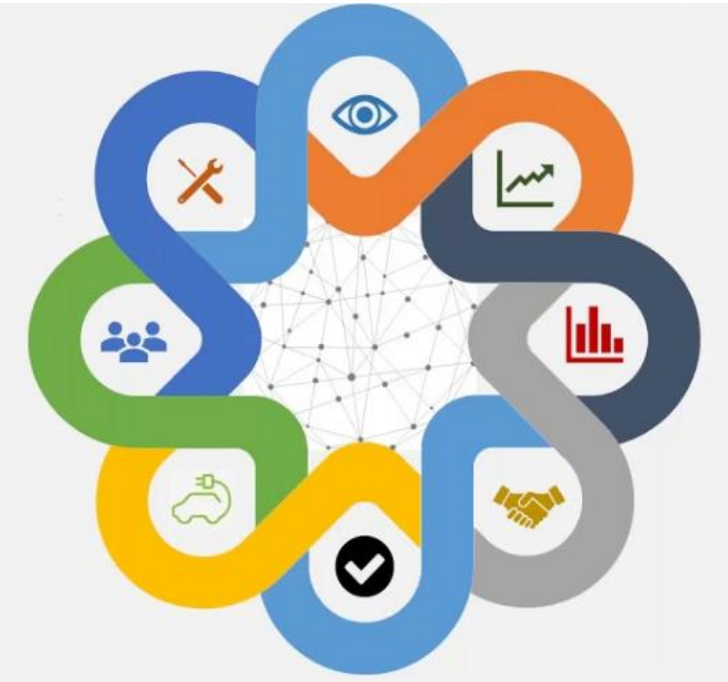


Blockchain use cases

(20 Sept 2022)

