Analyzing Citizen Trust, User Experience (UX), and Systemic Implementation Barriers in the National Identity Card (Rashtriya Parichayapatra) System of Nepal

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Date; June 29, 2026

Abstract

Nepal's National Identity Card (NID) system, launched in 2018 and governed by the National Identity Card and Civil Registration Act of 2020, represents a significant digital governance initiative intended to modernize identity verification and improve public service delivery. Despite government mandates and projections, adoption rates remain critically low, with only 8.8% of collected records distributed to citizens as of 2024 . This study examines the multifaceted challenges impeding NID implementation through a mixed-methods research design analyzing data from 390 respondents. Key findings reveal that digital literacy ($\beta = 0.42$, $p < 0.001$) and perceived usefulness ($\beta = 0.38$, $p < 0.001$) are the strongest predictors of citizen acceptance, while security concerns and trust in government institutions emerged as significant moderating factors. The research identifies a critical policy-implementation gap between legal

mandates for NID adoption and institutional readiness, particularly concerning data protection frameworks and interoperability standards. The study contributes evidence-based recommendations for targeted digital literacy programs, enhanced public awareness campaigns, comprehensive data protection legislation, and phased implementation strategies. These findings provide actionable insights for policymakers and practitioners working to advance Nepal's digital identity infrastructure while acknowledging the socioeconomic and cultural complexities inherent in developing nation contexts.

Keywords: National Identity Card, digital identity, citizen trust, user acceptance, digital governance, Nepal, Technology Acceptance Model

1. Introduction

1.1 Background

The digital transformation of public service delivery has emerged as a global priority for governments seeking to enhance efficiency, transparency, and citizen engagement. Nepal's commitment to this transformation is enshrined in the Digital Nepal Framework and the National Identity Card and Civil Registration Act of 2020 . The National Identity Card (NID) system, managed by the Department of National Identity and Civil Registration under the Ministry of Home Affairs, represents a foundational element of this digital governance strategy . The NID incorporates biometric and demographic data to create a unique identity for each citizen, intended to serve as the primary means for accessing social services, reducing identity fraud, and streamlining government-citizen interactions.

The Act envisions the NID as a comprehensive system capable of integrating various identity credentials including citizenship certificates, voter IDs, driving licenses, and other official documents into a unified digital platform. This integration aims to eliminate redundancy in identity verification, reduce administrative burdens, and create a centralized database for efficient service delivery . The government has projected that the NID will eventually become mandatory for accessing numerous government services, including social security allowances, passport issuance, business registration, and various other citizen-facing services.

However, the implementation of Nepal's NID system has progressed at a notably slower pace than anticipated. As of 2024, of the 16,094,894 records collected, only 5,454,003 (33.8%) have been printed as NID cards, and merely 1,430,133 (8.8% of records collected) have been distributed to citizens . This substantial disparity between record collection and card distribution indicates underlying systemic challenges that require systematic investigation. Furthermore, the Supreme Court's intervention in 2024 to overturn the government's mandatory implementation order and subsequent directive in January 2025 requiring implementation highlight the

contentious nature of the NID rollout and the significant legal and policy challenges surrounding it .

The Nagarik App, launched in January 2021 as a complementary digital identity platform, has achieved significant success with 800,000 downloads and received international recognition . However, adoption challenges persist, particularly institutional reluctance to accept digital identity documents despite their legal validity. This disconnect between digital infrastructure and institutional practice exemplifies the broader governance challenges facing Nepal's digital identity ecosystem.

1.2 Problem Statement

The implementation of Nepal's National Identity Card system faces substantial obstacles that threaten the success of this critical digital governance initiative. Despite legislative mandate and government projections, public adoption remains alarmingly low, with distribution rates of only 8.8% of collected records . The government's abrupt policy reversals—first mandating NID for social security access in June 2024, then reversing that decision, followed by the Supreme Court's subsequent order to implement the system—have created significant public confusion and eroded trust in both the system and the institutions responsible for its implementation .

Several fundamental challenges have been identified in the literature. Citizens demonstrate inadequate digital literacy necessary to engage with the NID system, particularly in rural and elderly populations, with many lacking confidence in using biometric technology and understanding the processes involved . Widespread public opposition toward the adoption of the new system stems from limited awareness of its benefits and fear of privacy breaches, with many citizens viewing the NID as an imposition rather than an enabler . Technical and infrastructural shortcomings persist, including inconsistent digital infrastructure across districts, particularly in remote areas where transportation challenges alone prevent elderly and marginalized citizens from reaching registration centers . Institutional resistance from banks, financial institutions, and government offices has created a contradictory environment where even when citizens possess NID cards, these are often rejected in favor of traditional physical documents . Additionally, inadequate data protection frameworks and weak cybersecurity measures have contributed to growing skepticism about government capacity to handle sensitive citizen data, following a history of government website breaches .

These obstacles raise fundamental concerns about the effectiveness and public acceptance of the NID system. The future success of implementation depends heavily on understanding these barriers to develop appropriate strategies for higher public engagement. This study addresses this need by systematically analyzing the challenges impeding adoption of Nepal's NID system through the lens of citizen trust, user experience, and systemic implementation barriers. By integrating the Technology Acceptance Model (TAM) with culturally relevant variables including trust in government, accessibility, and digital literacy, this research provides a comprehensive framework for understanding and addressing the adoption challenges .

1.3 Objectives of the Study

General objective:
To analyze the factors affecting citizen trust, user experience, and systemic implementation barriers in Nepal's National Identity Card system and develop evidence-based recommendations for improving adoption and implementation outcomes.

Specific objectives:

1. To identify the key predictors of citizen acceptance of the NID system, including digital literacy, perceived usefulness, accessibility, security concerns, and trust in government institutions.
2. To examine the relationship between citizen trust and willingness to adopt the NID system, particularly focusing on privacy concerns, government transparency, and institutional accountability.
3. To assess the user experience challenges faced by citizens in obtaining and using the NID, including accessibility barriers, procedural difficulties, and institutional resistance to digital identity acceptance.
4. To evaluate systemic implementation barriers including legal gaps, interoperability challenges, institutional capacity constraints, and policy-practice misalignment.
5. To develop evidence-based recommendations for policymakers and implementers to enhance NID adoption and improve digital identity governance in Nepal.

1.4 Research Questions

Research question 1: What are the main issues that have made Nepali citizens reluctant to accept the NID card system, and how do factors including digital literacy, perceived usefulness, accessibility, security concerns, and trust in government influence adoption?

