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HIMSS CENTRAL/NORTH FLORIDA Chapter

Blockchain in Healthcare

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The HCI Group

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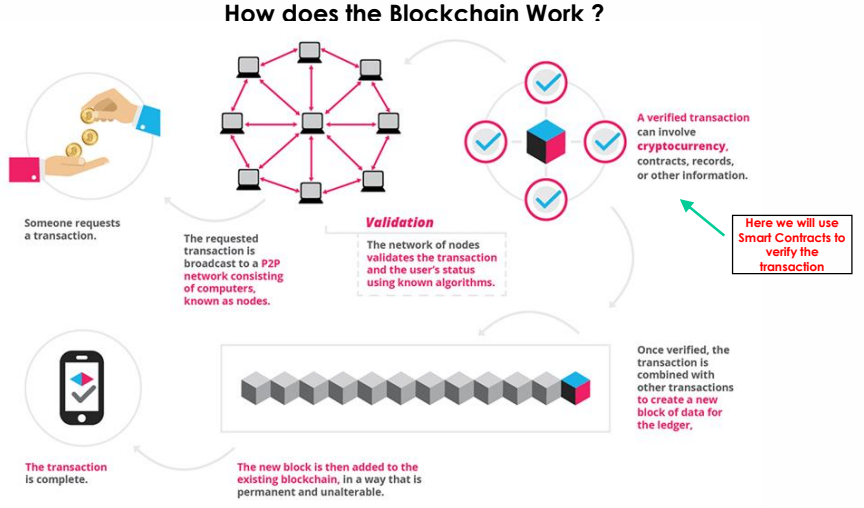
How does the Blockchain Work ?



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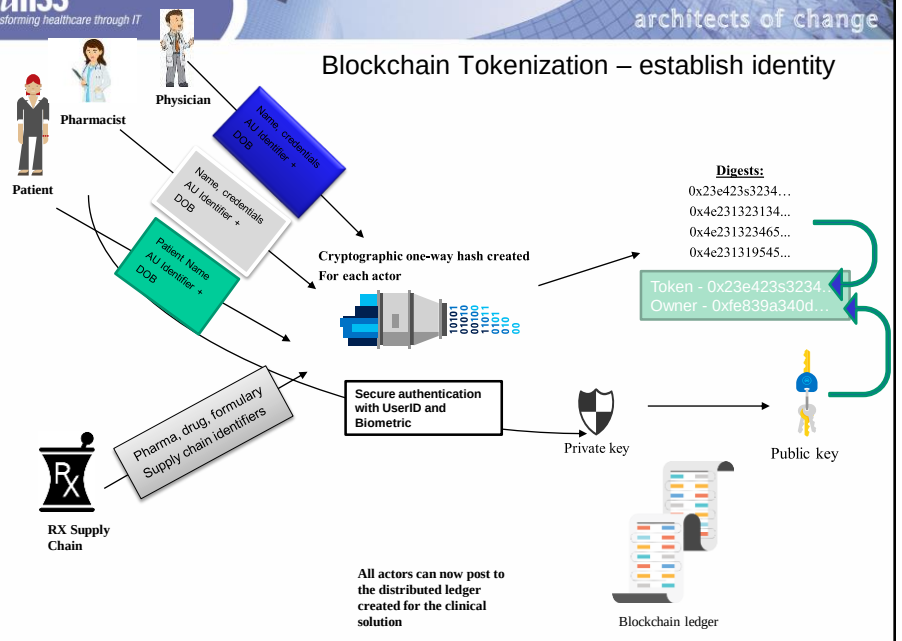
Blockchain Tokenization – establish identity



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Types of Blockchain

Tech Mahindra

	Consortia Blockchain	
	Private Blockchain (Permissioned)	Public Blockchain (Permissionless)
Network Access	Authorized access , the read and write permissions for blockchain are restricted	Open access, Everybody can download a copy of blockchain ledger
Rules	Follow KYC norms, Anti Money Laundering/ CFT norms due to focus on industry level implementation	No censorship or overlooking body, Anonymous transactions, leaves scope for illegal transaction
Network Validation	Government Bodies, Frameworks could be codified- smart contracts, government approved validators group of FIs and Consortiums	Anybody can join the network to become a validator
Applications	Daily transactions in all Financial Institutions	Can use it for developing own blockchain network – Innovation, R&D purpose , used for creating PoC
Accountability	High Degree of Accountability	Risk of a fraudulent consensus

