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Research Article

Designing a Conceptual Framework for Recommendation of E-Governance Implementation in Nepal: Barriers and Challenges

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ABSTRACT

The implementation of e-Governance has the potential to revolutionize public administration by enhancing the accessibility, efficiency, and transparency of government services. Through the utilization of information and communication technology (ICT), e-government has the potential to simplify procedures, lessen instances of corruption, and significantly improve public participation. On the other hand, the implementation of e-governance in Nepal is riddled with obstacles and difficulties of a substantial kind. The insufficient infrastructure for information and communications technology (ICT), low levels of digital literacy, economic limits, political instability, and opposition within government institutions are some of these factors. Furthermore, there are gaps in the frameworks of both policy and regulation, which further restrict growth.

This paper presents a conceptual framework designed to address these barriers and challenges, providing strategic solutions tailored to Nepal's context. The framework focuses on four main pillars: Technology, Policy, Capacity Building, and Stakeholder Engagement. It emphasizes the need for robust ICT infrastructure, comprehensive cybersecurity measures, and supportive legal frameworks. Additionally, it highlights the importance of training programs for government officials, public awareness campaigns to increase digital literacy, and fostering public-private partnerships. By adopting this structured approach, the framework aims to guide policymakers, stakeholders, and researchers in effectively implementing E-Governance initiatives in Nepal.

Keywords: E-Governance, Nepal, Barriers, Challenges, Conceptual Framework, Public Administration, Digital Transformation

INTRODUCTION

E-Governance presents significant opportunities to improve government service delivery by leveraging information and communication technologies (ICT). It combines biological and physical intelligence with intelligent technology to maximize manufacturing processes and methodologies that have the potential to drastically alter people's lives and have a significant impact on the economies and societies of all nations, including Vietnam. The banking sector, which is one of the most important in the economy, is among the first to apply information and communication technology (ICT) to business operations (Pham, 2023).

This can enhance transparency, accountability, and efficiency in public administration. However, implementing E-Governance in developing countries like Nepal faces numerous barriers and challenges, including inadequate infrastructure, low digital literacy, and policy gaps (Adhikari, 2007). This paper aims to design a conceptual framework to address these issues, offering a structured roadmap for effective E-Governance implementation in Nepal. By overcoming these barriers, Nepal can achieve a more transparent, efficient, and inclusive government.

Nestled between China and India, Nepal is a country in South Asia. Over 15 years of internal conflict have set the nation back in terms of infrastructure, health, education, and overall growth. Nonetheless, the violence has been resolved through a peace process, and Nepal is currently gradually moving toward peace. Furthermore, the Nepali

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government has developed an e-governance master plan, or eGMP, as part of its modernization efforts. The purpose of the article is to assess the principal e-governance initiatives under the eGMP (Adhikari, 2012).

The status of E-Governance in Nepal is marked by slow progress and significant challenges. Despite efforts to modernize public administration, the implementation of E-Governance remains limited and uneven across different sectors and regions. Nepal faces severe inadequacies in ICT infrastructure, particularly in rural areas where internet penetration is low. Approximately 50% of the population has internet access, highlighting a significant digital divide between urban and rural regions (International Telecommunication Union, 2022). Additionally, Nepal's cybersecurity measures are weak, with the country ranking low on the Global Cybersecurity Index, exposing digital services to potential threats (International Telecommunication Union, 2022). The digital divide is a major issue, as large portions of the population lack the necessary technology and skills to utilize E-Governance services. Digital literacy remains low, particularly in rural and marginalized communities (Nepal Telecommunications Authority, 2023). Economic constraints further restrict the government's ability to invest in essential infrastructure and training programs needed for E-Governance (World Bank, 2023). Political instability and frequent government changes disrupt the continuity of E-Governance policies and initiatives (Asian Development Bank, 2021). Moreover, there is considerable institutional resistance to change, with bureaucratic inertia and a lack of commitment to digital transformation impeding progress (UNDP Nepal, 2022). Nepal lacks comprehensive policies and regulations to support E-Governance, and existing laws are often outdated and not conducive to the digital era (Ministry of Communications and Information Technology, Nepal, 2023). Regulatory challenges, particularly in digital transactions, cybersecurity, and data privacy, create uncertainties that hinder the adoption of E-Governance (Transparency International, 2023).

RELATED WORK

E-Governance uses ICT to increase citizen interactions, supply government services, and expedite operations. It is Essential to Improving Public Services, Transparency, And Citizen Engagement in Governance.

A. E-Governance in Developing Countries

In poor nations, infrastructure, socioeconomic, and political barriers make E-Governance difficult. Adoption is hindered by inadequate digital literacy, limited ICT infrastructure, opposition to change, and policy deficiencies, according to research. Chen et al. (2006) explore crucial variables for efficient e-government adoption and provide a structured approach. A comparative case study of developed and developing countries e-government programs uses this approach.

