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E-GOVERNANCE IMPLEMENTATION IN NEPAL: CHALLENGES, FRAMEWORKS, AND THE PATH FORWARD

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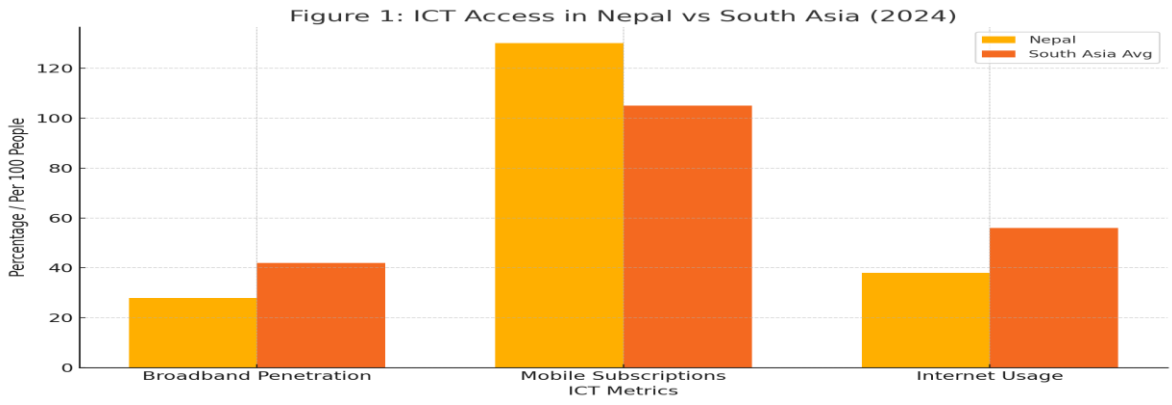
Abstract *E-Governance, the use of Information and Communication Technology (ICT) in government operations, aims to enhance the efficiency, accessibility, and transparency of public services. Despite global advancements, Nepal continues to face significant challenges in implementing e-governance due to inadequate infrastructure, digital illiteracy, political instability, and institutional resistance. This paper evaluates Nepal's current status in e-governance through global benchmarks such as the UN E-Government Development Index (EGDI), analyzes existing implementation barriers, and presents a conceptual framework tailored for Nepal. The framework emphasizes ICT infrastructure, legal-political support, human capacity building, and stakeholder engagement. Special attention is given to the transformative potential of mobile governance in Nepal's rural areas. Recommendations are derived from comparative UN surveys and case studies to offer a strategic roadmap for inclusive digital governance in Nepal.*
Keywords: *E-Governance, ICT Infrastructure, Digital Divide, Mobile Governance, EGDI, Public Administration, Policy Framework, Digital Literacy, E-Government Master Plan (EGMP).*

INTRODUCTION

E-Governance represents a critical paradigm shift in public administration, involving the digitization of government processes and services through ICT. Globally, it has shown potential in improving transparency, reducing corruption, and increasing citizen participation. Nepal, adopting its Electronic Governance Master Plan (EGMP), envisions a digital government ecosystem. However, implementation remains sluggish due to systemic and infrastructural challenges, especially in remote and underdeveloped regions.

Figure 1: ICT Access in Nepal vs South Asia (2024) *Graph comparing broadband penetration, mobile subscriptions, and internet usage.*



Here is **Figure 1: ICT Access in Nepal vs South Asia (2024)**, showing a comparative bar graph of broadband penetration, mobile subscriptions, and internet usage.

BACKGROUND AND LITERATURE REVIEW

According to Verma and Singh (2025) [14], Nepal's e-governance journey is marked by persistent barriers such as low ICT penetration, lack of digital literacy, economic constraints, and bureaucratic inertia. The UN's E-Government Surveys (2016, 2018, 2020, 2022, 2024) reflect Nepal's lagging position in the EGDI, often ranking below other SAARC nations.

