JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

"Digital Inclusion and E-Governance: Assessing the Challenges and Opportunities in Sudurpashchim Province, Nepal"

By Birendra Pasad Bhatt Ph.D Scholar

RMIT University, Mandi Gobinagadh, Punjb.

Abstract

Digital inclusion and e-governance are intertwined, driving progress towards inclusive and efficient societies. By identifying challenges, opportunities, and potential solutions for bridging the digital divide, this study investigates the relationship between these concepts in Sudurpashchim Province, Nepal. The proposed Digital Inclusion for e-Governance (DIeG) framework addresses challenges and leverages opportunities. Qualitative insights from local officials reveal positive sentiments towards the framework and its potential socio-economic benefits. The result of study shows that digital inclusion is critical for effective e-governance and bridging the digital divide. It also emphasizes the need for a comprehensive approach that addresses the challenges and opportunities to foster a more inclusive and efficient future for Sudurpashchim Province.

Keywords

Digital inclusion, e-governance, digital divide, Sudurpashchim Province, Digital literacy, Data poverty, Stakeholder engagement.

1. Introduction

Digital inclusion is of paramount importance in catalysing changes throughout the public, private, and voluntary domains, bringing them together under the auspices of e-governance. Nevertheless, digital inclusion extends beyond the solitary act of accessing the internet or utilising digital technologies. Although an exhaustive definition of digital inclusion is still elusive, it is broadly defined as "the capability of individuals and groups to access and utilise information and communication technologies" (Ragnedda and Mutsvairo, 2018).This includes provisions for pertinent content and services, internet connectivity, hardware and software, and instruction in digital liter

acy, which are essential for proficiently utilising information and communication technologies (Institute of Museum and Library Services, 2011).Therefore, without explicitly addressing the complex challenges that individuals face when interacting with diverse types of data, this suggests that digital literacy training should be provided to all citizens so that they may access and utilise information and communication technologies.

Digital inclusion has the potential to yield several benefits, including the creation of an effective cross-governmental digital capability programme, an enhanced public-organization interface, and improved government policy (Victorelli et al. 2020). In order for digital inclusion to yield tangible advantages for the economy, public services, and social life, there must be a deeper comprehension of the intricate challenges that individuals face and the ways in which these challenges intersect with e-governance objectives.

1.1 Digital Inclusion: Bridging the Digital Divide

Digital inclusion pertains to the ability of both individuals and communities to acquire and effectively employ information and communication technologies (ICTs) for the purpose of bettering their personal, social, and economic conditions (Heeks, 2002). Access to and utilisation of ICTs by both citizens and enterprises is an essential requirement for e-governance to function effectively, as it enables them to benefit from digital services. Digital inclusion continues to be a substantial obstacle in Sudurpashchim Province, as low levels of ICT infrastructure, computer literacy, and literacy impede the widespread adoption of digital technologies (World Bank, 2020).

1.2 E-Governance: Leveraging ICTs for Public Service Delivery

Heeks (2003) defines e-governance as using ICTs to make government activities more efficient, transparent, and accountable. This approach involves creating digital platforms, online services, and electronic communication channels to improve citizen-government interactions, streamline administrative processes, and promote open governance. Multiple government agencies in Sudurpashchim Province are developing online services for citizen-centric apps, demonstrating the growth of e-governance (Government of Nepal, 2020). E-government uses ICT to improve public policy support and service quality. Citizens are provided with government information and services via the Internet and world wide web via e-government. According to Alia et al. (2012), this system improves government-constituent communication, transparency, processing costs, and service delivery. E-government benefits the public by promoting public interest and use. It improves resource management, planning, and community issue policy targeting for the government (Sarpoulaki et al., 2008).

1.3 The Nexus of Digital Inclusion and E-Governance: A Synergistic Relationship

Digital inclusion and e-governance are interdependent and transforming society. In order for e-governance to function, citizens must possess the necessary digital infrastructure and competencies. However, inclusive e-governance initiatives can increase digital content that is pertinent to citizens, ICT access, and digital literacy.

Digital inclusion was previously believed to be achievable through the provision of ICT access alone (DiMaggio et al., 2004; Hsieh et al., 2008). Education has also benefited from digital inclusion in the wake of the pandemic, as digital education has become a primary means of reaching students. The promotion of digital inclusion is progressively placing digital literacy at the centre of strategies (Tomczyk et al. 2020). Notwithstanding these endeavours, Human Data Interaction issues have not yet emerged as a primary component of e-governance digital inclusion agendas.The three HDI principles of legibility, agency, and negotiability, as stated by Mortier et al. (2014), reflect concerns regarding the "increasing generation and collection of personal data." An intricate ecosystem has been established encompassing both organisations and individuals, which e-governance programmes must discern and address.It is essential, for the expansion of the digital inclusion strategy within e-governance, to address associated digital divides.

