



# Building the Web3 Economy

Business Whitepaper

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## LIST OF ACRONYMS

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AI	:	Artificial Intelligence
IoT	:	Internet of Things
ITN	:	Integrated Trust Network
MVP	:	Minimum Viable Product
PoC	:	Proof of Concept
SSD	:	Self-Sovereign Data
SSI	:	Self-Sovereign Identity
W3C	:	World Wide Web Consortium

## GLOSSARY OF TERMS

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This section contains the definitions of all technical and specific terms used throughout this document.

**Citopia:** Built on the W3C Verifiable Credentials (VCs) open-standard and Zero-Knowledge Proof (ZKP) cryptography, Citopia is a federated network of nodes that collaboratively create a decentralized marketplace, enabling transactions using selective disclosures while allowing end-users and organizations to maintain full control over their digital identities and data.

**Citopia Decentralized Marketplace (DM):** Citopia DM serves as the interface for secure, private communication and coordination between entities. Each user installs the Citopia DM application on their own device. This serves as a private marketplace, owned and managed by the user, through which they can transact with other ecosystem stakeholders.

**Citopia Member:** Organizations who operate nodes on the Citopia network are referred to as 'Citopia Members'. Citopia Members are involved in the governance of the federated network (1 node operator = 1 vote). Additionally, Citopia Members can build applications and offer services on Citopia.

**Citopia User:** A Citopia User is an end user of Citopia. The end user could be a provider of a service, a consumer of a service, or both (prosumer). Citopia Members can also be Citopia Users.

**Decentralized Identifier (DID):** A W3C Decentralized Identifier represents a globally unique identifier that can be resolved to a DID Document, or de-referenced on a specific distributed ledger network, much like a URL on the Internet.

**Integrated Trust Network (ITN):** Created by MOBI members, along with members of other consortia such as MEF and AAIS, the ITN is a federated network of nodes offering trusted identity services built on the World Wide Web Consortium (W3C) Decentralized Identifiers (DIDs) open-standard.

**Selective Disclosure:** Selective disclosure is a privacy-preserving mechanism that allows individuals or organizations to share only specific pieces of information necessary for a transaction or interaction, without revealing all their data. This ensures that sensitive information remains secure while still providing the relevant details to authorized parties.

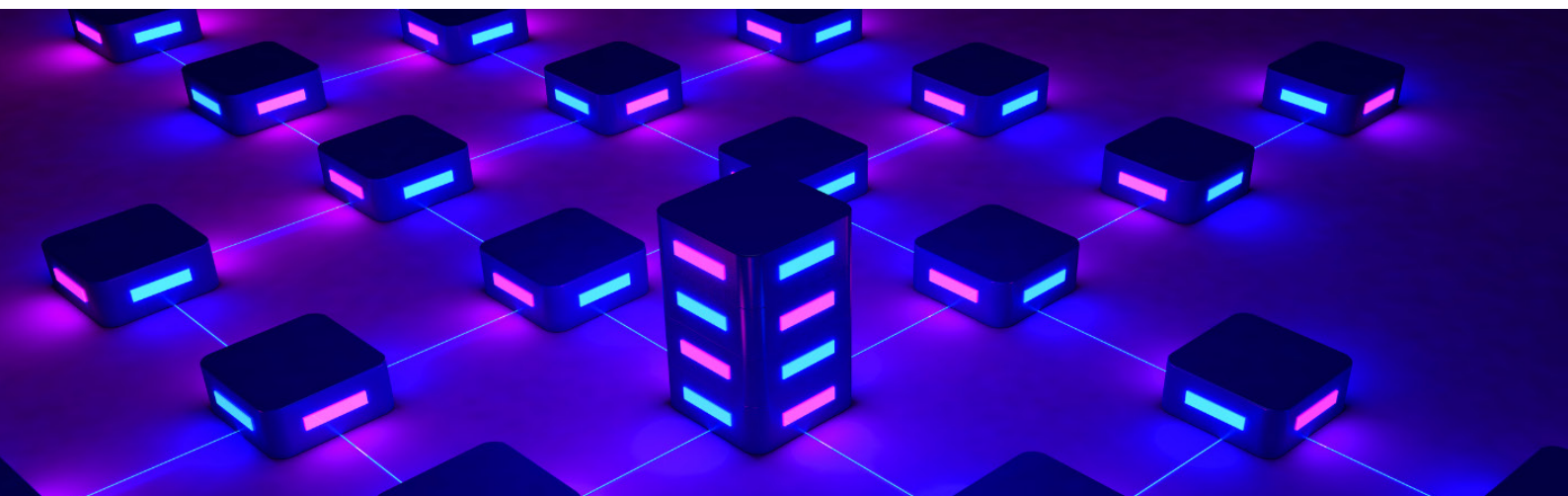
**Self-Sovereign Data (SSD):** SSD refers to a concept of a framework wherein entities have full ownership and control over their personal or organizational data. Unlike traditional models where data is stored and controlled by third parties, SSD allows data owners to decide how, when, and with whom their information is shared (selective disclosure), without reliance on centralized authorities. It enables greater privacy, security, and autonomy in data management.

