AN APPROACH FOR CREDENTIAL MANAGEMENT LEVERAGING BLOCKCHAIN

Presented to

HYPERLEDGER PUBLIC SECTOR GROUP

by

Infosys Limited

Jan 29, 2021

Infosys® | Blockchain

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Navigate your next

CHALLENGES GOVERNMENT ECOSYSTEMS AROUND THE WORLD FACE

01 Process Complexity and Information Silo

Manual processes error prone and arduous | Duplicity and redundancy of processes and data | Information silos
They delay citizens request processing time and increase govt. expenditure

02 Manual Interventions

Intermediaries and too many manual validations makes information propagation across the value chain slow, increase process friction, which in turn delays fulfilling Citizens' request, effects accuracy and increases service cost.

03 Citizens' Experience

Lack of automation, manual paper driven processes and lack of digital infrastructure having an impact on citizens' trust and experience

04 Increasing Operational Cost

Documenting, reporting and verification are done manually which increases processing time, errors and cost of operations

05 Fraud & Error

Non-uniformity/ inconsistent data across the ecosystem and lack of automated checks introduces chances of fraud. Manual process also introduces keying (human) errors.

HOW BLOCKCHAIN CAN ADDRESS SOME OF THESE CHALLENGES?

DECENTRALIZED
Eliminate the requirement for centralized authorities to store the data at one single location.

AUTOMATED
The cryptographic verification of information replaces human interventions thus reducing chance of unforced errors and increasing transparency

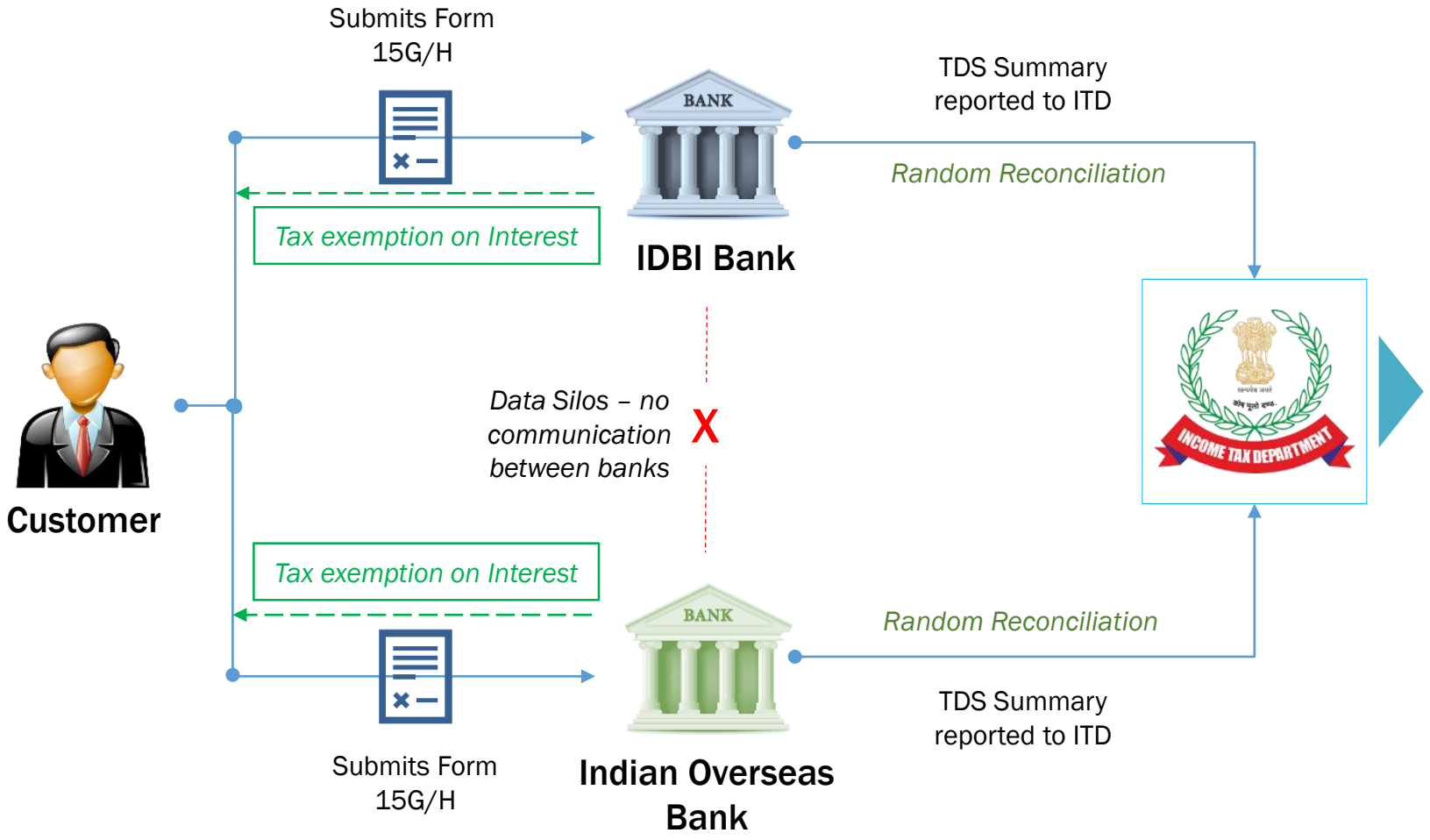
PRIVACY
Enables user to have the control on privacy of their information, including minimal, selective, and progressive disclosure of attributes or other data.