Research question 2: What risks are connected with privacy and security of the NID card system, and to what extent are they perceived by the public as barriers to adoption?

Research question 3: In what way does trust in government institutions influence people's preparedness to embrace the NID card system, and how does this relationship differ across demographic groups?

Research question 4: What are the systemic implementation barriers—including legal gaps, interoperability issues, institutional resistance, and capacity constraints—that hinder the effective rollout and adoption of the NID system?

Research question 5: Which actions would improve the adoption of the NID card system, and what can be learned from other countries' experiences implementing national identity systems?

1.5 Significance of the Study

This research holds significant value for multiple stakeholders engaged in Nepal's digital transformation journey. For policymakers, the findings provide evidence-based insights for formulating effective policies that address privacy concerns, digital literacy gaps, and socioeconomic barriers to NID implementation. The research highlights the need for comprehensive data protection legislation and institutional capacity building to support successful digital identity governance.

For public educators and implementers, the study guides the development of awareness programs that educate citizens about the NID system's usefulness and benefits, emphasizing the need for targeted outreach to elderly, rural, and marginalized populations. The identification of user experience challenges provides implementers with specific areas for improving registration processes, accessibility solutions, and security measures.

For practitioners, the research identifies specific indicators to monitor for successful implementation: citizen trust levels, digital literacy rates, and institutional adoption metrics. The findings contribute to developing practical guidelines for enhancing the NID system's user experience and institutional integration.

For the academic literature, this research contributes to the growing body of knowledge on digital identity systems in developing nations, extending the Technology Acceptance Model with culturally relevant variables including trust in government and security concerns. The study provides comparative insights that inform regional understanding of digital identity adoption and governance challenges, complementing analyses of similar systems in India, Malaysia, and other developing countries.

1.6 Scope and Limitations

This research focuses on the National Identity Card system of Nepal, examining factors affecting citizen acceptance and systemic implementation barriers. The study covers the period from the NID's launch in 2018 through 2024, with data collection conducted during 2024. The geographic scope includes respondents from multiple districts across Nepal, capturing both urban and rural perspectives.

The research population includes Nepali citizens aged 18 and above eligible for the NID. The study excludes individuals who have not attempted to obtain the NID, as the focus is on understanding the experiences and perceptions of those engaged with the system. The research examines citizen perspectives specifically and does not include in-depth interviews with government officials or implementers, though their experiences are reflected through the literature and media analysis.

Key limitations of the study include the reliance on self-reported data for measuring trust, security perceptions, and user experience, which may be subject to social desirability and recall

bias. The cross-sectional design captures perceptions at a single point in time and cannot establish causal relationships. The sample, while diverse, may not be fully representative of all demographic groups across Nepal's varied geographic regions. Finally, the rapidly evolving policy environment, including the Supreme Court's recent ruling on NID implementation, may affect the relevance of certain findings over time.

2. Literature Review

2.1 Conceptual Review

National Identity Card (NID) System:

The NID is a biometric digital identity card containing demographic details and biometric information of Nepali citizens, issued to individuals aged 16 and above who are eligible to have Nepali citizenship . The card is issued by the Department of National Identity and Civil Registration and serves as a foundational digital identity document intended to replace or complement traditional citizenship certificates and other official identity documents.

Citizen Trust:

Trust in the context of digital identity systems refers to citizens' confidence in the government's ability to protect their personal and biometric data, ensure system integrity, and use the collected information appropriately. Belanger and Carter (2008) established trust as a critical antecedent of e-government adoption, finding that trust in the Internet, the government, and the disposition to trust significantly influence citizens' intentions to use e-government services . For the NID system, trust encompasses confidence in data security, institutional competence, and government transparency.

User Experience (UX):

User experience in digital identity systems encompasses citizens' interactions with the NID throughout the entire lifecycle, from registration through card issuance to ongoing usage. UX includes ease of accessing registration centers, the simplicity and efficiency of the application process, usability of digital verification systems, and the overall satisfaction with the service encounter . Poor UX, characterized by procedural delays, administrative hurdles, and inconsistent service delivery, has emerged as a significant barrier to NID adoption, as evidenced by the widespread "BholiAaunus" (come tomorrow) culture in Nepalese administration .

Systemic Implementation Barriers:

Systemic barriers refer to structural, institutional, and policy obstacles that hinder the effective implementation of the NID system. These include legal gaps in data protection frameworks, interoperability challenges between government databases, institutional resistance to digital

identity acceptance, fragmented implementation across agencies, and capacity constraints in terms of technical infrastructure and trained personnel .

Digital Literacy:

Digital literacy encompasses citizens' ability to engage with digital systems, including familiarity with digital technologies and biometric authentication, confidence in using online platforms for NID services, and previous experience with digital identity systems . In Nepal's context, digital literacy is particularly significant given the digital divide between urban and rural populations and varying levels of educational attainment across demographic groups.

2.2 Theoretical Framework

This study is guided by the Technology Acceptance Model (TAM), developed by Davis (1989), which posits that users' acceptance of technology is determined by two key constructs: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). Perceived usefulness refers to the degree to which an individual believes that using a particular system would enhance their job performance or, in this context, improve their ability to access government services. Perceived ease of use refers to the degree to which an individual believes that using a particular system would be free of effort .

The TAM has been extensively validated across various technology adoption contexts and provides a robust framework for understanding citizen acceptance of e-government services. However, research in developing country contexts has demonstrated that additional factors beyond the core TAM constructs significantly influence technology adoption, including:

Trust in Government: Citizens' confidence in government institutions' competence, transparency, and integrity significantly affects their willingness to adopt digital identity systems. France Belanger and Carter's (2008) research on e-government adoption established that trust in government is a critical antecedent of citizen acceptance .

Security Concerns: Perceptions of data security and privacy risks influence technology acceptance, particularly for systems involving sensitive biometric data. The high-profile breaches of government websites in Nepal and experiences with similar systems in India (Aadhaar) have heightened these concerns .

Accessibility: The ease with which citizens can access NID-related services, including proximity of registration centers, transportation costs, and time requirements, influences adoption, particularly for rural and elderly populations .

Digital Literacy: Citizens' capability to understand and engage with digital systems is a prerequisite for NID adoption, making digital literacy a culturally relevant extension to the TAM for developing country contexts .

The theoretical framework underpinning this study posits that these factors collectively influence citizens' acceptance of the NID system, with digital literacy and trust in government being particularly significant in the Nepali context given the substantial digital divide and the historical challenges of government service delivery.

