



**TEAM : PENGUINS IMPOSSIBLE**

# **IDENTIX**

A Decentralized Identity & Verifiable Credentials Platform

## **PROBLEM STATEMENT : BLOCKCHAIN**

*Decentralized Identity & Verifiable Credential Infrastructure  
for India's Workforce and Education Ecosystem*

Fake degrees and certificates are increasing

Institutions are overloaded

Manual verification takes days or weeks

Students have no control over their credentials





## MAJOR FEATURES

- **Decentralized identity (DIDs)** – Users fully own and control their identity through a wallet and seed phrase, with no central authority holding or locking their identity.
- **Verifiable Credentials** – Issuers issue cryptographically signed credentials that any verifier can trust instantly without calling the issuer, reducing fraud and manual verification delays.
- **Privacy-first design** – No sensitive PII (e.g. Aadhaar, phone, email) is stored on the blockchain; credentials live off-chain with optional hash anchoring for integrity.
- **End-to-end flow (Issuer → Holder → Verifier)** – One platform supports issuing credentials, holding them in a digital wallet, and verifying them (e.g. via QR), enabling instant, portable verification.
- **Blockchain-backed trust and revocation**– Revocation and issuer trust are designed to be anchored on-chain, so credential validity and revocations are tamper-resistant and independently verifiable.

# Prototype Demo



## WHY IDENTIX IS BETTER THAN DIGILOCKER OR ANY CURRENT IMPLEMENTATION

- **Enhanced user control and privacy:** Users own and control credentials; no single government repository; disclose only what's needed.
- **True interoperability and global acceptance:** Works across institutions and borders; DigiLocker/Aadhaar are India-only.
- **Decentralized security and resilience:** No single database; more resistant to large-scale breaches and censorship than UIDAI/DigiLocker.
- **Flexibility and future-proofing:** Not locked to one chain or vendor; adaptable to new standards.
- **Broader application potential:** Extendable beyond education to employment, healthcare, and civic use; DigiLocker/Aadhaar are more constrained.



# SCALABILITY & FUTURE SCOPE

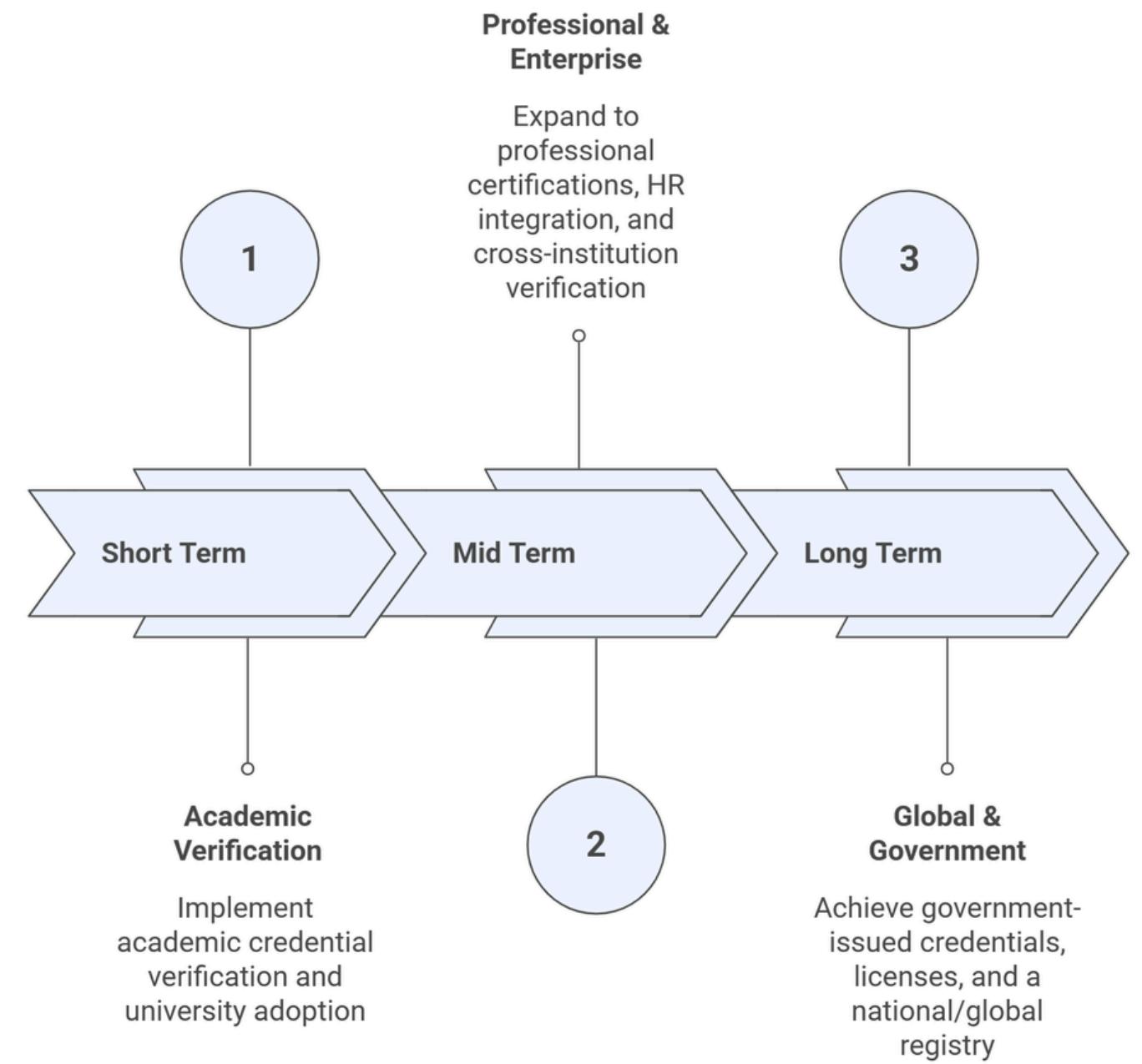
## Designed to Scale:

- Blockchain-agnostic architecture
- Cross-institution and cross-border verification
- Extendable beyond education

## Future Additions:

- Government ID integration
- Enterprise onboarding
- Global credential networks

## Identix Blockchain Credential Verification Roadmap



Made with Napkin



# HOW IDENTIX WORKS

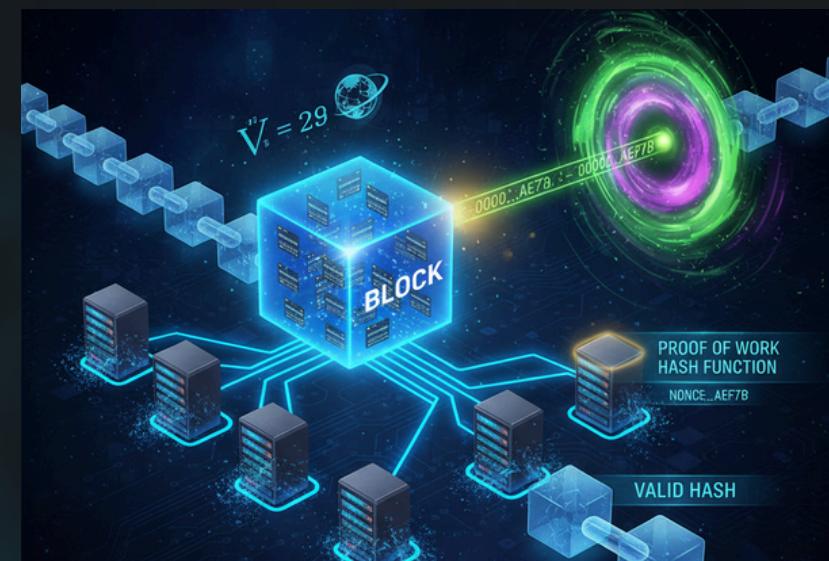


## ➔ Issuance

- Trusted institution creates and digitally signs a credential
- Signature proves issuer authenticity and data integrity

## ➔ Blockchain Proof

- A cryptographic hash of the credential is published on blockchain
- Only proofs are stored on-chain, ensuring privacy