**Self-Sovereign Identity (SSI):** A new cryptographic technology that enables entities to assert ownership of their identity, where the identity remains private and not disclosed during transactions in decentralized ecosystems.

**Verifiable Credential / Presentation (VC / VP):** The W3C VCs standard defines VCs as “a part of our daily lives; driver’s licenses are used to assert that we are capable of operating a motor vehicle, university degrees can be used to assert our level of education, and government-issued passports enable us to travel between countries. This specification provides a mechanism to express these sorts of credentials on the Web in a way that is cryptographically secure, privacy-respecting, and machine-verifiable. A VP is a digital proof derived from one or more VCs, allowing individuals or organizations to selectively share credentials with a verifier in a secure, privacy-preserving manner.

**Zero-Knowledge Proofs (ZKPs):** ZKPs are cryptographic methods that allow one party (the prover) to demonstrate to another party (the verifier) that they know a specific piece of information, such as a password or identity, without revealing the actual information itself. ZKPs enable secure, privacy-preserving transactions by ensuring that sensitive data remains undisclosed, while still verifying its validity.

Note: In section 5.2 of this document, the terms "user," "entity," and "stakeholder" are used interchangeably to refer to Citopia participants. These terms are not meant to convey any formal distinction.



## EXECUTIVE SUMMARY

*MOBI is accelerating standards and innovation for a decentralized, equitable digital future, while safeguarding data privacy in a Web3 economy.*

MOBI is a global nonprofit alliance dedicated to accelerating the development and adoption of standards and infrastructure for a Web3 economy. MOBI brings public and private organizations together to foster collaboration and drive innovations toward a more efficient, equitable, decentralized, and circular digital future while preserving data privacy for users and providers alike.

Around the globe, rapid increases in digitization and interconnectivity have fundamentally transformed modern life. It's often said that “there’s an app for everything,” and today this isn’t far from the truth. More and more business is conducted online. In 2022, there were 3.4 billion digital wallet users worldwide, representing 42.6% of the global population.<sup>1</sup> Similarly, online storefronts are replacing brick-and-mortar shops, transit apps are supplanting physical transit cards, virtual doctors and pharmacists are on the rise, and — perhaps most evidently — social media is now the “virtual town square”.

In recent years, emerging technologies like blockchains, Artificial Intelligence (AI), and the Internet of Things (IoT) have kicked digital transformation into overdrive. Billions upon billions of digital transactions take place each year, not just between individuals and organizations, but between devices, vehicles, packages, and pieces of infrastructure. As modern technology advances, there’s practically no limit to what can be considered a connected entity. Our world is more interconnected than ever and the trend is accelerating.

*Current systems fail to meet demands for digital autonomy, cybersecurity, efficiency, and sustainability, lacking SSI models and standards.*

However, this surge in digitization presents significant challenges. Current systems are not equipped to meet the evolving demands of consumers, enterprises, and regulators, which include:

- » Greater Individual Autonomy Over Digital Identity and Data: Existing systems lack Self-Sovereign Identity (SSI) models, leaving users vulnerable to losing access or having their accounts revoked.
- » Robust Data Protection Against Cyber Threats: Centralized data storage creates single points of failure and insecure digital perimeters, increasing susceptibility to cyberattacks.
- » Increased Efficiency and Lower Costs in Extended Value Chains: The absence of standardized protocols and architecture results in inefficiencies, high frictional costs, and information-sharing gaps.
- » Meeting Sustainability Goals and Driving Circular Economy Practices: Interoperability issues between platforms hinder efforts toward sustainability and make validating claims challenging due to the absence of SSI models.

Since 2018, MOBI has fostered collaboration among global leaders to address the crucial task of cultivating trust, cross-industry interoperability, and resilience within intricate digital ecosystems. What we’ve learned is that addressing these challenges will require a collaborative approach and a fundamental reimaging of the way digital transactions are conducted.

<sup>1</sup>“Digital Wallet Statistics (2023): Users, Growth Rate & Trends.” n.d. Capital One Shopping. <https://capitaloneshopping.com/research/digital-wallet-statistics/#:~:text=Digital%20Wallet%20User%20Statistics&text=In%202022%2C%20there%20were%203.4%20billion%20digital%20wallet%20users%20in.>

# INTRODUCTION TO MOBI

*MOBI serves as a neutral convener, fostering a cooperative environment where diverse stakeholders and competitors can work together towards a common vision.*

## Background

In the mid-2010s, numerous organizations began experimenting with proofs of concept (PoCs) to explore the potential of Web3 transformative technologies. Despite initial enthusiasm, many of these efforts failed to achieve enterprise-scale adoption and generate substantial revenue. As evident in hindsight, the primary reason for these shortcomings was the isolation in which these PoCs were conducted. Companies operated within their own silos, lacking the standards and shared digital infrastructure necessary for scalability and interoperability.

