

**Satyaspeak**

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**Convergence of Blockchain, IPv6, IOT, AI & Data Space  
Creating BlockVerse-Ubiquitous Phygital Public Good**

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**Vice- President and Trustee- Digital Communications India Forum**

**Executive Chairman- Bluetown India & BIMSTEC Region**

## Components of Digital Infrastructure:

**Digital Infrastructure is actually 'Phygital' and Fragmented but not Ubiquitous and is highly Underutilized**

- Towers/ BTS (IBS, DAS, active elements viz. RAN, Small Cells)
- Optic Fiber Networks (OFC)- Digital Transport Infra
- Wireline Infra
- Data Centres
- Public Wi-Fi Hotspots
- SatCom - GEO, MEO, LEO, Nano
- Digital Public Infrastructure(DPI)- eg. India-Stack – Aadhaar, UPI, ONDC, COWIN, Digilocker, Digital Signature Certification (PKI), Bhashini, e-Sanjeevani, PM-WANI, IPv6-Dual Stack, GITA (GPT), Visvasheya NBF.

# Spillover Effects of Digital Infrastructure on Digital Economy

## Impact of Digital Infrastructure on GDP

- Improving the digital infrastructure will help achieve the goal of doubling the GDP over the next five years through increased usage of ICT. <sup>1</sup>
- Increased revenues from GST, license fee, SUC, spectrum auctions, corporate and property taxes

## Impact of Broadband penetration on GDP

- **Of all ICTs, Broadband has the biggest economic impact.**
- **2.5 to 4.0 additional jobs for each new Broadband job.<sup>2</sup>**
- **GDP per capita growth is 2.7 to 2.9 percent higher after the introduction of broadband.<sup>3</sup>**
- **Doubling Broadband Speed adds 0.3 percent to GDP growth.<sup>4</sup>**

## Impact of Apps on GDP

- Given that, the Indian economy is expected to be around \$6,600 Bn by 2030, the app spending is likely to contribute around 12% of the GDP, according to a report by Broadband India Forum.
- The growth in app economy is around 32%, more than four times the GDP growth.

Sources: 1. [icrier.org/pdf/open\\_Internet.pdf](https://icrier.org/pdf/open_Internet.pdf)

<sup>2</sup>Broadband strategies handbook, Kelly & Rossotto, 2012, available at <https://openknowledge.worldbank.org/handle/10986/6009>

**Most of Spillover Effects of Digital Infrastructure Accrue to State, Local Governments & Citizens**

## Route Km of OFC-By Operators/IP1s in India(June2025)

Operator	Route Km of Optic Fiber Cables
BSNL	8.00 lakh Kms
Reliance Jio	11.00 lakh Kms
Vodafone-Idea	3.00 lakh Kms
Bharti Airtel	3.50 lakh Kms
BBNL (BharatNet)	9.00 lakh Kms
RailTel	0.50 lakh Kms
PGCIL(PowerTel)	1.40 lakh Kms
GAIL (GAILTEL)	0.10 lakh Kms
Others	3.5 lakh Kms
<b>TOTAL</b>	<b>40.0 lakh Kms (50%</b>
	<b>Curr. (DCIIC)</b>

# Key Challenges for Digital Transport Infrastructure-India

## Operational Challenges

- Fragmented deployment
- High RoW Charges
- Lack of Harmonized Policy Implementation
- Outdated O & M systems unable to achieve SLA and Availability
- High Taxes & Levies

## Funding Issues

- Non-Core Infra Status of segment
- Funding constraints

Challenges relate mainly to ROW Clearances, O&M and Funding

# **CONSOLIDATION OF DIGITAL TRANSPORT INFRASTRUCTURE**

***Need of the hour is pooling of all fiber assets in a National Transport Grid under the supervision of National Fiber Authority by using the mechanism of Functional Separation.***

***This will generate much needed revenues from dormant/under-utilized assets and could prove to be blessing to the stressed telecom sector.***

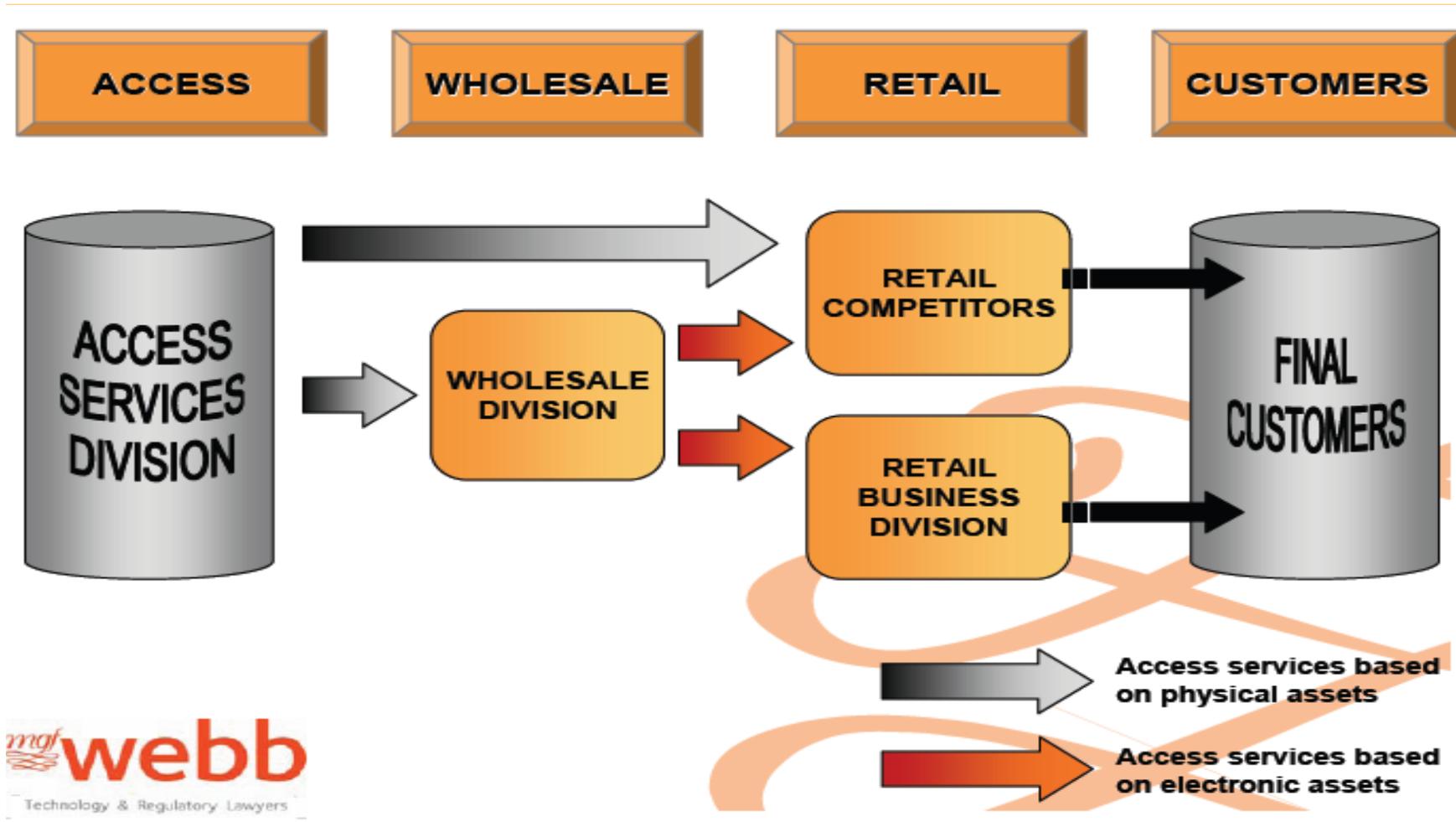
# Creation of Digital Public Infrastructure Grid

Digital Public Infrastructure Grid can be created by pooling the existing backbone infrastructure of various Telcos, upgrading it and managing it through mechanisms of:

1. “Functional Separation”
2. “Active-Sharing”
3. “IRU- Indefeasible Right of Use (Connectivity-as-a-Service-Model)”
4. “Blockchain Cooperative, Smart Contracts and Tokenization powered by IPv6”
5. “Architecture of Data Spaces”
6. “Funding through Infrastructure Investment Trust (InvIT) & Crowd-Sourcing” (*like- Rel.InvIT, IndGrid, REIT, NHAI Invest Trust, SM REIT*)

# Functional Separation

– A Game Changing Approach for Unlocking the Potential of Backbone Infra



# Active Sharing

- Telecom, being a capital expenditure intensive business, needs huge investment year-on-year for growth and expansion.
- Sharing infrastructure allows telecom sites to host active network components of multiple telecom service providers.
- Infrastructure companies generally provides an Integrated Neutral Host Platform that is used by diverse and often competing operators helping build a unique, scalable and successful business model for Telecom.
- Under this model, the telecom infrastructure is being shared with the operators on a non-discriminatory, transparent and in a cost-effective manner.
- Results in a Win - Win Situation for Tower Companies & Customers - Rate for space and energy gets reduced by approx. 20% for both operators when second operator comes on board.

Reduced Capital Expenditure

Reduced Operational Expenditure

Faster Time to Rollout Services

Cost & Energy Efficiencies

Increased Connectivity

Safety & Improved Aesthetics

Reduces Entry Barriers

# IRU(Indefeasible Right of Use) – Life-time Lease

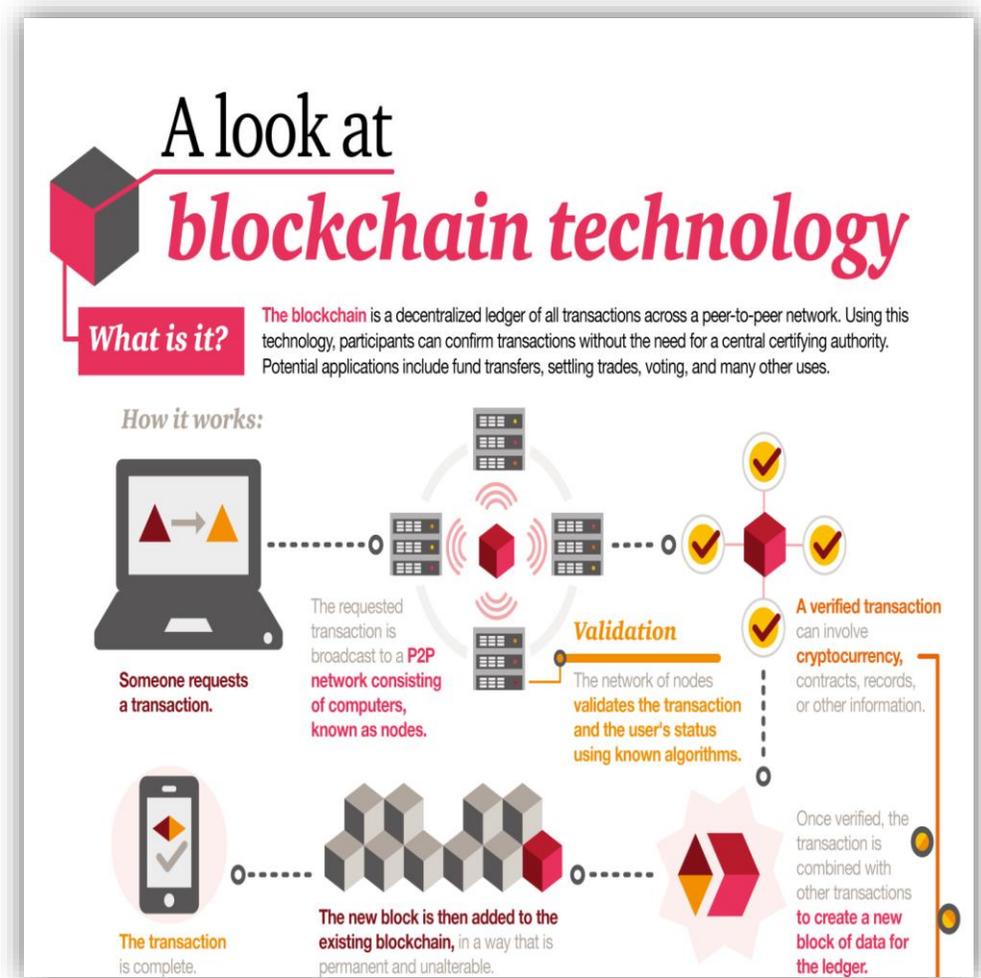
IRU means the long term right to use of capacity