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Typical Blockchain Platforms

Public Blockchain

Bitcoin

Ethereum

- The Bitcoin & Ethereum block chain are a **shared public ledger** on which the entire network relies.
- All **confirmed transactions** are included in the block chain. This way, Bitcoin wallets can **calculate the spendable balance and new transactions can be verified** to be spending bitcoins that are actually owned by the spender.
- The integrity and the chronological order of the block chain are enforced with **cryptography**.

Private Blockchain

Hyperledger

R3 Corda

- Hyperledger and Corda are the **private permissioned blockchain platform.** Corda is specialized for financial industry.
- Transactions are confirmed by the parties authorized to do so. The difficulty arises to ensure that **all nodes agree upon a common truth**, e.g. the correctness of a ledger, as changes made by one node have to be propagated to all other peer nodes in the network.

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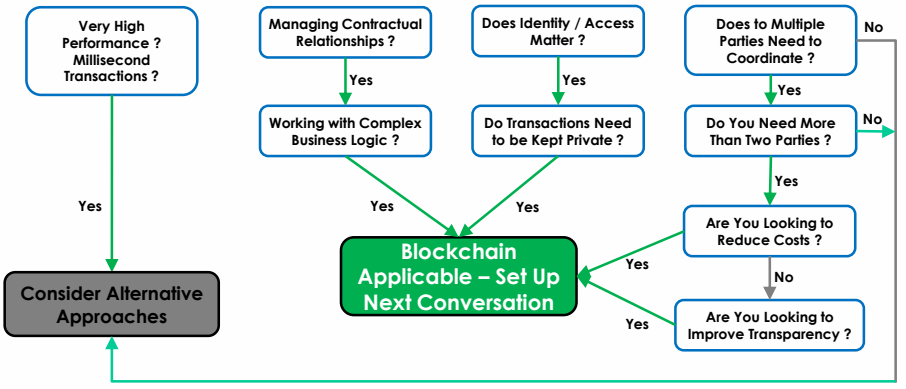
Where is Blockchain Technology Applicable ?



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Healthcare - HCI
Use Cases / PoCs / Work Underway

Patient & Provider Digital Identities

- Blockchain enabled services can help protect identities with digital signatures, immutable identity of patients and credentialed healthcare providers

Pharma and Life Sciences

- DNA Wallets - allow healthcare providers to securely share – and possibly monetize – patient data, helping pharmaceutical companies to tailor drugs more efficiently.
- Anti-counterfeit Drug management

Supply Chain and Cost Containment

- The blockchain can be filtered to identify and alert about specific activity on the chain, monitoring, using patterns, can include data that represents a doctor, consumer, drugs, procedures, all can to tokenized and added to the chain.
- Building a rule base using best practices, CPT codes, ICD codes, medical procedures and other costs can be monitored and audited using blockchain

Healthcare Provider & Payer

- Payer Smart contracts, that would automatically pay providers when conditions of service are met.
- Delivering a longitudinal health record with interoperability across EMR's, PHR's and IoT via API enabled integration and interfaces

Healthcare Cybersecurity

- Blockchain is a security technology at its core that is resilient against ransomware attacks and other security threats. This approach can secure medical records and audit trails using the Blockchain.
- We can do this by cryptographically encoding private medical data and then a digital fingerprint is formed for time-stamping and verification purposes.