Recognizing the critical need for collaboration and standardization, MOBI was formed in 2018. MOBI emerged as a global nonprofit alliance with a clear mission: to unite public and private organizations to collaboratively develop standards and build the shared Web3 infrastructure essential for interoperable and scalable innovations. MOBI serves as a neutral convener, fostering a cooperative environment where diverse stakeholders and competitors can work together towards a common vision.

## Goals and Vision

MOBI is developing *open standards* and building the *necessary infrastructure* to support a decentralized Web3 economy and create a future where digital interactions are secure, efficient, interoperable, and sustainable.

### GOALS

#### **Developing Open Standards**

- » Cross-Industry Interoperability: Establishing protocols and guidelines that enable seamless communication and data exchange across different systems and industries.
- » Security, Privacy, and Compliance: Ensuring digital interactions and identities are secure, privacy-preserving, and compliant with global regulations.
- » Scalability and Extensibility: Creating standards that support scalable innovations and enterprise-level adoption.

#### **Building Federated Web3 Infrastructure**

- » Standardized Frameworks: Developing a common framework for identifying entities, sharing and validating data, and transacting within business networks.
- » Enterprise Networks: Constructing federated, member-built networks (*Citopia* and the *Integrated Trust Network*) to facilitate near real-time verification and data interoperability with selective disclosure for transactions.

#### **Driving Circular Economy Practices**

- » Resource Efficiency: Promoting sustainable practices through an interoperability framework that facilitates circular economy efforts.

*MOBI develops open standards to ensure cross-industry interoperability, security, privacy, compliance, and scalable innovations for enterprise adoption.*

*MOBI is building a federated Web3 infrastructure for secure, real-time data verification and interoperability.*



*MOBI envisions a secure, interoperable, and innovative digital economy that fosters sustainability through open standards and federated infrastructure.*

- » Validation and Accountability: Enabling the validation of claims and tracking of resources to ensure environmental and social governance (ESG) goals are met.

### **VISION**

MOBI envisions a digital economy where:

- » Security and Trust are Paramount: Individuals and organizations can interact with confidence, knowing their data and identities are protected.
- » Interoperability is Standardized: Diverse systems and platforms can seamlessly communicate and collaborate, reducing friction and enhancing efficiency.
- » Innovation Thrives: Open standards and federated infrastructure pave the way for scalable and sustainable innovations.
- » Sustainability is Integral: Digital solutions contribute to the circular economy, promoting responsible use of resources and minimizing environmental impact.

Through collaborative efforts, MOBI is laying the groundwork for a more secure, interoperable, efficient, resilient, and sustainable digital economy. The development of open standards and Web3 infrastructure facilitates technological advancements, drives economic growth, and offers societal benefits, paving the way for a future where decentralized, user-owned digital ecosystems thrive.

### **Community**

*MOBI participants gain a critical “first-mover” advantage, positioning themselves at the forefront of the evolving digital landscape.*

*MOBI's members*, comprising a diverse array of industry leaders, governmental bodies, and consortia/non-governmental organizations (NGOs), contribute to a robust and dynamic community. This diversity ensures that a wide range of use cases, challenges, and solutions are considered, promoting innovation and inclusivity. By participating in MOBI, organizations gain a critical “first-mover” advantage, positioning themselves at the forefront of the evolving digital landscape.



# UNDERSTANDING WEB3

*The limitations of Web2 highlight the need for Web3, a decentralized, user-owned digital economy that fosters seamless communication and trust.*

*Web3 represents a broad vision of interconnected value chains, transcending specific technologies like blockchain or cryptocurrency.*

*Scaling Web3 requires a collaborative effort across industries. MOBI's mission is to foster this cross-industry cooperation for Web3 advancements.*

## What is Web3?

Today, we find that the limitations of the Web2 paradigm — characterized by data silos, interoperability issues, and escalating trust costs — are more apparent than ever. These challenges underscore the need for a new approach that can cater to our increasingly complex global ecosystem.

When the term “Web3” was first coined, it symbolized the dawn of a new era: a decentralized, user-owned, privacy-first digital economy.<sup>2</sup> It promised smarter, more seamless communication and business practices, and the unlocking of new revenue streams through trusted data. So, what is Web3? Is it blockchain? Cryptocurrency? The Metaverse? In truth, “Web3” is more or less a blanket term that represents a broad vision, rather than pinpointing a specific technology or application. This vision extends beyond the boundaries of single entities, encompassing entire value chains to foster a unified digital ecosystem. As a result, the use of blockchain or crypto alone is not enough to constitute Web3 in a meaningful sense.

The idea behind Web3 is that it's an updated version of the Internet: one which is decentralized, user-owned, and privacy-centric, with a more democratic governance model than the Internet of today or yesterday. It's a collective move away from winner-takes-all Web2 paradigms like Big Data and centralized platforms — participants in this updated Internet own their data and identities and can engage as autonomous agents in transactions while retaining complete control over who sees their data and how that data is used.

