



PKI Progress in Nepal: Building a Trusted Digital Future

Presented to the Asia PKI Consortium | Office of the Controller of Certifications,
Nepal

Office of the Controller of Certifications (OCC)

Legal Foundation

Established under the **Electronic Transaction Act (ETA) 2063 (2006)**
Nepal's foundational legal framework for digital trust, providing statutory authority for PKI governance.

Mandate

Regulate and accredit Certifying Authorities (CAs); operate Nepal's **Root CA**; oversee digital signature policy nationwide under the Prime Minister Office.

Infrastructure

Nepal Root CA-2020 providing automated certificate lifecycle management , real-time OCSP services, and validated digital identity issuance.



Major Digital Signatures in Action: Government Document Management



GIOMS — A Historic Milestone

The **Government Integrated Office Management System (GIOMS)** making it Nepal's **first Document Management System** to mandate digital signatures across all official operations.

- **Scope:** All official approvals, orders, correspondence, attendance records, and file processing now require digital signatures
- **DMS Integration:** Document Management System enables fully paperless file processing with legally valid digital approvals across ministries
- **Significance:** Sets the template for nationwide rollout to all federal and provincial government offices

Major Digital Signatures in Action: Finance & Procurement

EBPS

Electronic Building Permit System:

- EBPS in Nepal refers to the Electronic Building Permit System (or Automated Building Plan Approval and Monitoring System).
- It is a digital platform used by local municipalities to process, verify, and approve building permits, ensuring constructions comply with the National Building Code and municipal bylaws
- Implementing Digital Signature on EBPS has significantly improve on government performance on service delivery.

Digital Signatures in Action Need to Be Taken: Finance & Procurement



e-Procurement

PKI-backed digital signatures used in public tendering to ensure **bid authenticity and non-repudiation** — bringing integrity to Nepal's public contracting ecosystem. But it has not been implemented



Tax & Customs (IRD)

Digital certificates enable authenticated **e-filing and customs declarations**, eliminating paper-based bottlenecks at the Inland Revenue Department. It has started but not continued



Banking Sector

Financial institutions leveraging PKI for **secure transaction authorization** and regulatory compliance, laying the groundwork for full digital banking. Many Bank are interested but they are still confused about adaptation .

National ID: The KYC Game-Changer

Biometric National ID

Issued to all citizens aged 16+, Nepal's biometric National ID card—contains photos, personal data, and fingerprint biometrics, replacing paper-based citizenship certificates.

Future Use Cases Unlocked

Digital lending, e-health records, social security, SIM registration, and passport issuance — all anchored to a **single verified digital identity** as the trust foundation.



Root Causes: Why the Gap Persists

Legal Lag

ETA 2063 needs modernization to explicitly recognize **modern international trends** — current law creates ambiguity that slows adoption.

Awareness Deficit

Citizens and the private sector remain largely unaware of the **legal validity and practical benefits** of digital signatures — demand cannot grow without informed users.

Funding & Capacity

OCC operates with **limited human resources and budget** relative to the scale of national digital transformation required — capacity must match ambition.

Lacked of Finding Use cases

Government and private entity are not finding many use cases and Relevant use cases of PKI Technology and cost benefit analysis is not determined. This is one of the major gap of implementation.

Unaware about International Trends



Post-Quantum Cryptography
(PQC)



Cross-Border Digital Trust



Digital ID + PKI Convergence

The Path Forward: Strategic Targets



1

Mandate PKI Across All Ministries

Extend GIOMS-style mandatory digital signatures to all **federal and provincial** government offices, making digital approval the default – not the exception.

Modernize the Legal Framework

2

ETA 2063 needs modernization to explicitly recognize **modern international trends** — current law creates ambiguity that slows adoption.

3

Expand CA Licensing

Encourage **private sector for licensing for CAs** so that they can serve banking, healthcare, and legal sectors — broadening the trust ecosystem beyond the current government-centric model.

National PKI Roadmap

4

Should Publish a **5-year PKI adoption plan** with measurable milestones covering certificate issuance targets, sector coverage, and Post-Quantum Cryptography readiness timeline.

Thank You