1.4 Challenges And Benefits To Digital Inclusion And E-Governance In Sudurpashchim Province

Sudurpashchim Province has the potential to benefit from digital inclusion and effective e-governance. However, it also acknowledges that there are several challenges hindering the realization of these benefits. The challenges in achieving digital inclusion and effective e-governance could encompass issues such as limited infrastructure, inadequate access to technology, lack of digital literacy among the population, and potential resistance to technological changes. These challenges include:

1. **Limited Computer Literacy and Literacy:** A considerable proportion of the populace residing in Sudurpashchim Province is devoid of fundamental computer literacy and skills, impeding their capacity to effectively utilise digital technologies (International Telecommunication Union, 2021).
2. **Insufficient ICT Infrastructure:** The ICT infrastructure of the province is still in its nascent stage, characterised by restricted availability of broadband internet connectivity, especially in isolated rural regions (World Bank, 2020).
3. **Limited Knowledge of Digital Technology Benefits:** A considerable number of provincial residents are uninformed regarding the potential advantages of digital technologies and are devoid of the requisite understanding or drive to embrace them.
4. **Cultural and Social Obstacles:** The adoption of digital technologies by individuals may be impacted by cultural and social norms, with conservative communities being extra susceptible to this influence. In order to overcome these obstacles, tactful strategies that take into account indigenous customs and traditions are necessary.
5. **Sustainability of Digital Inclusion Initiatives:** It is critical to maintain progress and avert setbacks by ensuring the long-term sustainability of digital inclusion initiatives. Ongoing community engagement, sustainable funding mechanisms, and capacity building are essential for this endeavour.

1.5 Opportunities for Digital Inclusion and E-Governance in Sudurpashchim Province

Sudurpashchim Province, notwithstanding the obstacles encountered, also offers auspicious prospects for the progression of digital inclusion and e-governance. These comprise, A prospective platform for the dissemination of digital services and information is being created in the province due to the rapid increase in mobile phone penetration.An increasing proportion of the populace is able to afford internet access due to its continuous decline in price.The Nepal Digital Strategy 2020-2030 and other initiatives undertaken by the Nepalese government have exhibited a steadfast dedication to advancing digital inclusion.

The chapter provides analysis of the evolving obstacles that impede advancements in the domain of e-governance and digital inclusion in Sudurpashchim Province, Nepal. In order to effectively resolve these challenges, it also suggests a possible framework for promoting an inclusive dialogue on e-governance.By utilising a qualitative research methodology, this chapter collects perspectives from members of local councils regarding the matters that require further consideration in the realm of e-governance. The chapter endeavours to foster a more comprehensive and efficient digital transformation strategy in Sudurpashchim Province by gaining insight from individuals who are directly engaged in execution of e-governance initiatives.

1.6 Objectives Of The Study

Various objectives are as follows :

- Assess current digital inclusion in Sudurpashchim Province, Nepal, by examining local levels of digital literacy, access to technology, and internet penetration.
- Evaluate current e-governance initiatives in Sudurpashchim Province, focusing on the utilization of digital technologies to enhance government services, communication, and overall governance processes.
- Identify and analyze obstacles to digital inclusion in Sudurpashchim Province, covering technological barriers, socio-economic factors, and cultural considerations.
- Examine obstacles to implementing e-governance in the province, addressing governance hurdles, technical challenges, and potential resistance to technological changes.
- To explore opportunities for improving digital inclusion in Sudurpashchim Province, considering potential strategies for enhancing digital literacy, increasing access to technology, and fostering a culture of digital inclusion within local communities.

- To propose solutions and strategies for addressing the identified challenges in e-governance implementation in Sudurpashchim Province, aiming to enhance the effectiveness and efficiency of government processes through digital technologies.

- Offer insights into local perspectives on digital inclusion and e-governance, highlighting the importance of community engagement in overcoming challenges and capitalizing on opportunities.

- Compare digital inclusion and e-governance in Sudurpashchim Province with other regions nationally and internationally for broader insights and lessons.

Limitations Of The Study

While this research aims to provide a nuanced exploration of digital inclusion and e-governance in Sudurpashchim Province, Nepal, it is essential to acknowledge certain limitations inherent in the study. Some of the limitations are, The unique geographical and cultural context of Sudurpashchim may differ significantly from other provinces, impacting the applicability of results beyond this specific area. Digital literacy, including advanced technological capabilities and critical digital engagement, may not be fully captured by the chosen measures. The evaluation of e-governance initiatives is contingent upon the available documentation and official reports. Constraints in accessing comprehensive data may limit the depth of analysis, potentially overlooking certain aspects of initiative implementation and impact.

While socio-economic factors are considered, the study may not comprehensively capture the multifaceted nature of socio-economic dynamics influencing digital inclusion and e-governance. In-depth socio-economic analyses necessitate resources beyond the scope of this study. Cultural nuances influencing technology adoption and e-governance may be challenging to exhaustively explore within the study's constraints. A more extensive ethnographic study would be required to fully comprehend the intricate interplay between cultural values and digital practices.

2. Literature Review

Hoque et al.(2024) The study investigated how individuals in rural Bangladesh felt about information and communication technology (ICT) and e-government services provided through the Union Digital Center (UDC). Using a case study approach and a 5-point Likert scale questionnaire sent to 639 participants, the results indicated positive reactions to service availability, cost, ease of use, and delivery. The findings emphasized the satisfaction of rural residents with the low-cost e-services offered by the Bangladeshi government through UDC, providing valuable insights for improving service delivery in remote areas.

Thorpe et al.(2024)A study explored challenges in e-Government adoption in Nepal and similar developing regions, revealing issues like poor ICT infrastructure, low digital literacy, and limited resources. The findings emphasize the need for targeted research and in-depth studies to address these challenges. The study is crucial for shaping digital government policy, migration frameworks, and plans. In conclusion, it highlights the importance of continued research to minimize the impact of identified problems and enhance the effectiveness of e-Government initiatives in developing countries.

Uddin et al.(2024) The study examined the present and future aspects of Bangladesh's digital economy, aiming to contribute to the country's growth by 2041. Using the concepts of the 4th Industrial Revolution, it employed a qualitative approach based on secondary data. Findings emphasized emerging trends beneficial for the national GDP, with an awareness of the philosophical implications of the digital economy. The study anticipated increased business opportunities and suggested further exploration of a digital Bangladesh in the future, using qualitative methods.