## Why Web3?

- » Decentralization: Reduces reliance on centralized entities, mitigating single points of failure, and enhancing system resilience.
- » User Ownership: Empowers individuals with control over their digital identities and data, improving privacy and security.
- » Interoperability: Promotes seamless communication and data exchange across diverse systems, enhancing efficiency.
- » Innovation: Encourages an open environment where innovations can thrive without monopolistic barriers.

At its core, Web3 is about trust and cross-industry interoperability — seamless interconnection and cooperation among diverse systems, organizations, and industries, with trusted identities and verifiable transactions. So, Web3 is much bigger than any single technology. It's not a product. It can't be delivered or implemented by one single company, and it's not going to arrive overnight. It is multi-faceted and requires cross-industry collaboration. Therein lies the crux of MOBI's work: facilitating collaboration for advancements in Web3 and cross-industry interoperability.

<sup>2</sup>Ashmore, Dan. 2022. “What Is Web 3.0? – Forbes Advisor.” [www.forbes.com. August 26, 2022. https://www.forbes.com/advisor/investing/cryptocurrency/what-is-web-3-0/.](https://www.forbes.com/advisor/investing/cryptocurrency/what-is-web-3-0/)

# MOBI WORKING GROUPS AND STANDARDS

*MOBI Working Groups unite diverse stakeholders to develop protocols for trusted data applications, fostering sustainable solutions for the future of digital interactions.*

Achieving a true circular economy requires a level playing field where no single entity owns all the data. This necessitates the implementation of a standardized framework for SSI and Self-Sovereign Data (SSD), to ensure interoperability and allow stakeholders to maintain autonomy over their identities and data. Through SSI and SSD, entities can communicate and close information-sharing gaps, critical for ensuring robust lifecycles of products and services.

MOBI's Working Groups are at the forefront of this effort, fostering collaboration and developing the protocols needed for a true Web3 economy. These standards enable the creation of new models and applications rooted in trusted data, such as CO2 emissions tracking, recycling, and reuse initiatives. By promoting interoperability and data sovereignty, MOBI is laying the groundwork for innovative, sustainable solutions that support the circular economy and drive the future of digital interactions.

## MOBI Standards

*MOBI Standards are the foundation of an interoperable Web3 digital ecosystem characterized by privacy-first transactions leveraging Self-Sovereign Identity and Self-Sovereign Data.*

Standards are the foundation of any robust, interoperable system, enabling the creation of products and services that can communicate and work together while meeting common guidelines for safety, data privacy, and environmental/social responsibility.

MOBI Standards are the foundation of an interoperable Web3 digital ecosystem characterized by privacy-first transactions leveraging SSI and Self-Sovereign Data; an ecosystem in which seamless information exchange and validation sets the stage for the creation of new, pay-as-you-go, multiparty applications and services rooted in trusted data and transfer of data.

MOBI Standards are developed through collaborative efforts within member-led Working Groups. While many standards focus on specific use cases, the core principles at work are intended to maintain applicability across use cases and industry sectors. [Access MOBI Standards](#)

## MOBI Working Groups

MOBI's member-led Working Groups (WGs) unite subject matter experts from various fields and industries to evaluate use cases, assess gaps, develop standards, and leverage Citopia and the Integrated Trust Network (ITN) in various [pilot projects and Minimum Viable Products \(MVPs\)](#). MOBI Working Groups are established based on member nomination and industry trends. [Explore MOBI Working Groups](#)

## Vehicle Identity (VID) I & II

MOBI VID I and II defined a vehicle's Self-Sovereign Digital Twin™ (SSDT™). The SSDT™ provides the necessary bridge to the physical asset that allows owners/controllers to manage access control, confirm ownership history, log key life events, and interact with other SSDTs™ in the connected ecosystem.

Standards and pilots/MVPS developed by the WGs are:

- » MOBI VID Business White Paper (January 2019)
- » MOBI VID I Technical Specifications (March 2019)
- » MOBI VID II Use Cases and Business Requirement (January 2021)
- » MOBI VID II Reference Implementation Architecture (January 2021)
- » PILOT: [World's First Decentralized Vehicle Identity Implementation with Leading Automakers](#) (October 2019)

### **Mobility and Usage-Based Services (UBS)**

The UBS Working Group aimed to define a framework with appropriate identity, data, and permissioning proceeds to enable secure data sharing and consumption for marginal cost pricing of usage-based services, including insurance. The standards developed by the WG are:

- » UBS White Paper (Publication Date TBD)
- » UBS Technical Specifications (Publication Date TBD)

### **Electric Vehicle Grid Integration (EVGI) I & II**

EVGI I defined the interoperable systems necessary for seamless grid management, carbon offset calculation, and carbon credit generation, facilitating the implementation of P2P services. EVGI II is reevaluating initial EVGI standards and working on pilots, including Vehicle-to-Building communication for charging and storage. Standards and pilots/MVPS developed by the WGs are:

- » EVGI Business White Paper (January 2021)
- » EVGI Technical Specifications (August 2020)
- » PILOT: [EV Reservation, Charging, and Payment](#) (November 2021)

### **Connected Mobility Data Marketplace (CMDM)**

The CMDM Working Group aimed to enable the creation of a privacy-preserving mobility data marketplace by defining core services, logical schemas, and sensor identity/ownership certificates for Vehicle-to-Everything (V2X) data exchange, geo-location cross-validation, multimodal trip planning, and AV coordination. The standards developed by the WG are:

- » CMDM Business White Paper (March 2021)
- » CMDM Technical Specifications (March 2021)

### **Finance, Securitization, and Smart Contracts (FSSC)**

The FSSC Working Group aims to enable the creation of Web3-based solutions to improve the vehicle finance process for lenders, manufacturers, dealers, and consumers alike. FSSC is spearheading pilots focused on Dealer Floorplan Auditing and Automation of e-Registration & e-Titling. Standards and pilots/MVPS developed by the WGs are:

- » FSSC Business White Paper (June 2021)
- » FSSC Technical Specifications (June 2021)
- » PILOT: [Dealer Floorplan Audit](#) (February 2023)
- » PILOT: [Vehicle Registration and Titling](#) (In progress)



### **Supply Chain (SC) I & II**

SC I defined a DLT-based framework to unlock enhanced visibility into global supply chains and facilitate seamless communication to manage production, maintenance, and safety while meeting consumer and regulatory demands. SC II, now a part of the Circular Economy and the Global Battery Passport (CE-GBP) Working Group, is working on standards and exploring regulation-compliant solution frameworks for battery supply chain track-and-trace. Standards and pilots/MVPS developed by the WGs are:

- » SC Use Cases and Business Requirements (June 2021)
- » Global Battery Passport Implementation Guidelines (June 2023)
- » PILOT: [EV Battery Track-and-Trace](#) (June 2022)
- » SC Reference Implementation Architecture (June 2021)
- » Electric Vehicle Battery End-of-Life Management Business White Paper (November 2023)

### **MOBI Technology Stack (MTS)**

MTS meetings bring all MOBI members together to drive progress and strategize on key initiatives. This includes aligning on Working Group roadmaps, standards development, and development on Citopia and the Integrated Trust Network (ITN). MTS serves as the implementation WG for all pilot projects and is the facilitating WG for educational programs and initiatives within MOBI.

- » EDUCATION: [MOBI Web3 Course](#)



## MOBI WEB3 VISION AND ARCHITECTURE

*Lack of interoperability between existing systems hinders innovation and drives up business costs worldwide.*

Worldwide, countless organizations operate with distinct processes for managing sensitive business and customer data. In complex value chain networks, current solutions fail to provide the interoperability needed for organizations to coordinate without paying for costly one-off integrations or abandoning their existing systems. This hinders efficiency, drives up costs, and undermines innovation. Addressing these issues is crucial for fostering a cohesive, resilient, and forward-thinking digital ecosystem. Recognizing this, we've developed a list of requirements for cross-industry interoperability:



Zero Trust Authentication



Data Privacy & Selective Disclosure



Affordability, Scalability, and Extensibility



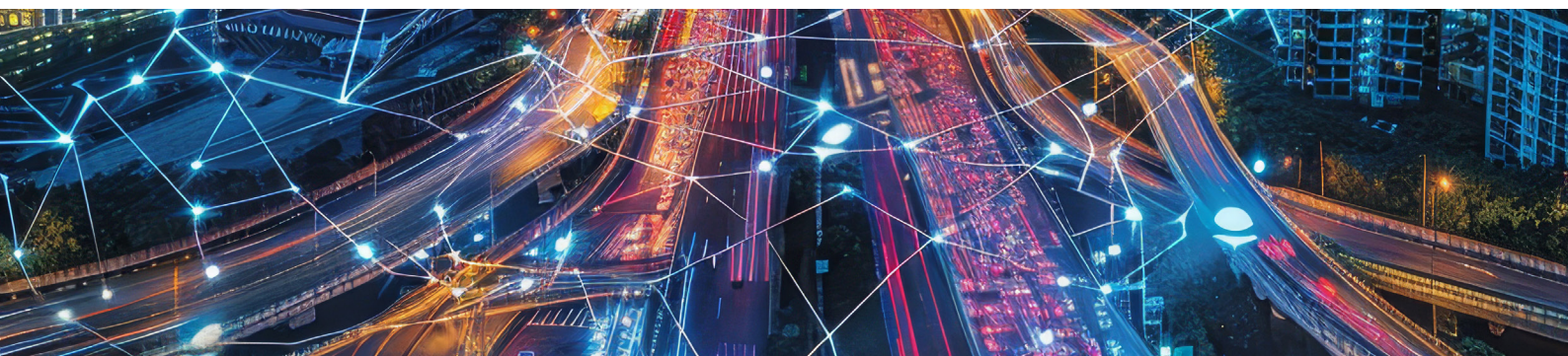
Near Real-Time Verification



Federated Infrastructure

*MOBI is building a decentralized marketplace enabling secure transactions with data and identity ownership, supported by interoperability and security standards.*

