Status of E-government and Public Service Delivery in Nepal

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Abstract

E-government represents an Innovative use of ICT, internet, and web technologies to deliver public services, enhance transparency, and participation through models like G2C, G2B, G2E, and G2G. In Nepal, a federal, landlocked nation with diverse topography and a literacy rate of 76.3%, e-government holds promise for overcoming inefficiencies in public service delivery persistent challenges like political instability and digital divides. Despite gradual improvements, evidenced by Nepal's EGDI rank rising from 165th in 2014 to 119th in 2024 and fluctuating EPI performance, this progress lags behind SAARC peers, highlighting gaps in online services, infrastructure, and human capital index. Key research questions address current status and impacts, historical developments, and implementation challenges. Employing an exploratory research design with descriptive analysis, the study relies on secondary data from UN E-Government Surveys, government reports, and national policies. A Comparative Analysis Model evaluates Nepal's EGDI/EPI against SAARC countries and tracks year-wise trends. Findings reveal strengths in telecom infrastructure but underscore barriers like low literacy, weak coordination, and infrastructure deficits, alongside success factors such as capacity building and monitoring. Recommendations emphasize citizen-centric reforms to elevate Nepal's e-governance.

Keywords: ICT, Service delivery, Transparency, Digital interaction

Introduction

E-Government is defined as a system utilizing the Internet, ICT and the world-wide-web for delivering government information and services to citizens. This system reduces the processing costs, improves service delivery and increases transparency and communication between a government and its citizens (Alia et al., 2012). E-Government is defined as digital interactions between a government and citizens (G2C), government and businesses (G2B), government and employees (G2E), and between government and governments or agencies (G2G). The E-Government delivery models can be shortly summarized up as government to citizens (G2C), government to businesses (G2B), government to employees (G2E), government to governments (G2G) and citizens to governments (C2G) (Gartner, 2002). Governance is an established mechanism through which the government provides services to citizens. The term governance is referred to as the use of economic, political and administrative power when managing a nation's affair, which includes citizen's interest articulation and the exercise of legal rights and obligations (Ajibade et al., 2017). E-government helps to improve public service delivery by establishing connections between government and citizens, which strengthens transparency, responsiveness, and accountability (Sodhi, 2016).

Service delivery according to Yayale, (2004), presupposes that in public service, there is a contractual relationship between the public and a government agency in which the latter is legally bound to render service to the former in terms of quality. Although from the traditional practice of administration, ICT have been in use in businesses and other fields, governments across the world

are beginning to embrace and deploy information communication technology to the public service due to the fact that they have realized that the application of ICT is a useful tool that can leverage public sector organizations to change from their routine command and control organizations that are inwardly focused on administration to knowledge-based, networked, learning organizations that are externally focused on service delivery (OECD, 2005). Fox and Meyer (1996) define public service delivery as the provision of public goods, which are tangible, along with intangible services that the private sector is unable to provide.

Although five decades of experiments with democratic practices in Nepal but the behavior and mindset of politicians and bureaucrats have not changed significantly to introduce civil services reforms on a results oriented. Public service delivery is a critical component of governance. E-Government, involving the adoption of new technologies plays a central role in this transformation with the information dissemination, improve bureaucratic efficiency, increase transparency, reduces corruption and encourage citizen participation in local governance. Despite the promise of E-Government, there are faces challenges in Nepal, as reflected in its low ranking on the E-Government development index compared to neighboring nations. There are many obstacles include low literacy rates, insufficient infrastructure, and shortage of human resources.

Statement of problems

Nepal's e-government efforts are slowly improving, but public services are still slow and ineffective due to ongoing problems. This leaves a big gap between digital plans and actual results, especially in a country with federal governance and varied landscapes. Nepal wants to update public services using technology, but faces big challenges in putting plans into action and reaching everyone. Even with policies in place, issues like poor internet setup and low computer skills block smooth delivery. Public services focus too much on what the government supplies, not what people need, and online portals are scattered without fully replacing old paper-based ways. In today's digital world, Nepal's local governments have tried delivering services online through e-services. Technology growth and better systems are key for leaders to shift the country from underdeveloped to developing. But political unrest and poor leadership have slowed progress (Shakya, 2018).