SECURITY
Transparent and secured sharing of identity information

SELECTIVE DISCLOSURE OF INFORMATION
ZKP allows for verification to occur with minimal data exposure

CASE STORY 1: INDIAN INCOME TAX EXEMPTION CERTIFICATE

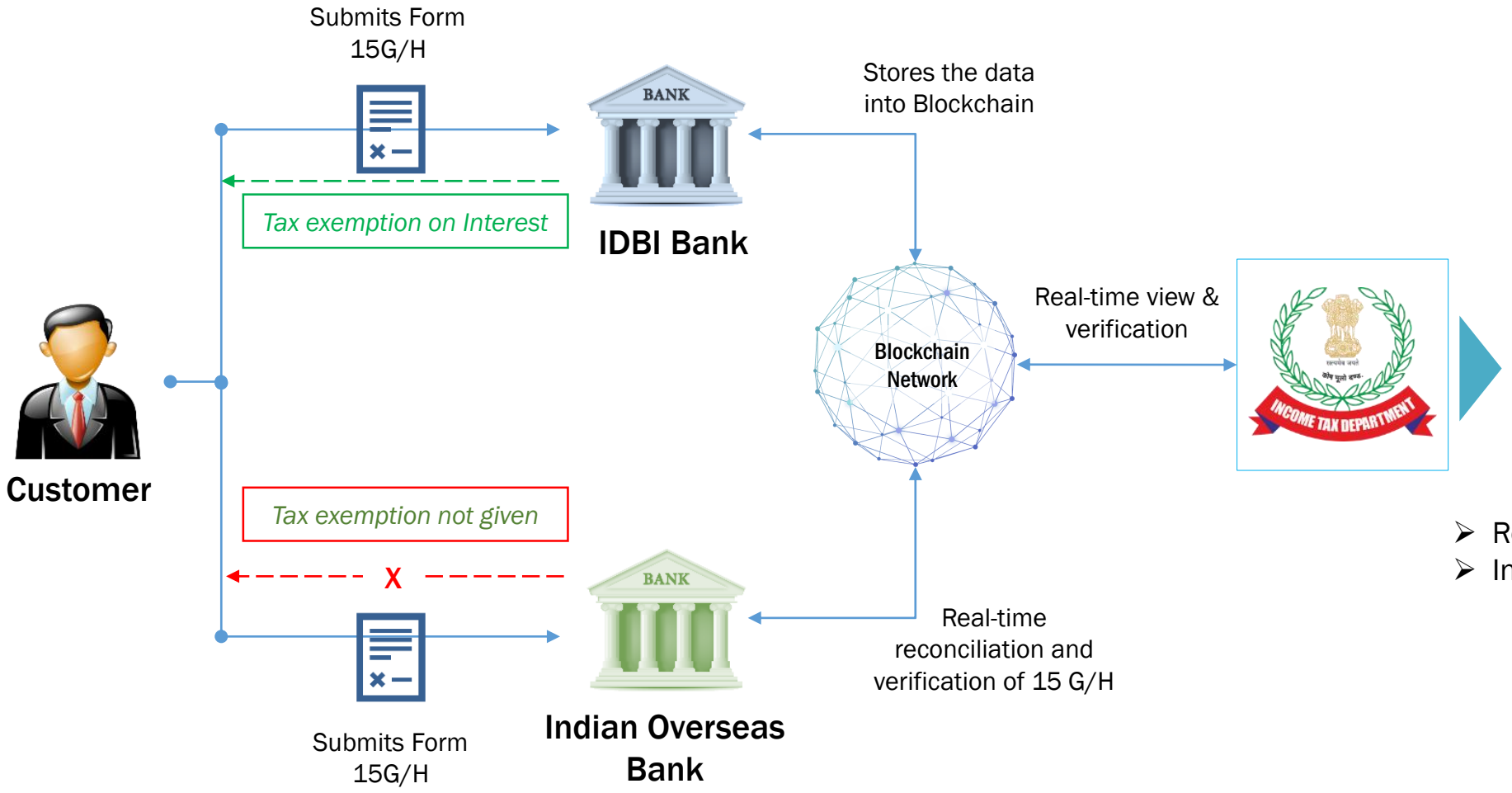
BEFORE



- High income earners remain outside the tax net
- Interest loss on tax revenue from the ones who submit returns
- Litigation costs for demands that get challenged

CASE STORY 1: HOW BLOCKCHAIN ASSURES PROPER TAXATION

AFTER



- Single source of truth
- Near Realtime view
- Instant Reconciliation

- Reduced cost of tax compliance
- Increased Tax Collection Revenue

CASE STORY 1: FORRESTER CASE STUDY

FORRESTER Blogs & Podcasts Who We Serve Search Log In Become A Client

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For CIOs

Case Study: India's Income Tax Department Uses Blockchain To Simplify Tax Processes

January 30, 2020

By **Ashutosh Sharma** with Dane Anderson, Charlie Dai, Sukriti Dangi, Bill Nagel

Why Read This Report

Tax compliance is key to an economy, but most countries struggle with complex tax environments due to a multitude of stakeholders and labyrinthine policy evolution. To promote compliance, tax authorities must make their services easy to use, equitable, transparent, and consistently enforced. India's Income Tax Department (ITD) decided to use a blockchain-based solution to improve its tax processes. Its experience envisioning and building solutions for all stakeholders provides valuable lessons to CIOs who are considering using distributed ledger technology (DLT).

Tags: Blockchain, Business Technology (BT), Digital Transformation, Government, Public Sector