Gurung et al.(2023) The study on the digitalization of education in Nepal focused on the benefits of digital commons. It used a structured literature review to delve into the relationship between digitalization and education in Nepal. To encourage more people to use digital commons and open sources, collaboration, skill-building, and knowledge sharing are crucial. The creative use of open source software in computer science classes could enhance course materials, but students should carefully consider their goals before adopting such tools.

Panagiotopoulos et al.(2023) This essay investigated whether the dynamic capabilities view (DCV), commonly applied in private businesses, could be adapted for public sector groups. Conducting a survey in 255 Greek municipalities, the study developed a conceptual framework focusing on i) the dynamic capabilities (DCs) necessary for improving information and communication technology (ICT) use in the public sector, ii) how DCs contribute to enhanced performance, and iii) the organizational resources preceding these capabilities. The findings emphasized the need for efficient tools to improve interactions, quantified specific DCs, and highlighted their direct and indirect impact on performance growth. The study fulfilled the DCV's call for tailored empirical studies and discussed policy implications for agile and user-centered eGovernment practices at various organizational levels.

Alnaser et al.(2022) E-governance aimed to streamline government processes electronically, but a study on Jordanian e-government services found challenges. Jordan's progress in ICT and the official government website fell short. Issues like the absence of a dedicated data security act and online scams surfaced. To improve, it was suggested that Jordan adopt best practices from developed countries, implement a data protection act similar to the EU's, and address customer complaints for a more effective and trustworthy e-governance experience.

Sarangi et al.(2022) The concept of "smart cities" emerged in the early 2000s, and India's government actively pursued its "smart city mission" since June 2015. This paper focused on smart city e-governance, emphasizing its benefits for citizen-centric services. A "smart" city prioritizes urban services, quality of life, and resource efficiency through government collaboration and investments in people, transportation, and ICT infrastructure. The paper aimed to describe the Smart City project design and highlighted the use of smart IoT devices, Machine Learning, and Deep Learning for efficient city data management.

Sharp et al.(2022) The essay began by examining recent changes in digital inclusion theory, focusing on the internet's significance in developing countries. It outlined key elements like access, quality, affordability, and digital skills, discussing policy implications. The paper critiqued current measurement methods in surveys and suggested improvements. It also explored the use and risks of big data in assessing digital inclusion. Finally, the study delved into empirical literature on "digital divides" in developing nations, proposing avenues for more comprehensive future research.

Khan et al.(2022) This study aimed to use established models to compare state-level local governments in India, Nepal, and Bhutan, emphasizing the importance of national policies. Data were gathered from government websites, allowing countries to assess and plan for growth. While the EGDI and LOSI measures by the UN provided insights at a national level, we adapted the UN's e-government approach and created a questionnaire to assess differences among local governments. Our findings revealed overall progress, but disparities persist. Recommendations were made to narrow the gap between advancing and lagging local governments.

Joshi et al.(2022) This piece examined how women's cooperatives could enhance women's empowerment, utilizing data from various women's groups in the province to explore opportunities and challenges. Real-life stories from women across different political and socioeconomic backgrounds were collected to understand the extent and manner in which cooperative membership empowered them. Despite societal and governmental constraints, the findings revealed that women felt empowered economically, psychologically, socially, and organizationally after joining cooperatives. However, the degree of empowerment varied from case to case.

Chen et al.(2021) Small service businesses face challenges in the dynamic digital economy, hindering their digital transformation efforts. A qualitative study, involving in-depth conversations with managers, identified key obstacles: financial constraints, lack of tech proficiency, workforce limitations, and technical issues. The government can assist by creating digital platforms, promoting digital payments, offering training, and fostering a digital cooperation ecosystem. These findings contribute to the understanding of digital transformation in small service businesses, suggesting potential policy changes for government support.

Jamil et al.(2021)examined that changes in information and communication technology (ICT) significantly impacted various aspects of society in both developed and developing countries. However, a global digital divide emerged, with concerns about technology disparities intensifying in South Asian countries like Pakistan. This

study focused on Pakistan, revealing that the digital gap is widening due to contextual factors such as urban-rural disparities, gender differences, income and education variations, and religious-cultural barriers. Additionally, policy issues, including a lack of review and improvement, insufficient research focus, and misallocation of funds, hindered the country's widespread digitalization.

Khan et al.(2021)E-government projects face challenges globally, necessitating a closer look at the issues during implementation. A systematic literature review informed a framework addressing problems in technology, organization, project management, and the overall environment. An experimental case study focused on one Ministry of IT's e-government project, revealing the importance of a shared goal, ample funding, and strong project management. User-related issues, such as participation and technical skills, were highlighted as crucial for success. These findings offer valuable insights for top management in making informed decisions about running e-government projects in organizations.

Radovanović et al.(2020)examine that over the last two decades, the concept of digital literacy evolved amidst rapid technological changes, often focusing on the neutrality of new media tools. Challenges persisted, especially for those who couldn't read or write due to a lack of language-specific digital solutions. This article explored case studies in sub-Saharan Africa and India, highlighting programs addressing digital literacy gaps. The emphasis was on teaching technology usage in rural India and empowering youth in sub-Saharan Africa. The article aimed to identify key performance indicators for digital literacy, providing insights for long-term growth and program implementation. The conclusion offered advice based on lessons learned from the case studies, targeting decision-makers and those interested in digital health literacy.