## ➔ Instant Verification

- Holder shares credential via QR code
- System verifies signature, issuer trust, and revocation status
- Result shown instantly: Valid / Invalid / Revoked



# SYSTEM ARCHITECTURE

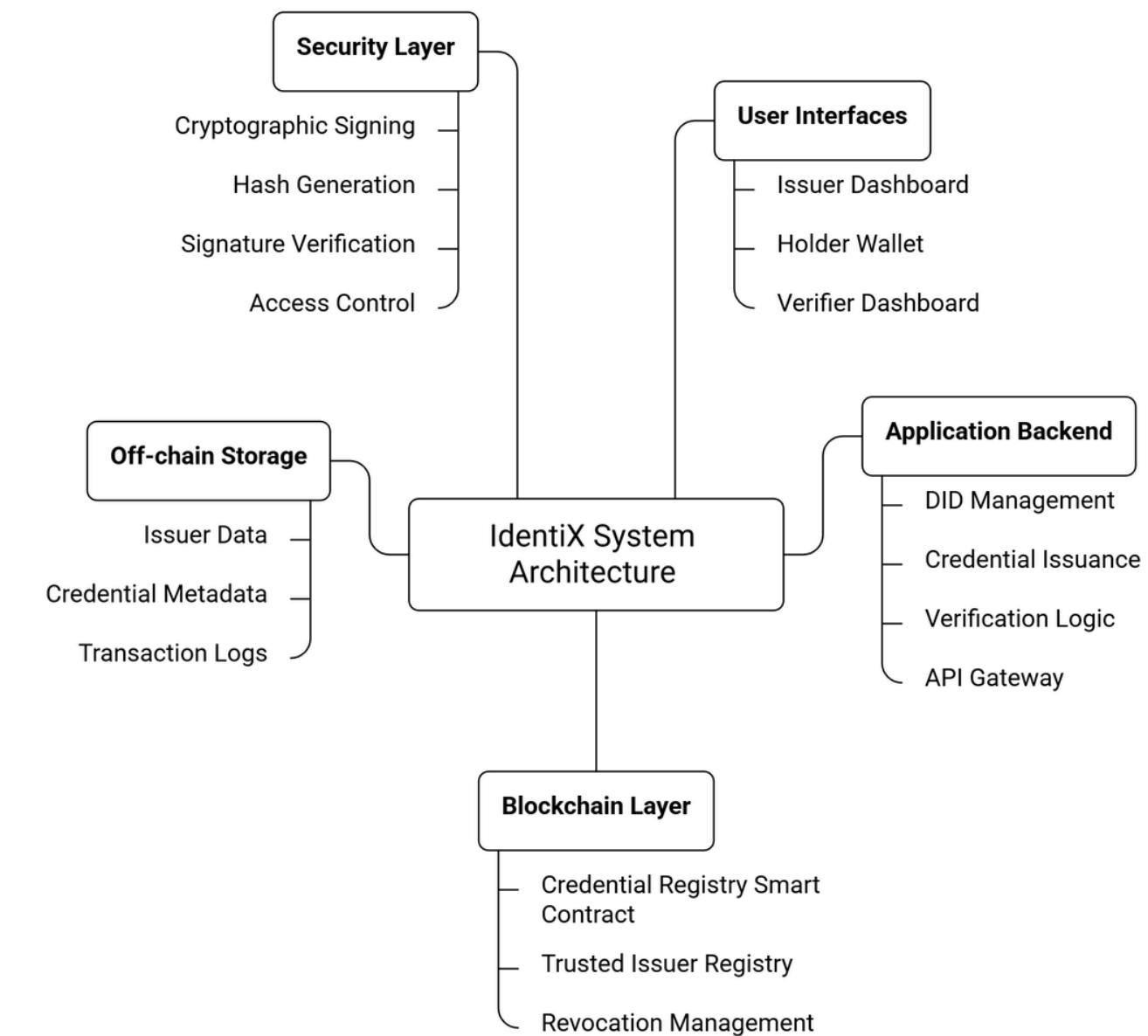
**Frontend**  
Issuer Dashboard,  
Holder Wallet,  
Verifier Dashboard

