24/7 without the need to queue, however, achieving a similar level of efficiency and flexibility in developing countries is a significant challenge. The experience of developed countries shows

that this can be realized if governments are willing to decentralize responsibilities and processes, and begin leveraging digital technologies (Basu, 2004).

In developing countries, various models have been designed to ensure the success of e-government. However, strategies and experiences from developed countries cannot always be applied directly in developing countries due to differences in technological and social aspects (Ahmed et al., 2013). Variations in the maturity level of both technical and non-technical infrastructure require distinct strategies. Developed countries tend to have more established digital infrastructure, stable public policies and better-trained human resources in terms of technology (Becker, 2012; Müller & Skau, 2015; Zheng & Manoharan, 2016). On the other hand, developing countries are often faced with limited technological infrastructure, low bureaucratic capacity, limited funds, and lack of literacy and technological skills among human resources (Amegavi et al., 2018; Elgohary, 2019; Gyamfi et al., 2019). The main difference between developed and developing countries in the implementation of e-government lies in the focus of implementation (Meiyanti et al., 2019), where developing countries focus on transparency and fighting corruption (Ahmed et al., 2013), while developed countries focus on presenting information according to citizen's needs, efficiency and standardization, as well as the protection of security and privacy (Carter et al., 2016).

The thirteenth edition of the United Nations E-Government Survey in 2024 recorded a rapid global digital transformation of governments, driven by increased investments in infrastructure and technology. The global average of the E-Government Development Index (EGDI) has risen, with the proportion of left-behind populations decreasing from 45% in 2022 to 24.4% in 2024 (United, 2024). However, developing countries and small island states still report EGDI scores below the global average. This highlights the need for continued efforts to address the existing digital divide.

The aim of this study is to analyze the differences in e-government implementation between developed and developing countries, identify key success factors for e-government, and provide recommendations to improve e-government in developing nations. Using a comparative analysis approach, this study explores three main research questions: 1) How does the implementation of e-government compare between developed and developing countries? 2) What are the supporting and inhibiting factors in the implementation of e-government in both groups of countries? 3) What lessons can be learned from the experiences of developed countries to enhance e-government in developing countries?. To address these research questions, a systematic literature review was conducted based on previous studies on e-government implementation in both developed and developing countries.

Differences in social, economic, and political contexts between developed and developing countries make comparative studies on e-government implementation increasingly relevant. To answer the research questions, a Systematic Literature Review (SLR) was conducted to identify best practices, challenges, and factors that contribute to the success or failure of e-government implementation across various countries. This study is expected to provide valuable insights for developing countries by drawing lessons from the experiences of developed nations.

The development of e-government has become a priority for many countries, although its progress varies significantly. These differences are influenced by a range of challenges that affect the success or failure of its implementation. In developing countries, factors such as technical infrastructure, funding, vision and strategy, security and privacy, effective coordination, leadership, skills, and change management play a critical role (Ramli, 2017). Other contributing factors include website quality, public awareness, confidence in using technology, trust in the system, and the quality of services provided (Majeed et al., 2019). Additionally, study conducted by Chen et al., (2008) highlights various challenges and issues faced in the implementation of e-government in both developed and developing countries.

