Asia PKI Consortium

India Updates

SSC Meeting

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India’s Digital Public Infrastructure (DPI)

Over the last few years, India has rolled out “Digital Public Infrastructure” a set of **“independent”** innovation layers that connect Identity, Signatures, Citizen Data and Payments through an Open API/Micro-services architecture allowing regulated ecosystem participants to connect and provide integrated capabilities for digitalization

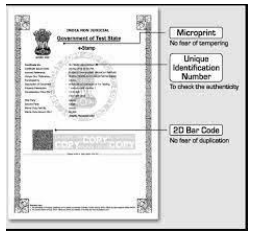
AADHAAR

emudhra eSign

eKYC + eSign

AADHAAR for individuals/businesses is the identity layer that allows online/real time verification

eSign is a remote signing technique built on top of eKYC,is legally valid and allows full verifiability, traceability of data or documents exchanged



eStamping

eStamping services allow the payment of stamp duty and generation of stamp paper via API calls across a number of states for both financial and operational contracts

UPI

UNIFIED PAYMENTS INTERFACE

Instant Payments (UPI)

Real time payments and settlement systems powering billions of transactions and framework for customer data sharing in structured data format between individuals and financial institutions

DigiLocker

Digilocker

National Single Sign On and data repository layer allowing seamless data sharing between issuers and relying parties

Sahamati

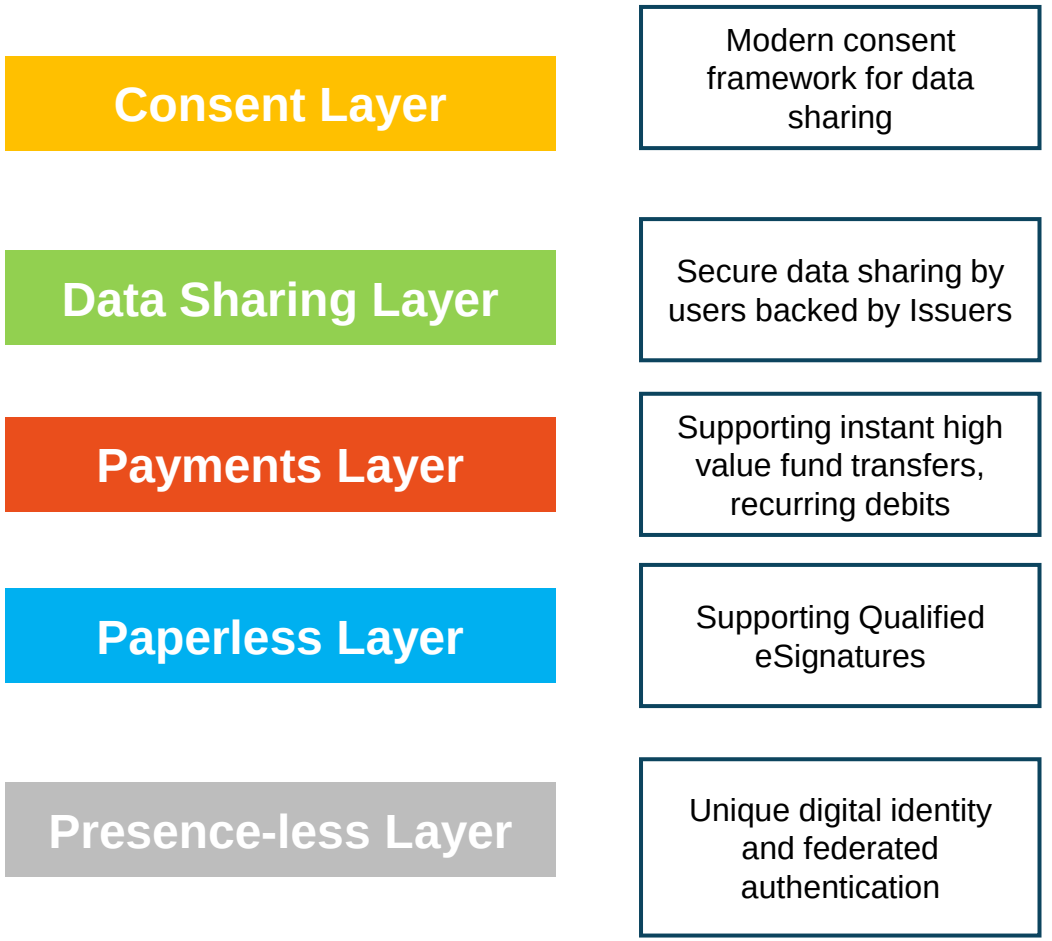
Account Aggregator

Allows sharing of banking data (including deposits, net worth) in a structured format via user driven consent