**Backend**  
DID management,  
credential  
verification APIs

**Blockchain**  
Credential Registry  
smart contract

**Database**  
Off-chain credential  
metadata storage

## Identix: Layered System Architecture

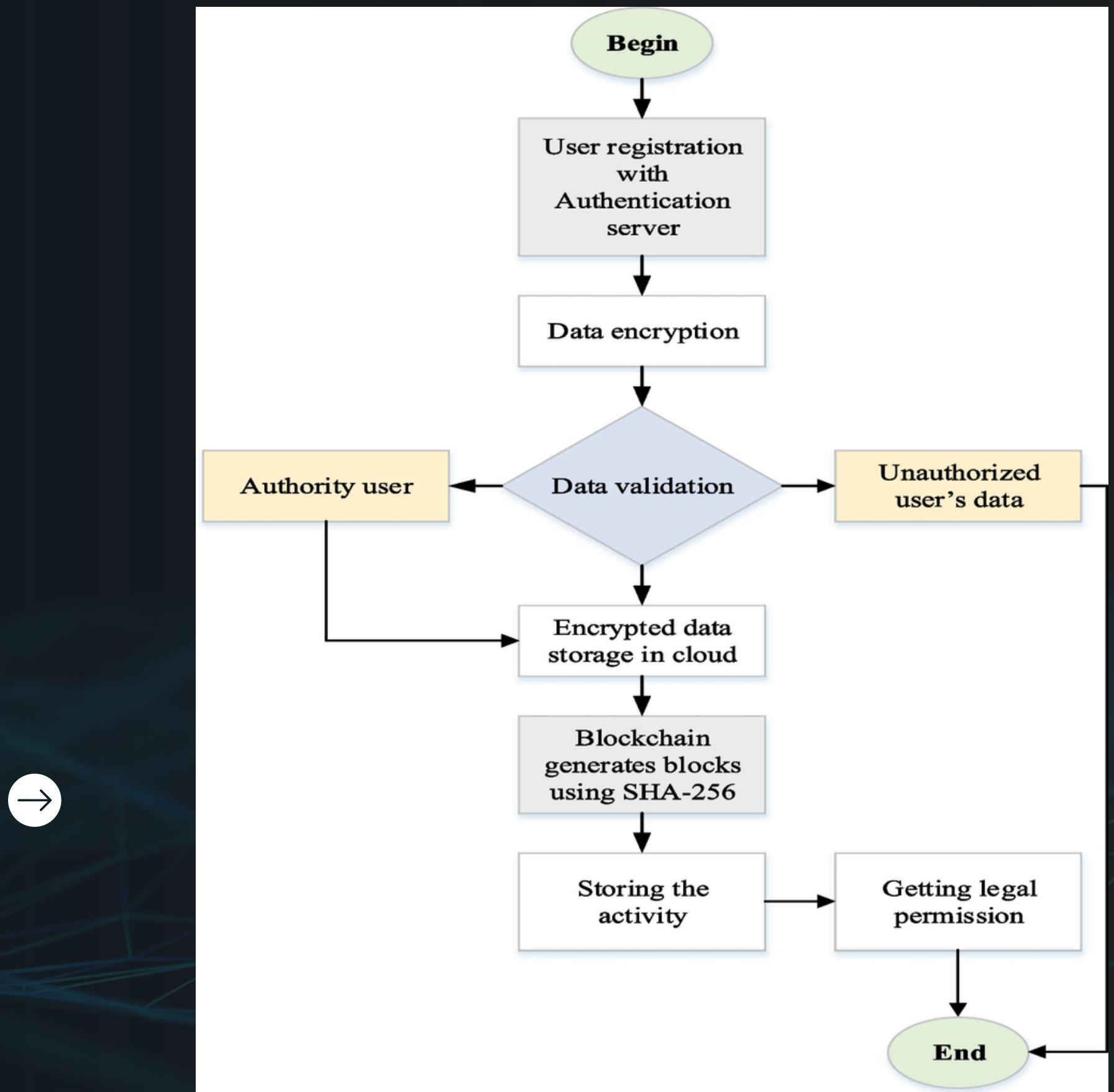




# BLOCKCHAIN IMPLEMENTATION

## Role of Blockchain in IdentiX

- Stores immutable credential hashes
- Maintains public revocation registry
- Prevents forgery and tampering
- Enables trust without intermediaries