Table 1. Differences between Developed and Developing Countries

	Developed Countries	Developing Countries
History & Culture	• Government and economy developed early, immediately after independence. • Economy growing at a constant rate, productivity increasing, high standard of living. • Relatively long history of democracy and more transparent government policy and rule.	• Government usually not specifically defined; economy not increasing productivity. • Economy not growing or increasing productivity; low standard of living. • Relatively short history of democracy and less transparent government policy and rule.
Technical Staff	• Has a current staff, needs to increase technical abilities and hire younger professionals. • Has outsourcing abilities and financial resources to outsource; current staff would be able to define requirements for development.	• Does not have a staff, or has a very limited in-house staff. • Does not have local outsourcing capabilities and rarely has the financial ability to outsource, current staff may be unable to define specific requirements.
Infrastructure	• Superior current infrastructure. • High internet access for employees and citizens.	• Inferior current infrastructure. • Low internet access for employees and citizens.
Citizens	• High internet access and computer literacy; still has digital divide and privacy issues. • Relatively more experienced in democratic system and actively involve in policy-making process.	• Low internet access and citizens are reluctant to use online services; few citizens have knowledge to operate computers. • Relatively less experienced in democratic system and less actively participates in governmental policy-making.
Government Officers	• Decent computer literacy and dedication of resources; many do not place electronic government at a high priority.	• Low computer literacy and dedication of resources; many do not place electronic government at a high priority due to lack of knowledge on the issue.

METHOD

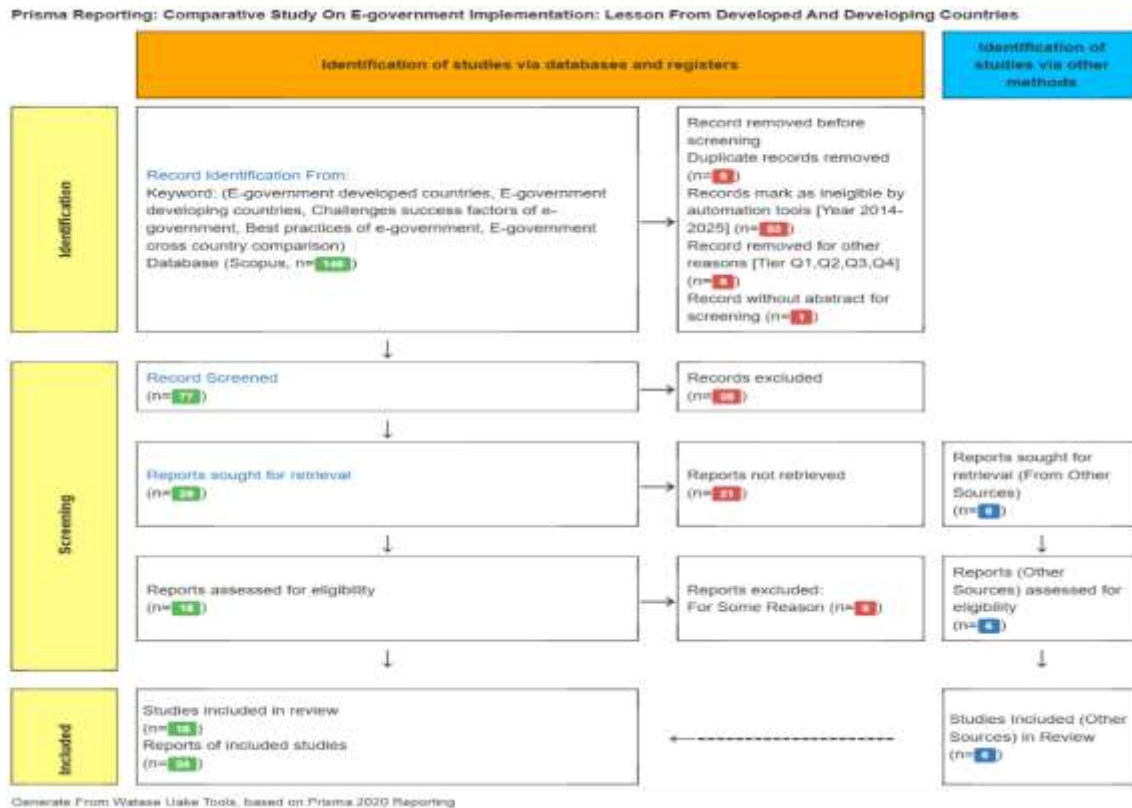
This study employs the Systematic Literature Review (SLR) method, designed to identify, review, and evaluate all relevant studies in order to provide a comprehensive understanding and synthesize information in a holistic manner. PRISMA 2020 is designed to be used in systematic reviews that include synthesis (such as pairwise meta-analysis or other statistical synthesis methods) as well as those that do not include synthesis (for example, when only one eligible study is identified) (Page et al., 2021). The process of identifying, screening, and selecting studies was carried out following the PRISMA 2020 guidelines. The first step began with article searches using the Scopus database with keywords such as “e-government developed countries,” “e-government developing countries,” “challenges success factors e-government,” “best practices of e-government,” and “e-government cross-country comparison.” Inclusion and exclusion criteria were systematically applied to ensure that only studies highly relevant to the research focus were included in this literature review.