Tennakoon et al.(2020) E-governance has proven beneficial in wealthy countries, and this study focused on Sri Lanka to identify challenges and opportunities. Major challenges included computer literacy gaps, legal constraints, limited network bandwidth, uneven internet access, security issues, bureaucratic hurdles, and political influence. Opportunities included positive stakeholder attitudes, increasing tech literacy, collaboration, value addition, and policy changes. The study suggests government-led initiatives to enhance ICT infrastructure, legal reforms, and increased transparency and democracy in decision-making.

Glyptis et al.(2020) E-government, a global trend, offers substantial benefits when implemented effectively. This study, using the Republic of Cyprus as a case, identified key factors influencing successful e-government. E-readiness, financial situation, political and legal systems, infrastructure, and emerging technologies were crucial. Organizational, structural, and sociocultural aspects posed obstacles. Unique to this case, the study found that the natural knowledge and awareness of the country had a significant impact on e-government success.

Panigrahi et al.(2020) Human resources are crucial for e-Governance success, and this study focused on HR challenges in Berhampur University. It emphasized the need for carefully planned and adaptable Human Resource Management strategies to meet evolving needs. The research assessed the readiness of employees at

various levels, highlighting a low level of ICT skills and a tendency to use technology for basic tasks. The study stressed the importance of fostering a learning organization mindset to keep pace with evolving technologies.

Table 1: Comparison Table Of Author's Review

Author and Year	Summary	Result
Hoque et al.(2024)	Investigated rural Bangladesh's perception of ICT and e-government through UDC. Positive reactions to service aspects.	Rural residents satisfied and empowered by low-cost e-services through UDC.
Thorpe et al.(2024)	Explored e-Government challenges in Nepal, citing poor infrastructure and low literacy. Emphasized the need for targeted research.	Identifies challenges for policy and framework development in developing countries.
Uddin et al.(2024)	Examined present and future aspects of Bangladesh's digital economy, emphasizing emerging trends and awareness.	Anticipated increased business opportunities and suggested further exploration.
Gurung et al.(2023)	Focused on digitalization of education in Nepal, stressing collaboration and skill-building. Encouraged creative use of open source software.	Emphasized collaboration, skills, and creative use of open source software in education.
Panagiotopoulos et al.(2023)	Investigated the application of DCV in public sectors in Greece, proposing a conceptual framework. Highlighted the importance of efficient tools and quantified DCs.	Advocated for efficient tools, quantified DCs, and discussed policy implications for eGovernment practices.
Alnaser et al.(2022)	Explored challenges in Jordanian e-government,	Suggested adopting best practices and a data

	pointing out ICT and security issues. Suggested adopting best practices from developed countries.	protection act for a more effective e-governance.
Sarangi et al.(2022)	Focused on India's Smart City e-governance, emphasizing benefits for citizen-centric services. Highlighted the use of IoT and AI for city data management.	Described the Smart City project design and emphasized the use of smart technologies for efficient city management.
Sharp et al.(2022)	Examined digital inclusion theory changes, discussing key elements and suggesting improvements. Explored big data in assessing digital inclusion.	Critiqued current measurement methods and suggested improvements for more comprehensive research.
Khan et al.(2022)	Compared state-level local governments in India, Nepal, and Bhutan. Recommended measures to narrow the gap between advancing and lagging local governments.	Identified overall progress but highlighted disparities, offering recommendations for improvement.
Joshi et al.(2022)	Explored the empowerment of women through cooperatives, highlighting economic, psychological, social, and organizational empowerment.	Despite constraints, women felt empowered across various domains, but the degree varied.
Chen et al.(2021)	Explored obstacles in small service businesses' digital transformation, emphasizing financial constraints, tech proficiency, and workforce limitations. Suggested government assistance.	Highlighted obstacles and suggested government support for digital transformation in small service businesses.

Jamil et al.(2021)	Explored the digital gap in Pakistan, pointing out contextual factors and policy issues. Urged focus on review, research, and fund allocation.	Identified widening digital gap and recommended policy changes for effective digitalization.
Khan et al.(2021)	Examined challenges in global e-government projects. Proposed a framework addressing technology, organization, project management, and the environment.	Offered insights for top management to make informed decisions about e-government projects.
Radovanović et al.(2020)	Investigated digital literacy programs in sub-Saharan Africa and India. Identified key performance indicators for digital literacy.	Explored case studies and provided insights for long-term growth and program implementation.
Tennakoon et al.(2020)	Explored challenges and opportunities in e-governance in Sri Lanka. Highlighted the importance of stakeholder attitudes and government-led initiatives.	Emphasized challenges and opportunities, suggesting government initiatives for improvement.
Glyptis et al.(2020)	Explored successful factors in e-government implementation in the Republic of Cyprus. Identified e-readiness, financial situation, and sociocultural aspects as crucial.	Found that e-readiness, financial situation, and sociocultural aspects influenced successful e-government implementation.
Panigrahi et al.(2020)	Focused on HR challenges in e-Governance in Berhampur University. Emphasized the need for adaptable HR	Highlighted HR challenges and suggested strategies for effective e-Governance.

	strategies and a learning organization mindset.	