IRUs are based on the concept of network sharing

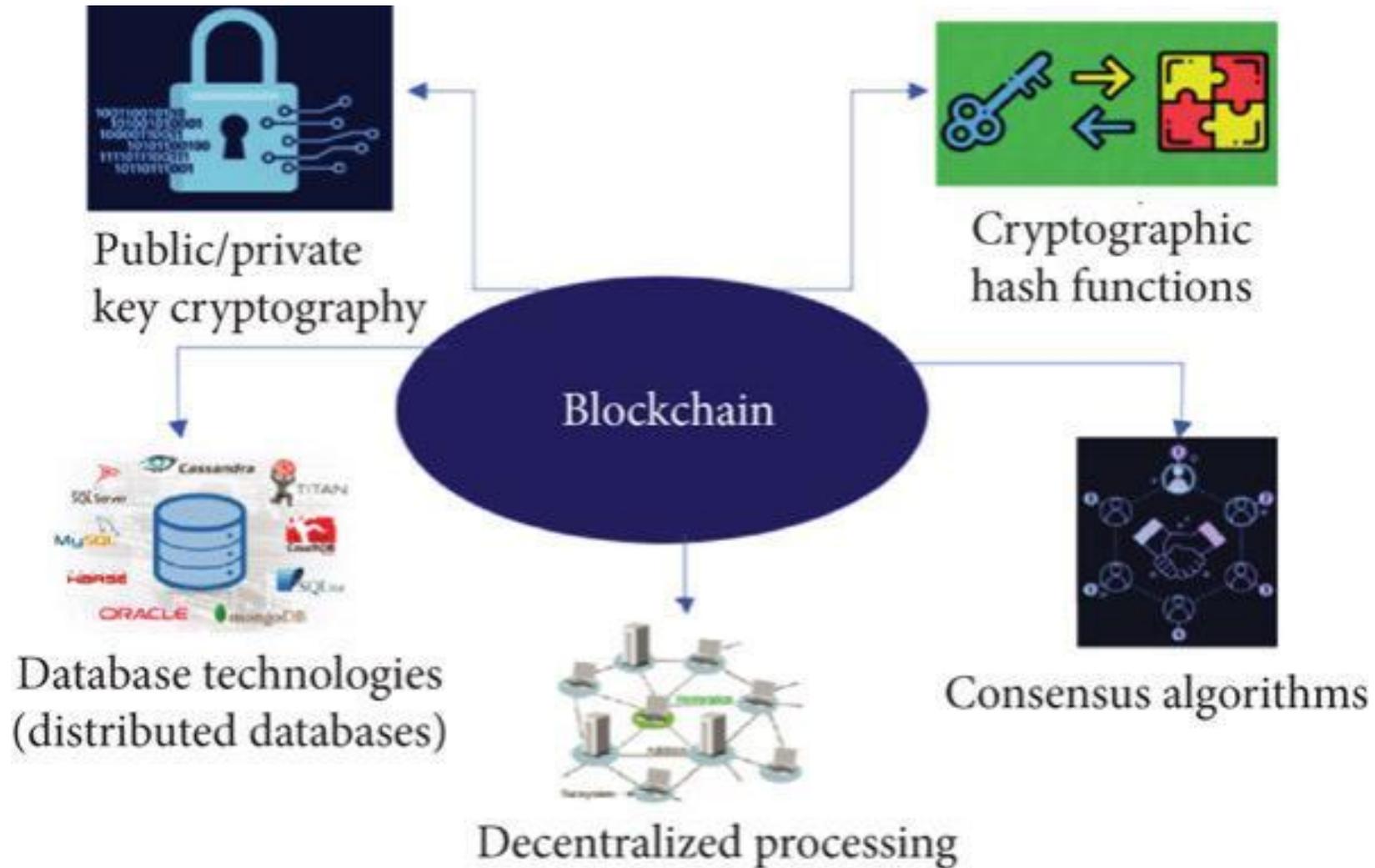
- Indefeasible right to use(IRU) is an irrevocable right bestowed upon the client by the owner.
- IRU is a contractual grant of usage rights or a contractual agreement between the user and the owner for an exclusive, unrestricted, irrevocable and life-long right to use the relevant facility for any legal purpose for a defined period.
- The transport cables are subdivided into parts and indefeasible right to use a part is given as a life-long irrevocable lease.
- Such part remains an independent part from usage perspective logically, but is not physically separate on the whole.
- There is sharing of capacity on the whole and independent usage of the part, yet the control over the entire asset is not passed to each of the users.

# Blockchain- Internet of Value(IOV)

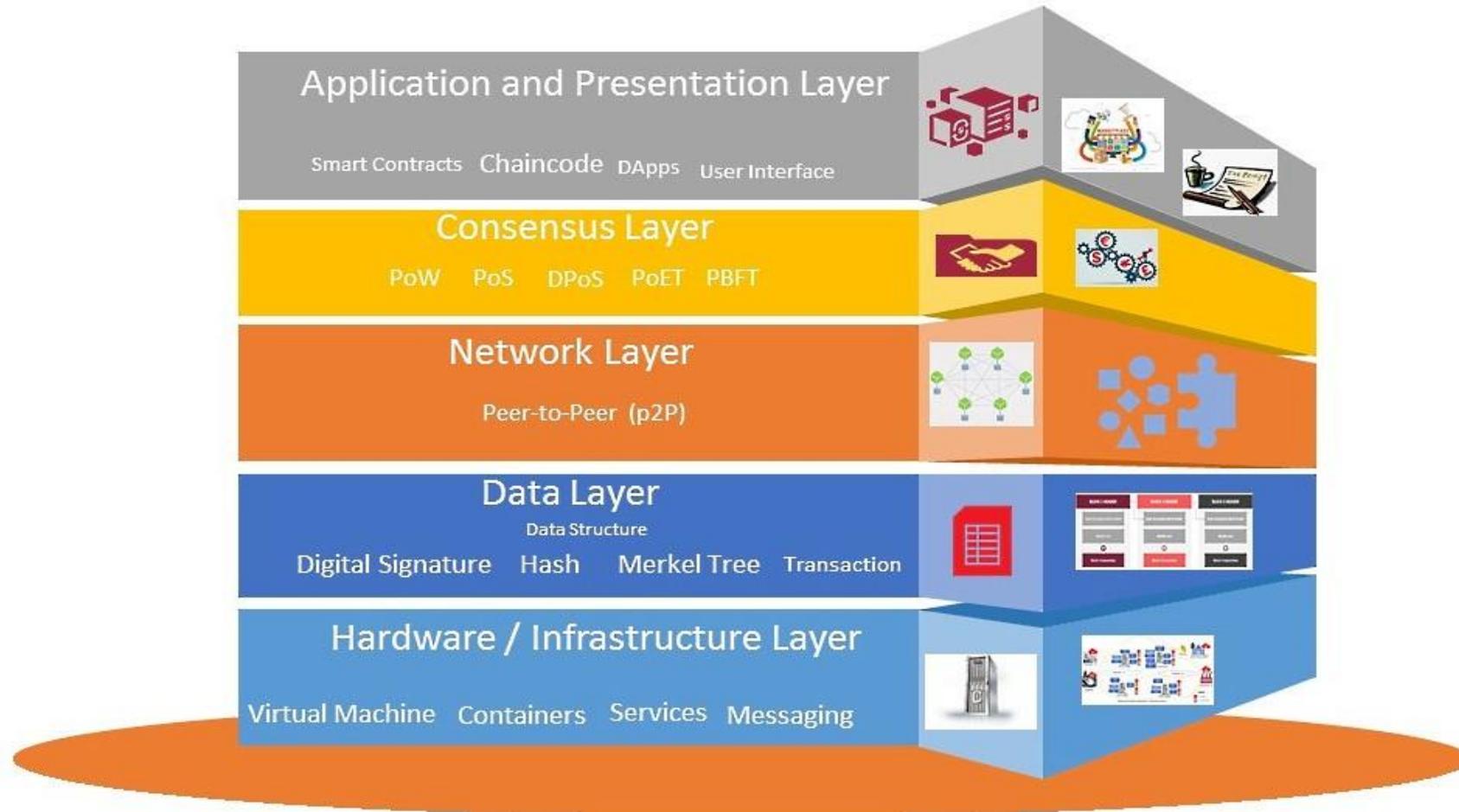
- Blockchain is a Digital Infrastructure where a **Distributed Digital Ledger** is maintained and shared by a network of computers or **Nodes**.
- In this, information of a financial or non-financial transaction is shared with a **Decentralised Network** and **Validated by the majority of Network (Consensus)**.
- Blockchain Infrastructure, **not being managed Centrally**, effectively reduces the chances of data manipulation and leaves lesser scope for mishandling of the system by anybody as well as making it **Efficient**.
- It brings **Transparency, Traceability** and **Trust** to the Transactions through **Immutability** and **Cryptography**.



# 5 Pillars of Blockchain Ecosystem



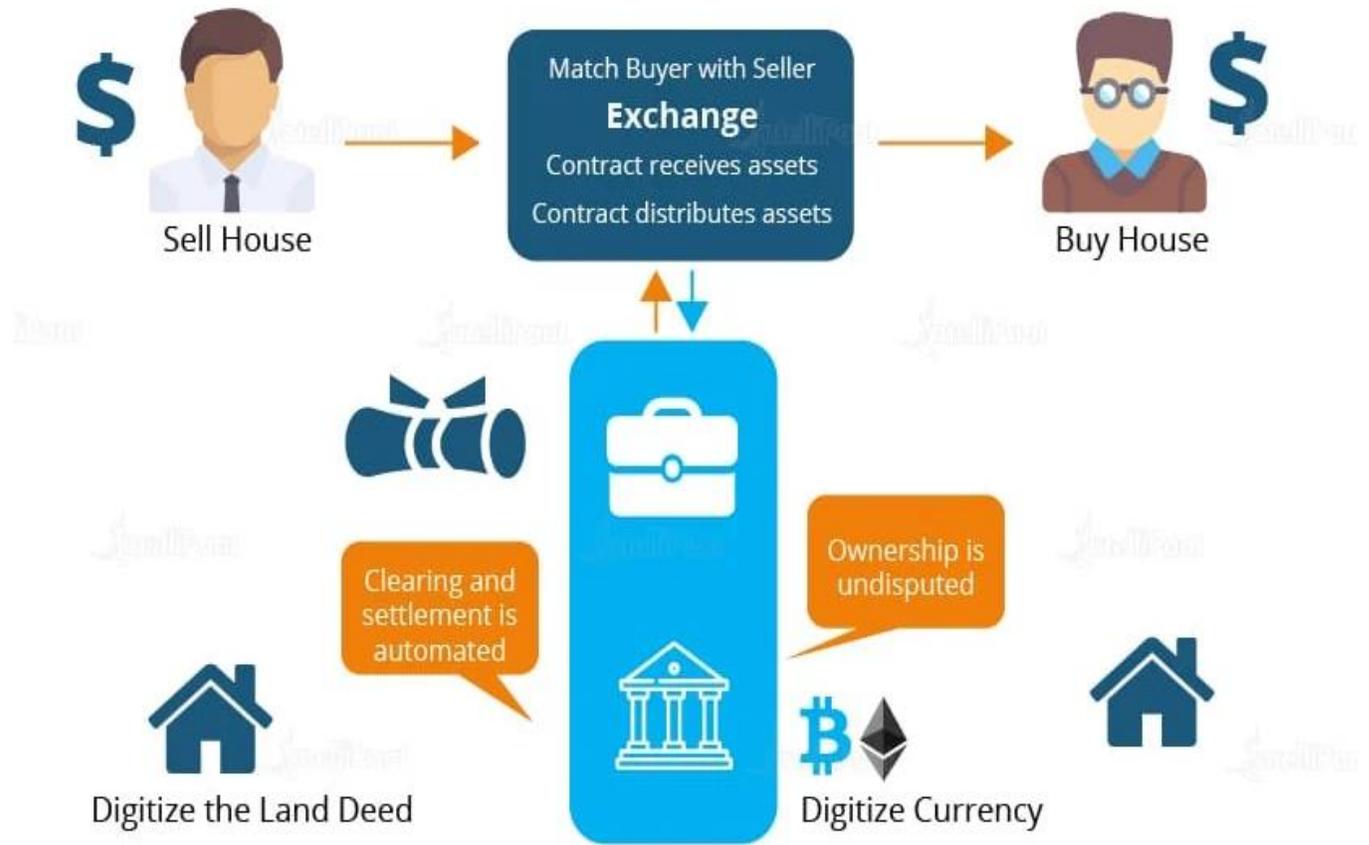
# Blockchain Infrastructure Architecture- 5 Layers of “Internet Of Value”