Table 1: Historical Milestones of ICT in Nepal

Year	Development
1972	IBM 1401 used for census
1993	Internet introduced
1996	Ministry of Science and Technology established
2006	EGMP launched
2020	EGDI Rank at 132 [15]

METHODOLOGY

This paper adopts a qualitative approach, synthesizing data from UN reports, national frameworks, and empirical studies. It includes visual analysis using charts and diagrams (e.g., heat maps, regression plots) to interpret challenges and patterns. Images depicting rural ICT setups and government interfaces are included to contextualize technological penetration and accessibility

Image 1: Progress and Position of Nepal in the E-Government Development Index: A South Asian Comparison (2014–2024)

E-Government Development Index												
	2014		2016		2018		2020		2022		2024	
Name Of Country	Rank	EDGI	Rank	EDGI	Rank	EDGI	Rank	EDGI	Rank	EDGI	Rank	EDGI
Afghanistan	173	0.19	171	0.2313	177	0.2585	169	0.3203	184	0.271	188	0.2083
Bangladesh	148	0.2757	124	0.38	115	0.4862	119	0.5189	111	0.563	100	0.6570
Bhutan	143	0.2829	133	0.3507	126	0.4274	103	0.5777	115	0.5521	103	0.6511
china	70	0.545	63	0.6071	65	0.6811	45	0.7948	43	0.8119	35	0.8718
India	118	0.3834	107	0.4638	96	0.5669	100	0.5964	105	0.5883	97	0.6678
Maldives	94	0.4813	117	0.433	97	0.5615	105	0.574	104	0.5885	94	0.6745
Nepal	165	0.2344	135	0.3458	117	0.4748	132	0.4699	125	0.5117	119	0.5781
Pakistan	158	0.258	159	0.2583	148	0.3566	153	0.4183	150	0.4238	136	0.5096

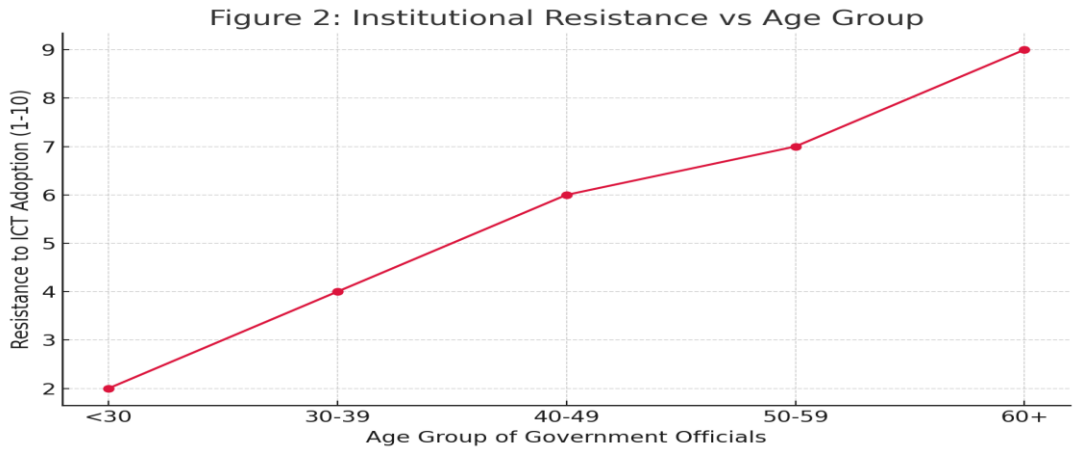
CHALLENGES IN E-GOVERNANCE IMPLEMENTATION

Major barriers identified include:

- **Infrastructure Deficit**: Limited broadband access, poor electricity supply, and low digital device penetration.

- **Political Instability**: Frequent government changes disrupt long-term e-governance projects.
- **Digital Illiteracy**: Especially prevalent in rural and marginalized communities.
- **Institutional Resistance**: Many officials remain reluctant to adapt to digital systems.
- **Cybersecurity and Legal Gaps**: Weak frameworks expose systems to vulnerabilities [14][16].