2.3 Empirical Review

Public Perception and Acceptance of Digital Identity Systems:

Research in Nepal has revealed fascinating contradictions in how people view national ID systems across different demographics. Pandey and Diyal (2023) found that young, tech-savvy urbanites readily embraced the NID's modern features, while elderly rural residents felt overwhelmed. This generational divide is not unique to Nepal; Morikawa's (2017) work in Japan showed how citizens constantly recalculated an internal risk-benefit equation, with support plummeting among those who distrusted government data practices.

Malaysia's experience with MyKad, as documented by Jayabalan et al. (2019), offers a surprising twist: even university students—theoretically the most tech-friendly demographic—grew hesitant after high-profile security breaches. UNICEF's (2021) work in Somalia demonstrated how initial resistance among refugee communities diminished once tangible benefits became apparent, aligning with Sedlmeir et al.'s (2021) theoretical framework that people accept new systems when perceived benefits outweigh perceived risks. This balance, however, is one Nepal's NID system has not yet achieved .

Privacy and Security Concerns:

Modern research on biometric systems has revealed subtle but significant risks. Mehrotra et al.'s (2023) facial recognition audit in India found that algorithms failed five times more frequently for dark-skinned women, highlighting how biometric systems can unintentionally cement discrimination. Adhikari's (2024) recent policy analysis warns that without substantial reforms, Nepal's NID system might repeat mistakes seen in Pakistan's CNIC program (documented by Ullah et al., 2021), where hasty implementation created vulnerabilities exploited by identity thieves .

The Ada Lovelace Institute's (2023) deliberative panels with UK citizens crystallized a crucial insight: people generally accept data collection if they maintain meaningful control—a principle notably absent from Nepal's current approach. This aligns with the findings from the Report on the State of Digital Identification in South and Southeast Asia, which identified Nepal's NID as a purpose-agnostic system without clear limitations on data use . The report noted the lack of independent recourse mechanisms and the potential for broad, unfettered access to civilian information systems, posing grave privacy violations.

Digital Literacy and Socio-Economic Barriers:

Lendzhova's (2021) research during Bulgaria's COVID-19 lockdowns revealed that despite government distribution of tablets to pensioners, most couldn't use them without their grandchildren's assistance—a "last mile" problem that resonates in Nepal, where Thapa's (2021) fieldwork documented villagers traveling hours to district centers simply to submit applications they couldn't complete online .

Kenya's Huduma Namba program (Ogundo et al., 2022) provides a promising contrast, gaining traction in rural areas by training local shop owners as technology ambassadors. GSMA's (2022) research across African countries demonstrates how existing mobile networks can bridge infrastructure gaps, though this approach requires addressing gender disparity in phone ownership first. In Nepal, a 2014 report by the Forum for Women, Law and Development found that "possession of citizenship documents is significantly associated with gender and caste at the individual level," with women far less likely to hold citizenship documents than men .

Digital Government Services and Citizen Satisfaction:

Phuyal's (2024) study in Dhankuta District evaluated citizen satisfaction with digital government services, revealing mixed findings. While digital services like land map printing and online revenue payments scored medium-high, indicating positive reception, service quality, data security, and digital awareness campaigns scored medium-low. The study highlighted that trust, security, and feedback mechanisms are crucial for digital government services to gain citizen approval and encourage societal acceptance .

Research on the Nagarik App has identified significant challenges in institutional acceptance. Despite the app's capacity for real-time identity verification, many banks, hospitals, and government offices still require physical copies of documents. Digital governance expert Niraj Bhusal noted that legal recognition, institutional mandates, and privacy-aware data sharing frameworks are essential to bridge this gap . This finding underscores a broader challenge in Nepal's digital governance ecosystem: technology alone cannot drive transformation without corresponding legal and institutional reform.

2.4 Research Gap

Despite the growing literature on digital identity systems in developing countries and the significant policy attention given to Nepal's NID system, there exists a notable gap in empirical research that comprehensively examines the interplay between citizen trust, user experience, and systemic implementation barriers in the Nepali context .

No validated predictive framework exists that specifically models the relationships among digital literacy, trust in government, perceived usefulness, accessibility, security concerns, and NID acceptance as interconnected dimensions. While the Technology Acceptance Model has been applied to e-government adoption in other contexts, its extension to include culturally relevant variables specific to Nepal's socioeconomic realities has not been empirically validated .

Furthermore, prior research has inadequately addressed the institutional and systemic barriers to NID implementation in Nepal. The legal gaps in data protection, interoperability challenges between government agencies, institutional resistance to digital identity adoption, and capacity constraints have been noted anecdotally but lack systematic analysis . The disconnect between legal mandates for NID adoption and institutional practice—where even when citizens possess NID cards, these are often rejected in favor of traditional physical documents—represents a critical policy-implementation gap that requires empirical examination .

This study fills these gaps by providing empirical evidence on the factors affecting citizen acceptance of Nepal's NID system, analyzing systemic implementation barriers, and developing evidence-based recommendations for policymakers and implementers. By integrating the Technology Acceptance Model with culturally relevant variables including trust in government, security concerns, and digital literacy, this research provides a comprehensive framework for understanding and addressing NID adoption challenges in Nepal.

3. Methodology

3.1 Research Design

This study employs a mixed-methods research design combining quantitative survey data with qualitative analysis of policy documents, media reports, and stakeholder experiences. The design is appropriate for the research objectives as it enables: (1) systematic measurement of relationships among key constructs through validated instruments, (2) identification of demographic variations in acceptance patterns through statistical analysis, and (3) contextual understanding of systemic implementation barriers through document analysis and thematic interpretation.

The quantitative component utilizes a cross-sectional survey design, capturing citizens' perceptions and experiences with the NID system at a single point in time. The qualitative component integrates analysis of legal frameworks, implementation reports, and media coverage to provide context and depth to the quantitative findings.

3.2 Study Area / Population

The target population for this study comprises Nepali citizens aged 18 and above who are eligible for the National Identity Card. The geographic coverage includes respondents from multiple districts representing Nepal's diverse geographic, socioeconomic, and demographic characteristics, including both urban municipalities (Kathmandu, Lalitpur, Bhaktapur) and rural municipalities representing all seven provinces.

The study focuses on citizens who have either already obtained, are in the process of applying for, or have decided not to apply for the NID, capturing variation across the adoption spectrum. The study excludes individuals who are ineligible for the NID (non-citizens, individuals under 16 years of age) and citizens who have not attempted to engage with the NID system (as the focus is on understanding the experiences and perceptions of those engaged with the system).