3. Challenges and issues regarding the framework:

- **Ecology of Digital Inclusion**

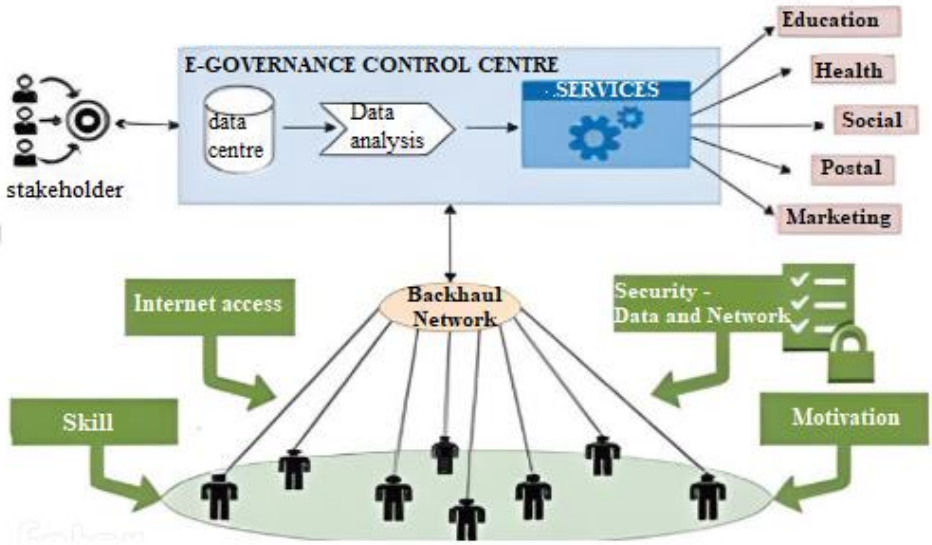
The term "Digital Inclusion Ecosystem (DIE)" denotes a collection of government-initiated policies and initiatives designed to facilitate digitalization. Presently, the government faces the challenge of coordinating the efforts of all entities that are collaborating to address every facet of the digital divide. This encompasses not only the provision of devices, broadband, and operational proficiency, but also the consideration of how individuals utilise the Internet in varying ways contingent on their social status (Hayes 2021).This involves encouraging users to maintain their online security and enhancing their skill set. In order to foster collaboration among policymakers, advocates, and social service providers in their attempt to improve digital inclusion, it is imperative to possess technical expertise, including HDI skills.

- **Digital literacy**

Digital literacy refers to the collection of competencies and understandings required to navigate and employ digital technologies proficiently in a world that is becoming more interconnected over time (Gilster, 2007). In the context of digital information and technology, it encompasses problem-solving and critical reasoning abilities in addition to fundamental computer skills (Eshet-Alkalai, 2006). With the ubiquity of technology in all spheres of life, the principles of Human Data Interactions (HDI) progressively intersect with digital literacy.As a result of the fact that society is becoming more "data-driven," individuals and organisations must weigh the potential benefits of data mining and monitoring against concerns over its misuse (Pentland 2013). Consequently, the benefits and challenges of HDI must now be incorporated into all digital literacy training.

4. Proposed framework

Figure 4.1 illustrates the proposed framework of Digital Inclusion for e-Governance (DIeG). We propose, within this framework, the e-governance-related sectors, the users, and the user-related factors. The objective of this research endeavour is to examine the perspectives of experts regarding the efficacy and difficulties associated



with implementing the proposed framework within an e-governing system.

Figure 4.1: A Digital Inclusion Framework Proposed for e-Governance

Source : https://link.springer.com/chapter/10.1007/978-3-031-31875-7_8

Components That Are Connected:

Instead of seeing each part as separate, the structure stresses how they are connected:

- **Infrastructure (Data and Network):** This is what e-governance is built on. You can't get to services if you don't have reliable internet connection and data centers.
- **Data and Analysis:** Collecting and analyzing user data helps make services better, make experiences more personalized, and find security holes.
- **Security:** Keeps private information safe and builds trust among users, which is important for long-term use.
- **Marketing and Motivation:** Making people more aware of and knowledgeable about the benefits of e-governance increases their willingness to participate and take part.
- **Skills and Backhaul:** People must be able to use technology well and have fast internet in order to use e-governance services successfully.

How to Use the Framework :

1. **Analysis of Stakeholders:**

   - Find out who the important people are in Sudurpashchim Province's e-governance (government organizations, citizens, NGOs, etc.) and what they want from it.
   - Look at how they affect making decisions, getting help, and creating new services.

2. **The Service Landscape**

   - Make a map of the province's current e-governance services, such as those for schooling and health care.
   - Look at how many people they reach, how well they work, and how different groups of people use them.
   - Find the gaps and needs that will be met by future service growth.

3. **Analysis of Accessibility:**

   - Look at the problems with the infrastructure, like how widespread the internet is, how well mobile networks work, how much data costs, and how easy it is to get power.
   - Look at how geographical, economic, and cultural factors affect how accessible different areas and groups are.

4. **Test of Skills and Literacy:**

   - Check out how digitally literate the general public is, taking into account differences by age, gender, and location.
   - Find training and skill gaps to close the digital divide and allow people to participate in a useful way.

5. **Checking for security:**

   - Look at the security measures that are already in place for e-governance tools.
   - Find possible weak spots and evaluate your ability to defend against online threats.

6. **Ways to market and motivate people:**

   - Look at current campaigns to raise knowledge and see how well they work in different areas.
   - Find the cultural preferences and communication channels that will help people accept e-governance the most.

7. **Infrastructure for backhaul:**

- Check to see if high-speed internet connections are easy to get to and available for e-governance tools to work well.
- Look into possible ways to improve backhaul infrastructure in places that aren't getting enough of it.

Control Centre for E-Governance

The Datacenter, the core component of the e-Governance Control Centre, will be utilised to retain the user's information after it has been propagated across the Backhaul Network. Diverse services are provided to the Education, Health, Social, Postal, and Marketing sectors by the Data Analytics unit, which analyses user information. In order to advance the discourse, each of the aforementioned components is presented, as they are all considered essential for the development of an efficient data inclusion e- governance (DieG) platform.