Mohammed et al. (2016) present a technology adoption literature-based theoretical model. They build and modify measuring scales for model components from earlier research and use face validity, pre-testing, and a pilot study to verify reliability. 26 IT personnel from five Yemeni public sector entities provided data throughout the pilot period. Apleni and Smuts (2020) propose a developing-country e-government framework. They adapt a model to these situations by matching 12 important success variables with DOI Theory features. In a South African government department case study, 110 managers were surveyed online to evaluate this concept.

Figure 1 represents the key issues in implementation of e-governance in developing nations.

Infrastructure Limitations

Regulatory Frameworks

Digital Divide

Skill Gaps

Corruption and Transparency

Environmental and Health Concerns

Economic Constraints

Global Market Pressures

Cybersecurity and Privacy Issues

Policy and Implementation Gaps

Figure 1. Key issues in implementation of E-governance in developing Nations

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B. E-Governance in Nepal

Nepal has initiated several E-Governance projects, but the progress has been slow (Kharel & Shakya, 2012). Factors such as political instability, limited resources, and low digital literacy levels have been identified as significant barriers (Shrestha et. al, 2015). Despite these challenges, there is a growing recognition of the need for digital transformation in governance. Previous research on e-governance in developing countries highlights challenges like limited ICT infrastructure, low digital literacy, resistance to change, and insufficient legal frameworks. In Nepal, these challenges are intensified by its unique geographical, socio-economic, and political conditions (Sharma & Dhulikhel, 2020).

To have a better knowledge of the current situation, data on Nepal's E-governance preparedness and participation indices from 2003 to 2020 were evaluated based on the UN E-governance survey. The data indicates the following: the rank, value, and participation of the e-Government Development Index, the e-Participant Index, the online service Index, the Telecommunication Infrastructure Index, and the Human Capital Index (Giri & Giri, 2022). Recognizing these barriers is crucial for devising effective e-governance strategies. Nepal's e-governance ranking, according to the United Nations E-Government Development Index (EGDI) for 2022, is 125 out of 193 countries while in 2020 it was 132. This ranking reflects Nepal's progress in the digitalization of government services but also highlights the challenges the country faces in improving its e-governance capabilities.

The digital divide is a major obstacle, with rural regions lacking adequate internet access. The World Bank (2020) noted that internet penetration is much lower in rural Nepal compared to urban areas. The International Telecommunication Union (2021) reported that only about 25% of rural Nepalis have reliable internet access, versus over 70% in urban areas. Frequent power outages and slow internet speeds further hinder e-governance effectiveness Digital literacy is critical for e-governance. The main obstacles to modernization are covered by Sapkota (2023), including inadequate infrastructure, social and cultural divides, unstable political environments, and environmental sustainability. Nepal can effectively chart its road toward sustainable development and ensure the well-being of its population by comprehending and tackling these difficulties (Shakya & Pande, 2018). Dahal (2020) primary goal is to investigate Nepal's democratic movements and good governance practices. In Lamichhane (2021) work, the notion and constituents of good governance are examined, and a descriptive analysis is conducted of the laws, precedents, and guidelines that the Nepalese Supreme Court has established about the subject. This essay also attempts to evaluate these laws' advantages and disadvantages in light of globally recognized good governance standards and concepts.

Bhagat et. al. (2021) primary goal is to create a model that Nepal might use by altering an existing developed country model. To achieve the goal, a content analysis of the literature, key informant interviews, and a five-point Likert scale questionnaire survey have all been used.

The Asian Development Bank (2022) reported that Nepal allocates less than 1% of its GDP to ICT development. Nepal's legislative and regulatory frameworks are underdeveloped, with incomplete laws on electronic signatures, data protection, and digital transactions. Nepal's cybersecurity infrastructure is inadequate, leaving systems vulnerable to cyber threats. Political instability and bureaucratic resistance hinder e-governance. Frequent government changes disrupt policy continuity (Asian Development Bank, 2021). According to Abdulnabi (2024), the Internet's dynamics and virtual character can improve public service as well as new users' capacity to carry out safe e-commerce transactions. The study came to the conclusion that in order to boost people's confidence, e-Government is required to handle present issues as well as react to past and present events. The goal of Bhagat et. al, (2021) study is to look into and pinpoint the variables that impact how e-Government is used in underdeveloped nations like Nepal.

Baral & Khadga (2023) recognizes that in order to further improve these governance indicators, governments are urged to consistently strive for better service delivery. This is shown in the periodic examination of governance indicators. However, the majority of the governance indicators that developing nations like Nepal employ were created by multilaterals and international organizations, and as a result, their universality is limited by their strategic interests. One of the main characteristics of the electronic government system is interoperability. It facilitates communication between two systems. It incorporates within the common domain all necessary entities (Pokharel

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and Park; 2009). Inspire communities to actively engage in the development and execution of e-government services (Sharma et al., 2014). Lack of coordination among government agencies leads to inefficiencies. Table 1 represents the milestone in history of Nepal in ICT.