Objectives

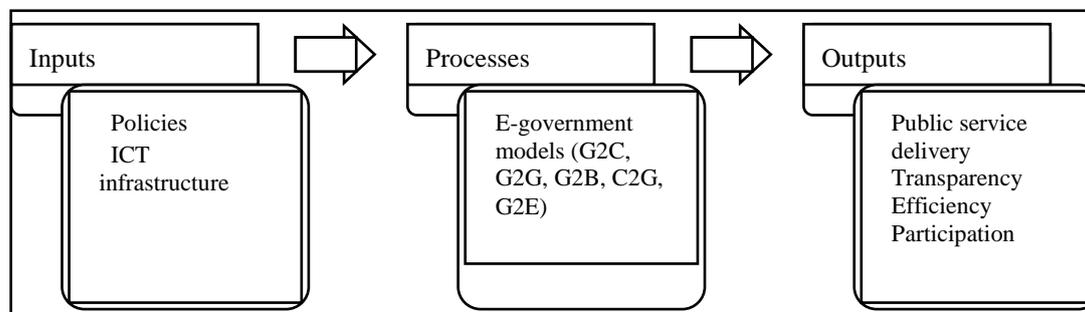The goal of the study is to attain the following objectives:

- General objective: To analyze the current status of E-Government implementation in Nepal.
- Specific objective: To trace the history of e-government and its role in transforming public services in Nepal.

Methodology

This study based on exploratory research design with descriptive analysis and used secondary data which is concerns to national and international organizations. The Comparative Analysis Model is used to compare the status of e-government and public service delivery in Nepal.

Conceptual framework

The conceptual framework of this study is illustrated as follows:

Inputs	Processes	Outputs
Policies ICT infrastructure	E-government models (G2C, G2G, G2B, C2G, G2E)	Public service delivery Transparency Efficiency Participation

Ethical consideration

This study follows ethical rules by using only public data from trusted secondary sources like UN surveys and government websites and using E-government model. Analysis stays neutral and avoids unproven claims about Nepal's government. No people were directly studied. The study's conclusion relies solely on available data and does not represent a government statement.

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Discussion and Analysis

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The History of E-Government with Public Service Transformation in Nepal

Nepal is a landlocked and underdeveloped country with population of 29.1 million. It lies in between India and China. Nepal is characterized by varied and difficult topography including highest mountain "Mount Everest". The country is still having poor literacy rate (76.3%) and technological culture. There is not an adequate access of government services to the people of remote and rural area of Nepal. Nepal has short history of E-Governance and effective service delivery (Paudel, 2014). When National Computer Centre (NCC) established in 1974, Nepal has entered the digitization gradually. The involvement of private sector in the area of software development started during 1980s. The concept of outsourcing has already implemented during 1982. In the early 90's large numbers of IT companies were emerged in capital city, Kathmandu. Nepal had introduced first IT policy in 2000 aimed to interlink all ministries, departments and offices with the government with internet to provide services online. The E-Government Master Plan (EGMP) consulting report prepared by KIPA was figured along side the most feasible government projects that has been helping to promote digital governance of Nepal with collaborative effort with Korea IT Industry Promotion Agency (KIPA).

ICT infrastructure and Networks are the backbone to implement e-governance. Nepal Telecom Company (NTC), the state-owned telecom operator, has been the major builder and operator of the national telecom network. NTC along with other private companies (N-Cell and Smart Telecom) provide telecommunication services in the country. They provide the services of land line phone, GSM mobile, C-phone, sky phone, sky data, internet, V-SAT and ADSL. The Nepal government has introduced a number of policies relating to ICT. The following policies have been formulated by the government that is relevant for the telecommunications sector.

- Communications Policy (1992)
- Telecommunications Policy (1999)
- Long Term Vision of Communications Sector (2002)

- Telecommunications Policy (2004)
- ICT Policy (2018 revised)
- Digital Nepal Framework (2019)

The Communications Policy of 1992 have liberalized telecommunications sector. It opened the door for private sectors in the telecommunications sector. Telecommunications Act was formulated in 1997 in line with the liberalization policy of 1992 establishing an independent telecom regulator. Some of the important organizations created towards ICT sector are among Ministry of Science and Technology, High Level Commission for Information Technology, and Nepal Telecom Authority. Besides these governmental institutions, a number of private organizations provide telecom services including telephone and internet services.

Government institutions are developing ICT applications separately and some of them have operated the applications for administration and public services. The following are some examples of government agencies with applications.

- Online registration of permanent account number by Inland Revenue Department.
- Personal record system by Election Commission of Nepal
- Data center by Supreme Court of Nepal
- Online Gate Pass System by National Information Technology Center
- Online tender system by Department of Road
- Computerize citizenship starting in Nepal.
- Website, e-mail and internal memo management system in Ministry of Local Development.