# Power of Smart Contracts

- Smart Contracts are code written into a blockchain that executes the terms of an agreement or contract from outside the chain.
- It automates the actions that would otherwise be completed by the parties in the agreement, which removes the need for both parties to trust each other.
- Smart Contracts are apps on a Blockchain that make each side of a transaction complete its part. For example, a Smart Contract could initiate a fund

## How Smart Contract Works



# Concept of Blockchain Cooperative(DAO)

*A Cooperative is "an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a Crowd-owned and democratically managed Social Enterprise".*

Blockchain framework offers a distinct one-on-one overlap with the underlying principles of a Cooperative setup:

Voluntary Organization

Collaborative Financial Structure

Consensus in Governance and Protocol

Regulatory Compliance

Peer-to-Peer Interaction

On-Chain & Off-chain Collaboration  
b/w Cooperatives

# **IPv6 – The New Internet**

*IPv6, the new version of IP, is playing a critical role in Internet development, providing new services and business opportunities for large-scale IP network applications - including Smart phones, Smart cities , Smart grids, Next Generation Networks, 5G, 6G, Blockchain, IOT and Cloud Computing – all of which are driving unprecedented demand for IP addresses;*

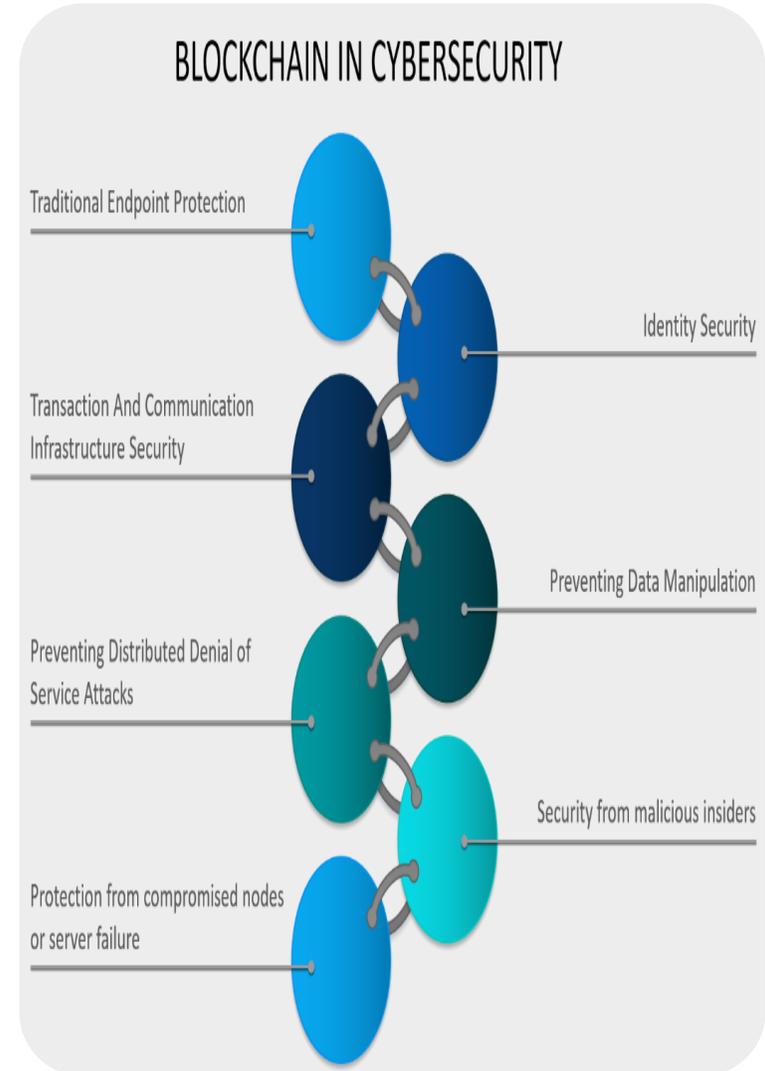
- **IPv6 has massive address abundance.**
- **IPv6 based networks are easier to manage.**
- **IPv6 ensures end-to-end transparency.**
- **IPv6 has improved security features.**
- **IPv6 has improved mobility capabilities.**
- **IPv6 facilitates innovation and collaboration with 5G/6G, Blockchain, AI/ML and IOT.**

# Improving Security and Reliability with IPv6

- Multiple subnets make it easier to separate functions and people.
- IPsec, a powerful security facility is built-in within the IPV6 protocol;
  - IPv4 does not incorporate many significant security features, whereas IPv6 includes packet encryption ie. ESP (Encapsulated Security Payload) and addresses authentication AH (Authentication Header). This makes it more secure than its predecessor .
- Absence of NAT (Network Address Translation);
  - Makes everything much more visible and E2E(P2P).
  - Security moves to the end hosts and self-managed.
  - Blockchain based CGA(Cryptographically Generated

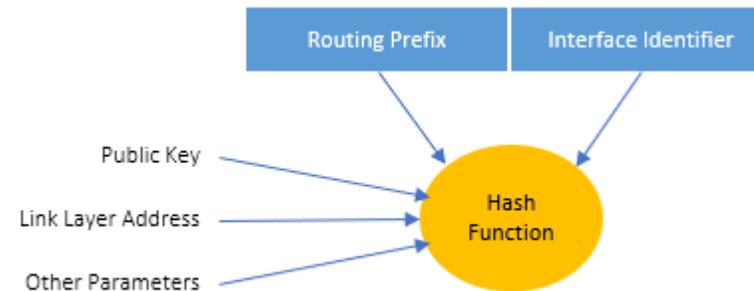
# Blockchain in Cyber Security

- Blockchain technology can be used to develop a **standard security protocol**, as it is a sounder alternative to e2e encryption.
- Hackers can gain access to smart homes through edge devices like smart switches, if these IoT devices have dodgy security features. Blockchain technology can be used to secure such systems or individual devices by **decentralizing** their administration.
- By decentralizing Domain Name System (DNS) entries, Blockchain technology can help prevent **Distributed Denial of Service (DDoS)** attacks.
- Blockchain technology can be used to verify activities like **patches, installers and firmware updates**.
- Since all transactions are available for any one to review, it is not easy for malicious actors to



# IPv6 with CGA and Blockchain

- Components of an Address
- In the most common configuration of CGA, 62 bits are used to store the hash of a public key. Here, the host ID = HASH62 (public key).

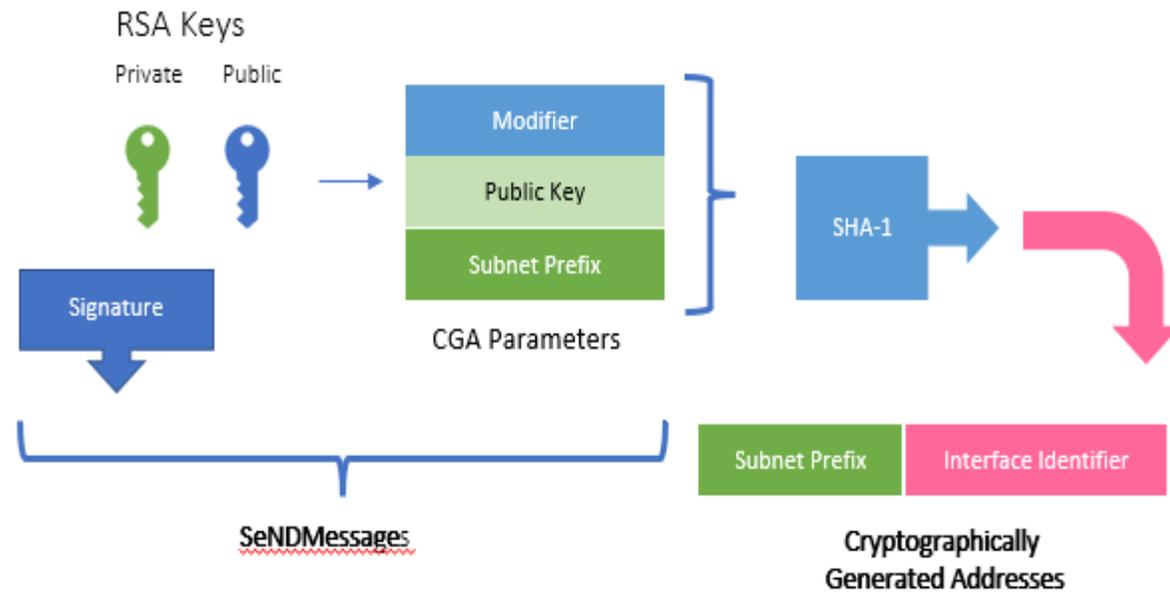


- The capability to embed a security parameter "sec" in the two rightmost bits of a 128-bit Ipv6 address allows the hash length to be increased to improve the security of the mechanism.