Table 2. Inclusion and Exclusion Criteria

No.	Inclusion Criteria	Exclusion Criteria
1.	Articles that discuss the implementation of e-government in developed countries, developing countries, or both.	Articles of a conceptual nature that do not provide country-specific context.
2.	Articles published in reputable scientific journals or international conference proceedings.	Articles with restricted access lacking an available abstract of full text.
3.	Publications within the period 2014-2025	Publications in forms other than journal articles.

Source: Compiled by the Author

This study uses the Scopus database as the primary source due to its globally recognized credibility and its support for the validity of scientific research. Using the Systematic Literature Review (SLR) approach, only journal articles and international conference proceedings were included, while other types of publications such as undergraduate theses, master's theses, and book chapters were excluded. The publication timeframe was limited to the period 2014-2025 to capture the most recent developments in e-government implementation. Furthermore, only journals indexed in quartiles Q1, Q2, Q3, and Q4 were selected to ensure the quality of the studies analyzed.



Source: Watase Uake
Figure 1. Prisma Reporting

The search was conducted using the Watase Uake tool. A total of 145 articles were initially retrieved. A preliminary screening was then carried out to remove irrelevant articles. 5 articles were removed due to duplication, 53 articles did not meet the publication year criteria, 9 articles were not from reputable journals, and 1 article lacked an abstract. As a result, 77 articles proceeded to the content screening stage. From the 77 screened articles, 38 were excluded for not meeting the further inclusion criteria. The remaining 39 articles were submitted for full-text retrieval. However, only 18 full-text articles were successfully obtained. The remaining 21 articles could not be accessed and were therefore excluded from the next stage. To supplement the literature sources, the author also conducted a search from alternative sources, which resulted in an additional 6 articles. All of these supplementary articles were successfully obtained and met the eligibility criteria. In the final stage, a total of 24 articles that met all criteria were included in the systematic review.

RESULTS AND DISCUSSION

A. Global Trends in E-Government Implementation

1. The Development of E-Government Adoption in the Last Decade

Globally, e-government has shown significant growth by leveraging technology to improve public services and strengthen citizen participation. This trend became even more widespread in the post-pandemic era. The Covid-19 pandemic accelerated the digitalization of tools, affecting both the demand for and provision of various e-government service features (Goloshchapova et al., 2023; Roztock et al., 2024). The United Nations E-Government Survey (2024) reported a notable increase in the E-Government Development Index (EGDI), with Europe leading, followed by Asia, the Americas, Oceania, and Africa.

Developed countries have consistently demonstrated progress in providing integrated, inclusive, and participatory digital services. For example, Estonia's success in building an efficient e-government system is attributed to a centralization strategy involving both technical and structural integration, driven by regulations such as the Public Information Act, which mandates that all public institutions be digitally interconnected. The integration of information systems and government databases via the internet is facilitated through a service known as X-Road and the adoption of the Estonian ID-Card (Björklund, 2016). These services enable real-time data exchange between government agencies.