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CASE STORY 2: USE CASES EVALUATED FOR A STATE GOVERNMENT IN USA

Leveraging Infosys' blockchain technology accelerators for a quick Go-To-Market

- Networks formed as part of POC
- Future networks to be formed

DMV DIGITAL IDENTITIES

Provide digital state Ids and driving licenses through mobile apps

HHS VIRUS MANAGEMENT

Track testing and Vaccine Management

MARIJUANA SUPPLY CHAIN TRACKING

Create a supply chain ecosystem for Marijuana tracking from farm to patient

DBR BUSINESS LICENSES

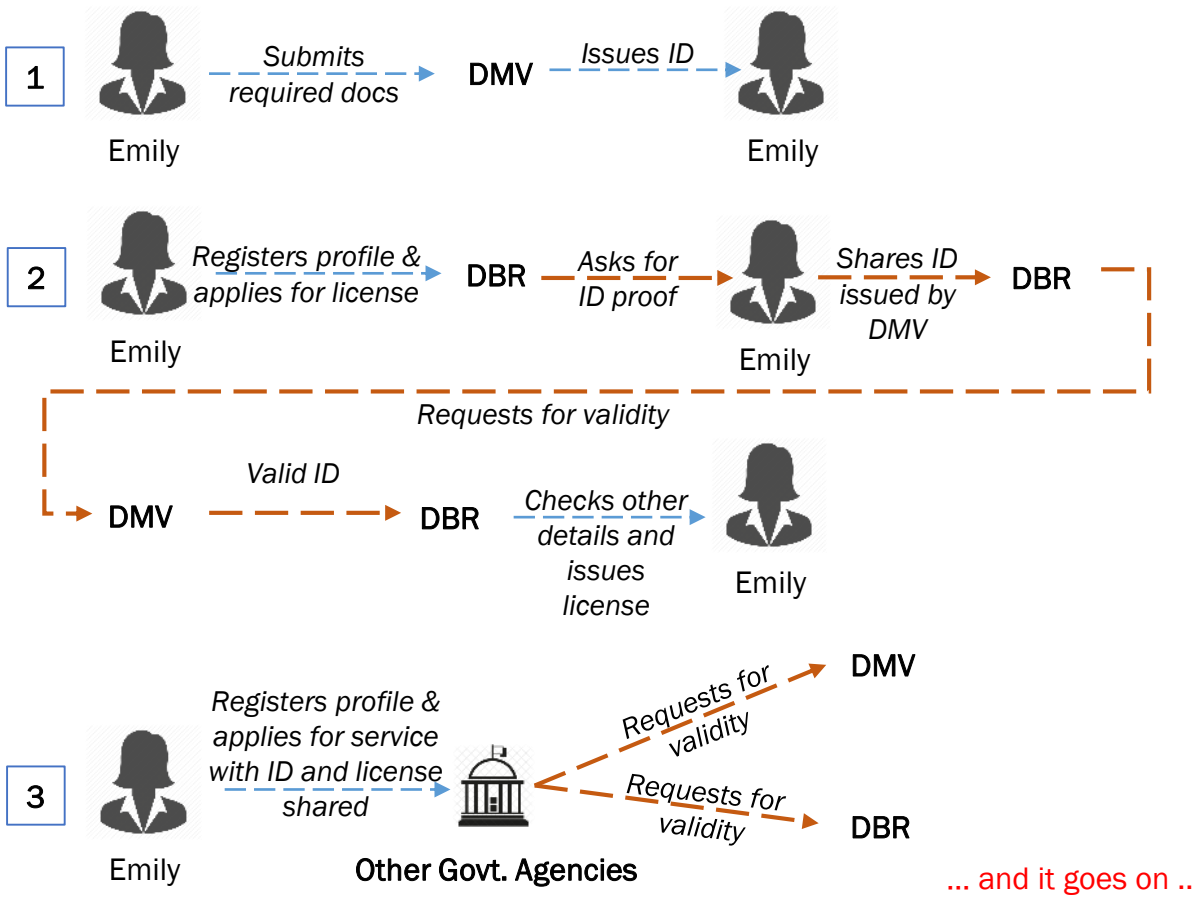
Improve efficiency, time to issue business license