Table-1: Major ICT Development in Nepal

Phase	Year	Milestone
Pre-establishment	1972	Introducing IBM1401 computer for census 1071-72
Pre-establishment	1974	Electronic Data Processing Centre has been established
Pre-establishment	1985	Personal Computers have been distributed
Pre-establishment	1992	Computer Association of Nepal founded, National Broadcasting Act & Policy introduced
Initial Phase	1993	Internet in Nepal is Introduced
Initial Phase	1996	Ministry of Science and Technology is introduced
Initial Phase	1997	Telecommunication Act 1997 is declared
Initial Phase	2000	First IT Policy—IT Policy 2000—is promulgated
Initial Phase	2001	National IT Centre is established
Initial Phase	2003	IT Park is founded
Transactional Phase	2004	Electronic Transaction Act & Telecommunication Policy 2004 introduced
Transactional Phase	2006	E-governance Master Plan (e-GMP) 2006
Transactional Phase	2007	Electronic Transaction Law enacted
Transactional Phase	2008	ICT Development Project (2008-14) started
Transactional Phase	2010	Revised IT Policy 2010
Transactional Phase	2011	Telecom Authority launched for one-decade Master Plan (2011-2020)
Vertical & Horizontal Integration	2012	Department of Technology established
Vertical & Horizontal Integration	2013	Education Master Plan 2013-17 with ICT
Vertical & Horizontal Integration	2014	IT Umbrella Act drafted
Vertical & Horizontal Integration	2015	National IT Roadmap, e-GMP-II, Broadband Policy 2015, IT Policy 2015, Nepalese Constitution 2015
Vertical & Horizontal Integration	2015	Broadband Policy 2015
Vertical & Horizontal Integration	2016	E-Governance introduced at local level administration

A centralized plan is essential for cohesive implementation. Cultural preferences for face-to-face interactions also impede digital service adoption.

MATERIAL AND METHODS

The study adopts a qualitative research methodology, incorporating several data collection techniques to comprehensively understand the barriers and challenges to E-Governance implementation in Nepal. The primary methods include a literature review, expert interviews, and analysis of government reports. The literature review involves examining existing research on E-Governance in developing countries, with a focus on Nepal. In order to determine the difference, Khan & Zaber (2022) used the UN's e-government paradigm and created a special questionnaire. They discover that there are differences among local governments even though the nation as a whole has advanced. They have developed some recommendations for the countries to follow in order to guarantee that the gap between the leaders and the laggards closes in light of our findings. This review helps in identifying common themes, challenges, and barriers previously noted in academic and industry publications. Key sources include peer-reviewed journals, conference papers, and reports from international organizations. To gain deeper insights, the study conducts interviews with experts in the field of E-Governance. These experts include policymakers, IT professionals, academic researchers, and practitioners with direct experience in implementing E-Governance initiatives in Nepal (KC & Regmi, 2017). The interviews aim to uncover nuanced perspectives and practical challenges that may not be fully captured in the literature. Government reports and official documents are analyzed to understand the current state of E-Governance initiatives in Nepal. These documents provide valuable information on policy frameworks, implementation strategies, and statistical data on ICT infrastructure and usage. Based on findings from the literature review, data is collected from various local-level administrations, educational institutions, hospitals, and other relevant entities. This data collection phase involves gathering qualitative data on the current practices, infrastructure, and challenges faced by these institutions in adopting E-Governance.

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A. Multistage Framework

The study employs a multistage framework to develop a conceptual model for E-Governance implementation as shown in figure 2. This framework involves several stages:

a) **Initial Data Collection**: Gathering raw data from various sources.

b) Load the dataset from excel file.

c) **Data Preprocessing**: Standardizing the data to ensure consistency and comparability. This involves cleaning the data, addressing any inconsistencies, handling missing values, and converting it into a common format.

d) Define features and target.

e) Normalize the features using Min-Max Scaling.

f) Train a Random forest classifier.

g) **Evaluation and Visualization:** Predict and evaluate the model using correlation, feature importance and confusion matrix. Analyzing the normalized data to identify key factors and their interrelationships. A correlation matrix is used to determine the strength and direction of relationships between different variables, helping to identify the most significant barriers and challenges.

h) Monitor and Update visualization by refining it based on feedbacks.

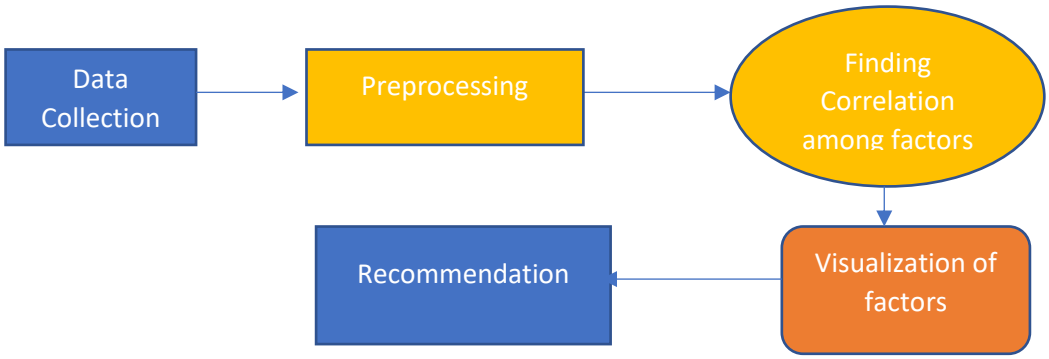

Figure 2. Overall Visualization Process

At first step data is collected from various local level administrative bodies based on following parameters as shown in table 2:

Table-2: Data Collection Parameters

Age (Years)
Gender
Educational Qualification
lack of Trust for e-governance
Lack of Clear Government vision for e-gov
lack of Political will
lack of inter and intra-Organizational
Lack of Clarity about role and responsibility
lack of commitment from higher authorities
lack of Citizen Engagement
Resistance to Change
lack of ICT Infrastructure

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lack of Separate Funding
lack of E-Skills
lack of Adequate legal Regularity
Cultural Factor
Geographical Factor
Political
Use of e-gov reduces overall cost of
Use of e-gov improves accountability transparency and anti-corruption

After data collection the visualization process is done using python programming. This is done using Random forest classifier. The data is split in train test with ration of 70 and 30. Then data visualization is done based on confusion matrix, correlation matrix and feature matrix as shown below. Figure 3 shows the confusion matrix.

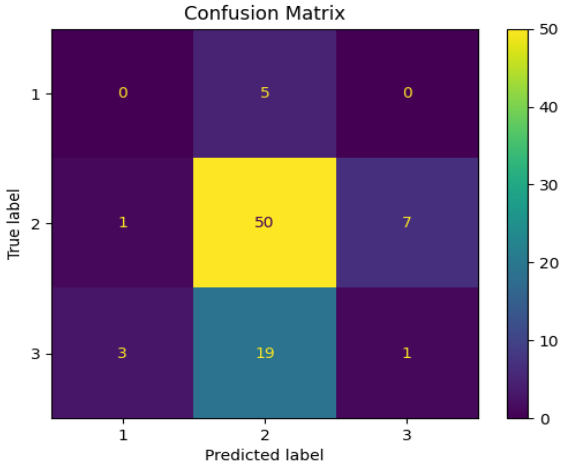

Figure 3. Confusion Matrix

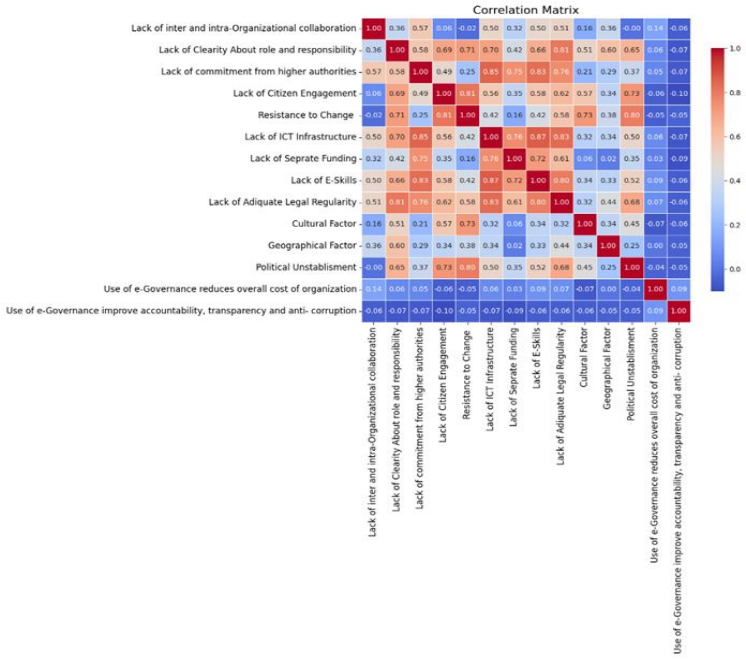

Figure 4. Correlation Matrix between factors

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Figure 4 mentioned above shows the correlation matrix between factors affecting implementation of e-governance. Whereas figure 5 shows the feature importance.