In Nepalese context, we are applying E-Governance in various government organizations. We are now using this system in the area of personnel record management, land record management, tendering process, complaint management and so on. Below are some project components and their responsible agency in Nepal for the implementation of E-Governance as directed by the National E-Government master plan:

Table 1: Project components and responsible Ministry

S.N	Project Components	Responsible Ministry
1	Personnel record management	Department of civil personnel record
2	E-TDS, E-PAN, E-Customs	Ministry of Finance
3	Land record management	Ministry of Land Reform and Management
4	E-Tendering, E-Procurement	Ministry of Physical Planning, Works and Transport
5	Vehicle Registration/License	Ministry of Physical Planning, Works and Transport
6	Passport Management	Ministry of Foreign Affairs
7	E-Voting	Election Commission, Nepal
8	Citizenship/NID	Ministry of Home Affairs

Source: website of Ministry. Gov.np

The public institutions have been in the process of introducing ICTs for their performance in Nepal. The e-policy focuses on using e-government usually for the delivery of programs and services and the usage of information infrastructures for improved internal administrative procedures. In order to enhance the e-governance initiatives many legal instruments have been introduced and necessary

institutional mechanism has been created. However, occurrence of digital divide both at individual and institutional level is common in Nepal.

E-Government Development Index (EGDI)

The e-Government Development Index (EGDI) measures the progress and development of e-Government in different countries. It is a composite benchmark of e-government development consisting of the weighted average of three independent component indices: the Online Service Index (OSI), the Telecommunications Infrastructure Index (TII), and the Human Capital Index (HCI). The specific measures used to calculate the EGDI may vary slightly over time, but generally, the index considers the following dimensions.

- o Online Service Index (OSI): This measures the availability and accessibility of online government services to citizens and businesses. It assesses the range and quality of online services offered, such as online tax filing, license applications and online payment systems.
- o Telecommunication Infrastructure Index (TII): This measures the state of a country's telecommunication infrastructure, including indicators such as the number of internet users, mobile phone subscriptions, and broadband penetration rates, it reflects the accessibility and reliability of communication networks necessary for e-government services.
- o Human Capital Index (HCI): This measures the level of digital skills and ICT literacy among the population. It considers indictors such as educational attainment, ICT training, and the proportion of individuals using the internet. A highly skilled and digitally literate population is crucial for effective e-government implementation.

Table 2: Status of EGDI of SAARC

Country	EGDI group	Rating class	Rank	EGDI	OSI	TII	HCI
Afghanistan	Low	L2	188	0.2083	0.1438	0.2167	0.2643
Bhutan	High	H3	103	0.6511	0.5886	0.8169	0.5478
India	High	H3	97	0.6678	0.8184	0.5700	0.6149
Maldives	High	H3	94	0.6745	0.6220	0.7886	0.6130
Pakistan	High	H1	136	0.5096	0.7042	0.4745	0.3500
Nepal	**High**	**H1**	**119**	**0.5781**	**0.4481**	**0.7653**	**0.5210**
Sri Lanka	High	H3	98	0.6667	0.5494	0.7936	0.6570
Bangladesh	High	H3	100	0.6570	0.7374	0.6501	0.5834

Source: UN E-Government Survey, 2024

The UN E-Government survey 2024, reflects the status of E-Government among 193 countries. Nepal getting the H1 rating class with 119 EGDI rank. The EGDI of Nepal is 0.5781 with Online Service Index is 0.4481, Telecommunication Infrastructure Index is 0.7653 and Human Capital Index is 0.5210. Comparatively analyze among SAARC countries, position of EGDI of Nepal is not succeed to compare Sri-Lanka, Bangladesh, Maldives, India, and Bhutan. But, the EGDI rank of Nepal is gradually increasing trend. SAARC under performance stems from OSI and HCI bottlenecks, like limited rural broadband and digital literacy in Nepal's difficult geography. In Nepal there are so many external factors (e.g., policy execution, funding) of e-government but which aren't sufficiently deployed. To compete regionally, Nepal must prioritize OSI via integrated portals and HCI through training, avoiding over-reliance on infrastructure.

Table 3: *Year-wise EGDI value and Nepal's Rank*

EGDI Index	2024	2022	2020	2018	2016	2014	2012	2010	2008
Nepal Rank	119	125	132	117	135	165	164	153	150
EGDI value	0.5781	0.5117	0.4699	0.4748	0.3458	0.2344	0.2664	0.2567	0.2725

Source: UN E-Government Survey

This table shows that Nepal gradually improved of EGDI rank till now rather than 2018. It indicates the positively influence of e-government to the public service delivery. The EGDI value is the average value of OSI, TII and HCI which shows the status of basic infrastructure of e-government that enables good e-governance and transforming the public service mechanism.