UNEMPLOYMENT FRAUD PREVENTION

Reduce fraudulent unemployment claims in RI with digital identities

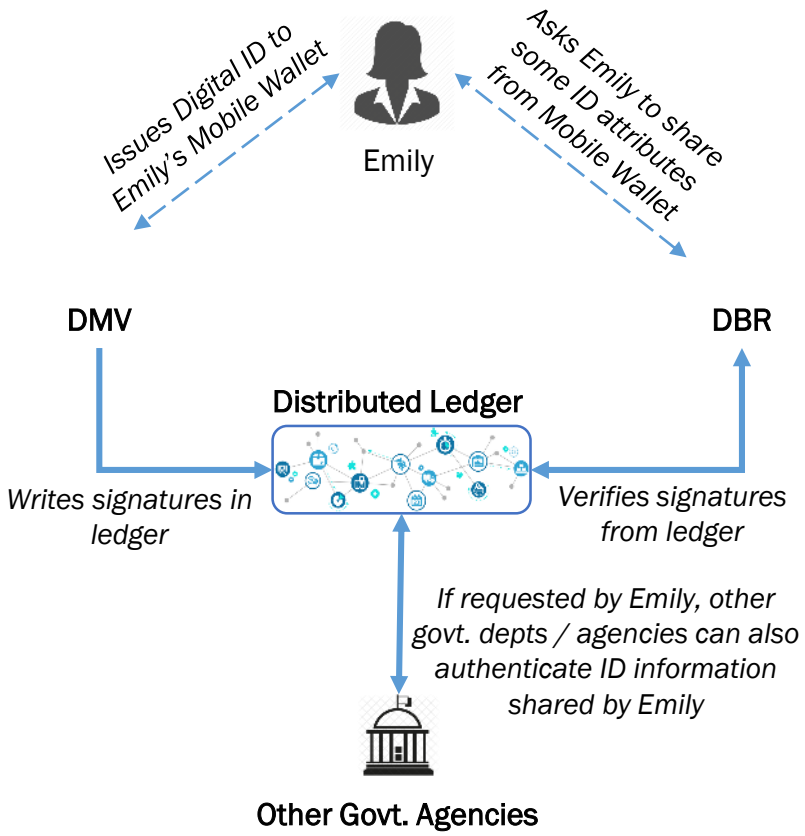
CASE STORY 3: IDENTITY MANAGEMENT WITH BLOCKCHAIN – EMILY'S JOURNEY

Traditional Identity



Reconciliation delays in process

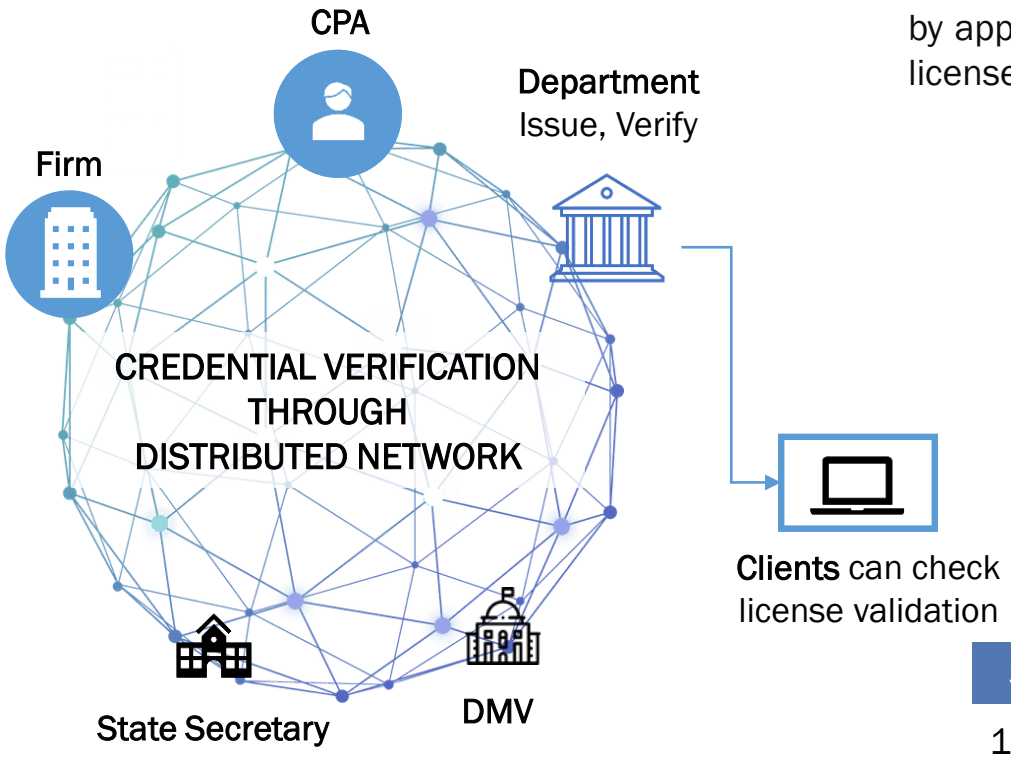
Self- Sovereign Identity



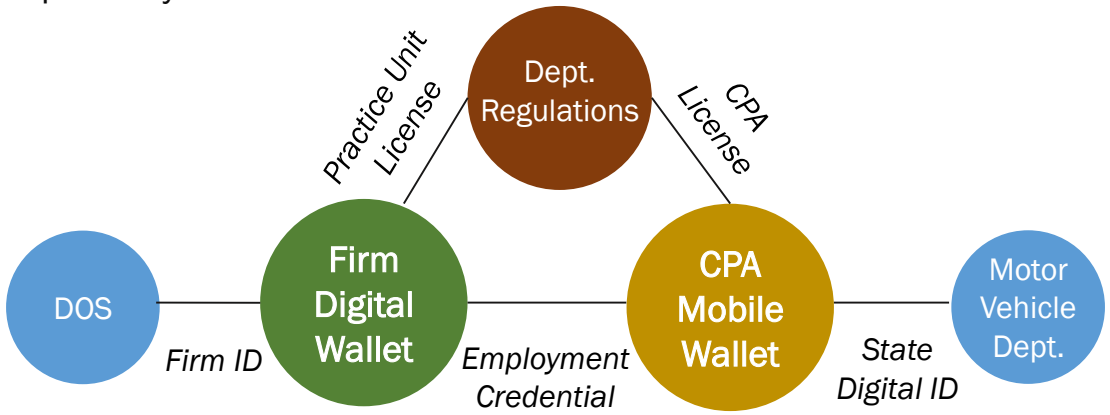
Instant Reconciliation

CASE STORY 3: SUMMARY OF IDENTITY AND LICENSE MANAGEMENT ON BLOCKCHAIN

(CONTACTLESS, SELF SOVEREIGN IDENTITY SOLUTION)



Enabling a US State Business Regulations department to dynamically validate trustworthiness and authenticity of the credentials and identity documents submitted by applicant individuals or organizations while issuing CPA licenses and Practice Unit licenses respectively in a secured and controlled manner.



- ✓ *Blockchain does not store the user's data or information. Instead, the public DID of issuers/verifiers, credential schema, definitions and revocation registries get stored into the blockchain*
- ✓ *PII (personally identifiable information) will be stored in Users' mobile wallets – not on blockchain and user can selectively choose which credentials to be shared with whom*