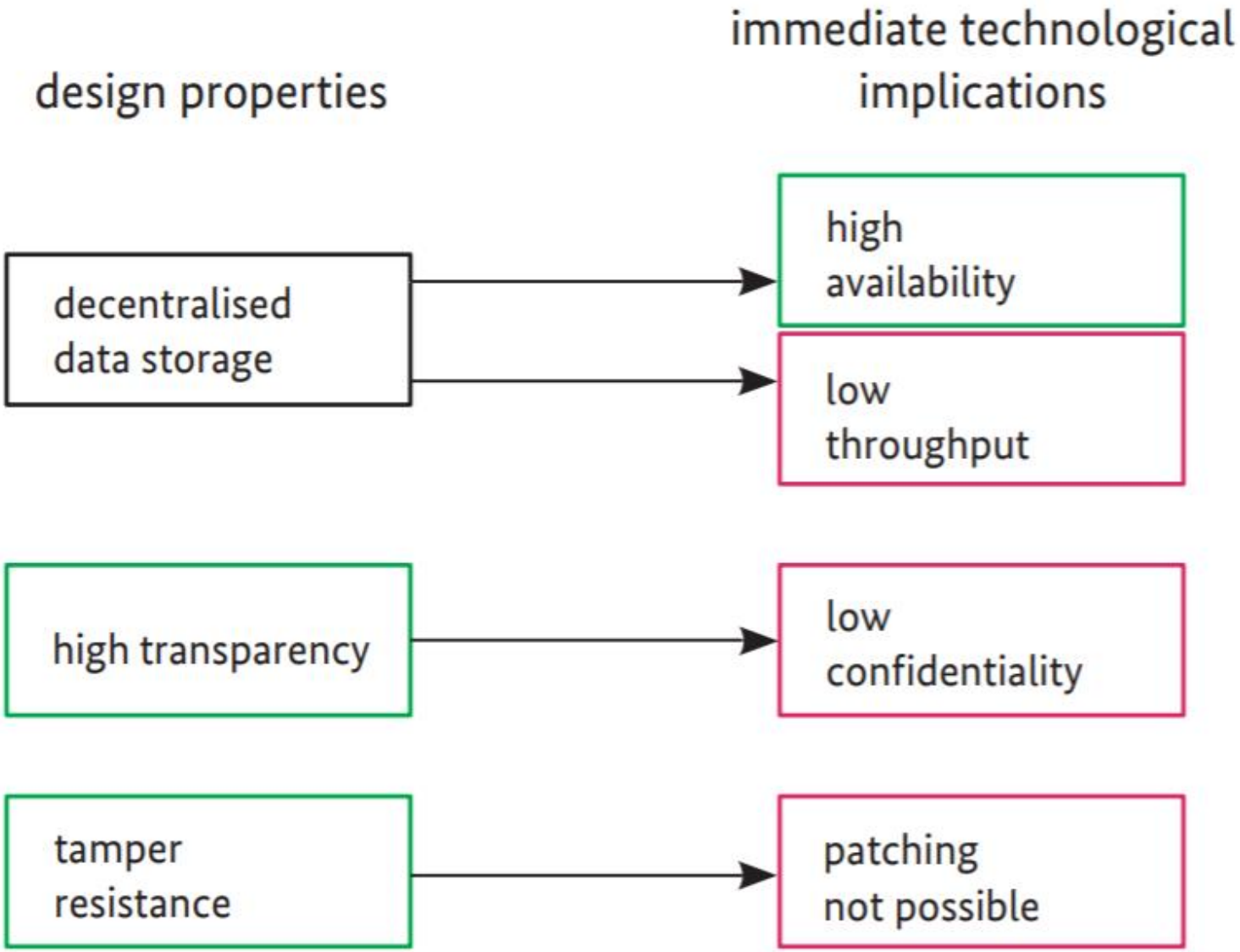
Dhiren Patel

Trick : C. I. (A)^3

Important properties and definitions

- Integrity - assuring the completeness and accuracy of data
- Authenticity - guaranteeing that a communication partner (a person or an IT component or application) is who he claims to be
- Availability - of services, applications, data - that users can always use them as intended
- Confidentiality - protection against unauthorised disclosure of information
- Anonymity - data or actions of the entity cannot be linked

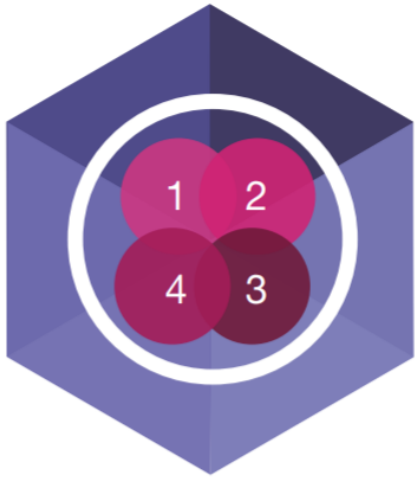
Blockchain USP



Blockchain (Built Businesses)

Improving contract management (legally enforceable smart contracts)

Enabling more transparency (in Supply Chains)



Enabling the infrastructure to combine circular economy (Building Information Management and IoT)

Tamper-proof exchange (of value and information)

Blockchain Use cases

Potential Blockchain Use Cases

Financial Institutions

- International payments
- Capital markets
- Trade finance
- Regulatory compliance & audit
- Anti-money laundering & know your customer
- Insurance
- Peer-to-peer transactions