Digital Trust – Landscape in India

- Landscape 5 years back
  - Physical Id (not smart)
  - Limited use of PKI based Digital Certificates (token based, expensive, not user friendly..)
  - Payment systems based on archaic technology
  - Outcome → Limited Adoption, Not condusive for financial inclusion
- This lead to the birth of India Stack
  - Tech stack based on open API‘s for eID, eKYC, eSignatures and ePayments and for eStorage of records
  - Powers layered innovation → Mass Adoption
  - India‘s ease of doing business ranking jumped 50 places

Layered Innovation



Evolution of Trust services in India

Growth divided into three phases

Phase 1 – 2000 - 2015

- Govt drive towards efficiency – paperless filing for Company Administration, Direct/Indirect Taxes
- Central Bank mandating use of digital signatures for authentication for inter-bank and high value fund transfers

Phase 2 – 2015 - 2018

- Rollout of eSign (one time signatures) on Digital ID (AADHAAR) as part of India Stack
- Private sector adoption in BFSI/Capital Markets for account opening, lending enabling financial inclusion

Phase 3 – 2018 onwards

- Digital India program driving adoption in Mission Mode projects such as Public Distribution, Social Welfare to drive transparency in approvals by Govt officers
- Proliferation of above private sector use cases and other use cases such as eInvoicing and contract management

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India Digital Stack Statistics

1.4 bn+ digital ID (eID) enrollments	125 bn+ eAuthentications	300 mn+ eID based bank accounts
600 mn+ eSign	300 bn+ Digital payments	6 bn+ Issued digital docs

This layered innovation has been a massive success resulting in creation of a technology infrastructure that is accessible to everyone by eliminating barriers

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Indian Digital Certificate Userbase

1. 70 Million+ DSC (Long Lived Certificate) Users
2. 800 Million+ eSign (Short Lived Certificate) Users and growing
3. National Regulator: Controller of Certifying Authorities
4. 22+ Certifying Authorities licensed by Government
5. Adopted across the Industry for e-Governance, Banking, Finance, Capital Markets, Corporate / Enterprises, etc

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Government Use cases

- **Direct and Indirect Taxes :** eTax filing, eApprovals, eReturns..
- **Company Registration**: electronic filing of company returns, eApprovals of company creation, insolvency
- **Foreign Trade, Customs** : electronic filing of import/export licenses, eApprovals, eCertficates..
- **Civil Aviation** : electronic filing of flying licenses, eApprovals, eCertificates..
- **ePassport and Immigration** : Issuance of ePassports, NPKD, eApplication of passports, eApprovals..
- **Treasury Department**: eApprovals of fund distribution
- **Power Gen and Distribution** : vendor contracts, supplier contracts, eApprovals..
- **Land Registration** : electronic Land Records creation, storage, retrieval, electronic land certificates..
- **Police** : electronic First Investigation Reports, Police clearance certificates, conduct certificates..
- **Courts and Judiciary** : eFiling of cases and eFIRs, electronic and timestamped judgements..
- **Railways and other transport** : eTicketing, Agent onboarding, eApprovals, eContracts..
- **Direct Benefits, Education and Skill Development** : electronic approvals for subsidy, eDipolmas, eCertificates..
- **Health** : electronic Health records, Patient onboarding, ePrescriptions, eLab Reports..
- **Smart Cities** : PKI security for devices like traffic lights, monitoring cameras, smart bins, smart lighting..

Banking Use Cases

Digital Signature has wide possibilities in automating paper based workflows across Retail, Corporate and Transaction Banking. Given below are the use cases which are widely adopted in India

Customer Onboarding

Digital Lending

Channel Onboarding

Contract Management

Re-KYC Documents

Payments and Remittances

Vendor Workflows

Cash Operations

Credit Card Application /Processing

Enterprise Use Cases

eSignatures are used to extensively transform interaction with customers and supply chain from paper to paperless. These are the use cases adopted in India.

- Contract Signing
- Payment Authorizations
- eInvoicing
- Return and Refund Management
- Proof of Delivery
- Authorizing Shipments
- Trade Documentation
- Design Approval
- Marketing Campaign Authorization
- Quality Control And Safety Check
- Customer Transaction Consents
- Compliance Documentation

New initiatives

- Regulator is moving towards Webtrust as the default compliance scheme
- Work progressing on the CA solution for V2X systems (SCMS and EU CCMS) for interoperability with vehicle manufacturers
- India started issuing ePassports on a large scale
- Development and testing underway for rolling out Mobile based Key storage for Digital Signatures, compliant to key protection requirements of the country
- Post Quantum Readiness related studies and working groups initiated by the Regulator; white paper published
- Regulator has rolled out proposed Mutual Recognition framework for Digital Signatures and invited countries around the world to move forward together. Discussions with EU, Japan, Russian Federation on going.

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Thank you

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