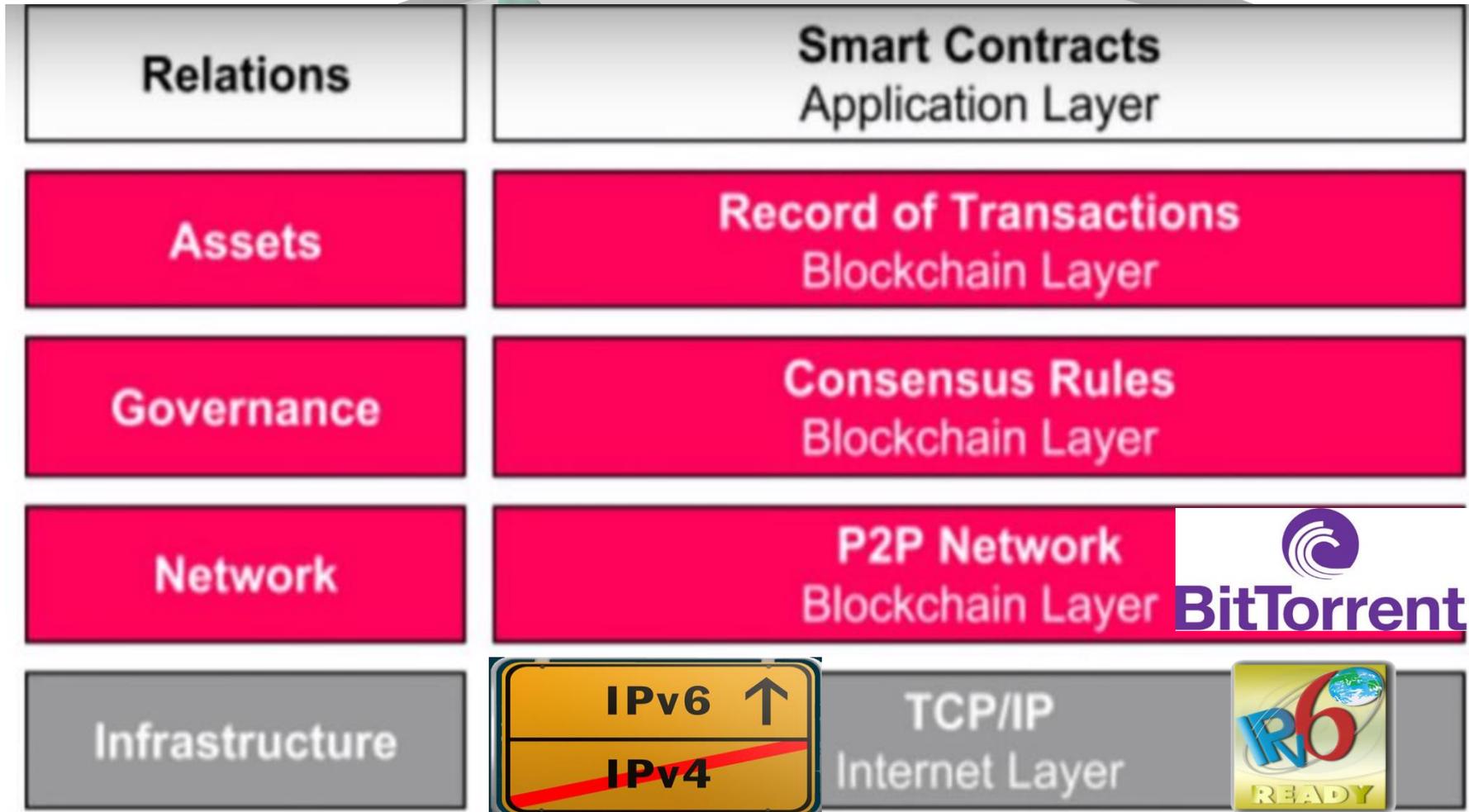
# IPv6 with CGA and Blockchain Contd....

## Cryptographically Generated Addresses CGA RFC 3872 (Simplified)

- Each device has an RSA key pair (no need for certificate)
- Ultra-light check for validity
- Prevent spoofing a valid CGA address



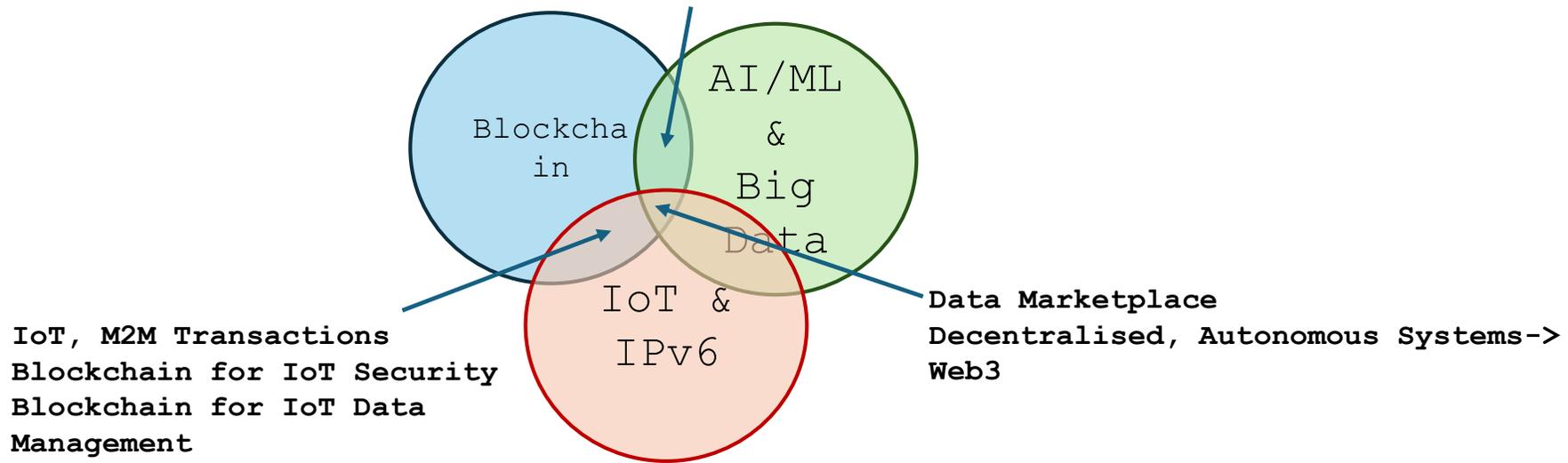
# Blockchain is P2P: Needs end2end Secure Routing:



# What's next? - Blockchain + AI + IoT+ IPv6

**In near future, Blockchain in combination with Artificial Intelligence (AI)/ML , Internet of Things (IoT) and IPv6 is anticipated to create new Business Models/Opportunities.**

Chain Data Analytics , Decentralized AI (DAI)



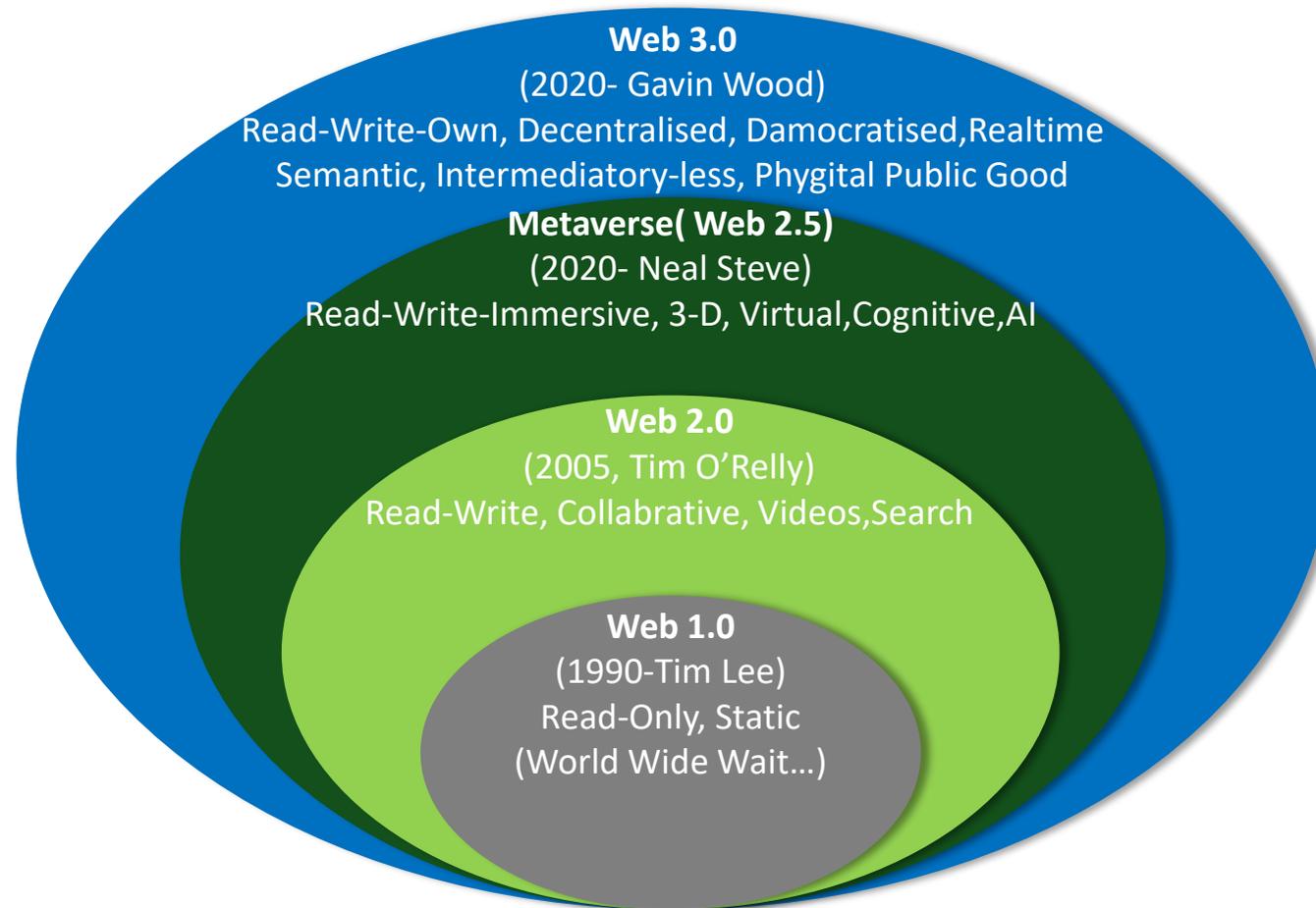
IoT, M2M Transactions  
Blockchain for IoT Security  
Blockchain for IoT Data  
Management

Data Marketplace  
Decentralised, Autonomous Systems->  
Web3

# **Blockchain, AI, IPv6 and IoT integration - Convergence towards Web 3.**

- **Blockchain (IOV) is hugely compatible with the Schema of the Internet of Things (IoT).**
- **Blockchain can support IOT Ecosystem through-**
  - **Creating records of interactions and transactions between machines.**
  - **Solving problems around security as well as scalability due to decentralised, automated, encrypted, and immutable nature of Blockchain ledgers and databases.**
- **Also, the New Internet (IPv6) which can provide unique IP addresses to everything/each particle in the universe can help Blockchain to create, store and transfer more values making it a true De-centralised, Autonomous, Owned Internet of Wealth (Web 3).**

# Evolution Toward Web 3.0 (Internet of Owned Wealth)



# Emergence of Data Space

Data Space is an Architecture, facilitating a secured and privacy preserving, Intelligent IT management infrastructure to pool, access, process, use and share data.

As per Open DEI it is defined as “A Decentralised Intelligent infrastructure for trustworthy data sharing and exchange in data ecosystems, based on commonly agreed principles”.