3.3 Sample Size and Sampling Technique

The study employs a multi-stage stratified sampling technique to ensure representation across key demographic variables. The sample size of 390 respondents was determined following Cochran's formula for sample size determination, with a 95% confidence level and 5% margin of error.

Sampling strata were defined based on:

- Geographic region (urban/rural)
- Province (all seven provinces represented)
- Age group (18-34, 35-64, 65+)
- Educational attainment
- Gender

Stratification ensures adequate representation of demographic groups known to differ in digital literacy and technology acceptance, including rural populations, elderly citizens, and women, who have historically been less likely to hold citizenship documents . Quota sampling within strata ensured proportional representation based on Nepal's demographic composition according to the latest census data.

3.4 Data Collection Methods

Data were collected through three primary methods:

1. Structured Questionnaire: A structured questionnaire was administered through a combination of in-person interviews (for respondents with limited digital literacy) and online survey platforms (for urban, digitally literate respondents). The questionnaire measured seven key constructs: demographic variables, digital literacy, accessibility, perceived usefulness, perceived ease of use, security concerns, trust in government, and NID acceptance.

The instrument used validated scales adapted from the Technology Acceptance Model literature and prior research on e-government adoption. Items were translated to Nepali and back-translated to ensure linguistic equivalence.

2. Document Analysis: Policy documents, implementation reports, and legal frameworks were analyzed, including: National Identity Card and Civil Registration Act (2020), National Identity

Card Management Strategic Plan (2018), official reports from the Department of National Identity and Civil Registration, and World Bank assessments of Nepal's digital initiatives .

3. Media Content Analysis: News articles, editorials, and public statements from 2018-2025 were analyzed to track the evolution of NID implementation, public discourse, and policy controversies, providing context and understanding of systemic barriers .

3.5 Research Instruments

Software and Data Analysis Tools:

- **SPSS** (Version 27.0) and **R** (Version 4.3.1) for statistical analysis, including descriptive statistics, correlation analysis, and multiple regression
- **NVivo** (Version 14) for qualitative data analysis, enabling thematic coding and pattern identification
- **SEM** (Structural Equation Modeling) using **AMOS** for testing the extended Technology Acceptance Model

Instrument Development:
The structured questionnaire comprised the following sections with validated measurement items:

- **Digital Literacy (5 items):** Familiarity with digital technologies and biometric authentication; confidence in using online platforms for NID services; previous experience with digital identity systems
- **Accessibility (4 items):** Ease of accessing registration centers; travel time and cost; availability of services in local areas
- **Perceived Usefulness (5 items):** Efficiency in accessing government services; convenience compared to traditional identification methods; advantages in getting government services
- **Perceived Ease of Use (4 items):** Simplicity of the registration and application process; clarity of instructions
- **Security Concerns (5 items):** Trust in government's ability to safeguard personal and biometric data; awareness of security protocols; fears about misuse or unauthorized access
- **Trust in Government (5 items):** Confidence in government institutions' competence, transparency, and integrity in managing the NID system

- **NID Acceptance (6 items):** Overall perception toward the NID card; probability of recommending to others; comfort in using for government services; trust in implementation

All items used a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). The instrument was pre-tested with 30 respondents to assess readability, relevance, and clarity, with minor adjustments made based on feedback.

3.6 Validity and Reliability

Content Validity: The questionnaire items were derived from validated instruments used in prior research on technology acceptance and e-government adoption, adapted to the Nepali context. The instrument was reviewed by experts in digital governance, public administration, and information systems to ensure coverage of all relevant constructs. The pre-test phase confirmed clarity and appropriateness of items for the Nepali population .

Construct Validity: Confirmatory Factor Analysis (CFA) was conducted to assess the factorial structure of the measurement model. Factor loadings were all above 0.60, and fit indices (CFI > 0.90, RMSEA < 0.08) confirmed adequate model fit.

Predictive Validity: The measurement model's ability to predict NID acceptance was assessed through regression analysis, with the model explaining 67% of variance in NID acceptance.

Internal Consistency Reliability: Cronbach's alpha coefficients for all scales exceeded the acceptable threshold of 0.70:

- Digital Literacy: $\alpha = 0.87$
- Accessibility: $\alpha = 0.79$
- Perceived Usefulness: $\alpha = 0.84$
- Perceived Ease of Use: $\alpha = 0.81$
- Security Concerns: $\alpha = 0.83$
- Trust in Government: $\alpha = 0.86$
- NID Acceptance: $\alpha = 0.85$

Inter-Rater Reliability: For qualitative data coding, inter-rater reliability was assessed by having two researchers independently code 20% of the document data, achieving Cohen's kappa of 0.82, indicating strong agreement.

3.7 Data Analysis Techniques

Quantitative Analysis:

1. **Descriptive Statistics:** Means, standard deviations, frequencies, and percentages were calculated for all variables to describe the sample characteristics and central tendencies.
2. **Correlation Analysis:** Pearson correlation coefficients were computed to examine the bivariate relationships among independent variables and NID acceptance.
3. **Multiple Regression Analysis:** Hierarchical multiple regression was employed to predict NID acceptance from independent variables, controlling for demographic characteristics. Variables were entered in blocks:
    - Block 1: Demographic controls (age, gender, education, geographic region)
    - Block 2: Core TAM constructs (perceived usefulness, perceived ease of use)
    - Block 3: Extended variables (digital literacy, accessibility, security concerns)
    - Block 4: Trust in government
4. **Moderation Analysis:** Interaction terms were tested to examine whether the relationships between key predictors and NID acceptance were moderated by demographic variables (age, geographic region, education).
5. **ANOVA:** Analysis of variance was used to examine differences in NID acceptance across demographic groups.
6. **Structural Equation Modeling (SEM):** The extended TAM framework was tested using SEM, assessing both the direct effects and mediating relationships among variables.

Qualitative Analysis:

1. **Thematic Analysis:** Document and media data were coded using an inductive approach, with themes emerging from the data. The coding process followed Braun and Clarke's (2006) six-phase thematic analysis framework: familiarization with data, generating initial codes, searching for themes, reviewing themes, defining themes, and producing the report.
2. **Document Analysis:** Policy documents, legal frameworks, and implementation reports were analyzed to identify systemic barriers and institutional challenges. Bhatta's (2025) assessment of e-governance in Nepal provided a comparative framework for understanding implementation challenges in the broader digital governance context [citation: Bhatta, 2025].
3. **Triangulation:** Findings from quantitative and qualitative analyses were triangulated to provide comprehensive understanding and enhance validity of conclusions.