Nepal's rank fluctuated early on (150th in 2008 to 165th in 2014) but improved to 119th by 2024, with EGDI rising from ~0.27 to 0.5781—a 113% score increase over 16 years. This upward trend since 2018 (117th, then 132nd dip in 2020 likely due to COVID disruptions, rebounding steadily) suggests positive e-governance impacts on public services via better infrastructure (TII), services (OSI), and skills (HCI). However, volatility pre-2018 indicates inconsistent policy execution.

E-Participation Index (EPI)

EPI is derived as a supplementary index to the United Nation E-Government Survey. The E-Participation Index is a measurement to assess the level of E-Participation in a country, which refers to the use of information and communication technologies (ICTs) to engage citizens in decision-making processes and public affairs. The EPI is composed of three core components which are following as:

- o E-information: It includes the enabling participation by providing citizens with public information and access to information without or upon demand.
- o E-consultation: It includes the enabling citizens in contributions to and deliberation on public policies and services.
- o E-decision-making: It includes the empowering citizens through co-design of policy option and co-production of service components and delivery modalities.

Table 4: *Year-wise EPI value and Nepal's Rank*

EPI	2024	2022	2020	2018	2016	2014	2012	2010	2008
Rank	152	143	137	55	89	110	134	127	152
Value	0.2192	0.2386	0.3690	0.7809	0.5084	0.2941	0.0263	0.0571	0.0227

Source: UN E-Government Survey till 2024

This table shows the EPI rank of Nepal fluctuated over time. EPI rank of Nepal has been improved significantly till 2018. But after 2018, EPI rank of Nepal has been deteriorated till 2024. EPI Position of Nepal is 152th, which is not satisfactory level compare to other countries. In 2024, EPI Value of Nepal also minimal 0.2192. This data shows that other countries are heavily access and more citizens are engaged in e-information, e-consultation and e-decision-making than Nepal.

Nepal's EPI rank jumped high by 2018 but crashed back to last place by 2024, showing unstable e-participation progress. Big improvement until 2018 from basic online tools, then sharp drop possibly due to COVID, weak policies, or low use-score fell below old levels.

Situation of Public Service Delivery in Nepal

Nepal is undergoing a transition from a unitary to a federal administration, establishing three levels of government: federal, provincial, and municipal. The new constitution was promulgated, and elections successfully formed governments at all tiers (Adhikari, 2017). While E-Governance was introduced in Nepal in 2000 with the country's first IT Policy, its practical implementation has faced challenges, leading to the need for a new approach. The telecom market has seen significant growth, yet Mobile-Governance has not been explored fully, potentially offering an efficient form of E-Governance to bridge the digital gap (Shakya, 2017). Transparency and accountability needs in service delivery, which has a lot of room for improvement in case of public administration of Nepal. The existence of better public administration and service delivery are the measures of good governance that is longed by the citizens of any country, which is only possible if the civil servants and political leadership understand the importance of transforming administrative culture by implementing cost-efficient administrative simplification and promoting e-government systems (Bhattarai,2017; Improving Public Service Delivery in Nepal, 2019). Nepal faces challenges in citizen-centric e-governance due to traditional governance, lack of political leadership, technology adoption, digital divide, change management, insufficient ICT infrastructure, and IT human resource strategic planning Rai, (2022).

Major challenges with E-Governance implementation in Nepal

Nepal is one of the fast-growing developing countries in Asia with having the latest ICT image of the first 4G service hosting Asian country in the world. Despite having abundant growth in the use of IT and mobile devices, the country remains behind in the light of darkness while it comes to its development in front of western countries; this is strict because of the low literacy rate of the country. The per capita is too low and the poverty is still pulling back the development of the nation. The ever- fluctuating political instability, corruption and tough geographical vegetation of the country standstill causing the EG implementation in Nepal to face intense challenge. Nepal is yet to develop its infrastructure and ability to incorporate full-fledged EG. There are some of the major challenges for E-Government implementation in Nepal:

Literacy

` The literacy rate of Nepal was only around 76.3% in 2023 which is very low in comparing to its neighboring countries. With the presence of multiple languages and religion in the country, there also exist language issues. English cannot be considered the third language as most of the population even could not speak and understand the National language due to illiteracy. (Chapagain, 2006).

Lack of human resources

Today the national economy of Nepal is persistent with the remittance of Nepali migrant workers staying and working abroad in the Gulf countries. The education system is not so good and assurance of getting good opportunity is very low in the country, which has affected the flow of

competent human resources outside the country. This has ultimately created the situation of human resource lagging in the multiple fields of business. On the other hand, the government personnel selected nationally lags the minimal computer knowledge requirements leading into their reluctance towards use of technology.