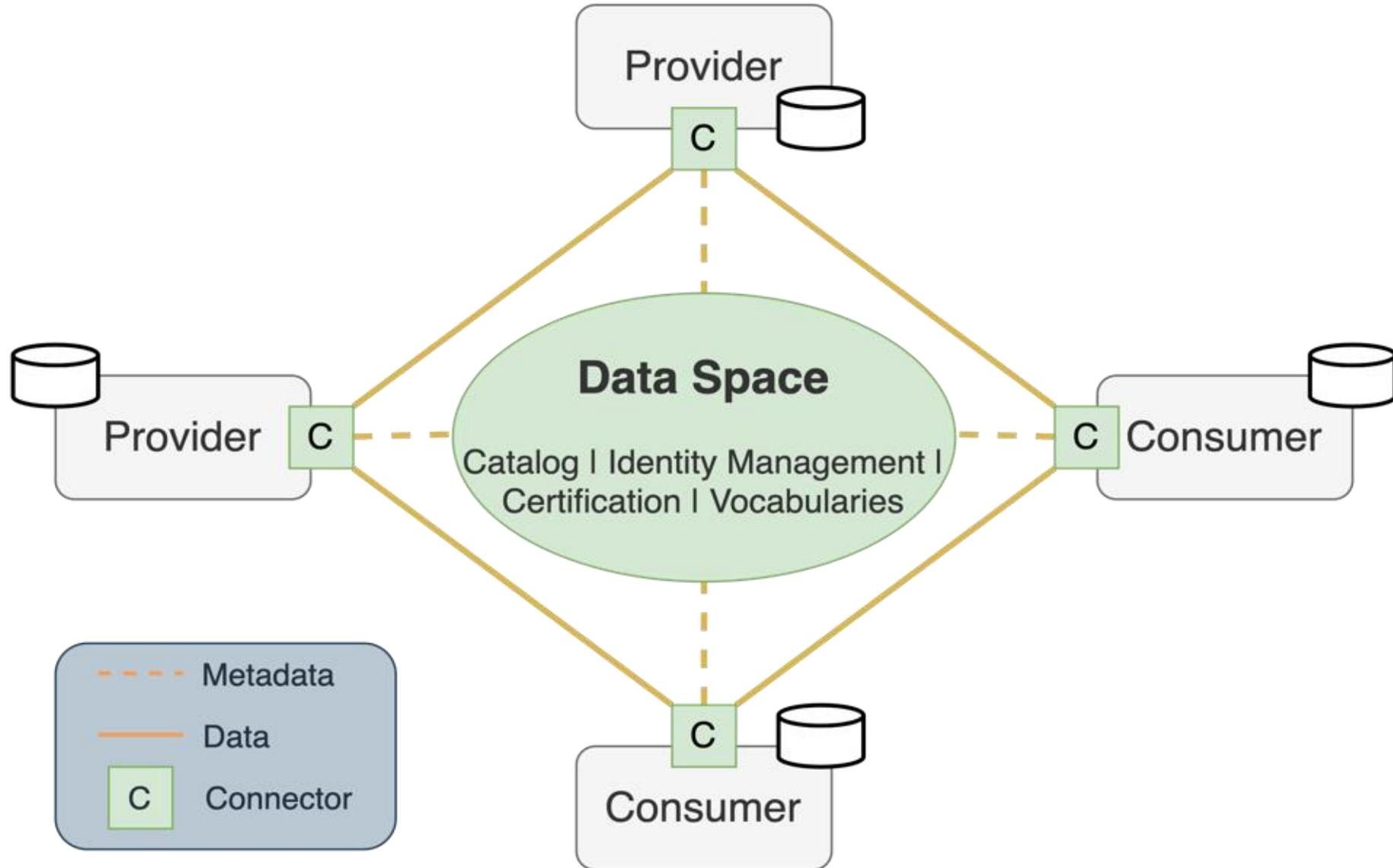
Data Space ensures Data Sovereignty, so that the Creator and Owner of data, controls, manages, monetise and protects it.

The main element for Data Space is called a “Connector” which is used as the interface of the data provider and data consumer to Data Space infrastructure after the auto-authentication and validation of the users.

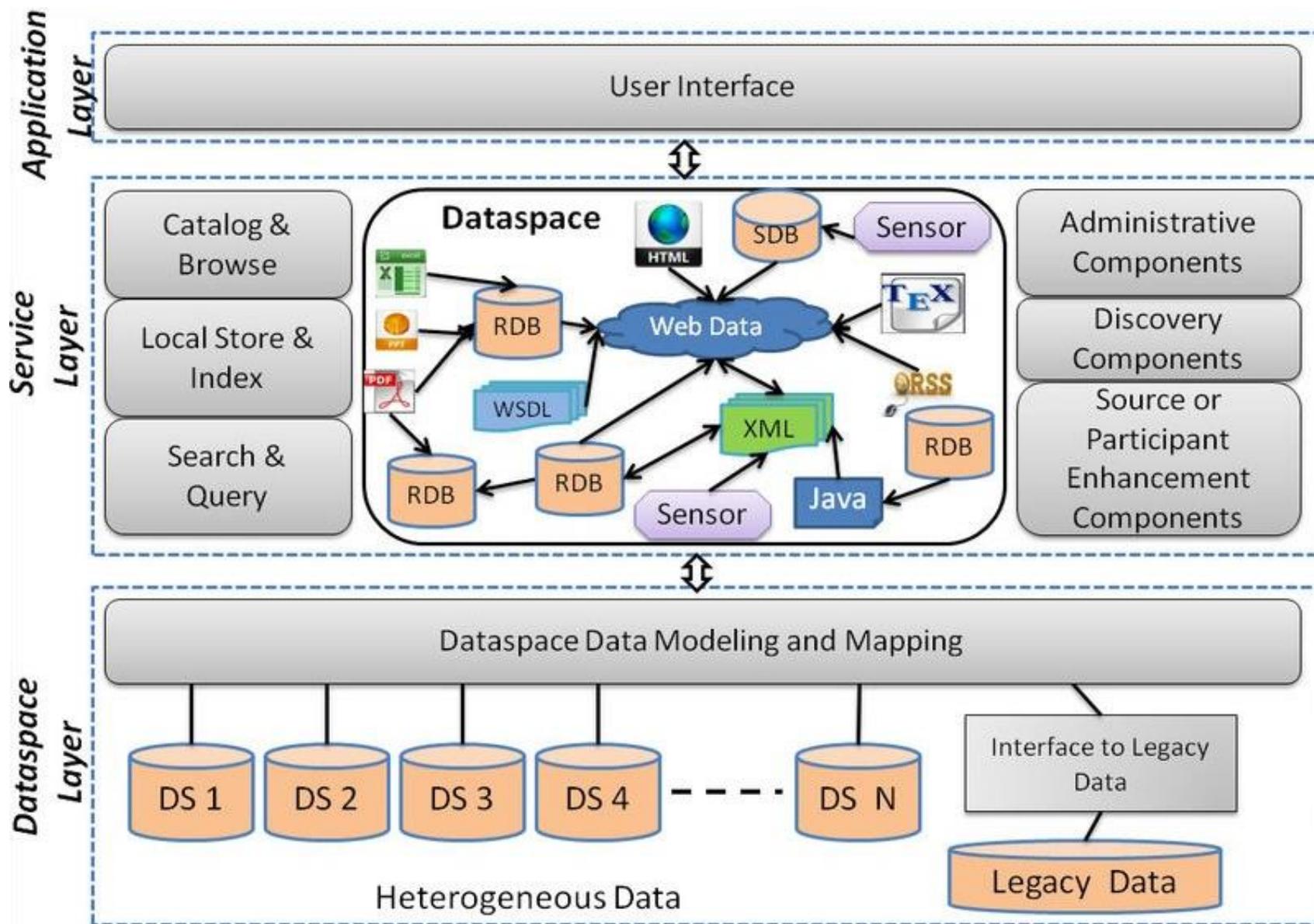
Data Space also employs the Smart Contract attribute of Blockchain to auto-implement the agreed rules and policy for data exchange between users. By using Blockchain attributes the Assets are Tokenised to increase the Value and the players(Creators/Owners/Users) are Connectorized to have Control.

Data Space actually, fortify the data of any Creator/Owner in an intelligent and decentralised manner so that the data owner has full control and self-protection of data ( a sort of **Lakshman-Rekha**).

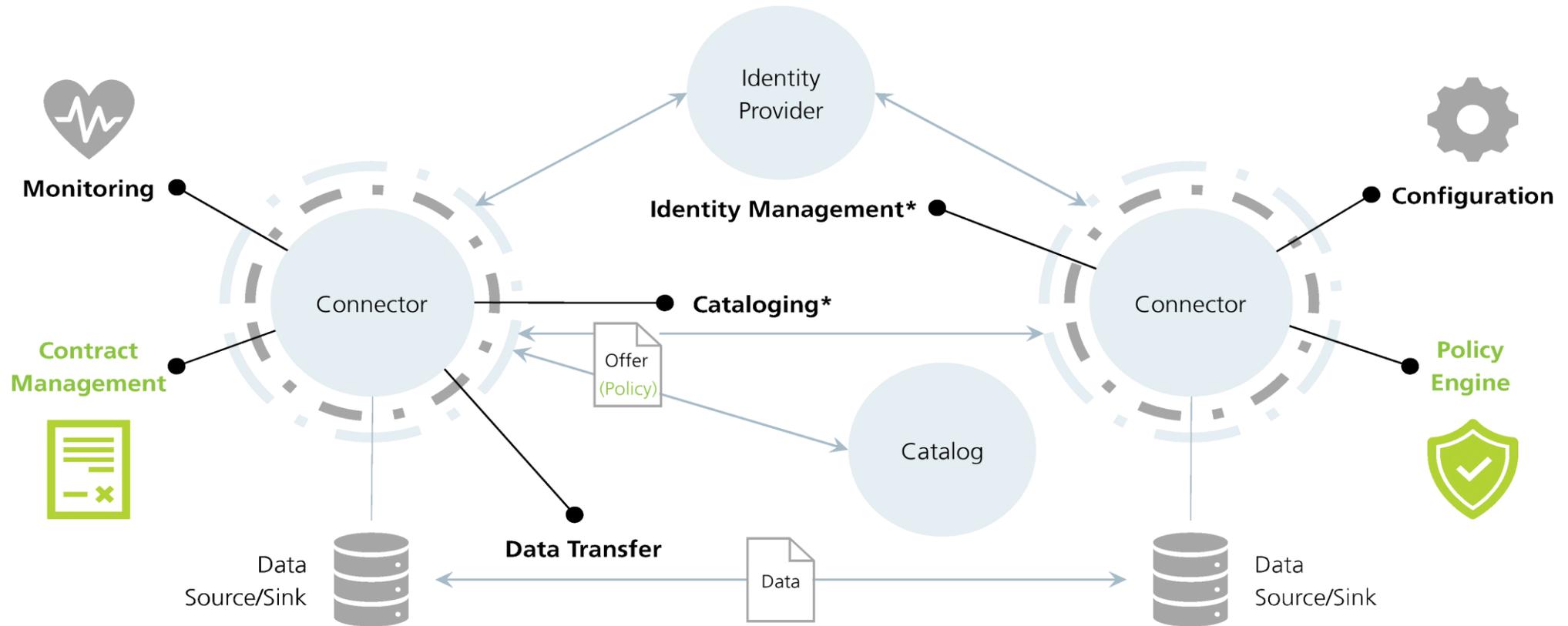
# Data Space (DS) Concept



# Data Space (DS) System Architecture



# Overview of Data Spaces “Connector” Interface



\*either centralized or decentralized

One of the most impactful DS projects is the Eclipse Dataspace Components (EDC), an open-source project hosted by the Eclipse Foundation which is actively developed by several organizations with support from the Community. EDC aims to provide a scalable and extensible architecture that will implement the DS standard as well as relevant protocols. "Connector" is scalable and extensible so that it can support alternative Protocols and accommodate different underlying hosting and data storage infrastructure services and takes care of the communication among DS participants.

# Technical Infrastructure for Data Spaces



Health



Industrial &  
Manufacturing



Agriculture



Finance



Mobility



Green Deal



Energy



Public  
Administration



Skills

- Driven by stakeholders
- Rich pool of data of varying degree of openness

- Sectoral data governance (contracts, licenses, access rights, usage rights)
- Technical tools for data pooling and sharing

Personal  
data spaces

High Value  
Datasets  
from public  
sector

## Technical infrastructure for data spaces



Edge  
Infrastructure &  
Services

Cloud  
Infrastructure &  
Services

High-Performance  
Computing

AI on demand  
platform

AI Testing and  
Experimentation  
Facilities

# Innovative Ideas used in “National Knowledge Transport Grid” Concept

## 1. The Functional Separation – Game Changing Opportunity

A future proof, all-inclusive solution to this could be the creation of a Digital Public Infrastructure Grid which will be facilitated through mechanism of “**Functional Separation**” to unlock the potential of existing transport infrastructure by separating the service provision from underlying infrastructure through regulatory facilitation in a win-win mode.

## 2. Indefeasible Right of Use (IRU) – Lifetime leasing option in lieu of Ownership (Build or Buy Option)

Another learning which can be used in this project is the **IRU (Indefeasible Right of Use)** concept which is used in consortium ownership and collaboration for submarine cable networks.

Indefeasible right to use is an irrevocable right bestowed upon the user by the owner. Hence, indefeasible right to use (IRU) is a contractual grant of usage rights or a contractual agreement between the user and the owner for an exclusive, unrestricted, irrevocable and life-long right to use the relevant facility for any legal purpose for a defined period.