Corporates

- Supply chain management
- Healthcare
- Real estate
- Media
- Energy

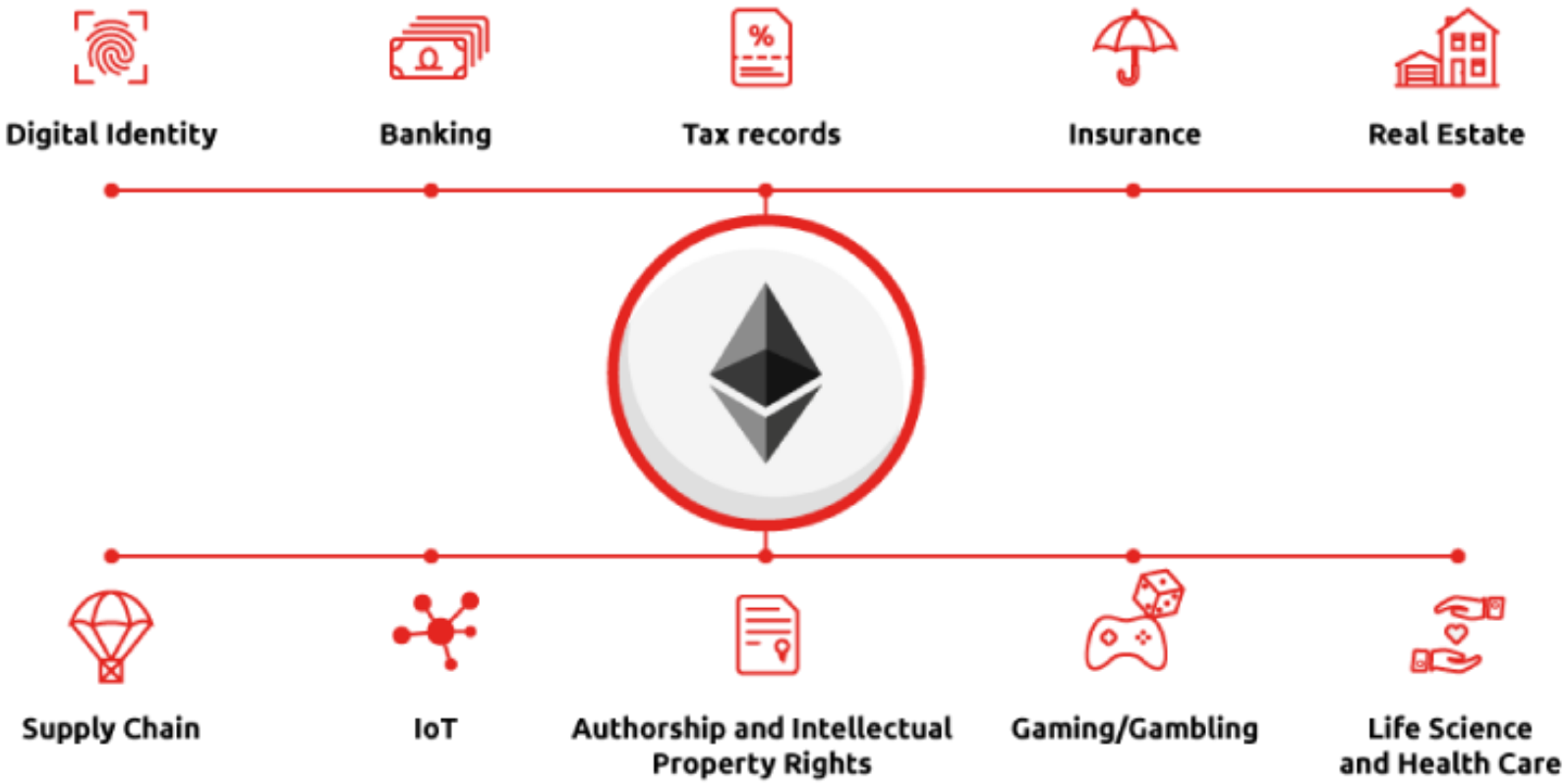
Governments

- Record management
- Identity management
- Voting
- Taxes
- Government & non-profit transparency
- Legislation, compliance & regulatory oversight

Cross-industry

- Financial management & accounting
- Shareholders' voting
- Record management
- Cybersecurity
- Big data
- Data storage
- Internet of Things

Blockchain Smart contracts: Use cases



Use Case: Supply Chain

- Global supply chains are inefficient, poorly tracked, and sometimes exploitative.
- E.g. Paperwork can account for substantial cost of container transport, and products are frequently mis-labeled.
- Create a shared IT infrastructure that streamlines workflows for stakeholders along the supply chain.
- Blockchain platform can facilitate accurate asset tracking, enable enhanced licensing of services, products, and software, and ultimately improves transparency into the provenance of consumer goods, from sourcing all the way to the point of consumption.

E.g. Farm to plate

- the scope is to provide producers, buyers, sellers, and consumers to come to one platform and promote food supply chain transparency
- Transform food supply chain system with Blockchain
- Consumers trust brands that offer 100% transparency on the food journey including product content, food safety process, allergens, and ingredients information.

Farm to Plate

- With all this information on a Blockchain, there is a stronger sense of accountability, transparency, and real-time access to trusted information.
- The information and data stored on **Farm to Plate** are immutable and thus can be trusted, which helps strengthen the quality management process of the produce

designed with Global Food Supply Chain Standards

- Participants can access relevant information that follows a global standard to assure food quality and provides consumers a complete overview of the food journey to enhance brand equity
- QR code scans at each transaction point are recorded on a blockchain that allows tracing locations and activities. Thus damage or spoilage occurrence is identified faster with accuracy.

Design using Hyperledger

- **Hyperledger Fabric** is a Blockchain platform that is best suited for building a permissioned network for enterprises – large, medium, and small
- Being open-source and vendor-neutral, it enables interoperability and easy integration for organizations with their existing or legacy environment.
- An added advantage is, it can be easily adopted by partners and stakeholders even if their technical environment is different from the enterprise adopting Farm to Plate. The web application used for Farm to Plate is **Hyperledger Explorer** which is open source, simple, powerful, and easy to use. **Hyperledger Explorer** allows for browsing activities on the underlying blockchain network.

Features

- Seamless onboarding
- Product registration with an XML file upload
- Easy transfer of dataTwo-factor authentication and authorization
- Identity and Access Management for role allocation
- Publicly accessible URL - through the QR code

Trick : P. (M)^2 . O . (D)^2

Permissioned Blockchain

- Only authorized participants
- Participants are known and trusted
- Secured

Data on a need-to-know basis

- Data stored privately when needed
- Authenticity of data ensured
- Flexibility to determine which data to be private

Modular Architecture

- Plug and play mechanism
- Adherence to consensus protocols, certificate authorities, cryptographic protocols
- Easy integration

Multiple Language Support

- Supports Go, NodeJS, Java, Python
- Developers don't need to learn new languages
- Easy adoption

Open-source

- Available free - no additional cost to host on this platform
- Minimizes cost of adoption of Farm to Plate
- A strong community dedicated to improving performance daily

Deterministic Consensus Algorithm

- Accessibility of participant consensus
- Faster addition of the block to the ledger
- Elimination of bureaucracy

Technology Stack