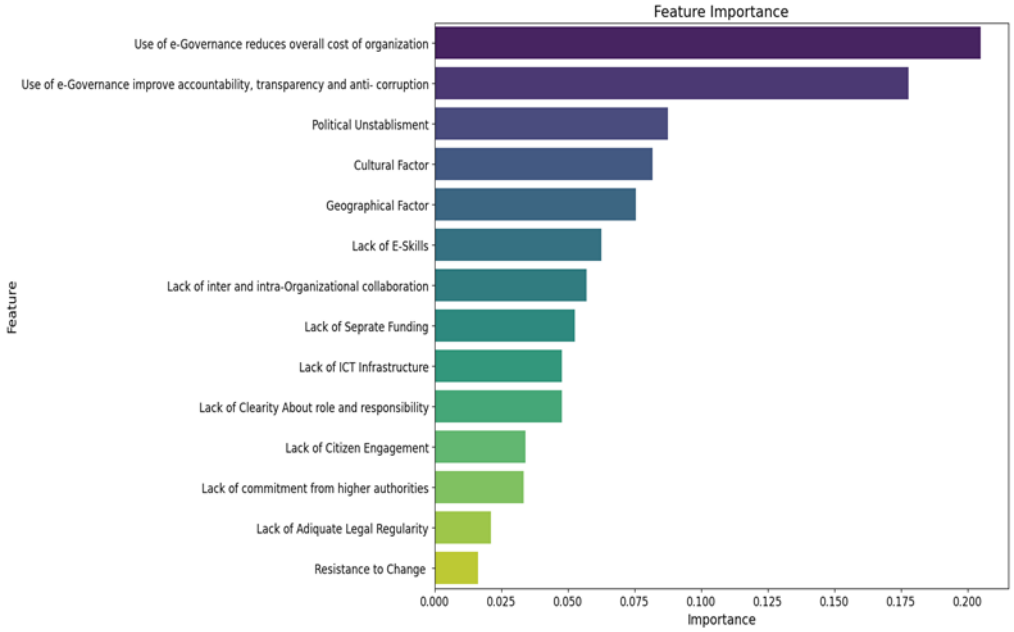

Figure 5. Feature Importance in e-Governance

The above figure shows that the role of political establishment is important in implementation of e-governance in Nepal. The visualization also indicated that the use of e-governance will reduce the overall cost of organization and it will build trust and transparency. Figure 6 shows the impact of education on Lack of trust in e-governance. The figure clearly shows that education play an important role on trust building,

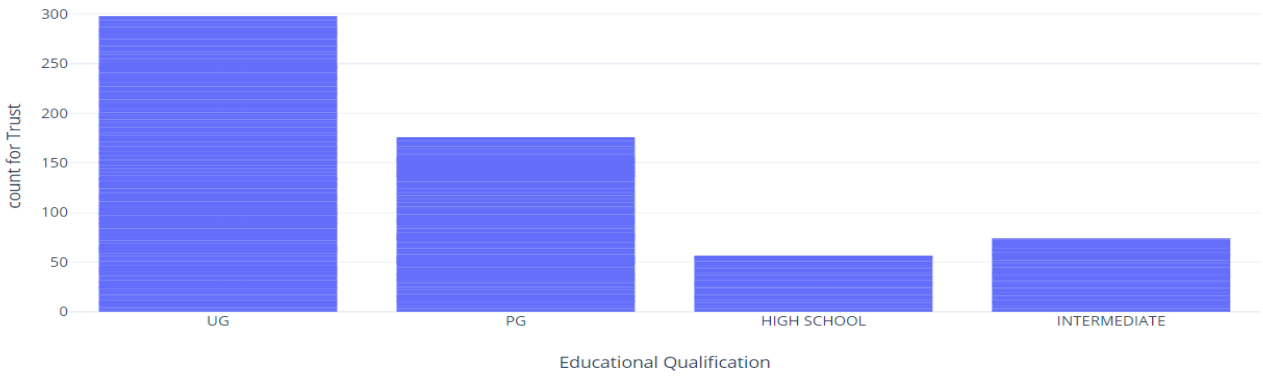

Figure 6. Chart between Education and lack of trust for e-Governance

Figure 7 shows the impact of political establishment on lack of trust for e-governance. The figure clearly shows that political establishment play an important role on trust building.

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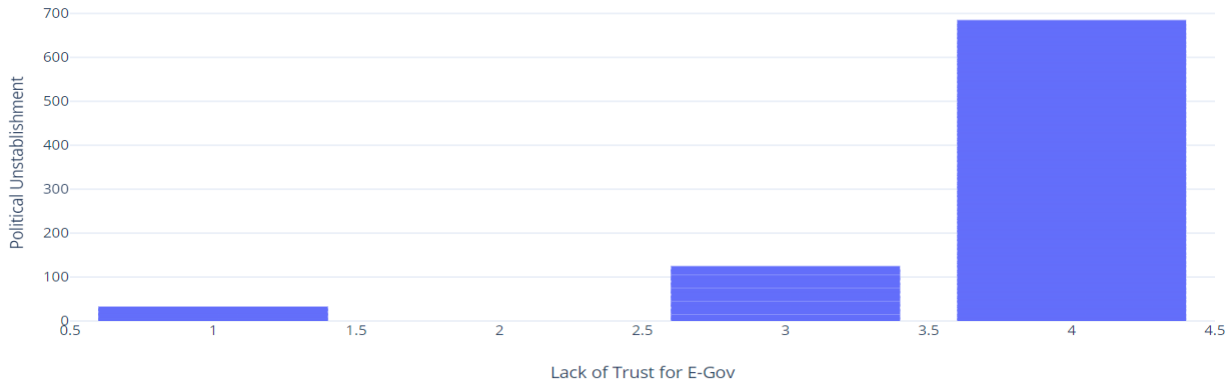

Figure 7. Chart between political Establishment and lack of trust for e-Governance

Figure 8 shows the impact of geographical factor on lack of ict infrastructure.