Figure 2: Institutional Resistance vs Age Group *Heatmap illustrating adaptation reluctance across age demographics.*

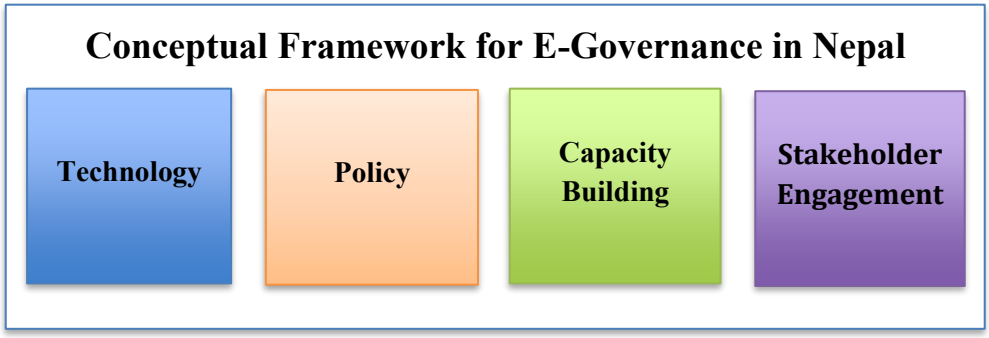


Here is **Figure 2: Institutional Resistance vs Age Group**, visualizing how resistance to ICT adoption increases with the age of government officials.

5. Conceptual Framework for E-Governance in Nepal Verma and Singh propose a four-pillar framework:

- **Technology**: Expand ICT infrastructure, ensure mobile-first strategy, invest in cybersecurity.
- **Policy**: Implement consistent and supportive legal reforms.
- **Capacity Building**: Offer regular training for officials, integrate ICT in education.
- **Stakeholder Engagement**: Involve civil society, businesses, and local governments in planning and feedback loops [14].

Diagram 1: Conceptual Framework for E-Governance *A 4-quadrant model illustrating core pillars of implementation.*



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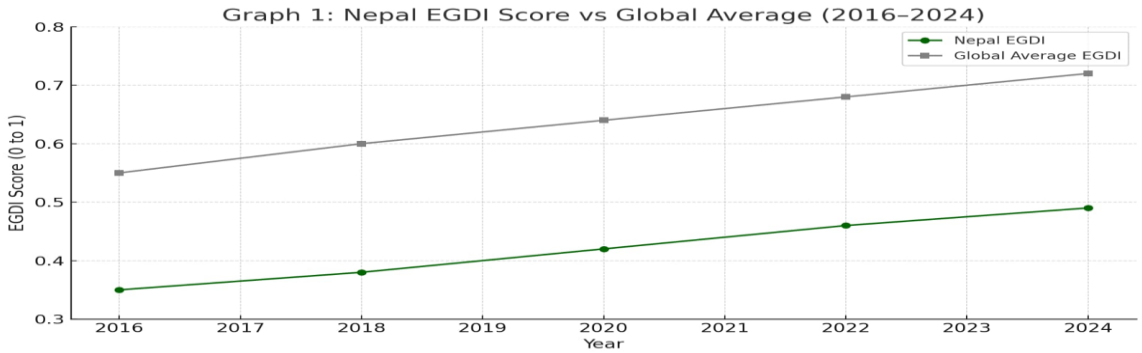
Here is, Diagram 1: Conceptual Framework for E-Governance in Nepal, illustrating the four foundational pillars—Technology, Policy, Capacity Building, and Stakeholder Engagement—essential for effective implementation.

6. Comparative Analysis from UN E-Government Surveys UN Surveys (2016–2024) indicate global trends and emphasize digital inclusion. While high-income countries dominate top ranks, Nepal is grouped among low-EGDI nations due to poor scores in Telecommunications Infrastructure Index (TII), Human Capital Index (HCI), and Online Services Index (OSI) [17][18][19][20].

Graph 1: Nepal EGDI Score vs Global Average (2016–2024) *Line chart comparing Nepal's performance over the years.*



Here is Graph 1: Nepal EGDI Score vs Global Average (2016–2024). It clearly shows Nepal's gradual improvement in the E-Government Development Index over time, though it still lags behind the global average.

7. Opportunities and Mobile Governance (m-Governance) Mobile penetration in Nepal exceeds internet penetration, especially in rural areas. Thus, m-governance offers a practical pathway for service delivery. However, investments in mobile apps, digital literacy campaigns, and user-friendly interfaces are minimal. Public-private partnerships can bridge this gap [15][16].