Services Use Cases

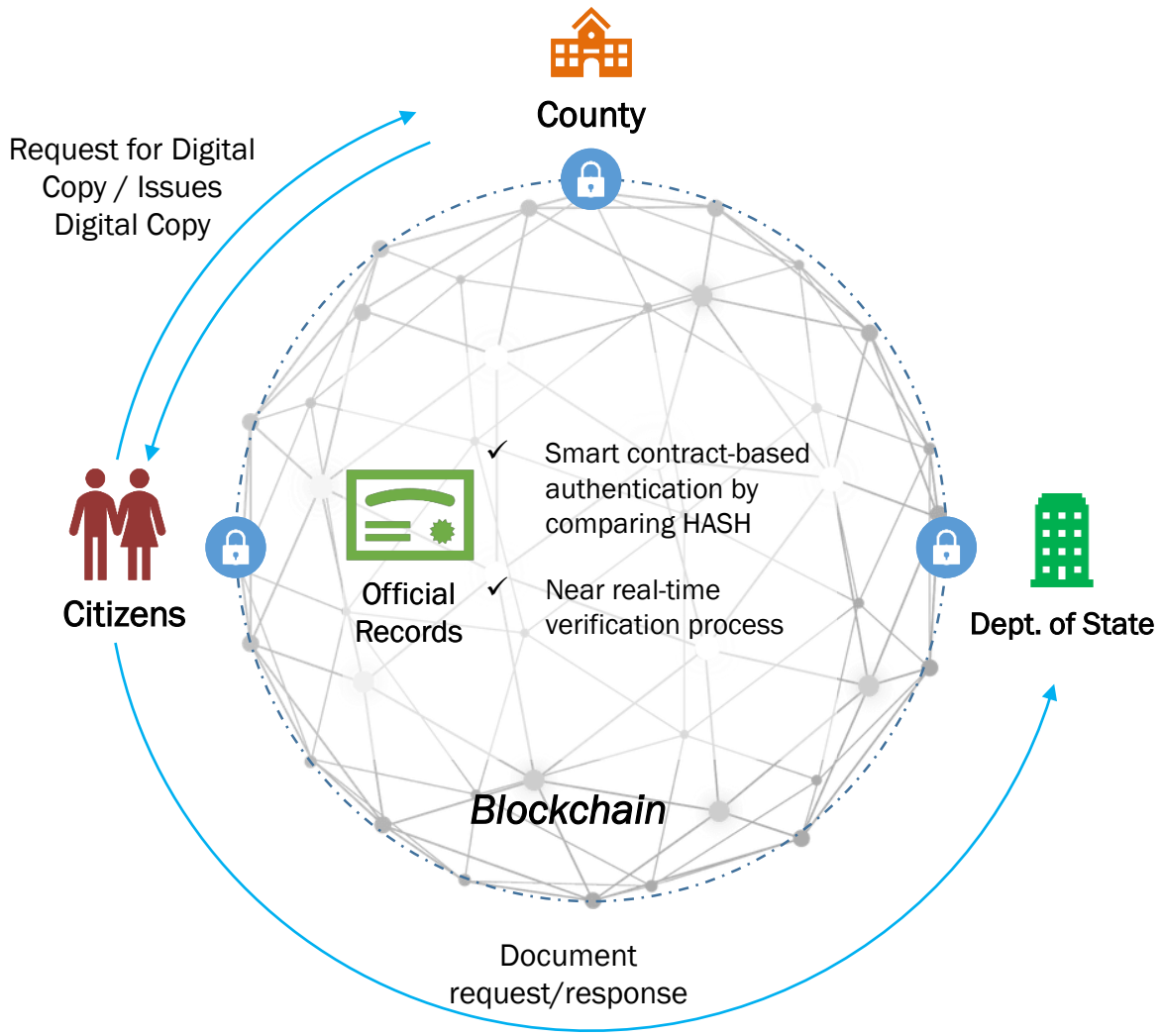
1. Individual Digital ID
2. Firm Digital Id
3. Practice Unit License
4. CPA License
5. CPA employment Verification

Payoffs

1. User Control
2. Easy Sharing
3. Secured Data access
4. Trust Automation
5. Data validation and consolidation

CASE STORY 3: OFFICIAL RECORDS VALIDATION FOR A US COUNTY

(SECURED, CONTACTLESS SOLUTION)



What?

Enabling government departments in a county in North America to dynamically validate trustworthiness and authenticity of the certificates (Official Records) submitted by applicants in a secured and controlled manner

How Blockchain solves it?

- Smart Contract authenticates Official Records by comparing HASH
- Validates the authenticity of the issued documents to minimize frauds

Benefits delivered

✓ Near real time authentication

✓ Lowers risk of approving fake Official Records by implementing better transparency in the system

Thank You