Political Uncertainty

Political uncertainty is the biggest challenge for Nepal. The undeterminable changes in the country's political representation have negatively impacted many infrastructure developments projects in the past and still today the same problem persists uniformly as the situation never improved in the last decade. The implementation of EG is still lacking which is evident from the case of NID card itself as the project is getting extended from last few years and despite the distribution in some part of the country, the project is still in the phase of public acceptance.

Lack of Coordination

The lack of coordination and senior guidance is one of the biggest challenges ever in Nepal. (Kharel, 2012). There are very few leaders in Nepal who remained certain with their views and deeds, the country has a lot of political influence that resulted in low participation of the experts in coordinating activities. Therefore, the Implementation of EG requires strong leadership without which the implementation is impossible.

Weak Infrastructure

Nepal has the most dangerous roads connecting the mountains, hills and terai. Due to the geographical imbalance of landscape and hardship in transporting the goods around the country, the minimal infrastructure requirement is also not fulfilled. Most of the government organizations still are using outdated hardware and equipment to accomplish their daily transactions. The lack of telecommunication infrastructures also stands as the major challenge for the implementation of EG. In Nepal, most of the government organizations are still using poor and outdated network devices and equipment. The government organizations must develop the infrastructures in order to achieve the goal, vision, and objectives of e-government (Kharel, 2013).

Possible Success Factors for e-Governance implementation in Nepal

There are some essential components, which must be followed for the right implementation of EGov in Nepal, which is listed below:

o **Announcement and Consciousness:** The success of EGov system implementation highly depends on the announcement and consciousness to the public about the program of development and implementation of EGov.

o **Regular and Periodic Evaluation:** The GoN has been investing significant cost and means towards the study of the implementation of EG policy and procedures. Therefore, regular and periodic evaluation of the progress and index of performance needs to be monitored and recorded for the future.

o **Capacity Building:** The capacity-building strategies should be taken into account considering the fact that Nepal is a geographically diverse country with having different districts are at different levels of altitude from Terai basin, Hilly basin up to Mountainous region. Therefore,

the role of the capacity building team is at the program level to provide leadership and vision including policy formulation, preparing road-maps, prioritization, preparing frameworks and guidelines, monitoring progress including the capacity management.

o **Technology and Infrastructure:** Technology and Infrastructure, both provide support to the Department of Information Technology in implementing the EG project. Hence, both of these need to be adequately available for use.

o **Monitoring and Evaluation:** The Program Management Unit (PMU) for National EG project must develop a comprehensive Monitoring & Evaluation MIS system at the program level in order to track the physical and financial progress of the project.

o **Project and Commercial Evaluation:** Project and Commercial Evaluation is the chamber, which identifies resources to provide assistance in project conceptualization, development, and implementation to various implementing zones and areas within the country.

o **Research and Development:** The EG Research and Development team provides consultancy and research inputs in the areas of EG. The Technical Standards including interoperability standards, Government Enterprise architecture (GEA) frameworks, NeGIF framework, Information Security Policy, and Procedures, etc. are governed though the national EG R&D Teams at GIDC and also at Ministry of Information and Communications.

Conclusion

Nepal has made notable strides in adopting e-government initiatives, aiming to improve service delivery, transparency, and efficiency. The introduction of legal and regulatory frameworks, such as the Electronic Transaction Act and the E-Government Master Plan, reflects the commitment to digital transformation. Persistent challenges include low literacy rates, inadequate technology infrastructure, and political instability. These factors have impeded the full realization of e-government's potential in Nepal. Weak infrastructure, particularly in remote areas, remains a hurdle for effective public service delivery. Improvements in road networks, telecommunication infrastructure, and basic facilities are essential for successful e-government implementation. The lack of skilled human resources and the need for capacity building have been ongoing challenges. Efforts to enhance the digital skills of government personnel are crucial for the successful adoption of e-government practices. Political instability has historically affected governance and public service delivery in Nepal. A stable political environment is crucial for the continuity and success of transformation initiatives. Nepal has faced challenges related to coordination, leadership, and the overall governance structure, impacting the implementation of e-government and public service transformation. There has been a growing emphasis on citizen engagement and participation. Efforts to involve citizens in decision-making processes contribute to a more responsive and accountable public administration. Despite challenges, ongoing initiatives such as e-government programs, infrastructure development, and capacity building reflect a commitment to transforming public services in Nepal. Continued efforts in addressing challenges, enhancing digital literacy, and ensuring political stability will be crucial for advancing e-government and public service transformation in the country.

Author's Biography

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