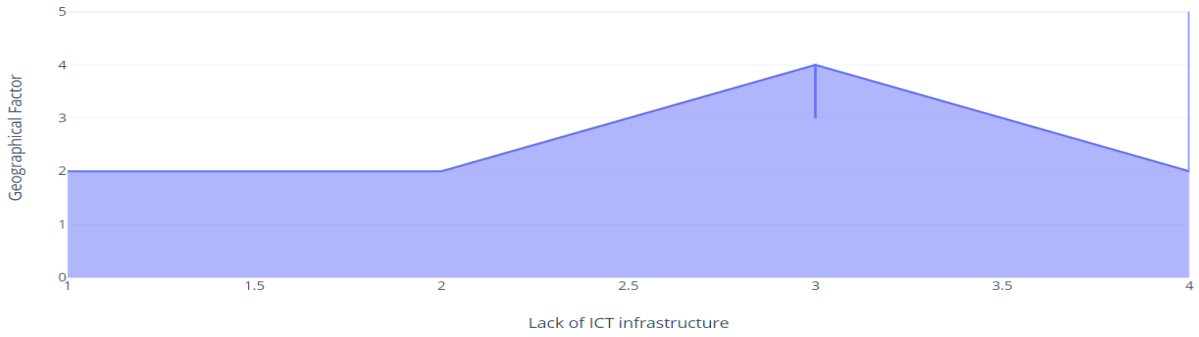

Figure 8. Chart for impact of geographical factor on lack of ict infrastructure

B. Conceptual Framework for e-Governance Implementation

Based on the analysis, the study develops a conceptual framework that outlines the key factors influencing e-governance implementation in nepal. This framework serves as a strategic guide for policymakers, stakeholders, and researchers, providing a structured approach to address identified challenges and enhance the effectiveness of e-governance initiatives.

By integrating data from multiple sources and employing a systematic analytical approach, the study aims to provide a comprehensive and practical framework for overcoming the barriers to e-governance in Nepal. The proposed conceptual framework for e-governance implementation in nepal is structured around four main pillars: technology, policy, capacity building, and stakeholder engagement. The overall implementation model proposed based on the findings are shown in figure 9.

Technology

- **ICT Infrastructure Development**: Invest in robust ICT infrastructure to ensure reliable internet access and availability of necessary hardware and software.
- **Cybersecurity Measures**: Implement comprehensive cybersecurity strategies to protect digital assets and data.

Policy

- **Policy Formulation and Implementation**: Develop and enforce policies and regulations that support E-Governance initiatives.

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- **Legal Framework**: Establish a legal framework addressing digital transactions, cybersecurity, and data privacy.

Capacity Building

- **Training and Education**: Conduct training programs for government officials and staff to enhance digital skills and competencies.
- **Public Awareness Campaigns**: Launch awareness campaigns to educate citizens about the benefits and usage of E-Governance services.

Stakeholder Engagement

- **Public-Private Partnerships**: Foster collaboration between government, private sector, and civil society to leverage resources and expertise.
- **Community Participation**: Encourage active participation of communities in the design and implementation of E-Governance services.