8. Research Methods And Findings

In order to include the opinions of important people involved in e-governance projects in Sudurpashchim Province, Nepal, a qualitative study method was used. Semi-structured interviews were done with a group of volunteer administrative staff members from different government departments to get information on how e-governance programs were being put in place. These talks looked at their thoughts, problems, and experiences with digital inclusion and e-governance in the province. Following the steps outlined by Creswell (2003), the conversations were carefully looked over using data coding and thematic analysis after they were recorded and typed up. Thematic analysis was used to find recurring themes and patterns in the participants' answers. This gave us important information about the following important areas: The Significance of Digital Inclusion, The Effects of the Proposed Framework, and Challenges and Issues in Implementing such a Framework.

One of the agency's executive body members said the following about the main topic of how important it is for digital inclusion in e-governance:

Everything in the world today is linked to the internet. Accessing different services, asking for benefits, trying to keep those benefits, looking for a job, or finding cheap bills are all things that you must do online.

Digital inclusion is very important because we use computers every day to do things like look for jobs, shop online, and pay our bills. Since touch was not allowed because of the epidemic, these are even more important. The agency worker also said,

Being online is no longer a luxury; it's a necessity. During lockdowns, not having access to the internet caused problems. Even now, being online is necessary for learning, getting a job, and making money. Having access to the internet makes it easier to get a job, do well in school, and save money.

There are many problems that people involved in e-government systems have to solve in order for everyone to be able to connect to the Internet. In Digital Inclusion Towards e-Governance: Challenges and Issues, people who work for the government say that one of the main reasons for universal connectivity in the UK is to close the digital gap.

There is another problem related to "data poverty" that needs to be addressed in addition to the connection issue. Some people don't have the money to buy phone data in order to stay connected online:

Data poverty means not being able to pay to connect to the internet. When you're having a hard time taking care of your family, paying £10 a month for the cheapest internet plans is something you can't do.

It is important to know exactly what problems come up so that we can solve the problems that come up because of the broad use of digitization. All stakeholders, who represent all areas, need to be involved in the dialogue. When it comes to problems, like data protection issues, e-government can play a big part in finding solutions. This way, people can use online services with confidence:

These days, everything is done online. It's important that everyone in the city, from kids to old people, can use these services.

Digital inclusion has to deal with a lot of problems, such as people not being motivated enough and having very different skill levels. An important part of the population that still doesn't have access to the Internet can't use their phones to access and maintain online services. People who don't know how to use devices or computers may not use the services that are available, even if they have Internet connection.

One problem with the early pandemic efforts was that devices were given out without the right kind of help. More than 60% of the gadgets that were given weren't even turned on in some cases. We've made sure that our local program has a support network with reliable partners who can teach people how to use the gadgets correctly.

These comments support how important it is for people to be able to use technology to get to important things like healthcare, transportation, money, education, and food. But there are problems that make it hard to promise connectivity across the whole country. Digitalization is also needed for projects at all levels, from the smallest to the largest, in both the private and public sectors.

To go through digital transformation, businesses and plans need to use new technologies in their worldwide operations and figure out how to deal with any problems that come up while putting these new technologies to use (Pereira et al. 2022). Using the Internet of Things (IoT) could improve a country's manufacturing sector by giving them access to a wide range of resources, buildings, skills, market information, and partner networks (Hervé et al. 2020).

The second part of this study looks at what local government officials in Nepal's Sudurpashchim Province thought about the planned e-governance framework. Their points of view can be broken down into three main themes: 1. Evaluations of the framework; 2. How well the framework works to solve the problems that come with digital exclusion; 3. Thoughts on the proposed framework's social and economic effects. Officials from local governments liked the idea of the suggested e-governance framework and saw that it fit with important digital inclusion principles:

It's super helpful. You've covered all the basics.

Giving e-government incentives to make rules that work for the whole digital environment could increase the framework's ability to help the government improve social and economic conditions. The goal is to find gaps in services and fill them, so that more people can be included in the world of digital inclusion. People can save money by not having to travel to get services they already get in person, like getting their benefits paid or career advice, which don't require travel.

If they can get benefits, keep track of them, and look for work, they can learn new skills and finally get a job. When it comes to providing services, the more people we include, the more money we can save because they can do so online. This could also make services like schooling, health care, social care, trash collection, and more better and more efficient. So, I think the structure could help make things better in these areas.

The framework is meant to make it easier to talk about the problems with e-government, especially when it comes to digital connection, including everyone, and improving the skills of those involved. The overview says that areas need to work together because they are becoming more dependent on each other. There were a lot of gadgets given to people to try to connect them during the pandemic, but using them is still just a first step. The framework encourages discussion about ways to connect stakeholders and service providers, boost motivation by supporting skill-building programs, keep data safe by putting in place security, trust, and information measures from the control center, and make sure that all services are run with educational, health, social, postal, and

marketing goals in mind. The employees with whom we talked understood the possible benefit that this framework could bring to their current projects:

It's filling in the gaps we have now and figuring out how to link more people. It might be easier to deal with problems if we work together on skills-based projects and programs that give out devices.

The final theme that came out of the qualitative data in this study was about the problems that came up when the framework was put into place and the possible solutions that could be found. There are many problems with putting such a unified system into wide use. The staff suggested that the government set up a centralized platform to make it easier for possible solutions to improve digital inclusion to get out there. A council worker said that the framework would need a lot of outside funds and teamwork to be put into action:

Looking into possible outside funding sources. I think we need to put together a committed team to make it happen.

The study lists a number of problems that need to be fixed in order to improve digital inclusion The program's growth depends on having a strong base and using it effectively at all levels of society. Making sure that e-government works and is open to everyone is a problem that needs to be solved with a carefully thought-out structure.