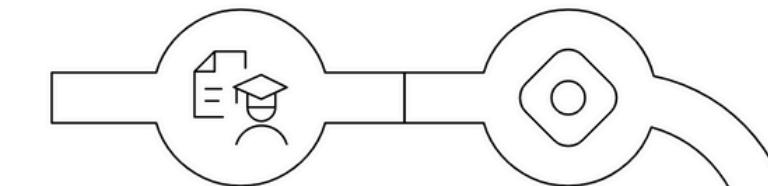


# WALKTHROUGH

## IdentiX Blockchain Credential Verification Process

**Issuer creates a digital credential**

University or authority issues credential

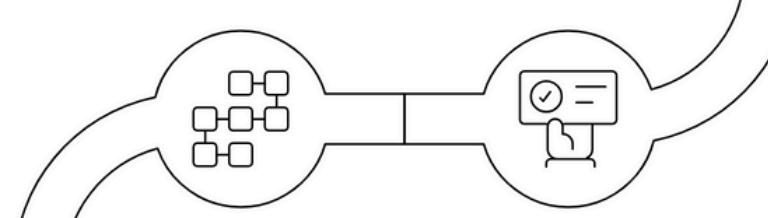


**Backend generates a cryptographic hash**

Backend creates unique hash

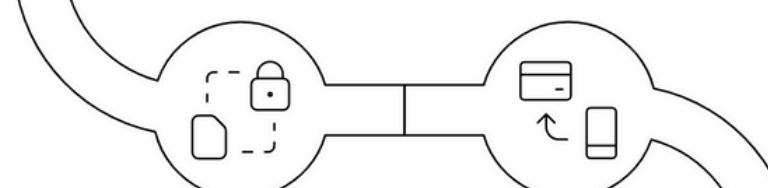
**Backend publishes the credential hash to the blockchain**