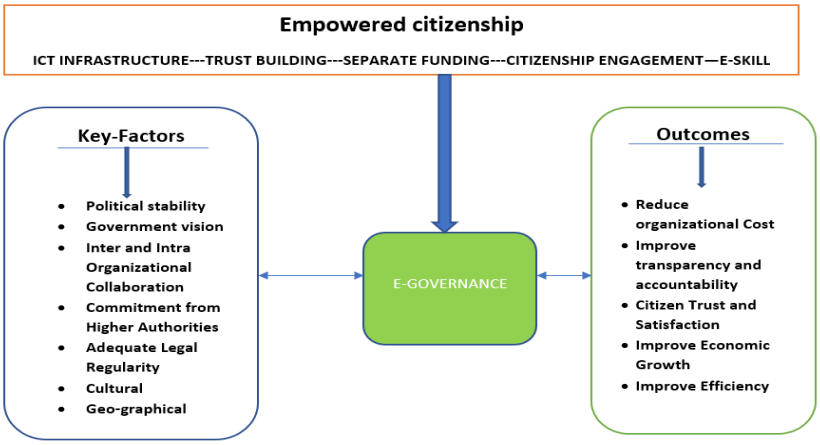

Figure 9. E-governance Conceptual Framework

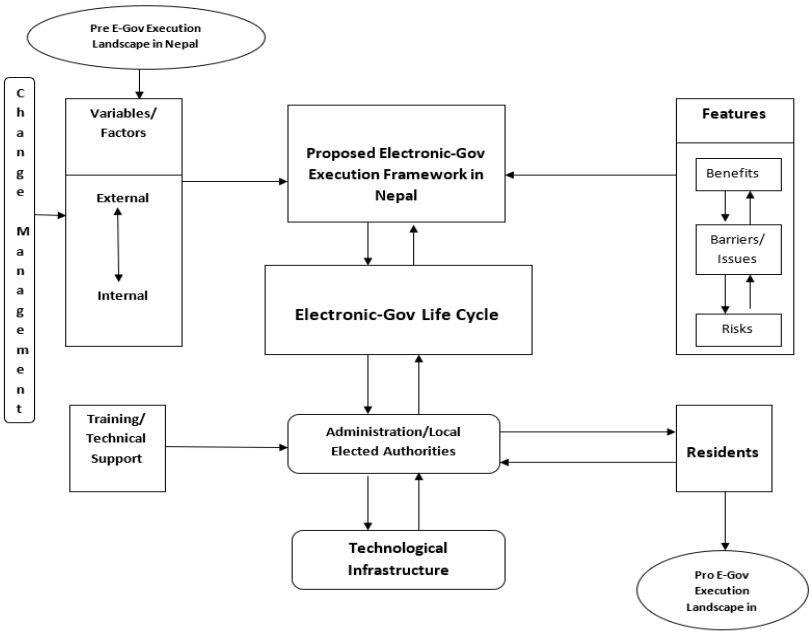

Figure 10. Represents the overall execution model for Implementation of E-governance in Nepal

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Figure 10 mentioned above shows the overall execution model for successful implementation of e-governance in Nepal with utilizes the proposed framework based on the current findings.

DISCUSSION AND CONCLUSION

Implementing E-Governance in Nepal demands a comprehensive strategy that tackles technological, socio-economic, political, and legal challenges. The proposed conceptual framework offers a structured roadmap, emphasizing four key pillars: technology, policy, capacity building, and stakeholder engagement. Strengthening ICT infrastructure, enacting supportive legislation, enhancing digital literacy, and fostering public-private partnerships are essential steps. By addressing these areas holistically, Nepal can effectively navigate the barriers to E-Governance, ensuring a more efficient, transparent, and inclusive governance system. The visualization clearly indicates that role of political establishment is important in implementation of e-governance in Nepal. The visualization also indicated that the use of e-governance will reduce the overall cost of organization and it will build trust and transparency. This approach aims to provide a robust foundation for the successful implementation and sustainability of E-Governance initiatives. For a successful e-governance framework in Nepal, it is essential to have a strong technical infrastructure with dependable internet and cybersecurity protocols. A clear legal framework must be established to support digital transactions and protect data privacy. Organizational readiness, including training and updating processes, is key. Involving stakeholders and prioritizing user-friendly design will enhance accessibility and acceptance. Overcoming challenges such as infrastructure constraints and resistance to change is critical. Implementing phased rollouts and pilot projects can help refine solutions, while ongoing monitoring and adjustments based on feedback will ensure continuous improvement and sustainability.

REFRENCES

[1] Abdulnabi, S. M. (2024). Issues and challenges of implementing e-governance in developing countries: a comprehensive analysis of civil service models. Cogent Business & Management, 11(1). https://doi.org/10.1080/23311975.2024.2340579

[2] Adhikari, G. P. (2012). Evaluation of E-governance projects of Nepal. In *Proceedings of the 6th International Conference on Theory and Practice of Electronic Governance* (pp. 472-473). https://doi.org/10.1145/2463728.2463824

[3] Adhikari, G. P. (2007). Key issues in implementing e-governance in Nepal. In Proceedings of the 1st international conference on Theory and practice of electronic governance (ICEGOV '07). Association for Computing Machinery, New York, NY, USA, 243–245. https://doi.org/10.1145/1328057.1328107

[4] Apleni, A., & Smuts, H. (2020). An e-government implementation framework: A developing country case study. In Responsible Design, Implementation and Use of Information and Communication Technology: 19th IFIP WG 6.11 Conference on e-Business, e-Services, and e-Society, I3E 2020, Skukuza, South Africa, April 6–8, 2020, Proceedings, Part II 19 (pp. 15-27). Springer International Publishing. https://doi.org/10.1007/978-3-030-45002-1_2

[5] Asian Development Bank (ADB). (2022). ICT Development and Investment in Nepal. ADB Reports.

[6] Asian Development Bank. (2021). Nepal: Political Economy Analysis. https://www.adb.org/

[7] Baral, B. N., & Khadga, K. C. (2023). Measuring governance in Nepal. Journal of Political Science, 31-42. DOI: https://doi.org/10.3126/jps.v23i1.52281

[8] Bhagat, C., Mishra, A. K., & Aithal, P. S. (2022). Model for implementation of e-government services in developing countries like Nepal. *International Journal of Case Studies in Business, IT and Education (IJCSBE)*, *6*(2), 320-333. https://doi.org/10.47992/IJCSBE.2581.6942.0199

[9] Bhagat, C., Sharma, B., & Mishra, K. (2021). Critical Success Factors for the Implementation of E-Governance-A Case Study of Province 1 Nepal. *International Journal of Interdisciplinary Research in Arts and Humanities (IJIRAH)*, *6*(1).