9. Conclusion

The study focuses on the important connection between digital inclusion and e-governance in Nepal's Sudurpashchim Province. Problems include not having enough facilities, not knowing how to use technology, and cultural barriers. Data poverty is seen as a major problem. Opportunities come up because more people have cell phones and the government is doing things. People think the planned e-governance framework is a useful tool, but it needs to be put into action with outside funding and teamwork. To sum up, achieving digital inclusion and good e-governance requires a broad approach that takes advantage of possibilities while tackling known problems to create a better and more efficient future.

Full digital participation across all parts of the government is still a problem, and e-governance needs to be more than just putting services online. The COVID-19 pandemic brought to light the worrying digital gap, showing that many disadvantaged people are also not online. As e-governance tries to change workplaces, public services, and processes in both the public and private sectors, it is important that initiatives are made to help people who

might be left behind become more digitally included. Local governments have been very important in helping people in any way they can.

10.Future work

This study looked at the current state of digital inclusion and e-governance in Nepal's Sudurpashchim Province. However, there are still many areas that can be explored and improved in the future.

1. Longitudinal studies that follow the progress of digital inclusion programs and the use of the suggested e-governance framework over a long time would help us understand how long-lasting and beneficial they are.
2. Adding a comparison of the digital inclusion and e-governance situation in Sudurpashchim Province with other provinces in Nepal or similar areas around the world would give a bigger picture and make it easier to find the best ways to do things.
3. Having longer talks with different groups of people, like citizens, government officials, and local groups, can help us understand the problems and chances better, which will let us make suggestions that are more nuanced and fit the situation better.
4. Making people aware of the benefits of digital inclusion and e-governance through campaigns could encourage community support and participation, which is very important for the success of these kinds of projects.
5. Looking for ways to work together with foreign groups and researchers could bring global knowledge and views to the local situation, encouraging learning across cultures and new ideas.
6. Promoting the importance of digital inclusion and good e-governance through policy advocacy at both the provincial and national levels can help make the conditions for these efforts more favorable.

References

1. Ragnedda, M., & Mutsvairo, B. (2018). Digital Inclusion: Empowering People through Information and Communication Technologies. In M. Ragnedda & B. Mutsvairo (Eds.), The Digital Inclusion. An International Comparative Analysis (pp. vii-xx). Lanham, MA: Lexington.
2. Institute of Museum and Library Services. (2011). Building Digital Communities: A Framework for Action. Washington, DC: Institute of Museum and Library Services
3. Victorelli, E. Z., Dos Reis, J. C., Hornung, H., & Prado, A. B. (2020). Understanding humandata interaction: Literature review and recommendations for design. International Journal of Human-Computer Studies, 134, 13–32.
4. Swaminathn, M S., Mission 2007: Every village a knowledge centre, http://www.thehindu.com/2005/11/25/stories/200511250494 1000.htm last accessed on 12/07/2013

5. Alia, S., Omar, S. and Bassam, A.S., 2012. A Cultural E-Government Readiness Model. Intelligent Information Management, 4, 212-216.
6. Sarpoulaki , M., Eslami, R.& Salekniac, A., 2008. E-government concept and spatial information: A case study in Islamic republic of Iran. The international archives of the photogrammetry, remote sensing and spatial information sciences. Xxxvii(4), 19-23.
7. Hoque, S. M. S., & Al Kabir, M. A. (2024). Assessing ICT and e-government service through UDC in Bangladesh: rural dwellers' economic benefits. *Electronic Government*, *20*(2), 161.
8. Alnaser, A. S., Theep, K. A., & Alhanatleh, H. (2022). Do e-government services affect Jordanian customer loyalty?. *Marketing i menedžment innovacij*, (2), 17-30.
9. Sarangi, D., Pal, M. K., Prusty, S., & Chen, Q. (2022). Smart City E-Governance Through Intelligent ICT Framework. *International Journal of Information Systems in the Service Sector (IJISSS)*, *14*(2), 1-22.
10. Sharp, M. (2022). Revisiting digital inclusion: A survey of theory, measurement and recent research. *Digital Pathways at Oxford*, *1*.
11. Jamil, S. (2021). From digital divide to digital inclusion: Challenges for wide-ranging digitalization in Pakistan. *Telecommunications Policy*, *45*(8), 102206.
12. Radovanović, D., Holst, C., Belur, S. B., Srivastava, R., Houngbonon, G. V., Le Quentrec, E., ... & Noll, J. (2020). Digital literacy key performance indicators for sustainable development. *Social Inclusion*, *8*(2), 151-167.
13. Thorpe, S., & Pokhrel, B. (2024). A Review of Digital Government Challenges in Developing Nations.
14. Gurung, N., & Shrestha, R. (2023). The Digitalization of Education in Nepal: a critical discussion of the affordances of digital commons.
15. Khan, S., & Zaber, M. (2022, October). 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).
16. Panagiotopoulos, P., Protogerou, A., & Caloghirou, Y. (2023). Dynamic capabilities and ICT utilization in public organizations: An Empirical testing in local government. *Long Range Planning*, *56*(1), 102251.
17. Chen, C. L., Lin, Y. C., Chen, W. H., Chao, C. F., & Pandia, H. (2021). Role of government to enhance digital transformation in small service business. *Sustainability*, *13*(3), 1028.
18. Joshi, R. CONTRIBUTION ON EMPOWERMENT BY WOMEN COOPERATIVES IN SUDURPASCHIM PROVINCE.
19. Tennakoon, W. D. N. S. M. (2020). E-governance way forward: challenges and opportunities for developing countries. Evidences from Sri Lanka. *International Journal of Business, Economics and Law*, *21*(2), 51-61.
20. Glyptis, L., Christofi, M., Vrontis, D., Del Giudice, M., Dimitriou, S., & Michael, P. (2020). E-Government implementation challenges in small countries: The project manager's perspective. *Technological Forecasting and social change*, *152*, 119880.