Hash stored on blockchain



**Issuer digitally signs the credential**

Issuer signs credential with private key

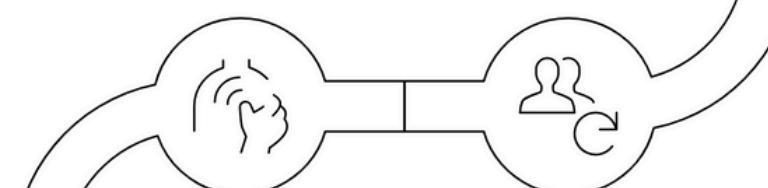


**Full credential is delivered to the holder's digital wallet**

Holder receives credential

**Credential metadata is stored in an off-chain database**

Metadata stored securely

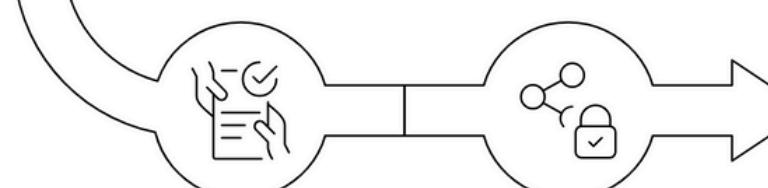


**Holder shares the credential using a QR code or link**

Holder shares credential

**Verifier scans the QR code**

Employer scans QR code



**Backend checks issuer trust and revocation status on the blockchain**

Blockchain check for trust

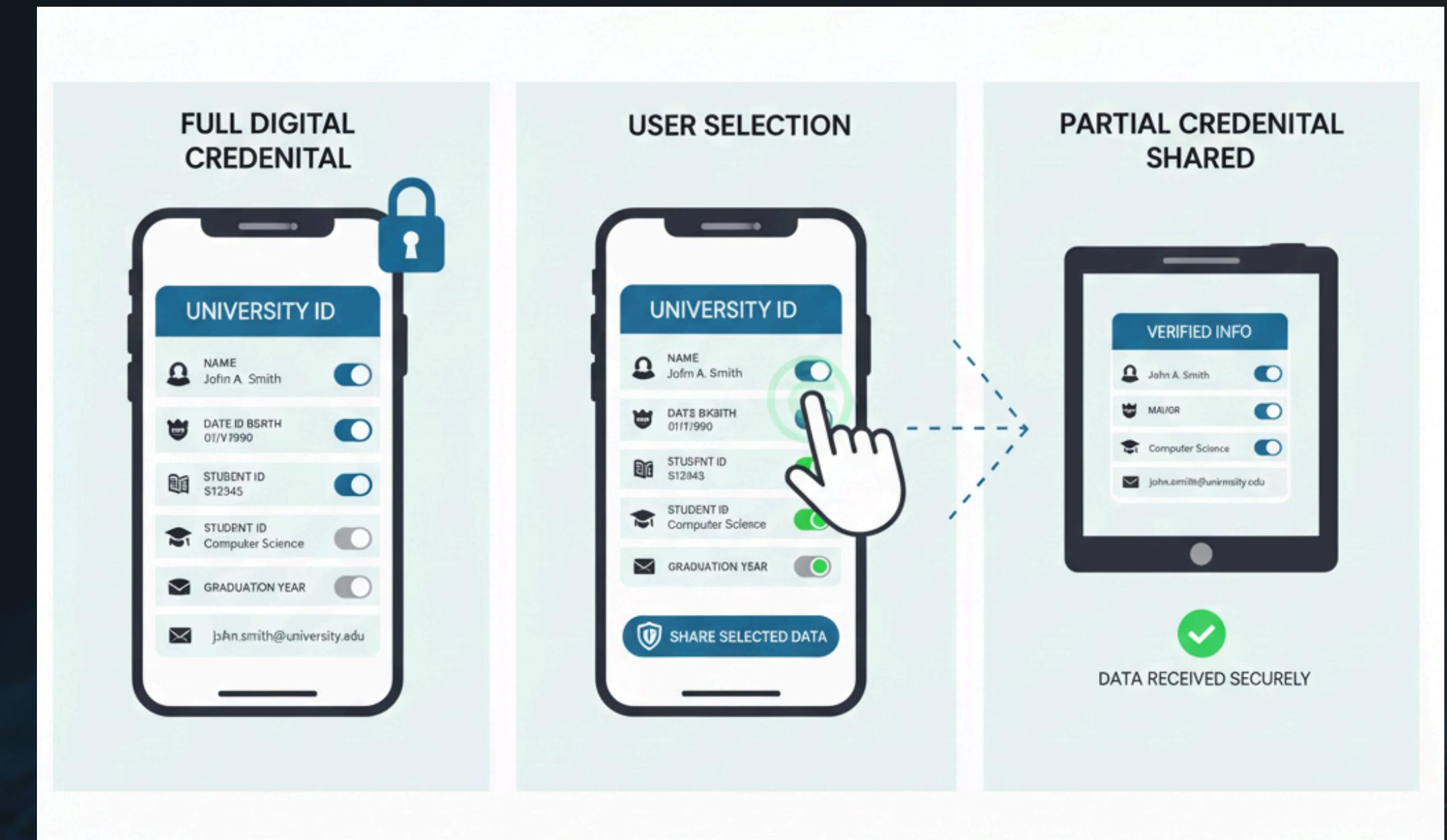
**Backend verifies the issuer's digital signature**

Backend verifies signature

# SECURITY & PRIVACY

- Credentials are digitally signed by issuers
- Hash-based identity prevents tampering

- No personal data stored on blockchain
- Users control when and what to share



**Privacy Feature** Selective disclosure (share only required fields)



# USE CASES & IMPACT

→ **Real-World Applications**

- Academic degrees and transcripts
- Professional certifications
- Employment verification
- Licenses and training credentials

→ **Impact:**

- Reduced credential fraud
- Faster hiring and admissions
- Lower verification costs

## Traditional

Manual emails

Central databases

Days to verify

Easy to forge

## Identix

Instant QR scan

Blockchain proof

Seconds

Cryptographically secure



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# Thank You!

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