## 3. Blockchain powered by IPv6: Smart Contracts for Blockchain Co-operative(DAO)

One of the emerging tools available and worth trying to implement Blockchain, which is an Open, Trusted, **Distributed Ledger Technology** for records of assets of any types which are **Tokenised**, powered by IPv6 could be exploited for the implementation and creation of National Digital Infrastructure Grid.

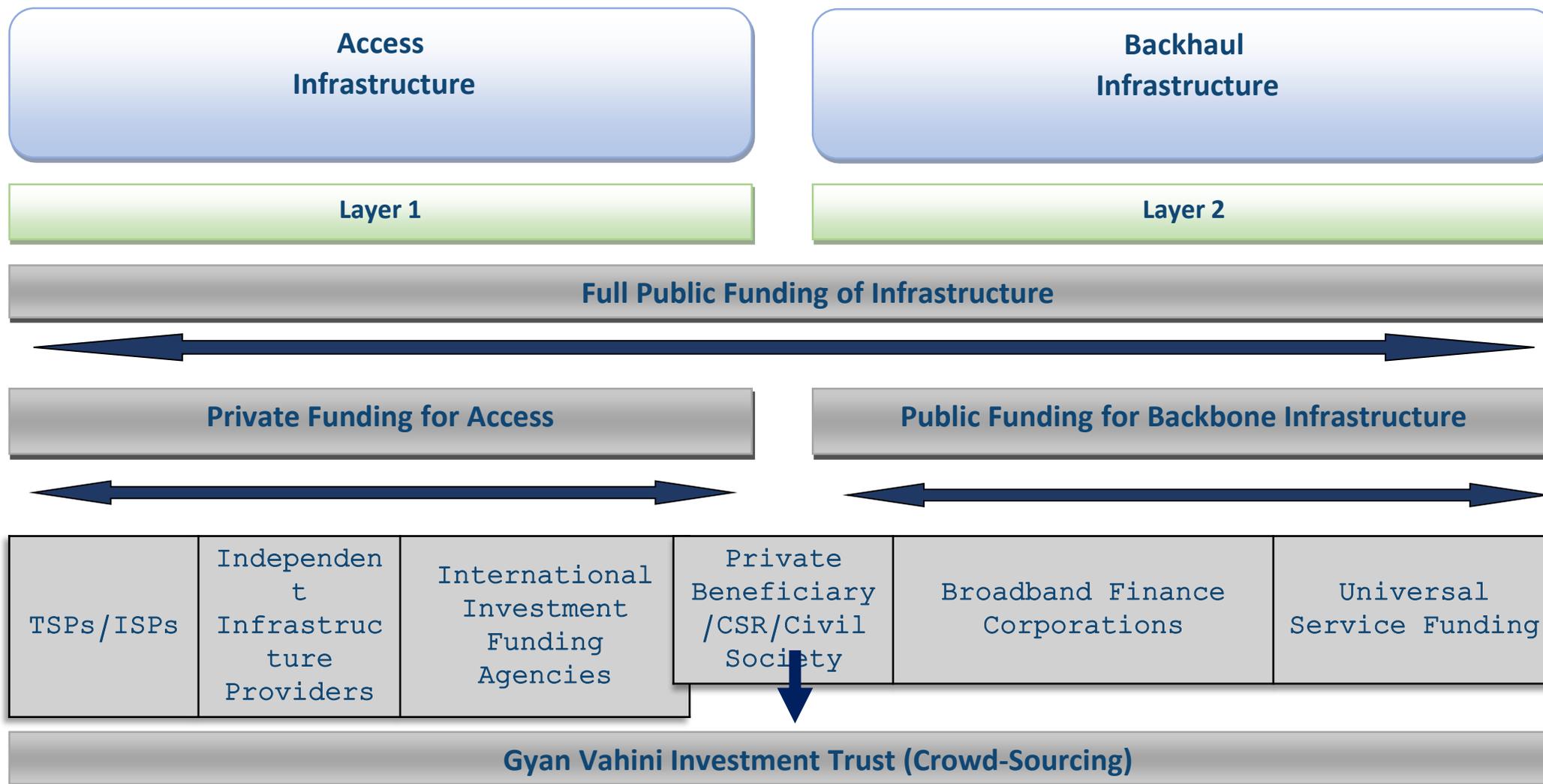
Also, by bringing in the concept of Blockchain-based decentralized framework for “**Blockchain Co-operative**”, using which a task can be solved by most of stakeholders in lieu of relying on only the few players. It can use an Open-Access architecture and an economical framework, which makes use of “**Smart Contract**” to start with.

## 4. Data Spaces (DS)-Decentralised Intelligent Infrastructure for trustworthy data sharing based on commonly agreed principles.

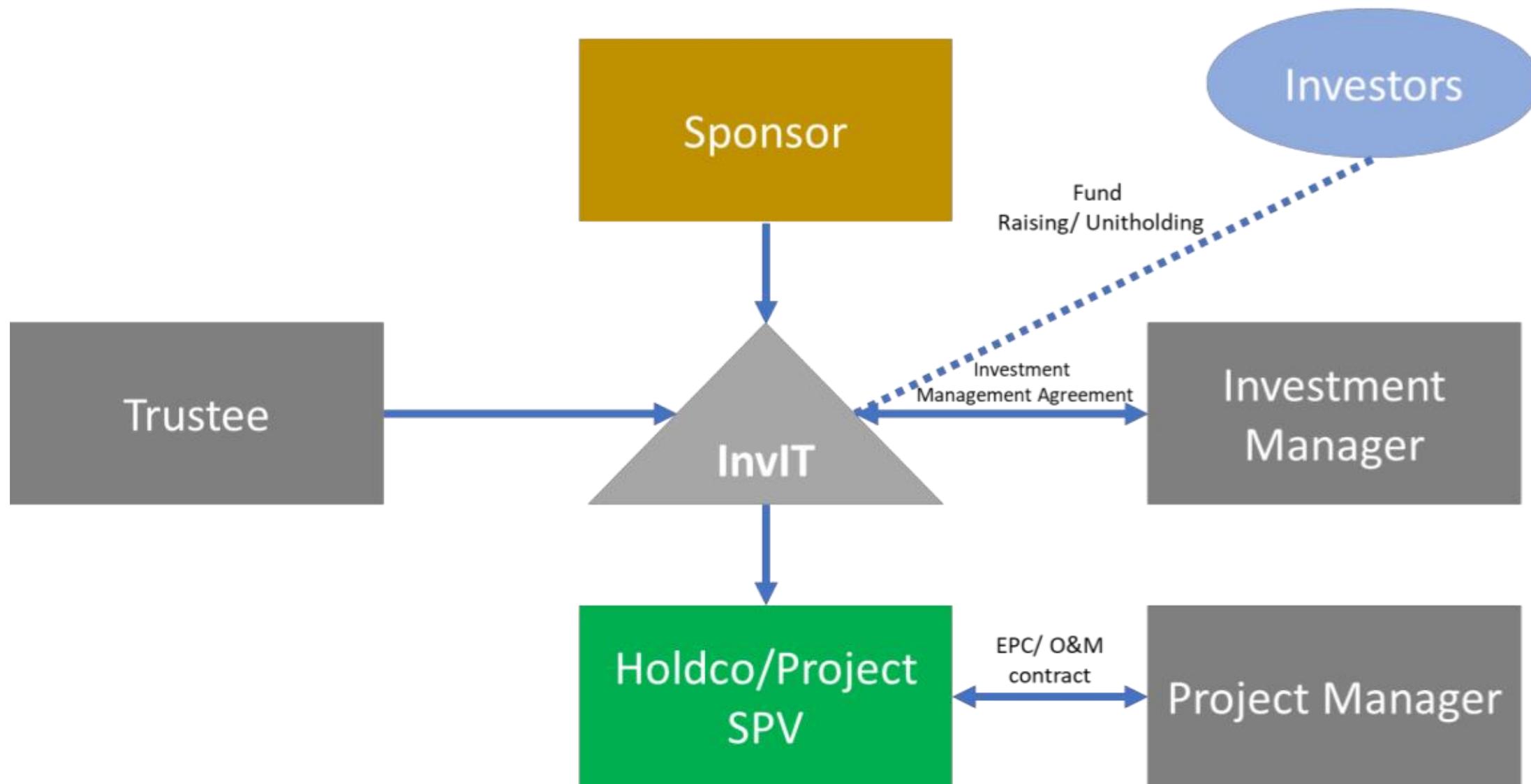
## 5. Infrastructure Investment Trust (InvIT) – An Innovative & Implementable Funding Option

In case of Gyan Vahini, the trust will be called as Gyan Vahini Infrastrucutre Investment Trust (**GVIInvIT**) and will facilitates a steady inflow of public, private, and foreign investments, and

# Funding Options for Phygital Public Infrastructure Based on Analogy from Alberto - Emerging models of Public-Private-People Interplay



# Generic Concept of InvIT



# Gyan Vahini InvIT Concept

## GYAN VAHINI INFRASTRUCTURE INVESTMENT TRUST (GV InvIT)

### GYAN VAHINI BLOCKCHAIN COOPERATIVE (Assets Managing SPV)

#### GOVERNMENT/ PUBLIC ASSETS

- *PSU Telco's Backbone Infrastructure*

#### PRIVATE ASSETS

- *Private Telecom Companies / ISPs / LCOs (Network Assets)*
- *MSP (Managed Service Providers)*
- *Independent Infrastructure Provider*
- *OEMs / Vendors*

### FUNDING MANAGEMENT (Crowd-Sourcing)

- Promoters / Trustees/CSR*
- International Infrastructure Investment Agencies*
- Broadband Venture Fund*
- Telecom Debt Bonds*
- Universal Service Funds*
- International Pension Funds*
- IRU Users/ Beneficiaries*
- Independent Infrastructure Investors*
- Retail Unit/ Token Holders*

# **GYAN VAHINI (National Knowledge Transport Grid - NKTG) – Win-Win Solution for Digital Transport Infrastructure Challenges in India**

- i. Gyan Vahini Infrastructure Investment Trust (GVInvIT) can help public (Govt.) infrastructure providers/telcos/network operators like: BSNL, BBNL, RailTel, Power Grid and GAILTEL and Pvt. players in monetising their Optical Fiber/Backbone infrastructure assets as well as turning the spare capacity of their core network into additional revenue streams, thus creating Value for Stakeholders, Wealth for Nation and plenty of Jobs for skilled workforce.
- ii. It will create a much-needed seamless Nation-wide Digital Backbone Network by making maximum use of the existing infrastructure.
- iii. It will help in unlocking the potential of the optical fibre assets of the public sector players like: BSNL, BBNL, RailTel, Power Grid and GAILTEL and eventually turning-around BSNL which has been diving fast in losses due to under-utilisation of its assets.
- iv. It will help, in improved operation and maintenance of the transmission network to meet the SLAs & Uptime requirements.

# What “Gyan Vahini” will achieve?

- ❑ Gyan Vahini (NKTG) will be responsible for managing the pool of shared digital infrastructure - more precisely the fiber networks used by service providers (Telcos & ISPs), including that of PSUs.
- ❑ Gyan Vahini (NKTG) will not sell any equipment/device or broadband or any services directly to the end user (such as individuals). Instead, it will work on behalf of network owners (such as Telcos & ISPs) to maintain their shared pool of infrastructure.
- ❑ When an individual takes out any service contract with a provider that uses the NKTG network (for example, the services of Telcos or ISPs), the contract is with the retail provider (the service provider), not NKTG itself.
- ❑ National Fiber Authority (NFA) will set rules that requires Gyan Vahini (NKTG) to allow service providers to use the digital infrastructure pooled network to provide services to consumers.
- ❑ Retail communications providers will pay charges (called wholesale local access charges) to Gyan Vahini (NKTG) to use the common pool of infrastructure managed by it and National Fiber Authority will administer its functioning.