Recognizing these challenges, MOBI members initially focused on developing standards for interoperability and data security. However, it soon became evident that standards alone were insufficient without a robust, shared federated infrastructure to support their implementation. To this end, MOBI members are building the first enterprise Web3 infrastructure comprising two independent federated networks: *Citopia* and the *Integrated Trust Network (ITN)*. Together, Citopia and ITN form a secure, standard-based, decentralized marketplace wherein entities can seamlessly transact **while retaining ownership and control over their data and identities.**

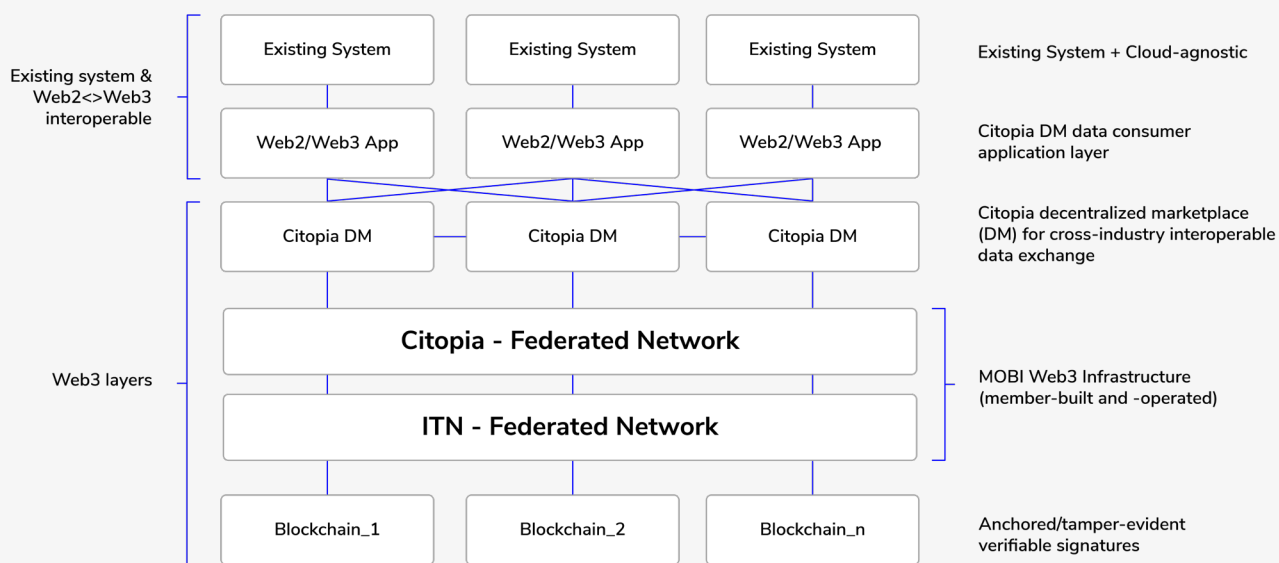


*Citopia and the ITN provide a unified framework with standardized protocols for verification and selective disclosure across platforms.*

SSI is an emerging paradigm of digital identity management: instead of relying on centralized authorities (e.g. banks, tech companies) to issue and manage identities, entities (users/providers) can create, store, and manage their own identifiers (linked to government credentials) securely on their own devices for selective disclosure with others in the ecosystem. They can share specific pieces of data as needed, without exposing sensitive personal or organizational information.

Citopia and the ITN offer a unified framework with standardized W3C communication protocols rooted in SSI and SSD. These protocols serve as a common language, portable across any system, platform, or cloud (see Figure 1). This equips any entity — from enterprises to consumers, IoT devices, and more — with the tools to:

- » authenticate/verify the identities and claims of stakeholders for each transaction via globally unique encrypted digital signatures, and
- » exercise selective disclosure — control over who sees their sensitive personal or business data, how much they see, and how it's used.



**Figure 1.** MOBI's Web3 vision and architecture enables SSI and cross-industry Web2/Web3 interoperability

Figure 1 illustrates an overview of MOBI's Web3 vision and architecture. Both Citopia and the ITN are:

- » Independent, for-profit organizations with their own federated governance structures.