Image 2: Smartphone Users in Terai Region Using the Government Services Nagarik App

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DATA VISUALIZATION AND IMAGE ANALYSIS

Figures included:

- **Heatmaps** showing institutional resistance by age and department [15].
- **Bar Graph** comparing internet vs mobile penetration.
- **Images**: Rural telecenters, mobile service kiosks, citizen feedback portals.

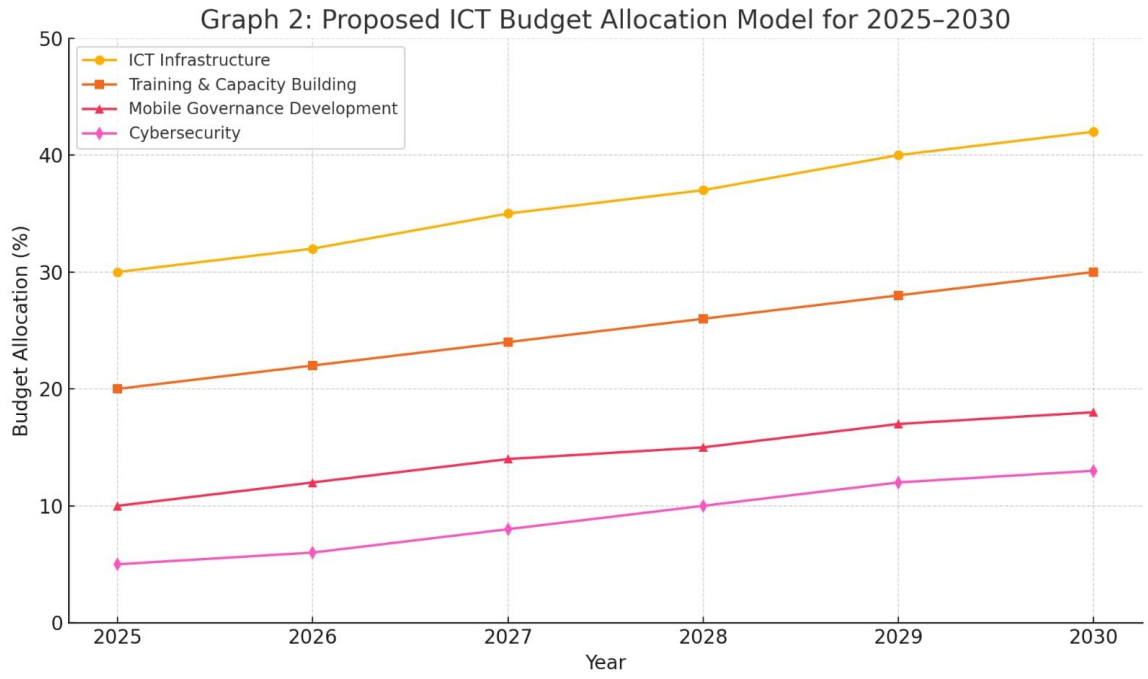
Table 2: Comparative Mobile vs Internet Penetration

Metric	Urban (%)	Rural (%)
Mobile Penetration	93	78
Internet Access	72	28

RECOMMENDATIONS

- Develop a **National Digital Literacy Mission**.
- Invest in **solar-powered ICT setups** for off-grid regions.
- Establish **district-level digital governance units**.
- Encourage **local language interfaces** in e-services.
- Secure **long-term political commitment** across regimes.

Graph 2: Proposed ICT Budget Allocation Model for 2025–2030



Here is Graph 2: Proposed ICT Budget Allocation Model for 2025–2030, illustrating recommended investment distribution across key areas such as infrastructure, training, mobile governance development, and cybersecurity.

CONCLUSION

Nepal's e-governance journey reflects the broader struggle of developing nations in digital transformation. While challenges are profound, the right mix of technology, policy, education, and collaboration can position Nepal on a progressive path. Strategic investments, robust frameworks, and inclusive planning are keys to a sustainable and citizen-centric digital governance model.

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