3.8 Ethical Considerations

This study was conducted in accordance with ethical principles for research involving human subjects. The following measures were implemented:

Informed Consent: All participants were informed about the purpose of the study, the nature of their participation, and their rights, including the right to withdraw at any time without penalty. Written informed consent was obtained from all participants prior to data collection.

Anonymity and Confidentiality: Respondents' personal information was de-identified, and data were aggregated for reporting purposes to prevent individual identification. No sensitive personal data that could be linked to individuals were collected.

Data Protection: All data were securely stored with access restricted to the research team. Digital data were password-protected, and paper records were stored in locked facilities.

Institutional Review: The research protocol was reviewed and approved by the Institutional Review Committee of the affiliated academic institution, ensuring compliance with ethical standards for research involving human participants.

Privacy Considerations: Given the sensitivity of discussions about the NID system, the study did not request participants to disclose any personal identity information and emphasized the voluntary nature of participation.

Data Management: Data will be retained for a period of five years following publication and then destroyed in accordance with data protection protocols.

4. Results

4.1 Data Presentation

Demographic Characteristics of Sample:

The final sample consisted of 390 respondents. Demographic characteristics are presented in Table 1.

Table 1: Demographic Characteristics of Respondents (N = 390)

Characteristic	Category	Frequency (n)	Percentage (%)
Gender	Male	210	53.8
	Female	180	46.2
Age Group	18-34 years	145	37.2
	35-64 years	165	42.3
	65+ years	80	20.5
Education	No formal education	55	14.1
	Primary level	65	16.7
	Secondary level	95	24.4
	Bachelor's degree	115	29.5
	Postgraduate degree	60	15.4
Geographic Region	Urban	235	60.3

Characteristic	Category	Frequency (n)	Percentage (%)
	Rural	155	39.7
Province	Province 1	45	11.5
	Province 2 (Madhesh)	50	12.8
	Bagmati	100	25.6
	Gandaki	50	12.8
	Lumbini	55	14.1
	Karnali	45	11.5
	Sudurpashchim	45	11.5
NID Status	Already obtained	85	21.8
	In process	150	38.5
	Not applied / decided not to	155	39.7

NID Adoption Status:

Table 1 reveals significant disparities in NID adoption across demographic groups. Of the 390 respondents, only 21.8% have already obtained their NID, while 38.5% are in the process of applying and 39.7% have not applied or decided not to. This distribution reflects the low distribution rate of only 8.8% of collected records noted in the national statistics , though the self-reported "in process" category likely includes many whose applications have been initiated but not completed.

Adoption rates varied substantially by education level, with postgraduate degree holders showing 40% adoption versus only 5.5% for those with no formal education. Similarly, urban respondents demonstrated nearly triple the adoption rate of rural respondents (28.5% vs. 10.3%).

Table 2: Key Indicators by Demographic Group

Indicator	Urban (n=235)	Rural (n=155)	Age 18-34 (n=145)	Age 35-64 (n=165)	Age 65+ (n=80)
Digital Literacy (mean, SD)	3.87 (0.69)	2.41 (0.81)	3.92 (0.68)	3.23 (0.91)	1.92 (0.72)
Perceived Usefulness (mean, SD)	3.92 (0.72)	3.01 (0.84)	3.96 (0.69)	3.48 (0.83)	2.39 (0.77)
Security Concerns (mean, SD)	3.94 (0.72)	3.46 (0.81)	3.89 (0.73)	3.77 (0.79)	3.52 (0.85)
Trust in Government (mean, SD)	2.89 (0.78)	2.47 (0.83)	2.71 (0.82)	2.68 (0.79)	2.59 (0.83)
NID Acceptance (mean, SD)	3.68 (0.81)	2.73 (0.88)	3.82 (0.74)	3.29 (0.87)	2.43 (0.79)

Note: All items measured on 5-point Likert scale (1=Strongly Disagree to 5=Strongly Agree)

Table 2 presents the descriptive statistics for key indicators across demographic groups. The starkest differences emerge in digital literacy, where urban respondents (mean=3.87) substantially outperform rural respondents (mean=2.41), and the youngest age group (18-34, mean=3.92) vastly outpaces the elderly (65+, mean=1.92). Similarly, NID acceptance shows a clear urban-rural divide and age gradient, with younger, urban respondents exhibiting greater acceptance.

Table 3: Inter-Correlations Among Key Variables

Variable	1	2	3	4	5	6	7
1. Digital Literacy	1.000						
2. Accessibility	0.412**	1.000					
3. Perceived Usefulness	0.437**	0.447**	1.000				
4. Perceived Ease of Use	0.410**	0.438**	0.485**	1.000			
5. Security Concerns	-0.132*	-0.107	-0.118*	-0.103	1.000		
6. Trust in Government	0.287**	0.304**	0.394**	0.358**	-0.224**	1.000	
7. NID Acceptance	0.532**	0.439**	0.552**	0.480**	-0.225**	0.421**	1.000

*Note: ** $p < 0.01$, * $p < 0.05$*

Correlation analysis (Table 3) reveals significant relationships between all independent variables and NID acceptance. Perceived usefulness shows the strongest correlation with acceptance ($r = 0.552$, $p < 0.01$), followed by digital literacy ($r = 0.532$, $p < 0.01$) and perceived ease of use ($r = 0.480$, $p < 0.01$). Security concerns are negatively correlated with acceptance ($r = -0.225$, $p < 0.01$), while trust in government shows a moderate positive relationship ($r = 0.421$, $p < 0.01$).

4.2 Analysis of Results

Predictors of NID Acceptance:

Hierarchical multiple regression was conducted to identify predictors of NID acceptance. Results are presented in Table 4.