21. Panigrahi, S. K. (2020). E-GOVERNANCE IN INDIA: ISSUES AND CHALLENGES. *International Journal of Business Ethics in Developing Economies*, *9*(1), 1.

22. Khan, A. Z., Mahmood, F., Bokhari, R. H., Mushtaq, R., & Abbas, R. (2021). Challenges of e-government implementation in health sector: A step toward validating a conceptual framework. *Digital Policy, Regulation and Governance*, *23*(6), 574-597.

23. Uddin, M. R. (2024). The role of the digital economy in Bangladesh's economic development. *Sustainable Technology and Entrepreneurship*, *3*(1), 100054.

24. Parsons, C., Hick, S.: Moving from digital divide to digital inclusion. Currents: New Scholarship in the Human Services 7(2), (2008) https://bit.ly/3iO0k4p

25. NTIA (1998, July 28) Falling Through The Net II: New Data on the Digital Divide. https://bit.ly/3AJY701

26. Ragnedda, M., Mutsvairo, B.: Digital inclusion empowering people through information and communication technologies. In: Ragnedda, M., Mutsvairo, B. (eds.) The Digital Inclusion. An International Comparative Analysis, pp. 7–14. Lexington Books Press, London (2018)

27. Institute of Museum and Library Services, University of Washington and International City/County Management Association (2012) Building Digital Communities: A framework for action Washington, DC: Institute of Museum and Library Services. https://bit.ly/2VZ9NNU.

28. 6. Bradbrook, G., Fisher, J.: Digital Equality Reviewing Digital Inclusion Activity and Mapping the Way Forwards. https://bit. ly/2XwM6wR (2005)

29. Hemant, C., & Baboo, N. (2010). Strategies to increase e-government take-up: Looking beneath statistics. Global Journal of Management and Business Research, 10(1), 104–114. https:// journalofbusiness.org/index.php/GJMBR/article/view/14

30. Dodel, M., & Aguirre, F. (2018). Digital inequalities' impact on progressive stages of e-government development [Conference session]. Proceedings of the 11th international conference on theory and practice of electronic governance, galway, Ireland (ICEGOV'18), Galway, Ireland, 04 April 2018, ACM. https:// doi.org/10.1145/3209415.3209475

31. Zhao, F., Collier, A., & Deng, H. (2014). A multidimensional and integrative approach to study global digital divide and egovernment development. Information Technology & People, 27(1), 38–62. https://doi.org/10.1108/ITP-01-2013-0022

32. Riggins, F., & Dewan, S., (2005). The digital divide: Current and future research directions. Journal of the Association for Information Systems, 6(12), 298–337. https://doi.org/10.17705/ 1jais.00074

33. Epstein, D., Nisbet, E. C., & Gillespie, T. (2011). Who's responsible for the digital divide? Public perceptions and policy implications. The Information Society, 27(2), 92–104. https://doi.org/ 10.1080/01972243.2011.548695

34. Ma, L., & Zheng, Y. (2017). Does e-government performance actually boost citizen use? Evidence from European countries. Public Management Review, 20(10), 1513–1532. https://doi. org/10.1080/14719037.2017.1412117

35. Lindgren, I., Madsen, C.O., Hofmann, S., & Melin, U. (2019). Close encounters of the digital kind: A research agenda for the digitalization of public services. Government Information Quarterly, 36(3), 427–436. https://doi.org/10.1016/j.giq.2019.03.002
36. Ebbers, W.E., Jansen, M.G.M., & van Deursen, A. (2016). Impact of the digital divide on e-government: Expanding from channel choice to channel usage. Government Information Quarterly, 33(4), 685–692. https://doi.org/10.1016/j.giq.2016.08.007
37. Rodriguez-Hevia, L.F., Navio-Marco, J., & Ruiz-Gomez, L.M. (2020). Citizens' involvement in e-government in the European union: The rising importance of the digital skills. Sustainability, 12(17), 1–19. https://doi.org/10.3390/su12176807
38. Taejun, L., Byung-Kwan, L., & Seulki, L.G. (2020). The effects of information literacy on trust in government websites: Evidence from an online experiment. International Journal of Information Management, 52(1), 1–13. https://doi.org/10.1016/j.ijinfomgt. 2020.102098
39. Furuholt, B. & Wahid, F., 2008. E-government challenges and the role of political leadership in indonesia: the case of Sragen. Proceedings of the 41st Hawaii International Conference on System Sciences.
40. Park, R., 2008. Measuring Factors That Influence the Success of E-government Initiatives', Proceedings of the 41st Hawaii International Conference on System Sciences. 1530-1605/08, IEEE.
41. Ibrahim A. Alghamdi, R.G. & Giselle R. 2011. E-Government readiness assessment for government organizations in developing countries. Computer and Information Science, 4, 3-17.
42. Dodel, M., & Aguirre, F. (2018). Digital inequalities' impact on progressive stages of e-government development [Conference session]. Proceedings of the 11th international conference on theory and practice of electronic governance, galway, Ireland (ICEGOV'18), Galway, Ireland, 04 April 2018, ACM. https:// doi.org/10.1145/3209415.3209475
43. Hemant, C., & Baboo, N. (2010). Strategies to increase e-government take-up: Looking beneath statistics. Global Journal of Management and Business Research, 10(1), 104–114. https:// journalofbusiness.org/index.php/GJMBR/article/view/14