*Citopia and the ITN are independent, member-operated federated networks with inclusive governance. They enable seamless communication across existing systems, reducing integration and maintenance costs.*

- » Member-built and -operated (federated networks). Each network is governed by members/node operators (1 operator = 1 vote). This federated model ensures fairness by preventing monopolization, enhancing resilience, reducing single points of failure, and fostering inclusivity, allowing public/private organizations of all sizes to participate on equal footing. By leveraging shared operational infrastructure, node operators on Citopia and the ITN benefit from lower costs and greater network efficiency as the ecosystem grows.
- » Existing systems, Web2, Web3, and cloud-agnostic, meaning stakeholders (providers/users) can seamlessly communicate while retaining their existing systems, apps, and cloud services. This removes the need for costly one-off integrations and eliminates prohibitive onboarding/maintenance costs, ensuring a low barrier to entry for all.

*The member-owned and operated ITN is a layer-two, protocol-agnostic digital infrastructure built to provide trusted identity services for IoT commerce.*

## Integrated Trust Network (ITN)

Created by MOBI members, along with members of other consortia such as MEF<sup>3</sup> and AAIS<sup>4</sup>, the ITN is a federated network of nodes offering trusted identity services built on the World Wide Web Consortium<sup>5</sup> (W3C) Decentralized Identifiers<sup>6</sup> (DIDs) open-standard. The ITN is a registry for DIDs.

DIDs are cryptographically verifiable signatures, used in conjunction with Verifiable Credentials/Presentations (VCs/VPs) to authenticate/verify transactions. This privacy preserving process is autonomously managed without relying on centralized authorities or third party identity providers.

The ITN is the first enterprise network to support multiple blockchains simultaneously. This boosts resilience by ensuring the network does not have a single point of failure — i.e., does not rely on a single organization or blockchain for functionality and sustainability. [Read more about the ITN](#)

## Citopia

*Citopia is a member-built and operated Web3 marketplace designed to facilitate cross-industry interoperability for seamless and secure digital transactions.*

Built by MOBI members using the W3C Verifiable Credentials (VCs) open-standard<sup>7</sup> and Zero-Knowledge Proof<sup>8</sup> (ZKP) cryptography, Citopia is a federated network of nodes that collaboratively create a decentralized marketplace, enabling transactions using selective disclosures while allowing ecosystem stakeholders (providers/users) to maintain full control over their digital identities and data.

<sup>3</sup>AMEF. <https://www.mef.net/>.

<sup>4</sup>Aaisonline.com. <https://aaisonline.com/>.

<sup>5</sup>W3C. 2023. "World Wide Web Consortium (W3C)." W3.org. 2023. <https://www.w3.org/>.

<sup>6</sup>"Decentralized Identifiers (DIDs) V1.0." 2022. Wwww.w3.org. July 19, 2022. <https://www.w3.org/TR/did-core/>.

<sup>7</sup>"Verifiable Credentials Data Model V2.0." n.d. Wwww.w3.org. <https://www.w3.org/TR/vc-data-model-2.0/>.

<sup>8</sup>WIRED. 2022. "Computer Scientist Explains One Concept in 5 Levels of Difficulty | WIRED." YouTube. <https://www.youtube.com/watch?v=fOGdb1CTu5c>.



*Citopia Decentralized Marketplace (DM) serves as the interface for secure, private communication and coordination between providers and users.*

### **Citopia Decentralized Marketplace (DM)**

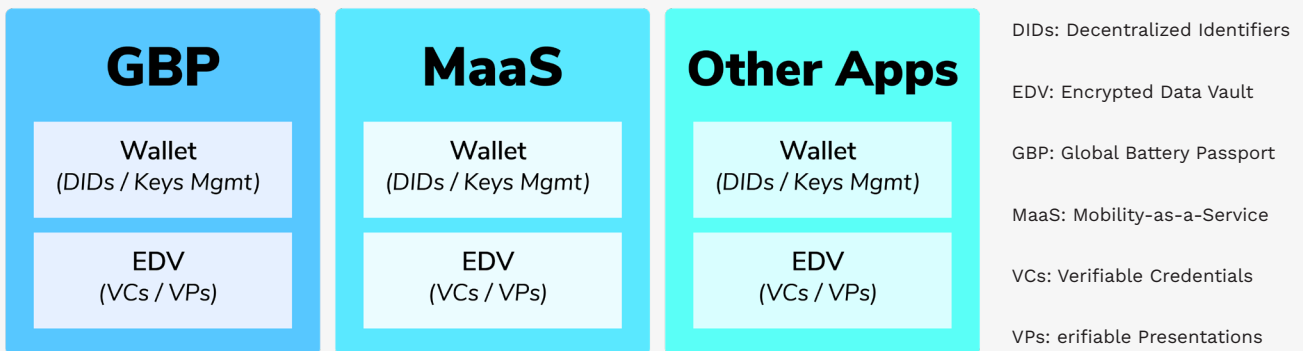
Citopia Decentralized Marketplace (DM) serves as the interface (middleware layer using SSI and SSD) for secure, private communication and coordination between ecosystem stakeholders (providers/users). Each user joins and installs Citopia DM on their own device (Figure 2). This serves as a private marketplace, owned and controlled by each user, through which they can transact with others in the ecosystem.