Meanwhile, developing countries have also shown a positive trend in the implementation of e-government, although they still face various fundamental challenges such as uneven infrastructure, low digital literacy, and geographical and social disparities (Elgohary, 2019; Gyamfi et al., 2019; Mudawi et al., 2020). Several countries have made notable efforts, such as India with its Digital India program, which is designed to ensure government services are accessible to all segments of society, accelerate service delivery, and improve the overall quality of life (Kumar, 2020). Recent developments in Bangladesh include the e-Tothyakosh (electronic information cell), which serves as a gateway to access information across various sectors such as education, health, trade and industry, law and human rights, tourism, employment, and more (Siddiquee, 2016). In Indonesia, e-government development is progressing through the Electronic-Based Government System (Sistem Pemerintah Berbasis Elektronik-SPBE), which aims to guide the development of digital-based governance and public services toward optimal citizen satisfaction (PANRB, 2025).

2. The Regulations and Policies in Developed and Developing Countries

Developed countries tend to have stable, integrated, and adaptive regulations that keep pace with technological advancements. For example, in Europe, concrete efforts to provide interoperable solutions and ensure user security and privacy in online government transactions have been made through the issuance of the e-IDAS Regulation 910/2014 (Sharif et al., 2022). In South Korea, the National Smart City Strategy Program (NSSP) was launched to build a new technology ecosystem and set new standards for smart cities (Yang et al., 2021). Singapore, through GovTech, provides strong leadership in the implementation of its Smart Nation initiative (Manoharan et al., 2021). In contrast, developing countries still face policy fragmentation, with digital policies that are often sectoral and not yet integrated at the national level. Countries such as those in Africa, the Philippines, Thailand, and Indonesia face challenges in policy implementation due to budget constraints, limited institutional capacity, and political inconsistencies (Ndou, 2004; Gunawong & Gao, 2017; Elgohary, 2019; Enaifoghe & Ndebele, 2023). For instance, in Indonesia, although Presidential Regulation No. 95 of 2018 on Electronic-Based Government Systems (SPBE) has been established, its implementation remains inconsistent across different regions (Yudha & Susanto, 2019).

B. Factors Influencing E-Government Implementation

1. Technological Infrastructure and Digital Access

Technological infrastructure is the fundamental foundation for the development of e-government. Developed countries have generally succeeded in building stable, resilient, and well-distributed technological infrastructures, including national broadband networks, government data centers, and integrated digital identity systems (Björklund, 2016). Estonia is known for its advanced and comprehensive e-government system, which includes services such as e-Residency, e-ID Card, and online voting (Yakhshiboyev & Kudratillayev, 2024). Singapore has implemented services such as eCitizen, SingPass, and MyInfo (Manoharan et al., 2021). Emerging technologies like AI also hold great potential in shaping smart societies. On the other hand, despite showing progress, infrastructure limitations remain a major challenge in developing countries. Many regions, especially rural areas, still lack adequate internet access. This is further exacerbated by high connectivity costs and reliance on private infrastructure providers that do not fully cover national territories (Amegavi et al., 2018; Elgohary, 2019; Enaifoghe & Ndebele, 2023).

The implementation of AI technology in e-government services can enhance the government's ability to provide more accessible data and help citizens use public services more intelligently (Chohan & Hu, 2022). However, the rapid advancement of AI is not matched by the pace of regulatory adoption, making effective governance essential to address emerging risks such as data bias (United, 2024). Several countries have already begun integrating technologies such as AI, Blockchain, and Cloud Computing (Mohammed et al., 2016; Sullivan & Burger, 2017; Alkhwaldi et al., 2018; Mudawi et al., 2020; Chohan & Hu, 2022).

2. Human Resources and Digital Capacity

The implementation of e-government relies not only on technological factors but also on the capacity of human resources in both the public sector and the broader society. Developed countries have actively promoted digital literacy through their education systems, regular training programs, and the integration of technology in e-government management. The digital competence of public management significantly influences the success of e-government system administration (Gil-Garcia et al., 2018). In countries such as South Korea, civil servants possess adequate education and skills, actively participate in policy design and implementation, and benefit from dedicated digital training institutions for public officials (Turner et al., 2022). On the other hand, developing countries often face significant limitations in human resources. Many government officials lack sufficient digital skills and often show resistance to change stemming from either a lack of understanding or fear of role shifts (Yudha & Susanto, 2019).