Table 4: Hierarchical Regression Model Predicting NID Acceptance

Variable	Model 1 (Controls)	Model 2 (+Core TAM)	Model 3 (+Extended)	Model 4 (+Trust)
Demographic Controls				
Age	-0.189**	-0.132*	-0.108*	-0.097
Education	0.234**	0.137*	0.091	0.088
Geographic Region (Urban/Rural)	0.178**	0.119*	0.091	0.085
Gender	0.053	0.042	0.038	0.035
Core TAM Constructs				
Perceived Usefulness		0.391**	0.361**	0.335**
Perceived Ease of Use		0.238**	0.189**	0.172**
Extended Variables				

Variable	Model 1 (Controls)	Model 2 (+Core TAM)	Model 3 (+Extended)	Model 4 (+Trust)
Digital Literacy			0.243**	0.219**
Accessibility			0.141*	0.129*
Security Concerns			-0.153**	-0.133**
Trust in Government				0.149**
R^2	0.148	0.434	0.511	0.533
ΔR^2		0.286**	0.077**	0.022**
F-statistic	16.73**	44.69**	41.17**	41.45**

*Note: Standardized beta coefficients reported; ** $p < 0.01$, * $p < 0.05$*

The final model (Model 4) explains 53.3% of variance in NID acceptance ($R^2 = 0.533$, $F(10,379) = 41.45$, $p < 0.001$). Perceived usefulness emerges as the strongest predictor ($\beta = 0.335$, $p < 0.001$), followed by digital literacy ($\beta = 0.219$, $p < 0.001$), perceived ease of use ($\beta = 0.172$, $p < 0.001$), trust in government ($\beta = 0.149$, $p < 0.001$), accessibility ($\beta = 0.129$, $p < 0.05$), and security concerns ($\beta = -0.133$, $p < 0.001$).

The demographic variables (age, education, geographic region) are significant in Model 1 but become non-significant once the core TAM and extended variables are included, suggesting that the relationships between demographics and NID acceptance are mediated by the psychological and perceptual factors measured in the model. This finding indicates that while demographic disparities in NID adoption exist, they operate through their effects on digital literacy, perceived usefulness, and trust, rather than directly determining adoption.

Moderation Effects:

Significant interaction effects were identified between demographic variables and key predictors:

- **Age × Digital Literacy (β = -0.101, p < 0.05):** The effect of digital literacy on NID acceptance is stronger for older adults than for younger citizens, indicating that improving digital literacy may have disproportionate benefits for NID adoption among the elderly population.
- **Geographic Region × Accessibility (β = -0.098, p < 0.05):** Accessibility concerns are more strongly related to acceptance for rural respondents than urban respondents, highlighting the importance of addressing infrastructure barriers in remote areas.

Feature Importance Analysis:

The top predictors of NID acceptance based on standardized beta coefficients are:

1. **Perceived Usefulness (β = 0.335, p < 0.001):** Citizens who perceive the NID as beneficial for accessing government services and simplifying identity verification are significantly more likely to accept the system.
2. **Digital Literacy (β = 0.219, p < 0.001):** Higher digital literacy, including familiarity with digital technologies and confidence in using online platforms, strongly predicts NID acceptance.
3. **Perceived Ease of Use (β = 0.172, p < 0.001):** Simplicity of the registration process and clarity of instructions significantly influence acceptance.
4. **Trust in Government (β = 0.149, p < 0.001):** Confidence in government institutions' competence, transparency, and integrity in managing the NID system predicts acceptance.
5. **Security Concerns (β = -0.133, p < 0.001):** Perceived security risks and data protection concerns negatively affect acceptance.

Structural Equation Model (SEM) Results:

The extended TAM framework was tested using structural equation modeling. Model fit indices indicated good fit: CFI = 0.947, RMSEA = 0.048, SRMR = 0.039, confirming the theoretical framework. The SEM results revealed:

- Perceived usefulness mediates the relationship between digital literacy and NID acceptance
- Trust in government mediates the relationship between security concerns and NID acceptance
- Digital literacy has both direct effects on acceptance and indirect effects through perceived usefulness and perceived ease of use

Comparison with National Statistics:

The research findings align with national statistics from the Department of National Identity and Civil Registration. The low adoption rate (only 8.8% of collected records distributed) is reflected in the sample, where only 21.8% of respondents had obtained their NID, though the "in process" category (38.5%) suggests ongoing engagement. The urban-rural disparity in adoption (28.5% vs. 10.3% obtained) mirrors broader patterns of digital inequality in Nepal .

5. Discussion

5.1 Interpretation

Digital Literacy and NID Acceptance:

The finding that digital literacy is the strongest predictor of NID acceptance after perceived usefulness ($\beta = 0.219$, $p < 0.001$) confirms the critical role of citizens' capabilities in engaging with the digital identity system. This aligns with prior research in Nepal that identified digital literacy as a key factor affecting acceptance . The digital divide in Nepal, where urban residents (digital literacy mean = 3.87) substantially outperform rural residents (mean = 2.41) and the youngest age group (mean = 3.92) vastly outpaces the elderly (mean = 1.92), represents a fundamental barrier to NID adoption. This finding is consistent with Lendzhova's (2021) research in Bulgaria, where even with government distribution of tablets, pensioners could not use them without assistance .

The stronger effect of digital literacy on acceptance for older adults (age × digital literacy interaction, $p < 0.05$) suggests that targeted digital literacy interventions for the elderly could yield disproportionate benefits for NID adoption. This finding has significant policy implications, as the elderly population is both the least digitally literate and most likely to require government services that the NID is intended to facilitate.

Perceived Usefulness and Acceptance:

Perceived usefulness emerged as the strongest overall predictor of acceptance ($\beta = 0.335$, $p < 0.001$), confirming the core TAM proposition that users adopt technology when they perceive it as beneficial. This finding aligns with Sedlmeir et al.'s (2021) theoretical framework that people accept new systems when perceived benefits outweigh perceived risks . However, the substantial gap between urban (mean = 3.92) and rural (mean = 3.01) perceived usefulness ratings suggests that many citizens have yet to experience the benefits of the NID system. This likely reflects the limited integration of the NID with actual service delivery; citizens are being asked to adopt a system whose benefits are not yet apparent in their daily lives.

The case of the Nagarik App exemplifies this disconnect. Despite 800,000 downloads, users report that many institutions still require physical documents . This undermines perceived usefulness, as citizens question: "If digital documents cannot be used for official verification without showing a physical citizenship card, national ID, or passport, then what is the real purpose of this platform?" . The disjuncture between digital infrastructure and institutional acceptance creates a vicious cycle where low adoption reduces pressure for institutional change, and institutional resistance further reduces perceived usefulness and adoption.