[10] Chen, Y. N., Chen, H. M., Huang, W., & Ching, R. K. (2006). E-government strategies in developed and developing countries: An implementation framework and case study. Journal of Global Information Management (JGIM), 14(1), 23-46. DOI: 10.4018/jgim.2006010102

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[11] Dahal, G. (2020). Democratic Practice and Good Governance in Nepal. In: Momen, M.N., Baikady, R., Sheng Li, C., Basavaraj, M. (eds) Building Sustainable Communities. Palgrave Macmillan, Singapore. https://doi.org/10.1007/978-981-15-2393-9_8
[12] Giri, S., & Giri, R. (2022). E-Readiness for E-Learning: A Nepal Case. Int. J. Comput. Sci. Mob. Comput, 11(1), 173-181. DOI: 10.47760/ijcsmc.2022.v11i01.023
[13] Giri, S., Shakya, S., & Pande, R. N. (2018). E-Governance implementation: challenges of effective service delivery in civil service of Nepal. *Global Journal of Computer Science and Technology*, *18*(3), 1-9.
[14] International Telecommunication Union (ITU). (2021). Digital Divide and Connectivity in Nepal. ITU Reports.
[15] International Telecommunication Union. (2022). Global Cybersecurity Index. https://www.itu.int/en/Pages/default.aspx
[16] KC, O., & Regmi, R. (2017). The Rise of Digital Era: A Changing Scenario of E-Governance in Nepal. *Kathmandu Sch. L. Rev.*, *5*, 127.
[17] Khan, S., & Zaber, M. (2022). Assessing the State of E-governance Responsiveness at Local Level: A Case Study of 1st Level Administrative Units of India, Nepal and Bhutan. In Proceedings of the 15th International Conference on Theory and Practice of Electronic Governance (pp. 381-390). https://doi.org/10.1145/3560107.3560166
[18] Kharel, P., & Shakya, S. (2012). e-Government implementation in Nepal: a challenges. *International Journal of Advanced Research in Computer Science and Software Engineering*, *2*(1).
[19] Lamichhane, B. P. (2021). Good governance in Nepal: Legal provisions and judicial praxis. Journal of Political Science, 21, 19-30. DOI: https://doi.org/10.3126/jps.v21i0.35260
[20] Ministry of Communications and Information Technology, Nepal. (2023). E-Governance Master Plan. https://mocit.gov.np/
[21] Mohammed, F., Ibrahim, O. and Ithnin, N. (2016), "Factors influencing cloud computing adoption for e-government implementation in developing countries: Instrument development", Journal of Systems and Information Technology, Vol. 18 No. 3, pp. 297-327. https://doi.org/10.1108/JSIT-01-2016-0001
[22] Nepal Telecommunications Authority. (2023). Annual Report 2023. https://nta.gov.np/
[23] Pham, KD. (2023). The Role of Digital Transformation in the Vietnamese Banking Sector. In: Mirzazadeh, A., Erdebilli, B., Babaee Tirkolaee, E., Weber, GW., Kar, A.K. (eds) Science, Engineering Management and Information Technology. SEMIT 2022. Communications in Computer and Information Science, vol 1808. Springer, Cham. https://doi.org/10.1007/978-3-031-40395-8_11
[24] Pokharel, M., & Park, J. S. (2009). Issues of interoperability in e-governance system and its impact in the developing countries: A Nepalese case study. In *2009 11th International Conference on Advanced Communication Technology* (Vol. 3, pp. 2160-2164). IEEE.
[25] Sapkota, M. (2023). Issues and Challenges of Modernization in Nepal: A Development Perspective. *Nepalese Journal of Development and Rural Studies*, *20*(01), 28–41. https://doi.org/10.3126/njdrs.v20i01.64163
[26] Sharma, G., & Dhulikhel, N. (2020). Digital governance in Nepal. *Journal of Management Research*, *12*(3), 41-57. https://doi.org/10.5296/jmr.v12i3.17061
[27] Sharma, G., Bao, X., & Peng, L. (2014). Public participation and ethical issues on E-governance: A study perspective in Nepal. *Electronic Journal of e-government*, *12*(1), pp80-94.
[28] Shrestha, D., Devkota, B., & Jeong, S. R. (2015). Challenges and factors affecting E-governance practices in Nepal. In *9th International Conference on Software, Knowledge, Information Management and Applications (SKIMA), Kathmandu, Nepal*.
[29] Transparency International. (2023). Corruption Perceptions Index. https://www.transparency.org/en/
[30] UNDP Nepal. (2022). Governance Reform in Nepal. https://www.undp.org/
[31] World Bank. (2020). Digital Development in Nepal. *World Bank Report*.
[32] World Bank. (2023). Digital Economy Report: Nepal. https://www.worldbank.org/en/home

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