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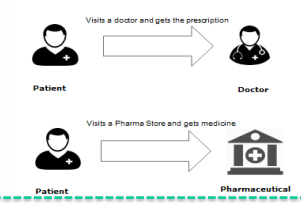
1. Prescription Handling on Blockchain- Overview

Current Approach :

Manually Keeping Records

No connection among members

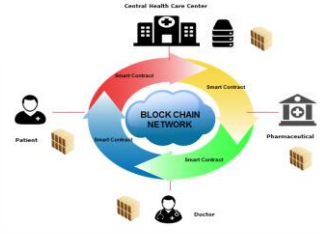


Time Consuming Process

Blockchain Led Approach :

Records with each member

Members connected to one network



Easy & Quick

Secure & Safe

Records accessible at any time

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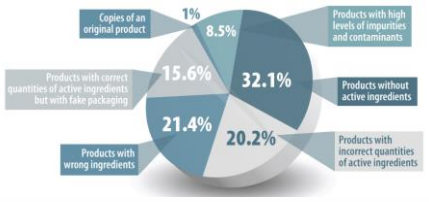
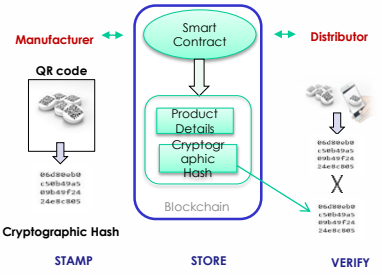
2. Drug Anti Counterfeit Through Blockchain- Overview

Current Market Statistics on fake drugs



Drug Tracking on Blockchain



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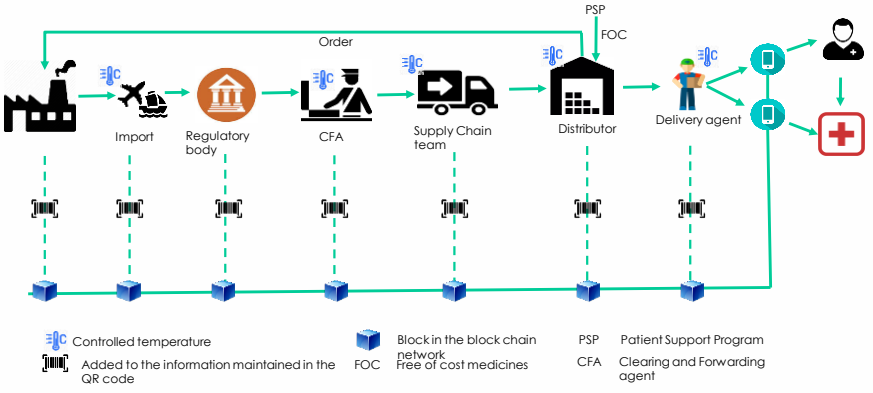
3. Supply Chain Tracking on Blockchain

Supply Chain in Patient Support Program



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Practice/Competency Overview

Started in 2016, Tech Mahindra's Blockchain practice had grown from a team of 5 to a team of over 100 blockchain engineers, solution experts and consultants. We have delivered an award winning solution to India's largest bank and are engaged with most major PSU's and Fortune 500 companies.

100+

Industry Trained & Certified Assocaites

3 Co-Creation Labs – Bangalore, Pune & Munich

Center of Excellence for Blockchain – Solutions, Training & Evangelism

10+

Global customers in Communications | HLS | Retail | Manf. | BFSI

Approached by several government bodies as well to implement blockchain to reduce overheads

Key Trends

Supply Chain Disruption using Blockchain

Trade Finance - major area of blockchain implementation

Heavily regulated industries like Banking & Healthcare – fastest Adopters

Platforms, Tools & Templates

Hyperledger Composer for Enterprise Blockchain Development

Solidity SDK for developing Ethereum Applications

Several Partnerships at the local and global level for blockchain development

Industry Recognition

Innovation Award by State Bank of India

Featured in Vendor Landscape – Gartner, Forrester

Rated 'High Potential' by HFS for Enterprise Blockchain

Key Partnerships

SAP Leonardo, HYPERLEDGER, ENTERPRISE ETHEREUM ALLIANCE, ChromaWay, guardtime, AlphaPoint, MultiChain

Key Customers

State Bank of India – THE BANKER TO EVERY INDIAN

Implemented bockchain solutions to track and reconcile cross border payments. Tech Mahindra's solution won a national award