At scale, a cooperating network of private marketplaces form a decentralized, interoperable marketplace, allowing seamless communication across organizations, industries, and geographies without requiring costly integrations or overhauls of existing systems.

Through Citopia DM, ecosystem stakeholders retain full control over their digital identities and data. By employing Selective Disclosure, providers and users can choose exactly which information to share and how their data is used, ensuring data security and privacy.

## **Citopia Decentralized Marketplace**

### — User Interface



**Figure 2.** Citopia DM user interface is composed of multiple applications, e.g. Global Battery Passport (GBP), Mobility as a Service (MaaS), and Distributed Grid/Connecting Communities (CC-2.0).

*Currently, MOBI members are working on two marketplace applications: Global Battery Passport (GBP) and Mobility-as-a-Service (MaaS).*

Currently, MOBI members are working on two marketplace applications: Global Battery Passport (GBP) and Mobility-as-a-Service (MaaS). These initial selections represent areas of great interest in the community due to (1) increased regulatory activities worldwide and (2) enormous potential for new applications rooted in trusted data. All Citopia DM apps are built on SSI and SSD principles, therefore only the user/owner/controller has access to their transactions' data.

### **Self-Sovereign Digital Twins™ (SSDT™)**

Each Citopia DM application comes equipped with a Self-Sovereign Digital Twin™ (SSDT™) for each user, which powers secure transactions and data exchanges. SSDTs™ consist of two components (Figure 2):

- » A Wallet that securely stores DIDs and their cryptographic keys.

*Each Citopia DM includes a Self-Sovereign Digital Twin™ (SSDT™) with a wallet for DIDs and an encrypted vault for secure data storage and transactions.*

- » An Encrypted Data Vault (EDV) that stores VCs/VPs for transactions.

For example, when Company A downloads a Citopia DM, the SSDT™ for each app securely stores its credentials, allowing the company to authenticate its identity and selectively disclose necessary information. All data remains under Company A's control, ensuring no third party — including Citopia Inc. — has access to its sensitive data.

#### **Example Transaction in the GBP Application**

Company A, an electric vehicle manufacturer, must prove to a Conformity Assessment Body (CAB) that a battery — Battery A — is in compliance with EU Battery Regulation Article 77/Annex XIII/Section 1 requirements (see [MOBI Battery Birth Certificate Technical Specifications standard](#)).

Here's how this transaction unfolds in Citopia GBP App:

- » Both Company A and CAB sign up for Citopia DM accounts. Membership credentials are generated for each company in the form of VCs.
- » Both Company A and CAB use their Citopia membership credentials to create accounts in Citopia GBP App.
- » Company A and CAB create a private communication channel within the Citopia GBP App for Selective Disclosure (data only to intended recipient).
- » Both parties pre-settle on how often Company A must share battery information to ensure regulatory compliance.
- » Company A sends a VP to CAB with the required battery data as per the agreed-upon schedule.
- » CAB verifies the identity of Company A and checks the battery data to ensure regulatory compliance.
- » CAB sends a VP to Company A verifying that Company A has fulfilled the necessary requirements for the period.

*Citopia DM enables secure, privacy-preserving transactions across industries, ensuring data ownership while verifying materials, digital assets, and compliance, creating a transparent and resilient Web3 ecosystem.*

This is just one example. Citopia DM facilitates countless interactions across industries, ensuring trustworthy, seamless, and privacy-preserving transactions. Whether verifying the provenance of materials, confirming digital asset authenticity, or ensuring regulatory compliance, Citopia empowers entities to securely exchange verified information. This innovative model creates a transparent, efficient, and resilient Web3 ecosystem.



## CONCLUSION

*MOBI leads the development of a decentralized, secure, interoperable digital economy by fostering collaboration and creating standards for privacy-preserving transactions across industries using SSD and SSI.*

*MOBI's federated, interoperable framework for secure, cost-effective cross-industry collaboration helps drive Web3 adoption and foster an inclusive, resilient Web3 ecosystem for all.*

MOBI's work is at the forefront of shaping the future of a decentralized, secure, and interoperable digital economy. Through the collective efforts of its diverse community of members, including public and private organizations, MOBI fosters collaboration and drives the development of standards that form the foundation of our Web3 infrastructure. This shared vision, built on SSD and SSI, enables secure, privacy-preserving transactions and interactions across industries.

MOBI's efforts ensure that organizations can trust in a federated, interoperable framework that enhances security, reduces costs, and enables cross-industry collaboration. The development of this infrastructure is crucial to advancing the use of decentralized technologies, which will empower users, protect intellectual property, and pave the way for a more inclusive, equitable digital future. MOBI's commitment to this vision continues to drive innovation, ensuring that the benefits of Web3 are accessible to all stakeholders and industries worldwide. As we move forward, the collective efforts of MOBI's global community will continue to drive innovation, promote inclusivity, and create a resilient digital ecosystem where all stakeholders can thrive.





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