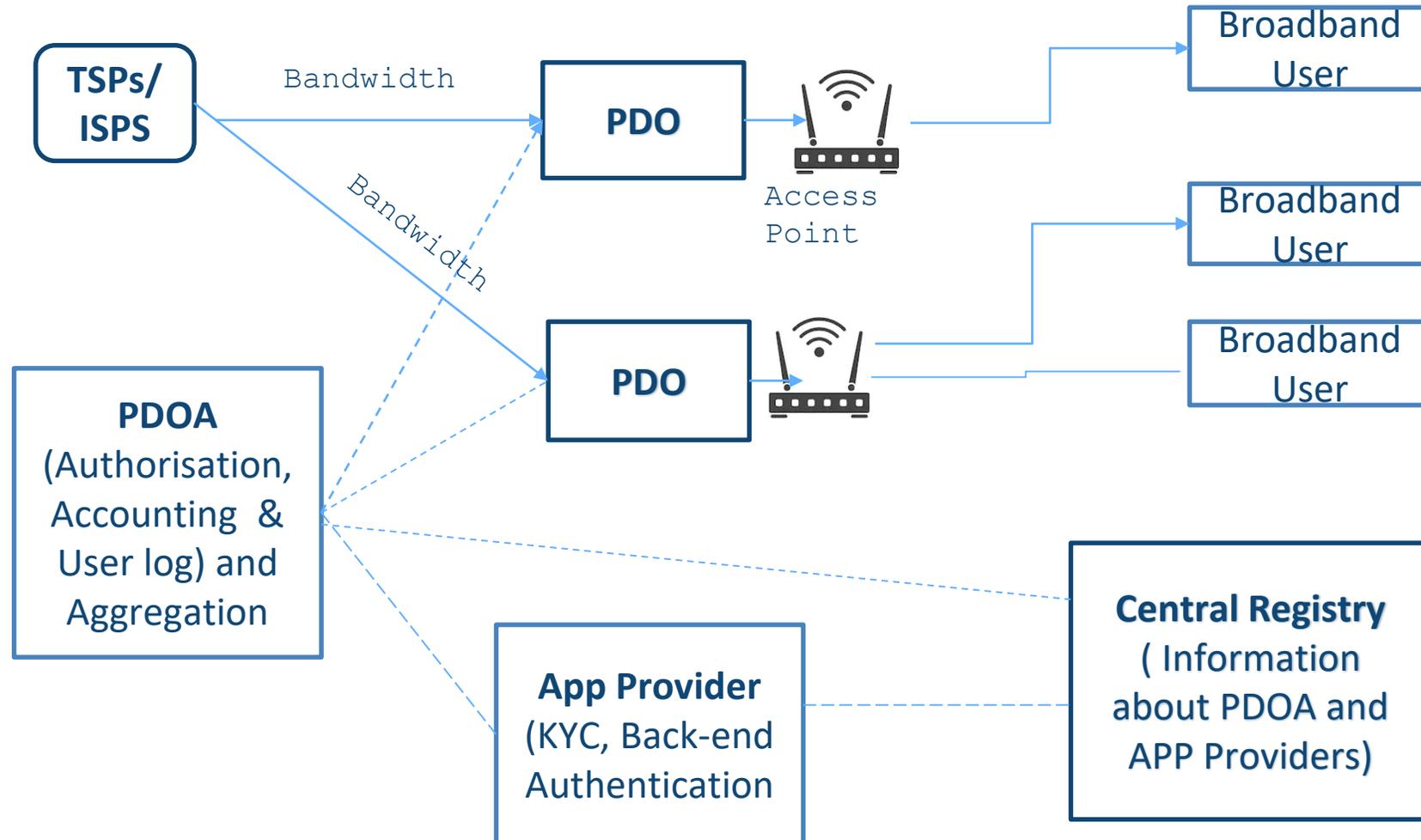
# Conceptual Business Canvas

## 'GYAN VAHINI' (NATIONAL KNOWLEDGE TRANSPORT GRID – NKTG)

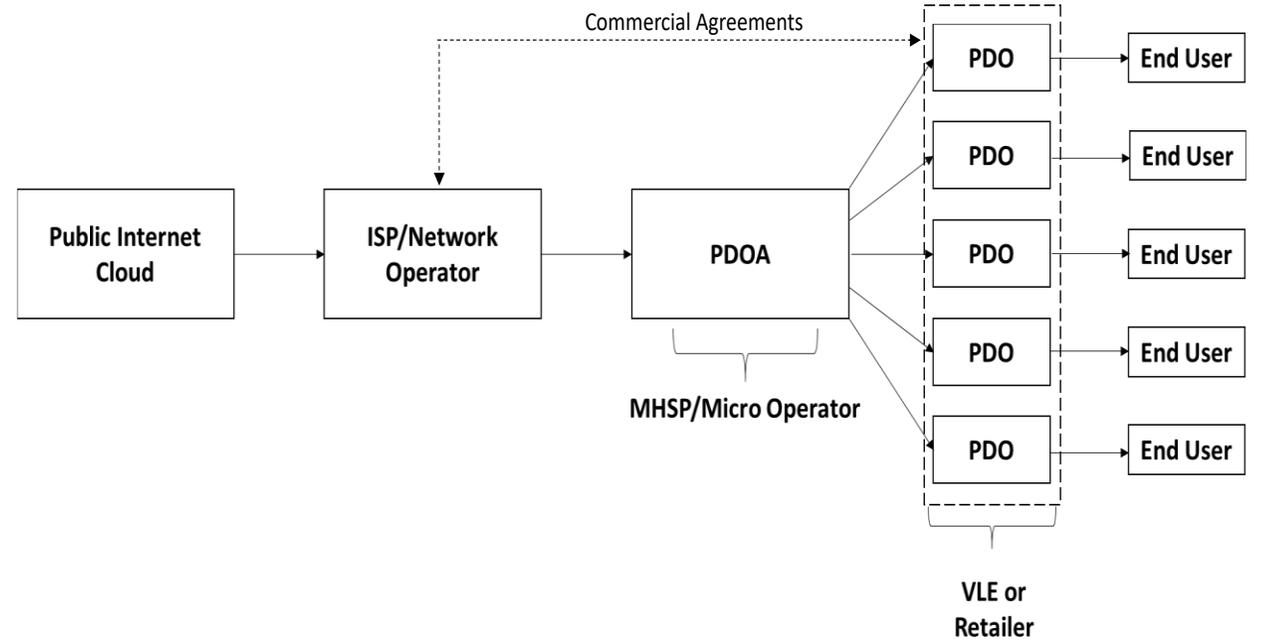
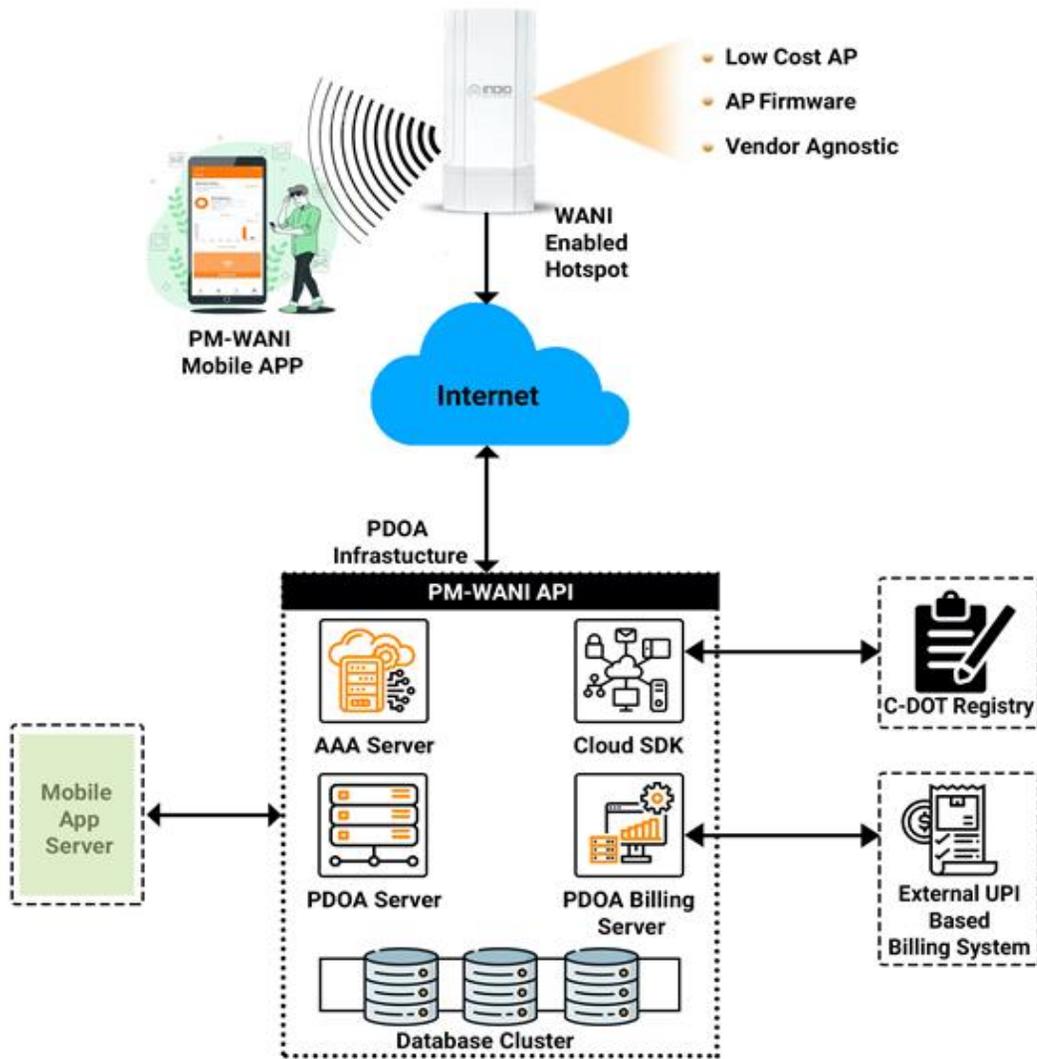
KEY PARTNERS	KEY ACTIVITIES	VALUE PROPOSITION	CUSTOMER RELATIONSHIP	CUSTOMER SEGMENTS
<ul style="list-style-type: none"> <li>Govt. Telcos (BSNL, BBNL, RAILTEL, POWERTEL, GAILTEL)</li> <li>Pvt. Telcos (RJio, Airtel, Voda-Idea, Tata Communication, RCom)</li> <li>IP-1 Companies (ATC, VIOM, GTL etc.)</li> <li>ISPs</li> <li>Managed Network Service Providers</li> <li>USOF (Universal Service Obligation Fund)</li> <li>OEMs</li> </ul>	<ul style="list-style-type: none"> <li>To form a Cross-Industry Joint-Stock Consortium (SPV)</li> <li>To take stock of the Existing Infrastructure (GIS map, Capacity Route.Km)</li> <li>To provide existing capacity utilisation &amp; spare capacity data</li> <li>Create open-access National Digital Infrastructure Grid</li> </ul>	<ul style="list-style-type: none"> <li>To offer Digital Connectivity Anywhere, Anytime, Any-Capacity to Telcos, ISPs, Enterprises, End Users.</li> <li>To make use of idling/under-utilised resources</li> <li>To create employments for specially skilled manpower</li> <li>To generate Entrepreneurs in rural-areas as VLEs &amp; Franchisees</li> </ul>	<ul style="list-style-type: none"> <li>Blockchain Based Smart Contracts</li> <li>Initial Token Offer (ITO)</li> </ul>	<ul style="list-style-type: none"> <li>Telcos</li> <li>ISPs</li> <li>Enterprises</li> <li>Govt. Bodies</li> <li>End Users</li> </ul>
	<b>KEY RESOURCES</b> <ul style="list-style-type: none"> <li>Existing Fibre-based Ground Infrastructure</li> <li>Existing Radio Based Transmission Infrastructure</li> <li>Existing Tower Infrastructure</li> <li>Data Centres</li> <li>NOCs</li> <li>MSAN – Multi Service Access Nodes (Point of Presence)</li> </ul>		<b>CHANNELS</b> <ul style="list-style-type: none"> <li>Franchisees</li> <li>Agents</li> <li>Digital Electronic Platform (Bandwidth Pool)</li> <li>VLEs</li> </ul>	
<b>COST STRUCTURE</b>		<b>REVENUE STREAM</b>		