Advanced Discussions & POC's

- Advanced discussions with one of the largest drug manufacturers
- POC's built for one of the largest FMCG players
- Advanced discussions with a global medical equipment manufacturer

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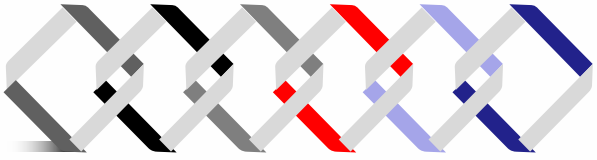
Use Cases / PoCs / Work Underway

BFSI

- Cross-border payments
- IT Audit trail
- Invoice discounting
- Trade Finance
- Loyalty Points

Healthcare & Lifesciences

- Patient Health Records
- Patient & Hospital KYC
- Provider Benefit Management



Oil & Gas

- Supply Chain Finance
- Trade Finance

Telecom

- Mobile Number Portability
- Prevention of roaming fraud
- Unsolicited Commercial Calls

Government

- Land registration
- Vehicle registration
- Dept. of Industries

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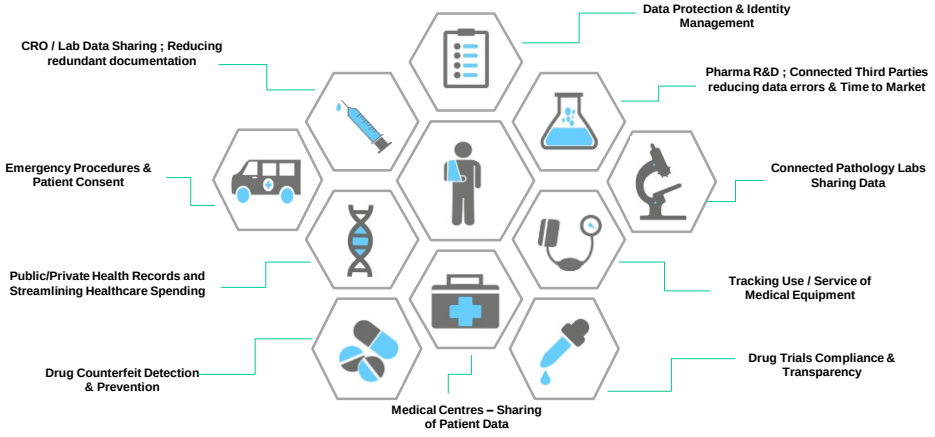
Blockchain Use Cases Across the Healthcare Industry



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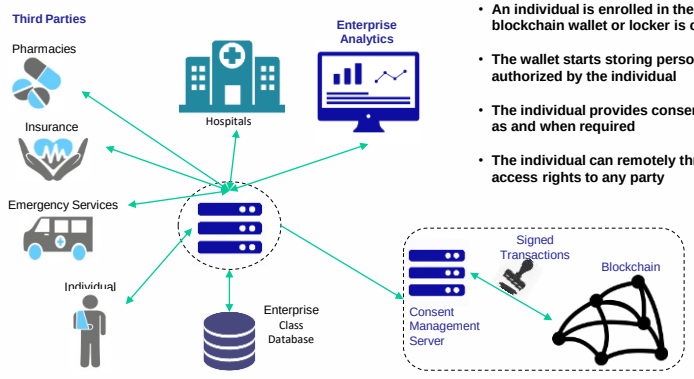
Consent Management on Blockchain

Tech M's blockchain led solution enables Clients to manage and obtain individual consent, complying to data protection regulation, seamlessly through omni-channel user interface. It not only makes the consent data secure and transparent to authorized parties but also makes the process quick.

To Be State Process *(Indicative)*

- **An individual is enrolled in the network and a unique blockchain wallet or locker is created**
- **The wallet starts storing personal data into the blockchain as authorized by the individual**
- **The individual provides consent to Enterprise or Third Parties as and when required**
- **The individual can remotely through mobile or web change the access rights to any party**



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Open Discussion