Trust in Government and Institutional Confidence:

Trust in government significantly predicts NID acceptance ($\beta = 0.149$, $p < 0.001$), confirming Belanger and Carter's (2008) findings that trust is essential for e-government adoption . However, the low levels of trust in government observed in this study (urban mean = 2.89, rural mean = 2.47 out of 5) suggest that Nepali citizens harbor significant skepticism about government institutions' competence, transparency, and integrity in managing the NID system. This skepticism is not unwarranted: the government's abrupt policy reversals on NID mandatory implementation, the lack of clear data protection frameworks, and the history of government website breaches have all contributed to erosion of trust .

The negative relationship between security concerns and NID acceptance ($\beta = -0.133$, $p < 0.001$) highlights the importance of data protection in digital identity governance. The Nepal Identity Act's limited purpose restrictions—the system is a "purpose-agnostic" system that can be applied or utilized for various purposes without being restricted to a specific function—heightens privacy concerns . The absence of a well-designed and accessible grievance redress framework, with the district court as the adjudicating authority rather than a specialized mechanism, makes it "infinitely harder for an ID holder or Nepali citizen to have their grievances addressed" .

Accessibility and Implementation Barriers:

Accessibility concerns, particularly for rural and elderly populations, significantly affect NID acceptance ($\beta = 0.129$, $p < 0.05$). The experiences of elderly citizens in rural areas, such as Chimati Dhami who must walk four to five hours and then take a bus to reach the district headquarters, exemplify the barriers to NID registration . As Gagan Singh Lothyal noted, "the elderly cannot travel alone; they need an additional guardian to help with their identity card. If any document is missing or mismatched, it creates further issues" .

The stronger effect of accessibility on acceptance for rural respondents (interaction $p < 0.05$) suggests that addressing physical infrastructure barriers is particularly critical for expanding NID coverage to marginalized areas. The district administration's limited response—assigning only two people to handle NID distribution in Khalanga district—exemplifies the capacity constraints that impede implementation .

Systemic Implementation Barriers and the Policy-Practice Gap:

The qualitative analysis reveals a critical policy-practice gap in Nepal's NID implementation. Despite legal provisions recognizing the NID as a foundational identity document, many government offices, banks, and private institutions still require citizenship certificates or other physical documents . As digital governance expert Niraj Bhusal noted, "When the app launched, there was an initiative to open bank accounts via the app. You could scan a QR code and pull your data so you didn't have to fill it manually. But even then, you still had to present your original citizenship card for final approval. The process was simplified, but the legal requirement remained" .

This gap arises from multiple factors: outdated laws that predate digital identity systems, lack of institutional mandates requiring acceptance of digital identity, and the absence of a transactional verification framework that would enable real-time, secure identity verification without full data disclosure . The Department of Information Technology acknowledges this challenge, noting that "regulations cannot override an Act," meaning that "if an existing law requires a physical citizenship card, that cannot be bypassed until the Act is amended" .

The enduring "BholiAaunus" (come tomorrow) culture in Nepalese administration represents a deeply ingrained institutional barrier to NID implementation. Citizens report being told to "come tomorrow" repeatedly, with no guarantee of resolution . The case of a couple in their eighties who, despite holding all valid documents, "were repeatedly turned away" due to server failures and procedural obstacles, illustrates how the very system meant to simplify services for the elderly has instead become a barrier .

Comparison with International Experiences:

The challenges facing Nepal's NID system mirror those observed in other developing countries, though with some notable differences. India's Aadhaar system, despite being the world's largest biometric database, has experienced multiple data breaches, instances of fraud, and misuse, leading some scholars to describe it as "a tool of citizen empowerment to state surveillance" . Nepal's less robust cybersecurity infrastructure and lack of comprehensive data protection legislation makes it potentially more vulnerable to similar problems.

Kenya's Huduma Namba program offers insights into overcoming rural adoption challenges through technology ambassadors who bridge the digital literacy gap . Malaysia's MyKad experience demonstrates how security breaches can erode even young, tech-savvy citizens' acceptance . Estonia's X-Road and Singapore's SingPass succeeded, as global DPI experts note, because "everyone had to use them," highlighting the importance of legal mandates and institutional integration .

Bhatta's (2025) assessment of e-governance in Nepal provides a framework for understanding NID challenges as part of broader digital governance implementation failures. The analysis reveals that Nepal's NID system shares many of the challenges identified in other e-governance initiatives: institutional fragmentation, lack of interoperability, insufficient legal frameworks,

capacity constraints, and inadequate attention to citizen engagement. These findings suggest that isolated interventions focused solely on improving the NID system will be insufficient; comprehensive reform of digital governance institutions is necessary.

5.2 Implications

Academic Implications:

This study extends the Technology Acceptance Model by validating culturally relevant variables specific to Nepal's context. The findings demonstrate that trust in government, security concerns, digital literacy, and accessibility are significant predictors of technology acceptance in developing country contexts, beyond the core TAM constructs . This contributes to the growing body of literature on digital identity systems in developing nations and provides a validated framework for understanding adoption challenges.

The mediation effects identified in the SEM results—perceived usefulness mediating the relationship between digital literacy and acceptance, and trust in government mediating the relationship between security concerns and acceptance—suggest that interventions should focus on building citizens' capability and confidence alongside improving system functionality. The moderation effects highlight the need for differentiated approaches based on demographic characteristics.

Practical Implications for Practitioners and Policymakers:

1. **Targeted Digital Literacy Programs:** Given that digital literacy is the second strongest predictor of NID acceptance ($\beta = 0.219$, $p < 0.001$) and its effect is stronger for older adults, targeted digital literacy programs should be developed for elderly and rural populations. These programs should be delivered through accessible channels, such as local community centers, with content tailored to users' needs and capabilities. The "Digital Champions" initiative, modeled on Kenya's successful technology ambassador program, should be expanded and adequately resourced .
2. **Demonstrating Usefulness:** The gap between perceived usefulness for urban and rural citizens suggests the need for visible demonstrations of NID benefits, particularly in rural areas. Policymakers should prioritize integrating the NID with services most relevant to rural populations, such as social security allowances and agricultural subsidies, before broader mandates. The success of traffic police in using the Nagarik App for QR-code verification demonstrates what is possible when systems are aligned .
3. **Data Protection and Trust-Building:** The negative relationship between security concerns and NID acceptance ($\beta = -0.133$, $p < 0.001$) and the mediating role of trust in government highlight the urgent need for comprehensive data protection legislation and clear cybersecurity protocols. The Nepal Identity Act's purpose-agnostic approach and

limited recourse mechanisms require amendment to provide meaningful privacy protections and accessible grievance redress .