# PM-WANI: PRIME MINISTER-WIFI ACCESS NETWORK INTERFACE- A Liberalised Framework for Last Mile Connectivity(LMC)

## WANI - Unbundled and Distributed Architecture



# PM-WANI System Architecture

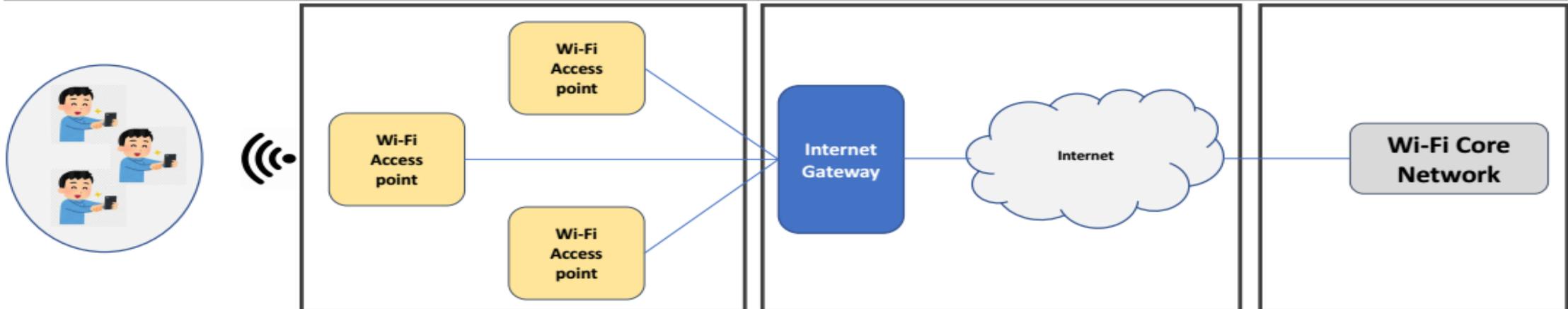


# PM-WANI-- Multi-partner play for end-to-end service delivery



## Deployment in India as PMWANI Program

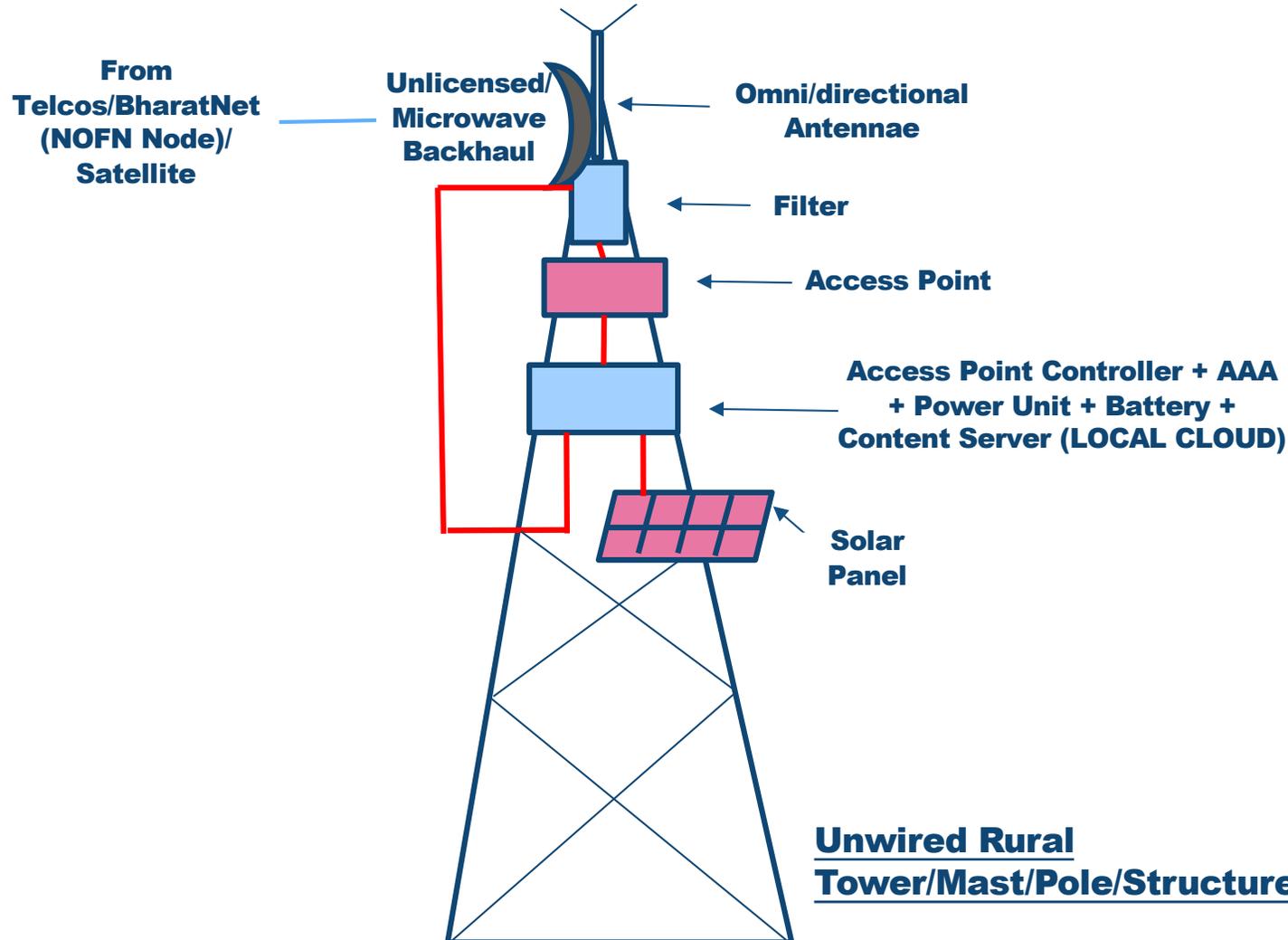
Service Provider	Wi-Fi Access Network Infrastructure	Internet Infrastructure	Wi-Fi Core Network Infrastructure
<b>Wi-Fi VNO</b>	<b>Wi-Fi VNO</b>	<b>ISP</b>	<b>MNO</b>
Prepaid/Postpaid Data plans	Installation of Access point, Power, O&M	Wi-Fi VNO arranges Internet backhaul from local ISPs	providing AAA, OSS, BSS functions for Wi-Fi
<b>VLE (Village Level Entrepreneurs) or PDO (Public Data Office)</b>	<b>VLE or PDO (Public Data Office)</b>	<b>Local ISP</b>	<b>Wi-Fi Aggregator or PDO Aggregator</b>



In this deployment scenario, New entity (Wi-Fi VNO) offers services by using its own Wi-Fi Access network infrastructure. Wi-Fi VNO also arranges internet backhaul from local ISPs and takes service from MNO for Wi-Fi core functions.

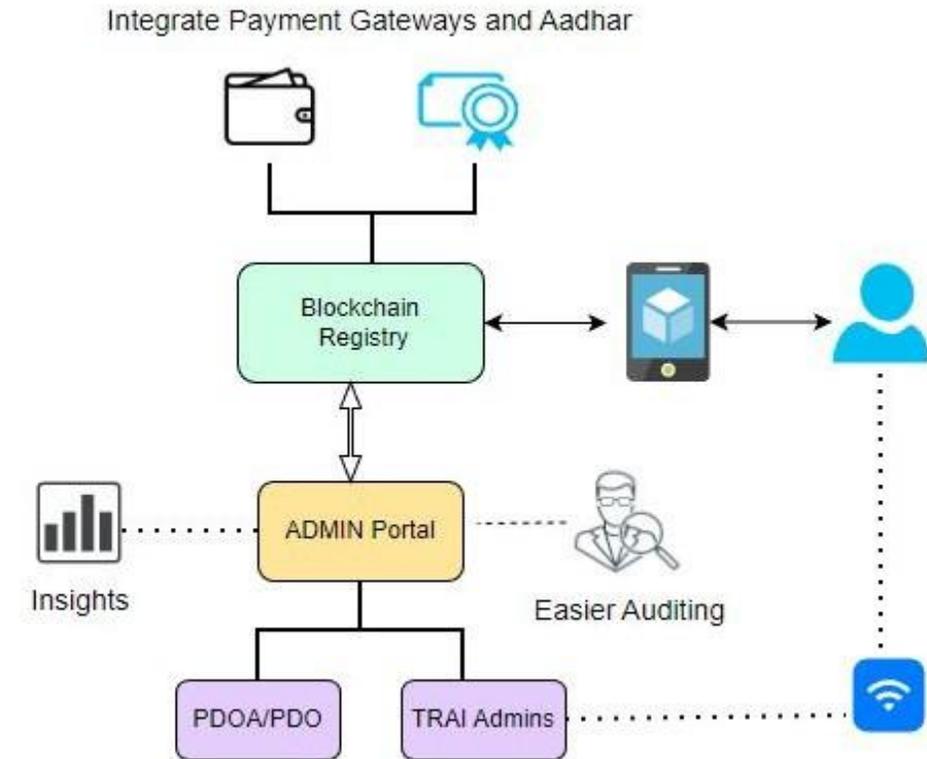
# Managed Hotspot Service Provider (MHSP) as Public Data Office Aggregator (PDOA)

**Value Innovation to achieve Affordability - Everything on Tower  
(5L- Low Cost, Low Power, Low Maintenance, Local Control, Local Cloud)**



# Blockchain based Decentralised Registry for PM-WANI (DeWI)

- It is possible to create a Blockchain based decentralized registry which allows sharing of necessary information among all the stakeholders/nodes, transparently and securely.
- All the interactions will be immutably recorded on Smart Contracts, with the required validation. The Admin portal shall have role-based authentication which shall also provide valuable insights.
- The portal will provide real-time information of an active User to any PDO, thus eliminating re-registering process and providing a superior User experience.
- The portal will hook with Aadhar and Payments Gateway to enable KYC and payments to the PDOAs and PDOs.



# Way Forward

**Moving DPI to PPG (Phygital Public Goods)**

The Public Goods also known as Commons are natural resources like Air, Water, Sea, Sunlight, Open-Sky etc., which are freely available to all in non-discriminatory manner. DPI has the potential to be upgraded to PPG by Govt. and Civil Society, with innovative technology value-additions, specially

**Pooling of Optical Fiber Networks**

Blockchain Government has to take initiatives to facilitate proper framework for infrastructure pooling through enabling policy and regulatory framework by creation of autonomous National Fiber Authority.

**Regulatory Intervention**

The Regulator/ Govt. to issue Consultation Paper or create pilot project to bring awareness and get stakeholders buy-in to the concept.

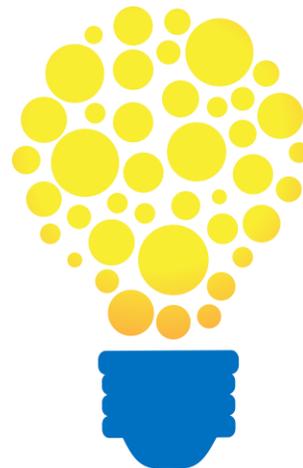
**All stakeholders, Govt., Civil Society Collaboration**

All the relevant players within the Digital Infrastructure value chain together with cross-industry players need to collaborate to jointly cooperate and contribute towards the creation of Digital Public Infrastructure (DPI) Grid to be upgraded to Phygital Public Good (PPG).

# Thank You

**“Let us create BlockVerse - Phygital Public Good, together”**

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**Gyan Vahini**

Unlocking Backbone Capacity