3. Government Commitment and Policy Stability

Developed countries tend to have long-term digital strategies integrated with broader bureaucratic reform agendas, supported by sustainable budgets and adaptive regulatory frameworks. Their governments often demonstrate visionary leadership that drives systemic acceleration of digital innovation. For instance, Denmark has implemented the **Digital Strategy 2018–2025**, designed with a whole-of-government approach (Scupola, 2019; *Strategy for Denmark's*, 2023). In contrast, developing countries often face inconsistent and fragmented digital policies, with efforts that are sometimes donor-driven or dependent on external support. Political priority shifts, institutional fragmentation, and weak inter-sectoral coordination frequently hinder the sustainability of e-government programs (Elbahnasawy, 2014).

4. Public Service Design and User Needs

Public service design in developed countries has shifted from conventional administrative systems toward citizen-centric design, which places users' needs and experiences at the core of digital service delivery. In contrast, developing countries often still adopt bureaucratic and

institution-oriented service designs, rather than focusing on user needs (Al-Hujran et al., 2015). Digital services are frequently developed without public consultation, lack adequate testing, and are not responsive to the needs of vulnerable groups or communities in remote areas (Safiul Hoque, 2020).

5. Trust and Public Participation

Developed countries have established robust mechanisms for data protection, transparency, and cybersecurity, which foster a sense of safety and trust in government digital services. Trust is further strengthened through open data policies and public participation channels such as *digital consultation platforms* and *e-petitions*, which make citizens feel included in the governance process (Jun & Weare, 2014). In developing countries, low levels of trust are often attributed to concerns over data security and a lack of transparency. The quality of e-government systems and the information they provide significantly influences public trust, which in turn affects the intention to continue using these services and to share experiences through electronic word-of-mouth (Nulhusna et al., 2017).

C. Lesson Learned: Success Strategies in Developed Countries That Can Be Adapted

1. Whole-of-Government (WoG) Approach

Developed countries like Denmark implement a Whole-of-Government (WoG) approach that integrates services and systems across government agencies into a unified platform (Scupola, 2019). This approach can enhance operational efficiency and facilitate easier access to services for the public. Developing countries can adopt this approach by building a collaborative framework among institutions, supported by technological infrastructure that enables system interoperability.

2. User-Centric Service Design

The portal www.direct.gov.uk in the United Kingdom is an example of public service design that focuses on user needs (Carter et al., 2016). This approach enhances public participation and satisfaction with government services. Governments in developing countries need to involve citizens in the design of digital services to ensure that the services meet users' needs and preferences.

3. Data Security and Privacy

Developed countries prioritize data security and privacy in the implementation of e-government. For example, Estonia ensures public data security and transparency by using blockchain technology (Sullivan & Burger, 2017). Developing countries need to develop data protection regulations and implement advanced security technologies to build public trust in the quality of digital services.

4. Investment in Human Resource Knowledge and Skills Development

Governments in developed countries, such as South Korea, consistently invest in digital education and training for civil servants (Turner et al., 2022). This ensures that the bureaucracy is well-prepared to manage and develop e-government systems. Developing countries need to design continuous training programs to improve digital literacy and technical competencies among government officials.

5. Development of an Integrated National E-Government Strategy

Developed countries such as Denmark have formulated their 2018–2025 national strategy. This can serve as a model for developing countries to design an e-government strategy aligned with national development priorities, encompassing a long-term vision, specific objectives, and clear performance indicators.

CONCLUSION

This study examines the implementation of e-government in developed and developing countries, identifying key success factors and challenges. Developed countries excel in technological infrastructure, integrated policies, and data protection, while developing countries face limitations in technology infrastructure, regulation, and public participation. The success of e-government is determined by the ability to contextually adapt best practices through a collaborative approach that integrates technology, governance, and community engagement.

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