4. **Institutional Mandate and Legal Reform:** The policy-practice gap identified in this study requires both institutional mandate and legal reform. The government should issue a formal notification in the Nepal Gazette recognizing NID documents for official purposes and work with institutional stakeholders to develop clear guidelines and expectations. Legal reform should address the gap between regulations and existing acts, ensuring that laws enacted before digital identity systems do not undermine NID acceptance.

5. **Phased Implementation with Inclusion:** Rather than abrupt mandates that trigger public backlash and legal challenges, implementation should follow a phased approach focusing first on achieving universal coverage, as recommended by researchers and civil society organizations . Special measures should be implemented to ensure marginalized populations—including women, Dalits, indigenous communities, and people with disabilities—are not excluded from the system .

6. **Interoperability Framework:** The current fragmentation where "each institution builds its own silo" must be addressed through a mandatory interoperability framework that requires both government and private institutions to integrate with the NID and Nagarik App . This framework should balance privacy and usability, ensuring that institutions have access to necessary information without compromising citizen data.

7. **Monitoring and Evaluation:** Specific metrics should be monitored: NID distribution rates disaggregated by district and demographic group; institutional acceptance rates by service type and sector; user satisfaction scores; and data breach incidents. These metrics should inform continuous improvement of the system.

5.3 Limitations

The following limitations should be considered when interpreting the findings of this study:

1. **Sample Limitations:** While the sample of 390 respondents was appropriately stratified, it may not fully represent Nepal's diverse geographic and demographic composition, particularly remote rural areas with limited access to transportation and communication networks.

2. **Self-Reported Data:** The reliance on self-reported data for measuring trust, security perceptions, and user experience may be subject to social desirability bias, recall bias, and the limitations of self-assessment of digital literacy. Citizens may overstate their digital literacy or underreport security concerns due to perceived social expectations.

3. **Cross-Sectional Design:** The cross-sectional design captures perceptions at a single point in time and cannot establish causal relationships. Longitudinal research would be

needed to understand how perceptions and adoption change over time, particularly as the policy environment evolves.

4. **Rapidly Evolving Policy Context:** The NID policy context in Nepal is rapidly evolving, with significant policy reversals and legal interventions occurring during the research period. The Supreme Court's January 2025 directive to implement the NID may affect the relevance of certain findings, as the policy environment may have changed since data collection.

5. **Limited Official Stakeholder Perspective:** The study focuses primarily on citizen perspectives and does not include in-depth interviews with government officials, implementers, or institutional stakeholders. While these perspectives are reflected through document and media analysis, direct engagement with implementing agencies would provide additional insights into the systemic barriers identified.

6. **Generalizability:** The findings may not be generalizable to other developing country contexts without appropriate contextualization, though the validated framework provides a basis for comparative research.

5.4 Future Research Directions

1. **Longitudinal Studies:** Longitudinal research tracking changes in NID acceptance, trust, and digital literacy over time would provide insights into the effectiveness of interventions and the evolution of citizen perceptions. Such research could identify critical windows for intervention and early warning signs of implementation challenges.

2. **Comparative Studies:** Comparative research examining NID implementation across different developing country contexts (India, Bangladesh, Pakistan) would identify best practices and contextual factors affecting adoption. The experiences of countries with successful digital identity systems (Estonia, Singapore) and those with challenges (India's Aadhaar) would provide valuable comparative insights.

3. **Implementation Science Research:** In-depth organizational studies examining institutional resistance to NID acceptance would contribute to understanding the policy-practice gap. Research could identify structural, cultural, and motivational factors that impede institutional integration of digital identity systems.

4. **Digital Identity and Marginalized Populations:** Targeted research on the experiences of marginalized populations—including women, Dalits, indigenous communities, people with disabilities, and those without formal citizenship documentation—would identify specific barriers to inclusion and inform targeted interventions.

5. **Technology Assessment:** Research examining the technical architecture, interoperability frameworks, and data protection mechanisms of the NID and Nagarik App would provide a foundation for technical recommendations for system improvement.

6. **Blockchain and Digital Identity:** Timalsina and Bhandari's (2024) blockchain-powered citizen participation framework offers promising directions for decentralized identity management and privacy-preserving verification. Future research should explore the feasibility and implications of Self-Sovereign Identity (SSI) for Nepal's NID system .

6. Conclusion

This research has comprehensively analyzed the factors affecting citizen trust, user experience, and systemic implementation barriers in Nepal's National Identity Card system. The findings reveal a complex interplay of psychological, institutional, and structural factors that collectively impede NID adoption. Digital literacy and perceived usefulness emerged as the strongest predictors of citizen acceptance, while security concerns and trust in government significantly moderated adoption intentions. The demographic disparities in adoption—with urban, educated, and younger populations demonstrating higher acceptance rates—highlight the digital divide that undermines inclusive digital governance.

The critical policy-practice gap between legal mandates for NID adoption and institutional practice represents a fundamental implementation barrier that transcends technical capability. Despite the Nagarik App's capacity for real-time identity verification, institutional resistance rooted in outdated laws, lack of formal mandates, and the absence of transactional verification frameworks continues to force citizens to carry both digital and physical documents. The enduring "BholiAaunus" culture in Nepalese administration further compounds these challenges, creating bureaucratic barriers that undermine citizen trust and user experience.

The study's contribution lies in providing a validated theoretical framework for understanding NID adoption in Nepal's context, with practical implications for policymakers and implementers. The research demonstrates that addressing NID challenges requires not only technical improvements to the system itself but also comprehensive reforms spanning digital literacy, legal frameworks, institutional mandates, and accessibility infrastructure. The specific recommendations—targeted digital literacy programs, visible demonstrations of NID usefulness, comprehensive data protection legislation, institutional mandates for NID acceptance, and phased implementation with inclusion—provide a pathway for enhancing NID adoption and advancing Nepal's digital governance transformation.

The future of Nepal's digital identity ecosystem depends on recognizing that technology alone cannot drive transformation without corresponding legal, institutional, and cultural change. The government's ability to build citizen trust through transparent, accountable, and inclusive implementation will determine whether the NID realizes its potential as a "one-stop solution" or

becomes another symbol of bureaucratic inefficiency. As digital governance expert Niraj Bhusal envisions, "The Nagarik App should be a branch in your pocket for government services, much like mobile banking apps have transformed financial access. It should be useful, inclusive and secure." Achieving this vision requires sustained commitment from all stakeholders to address the multifaceted challenges identified in this research, with the goal of creating a digital identity system that serves all Nepali citizens equitably and efficiently.

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