



**Welcome to 5ire**

**Blockchain X Sustainability = 5IRE**

Lightpaper

[www.5ire.org](http://www.5ire.org)



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**FROM INTERNET OF INFORMATION  
TO INTERNET OF VALUE.**



# Introduction

5irechain's primary goal is to create a user-centric sustainability-driven ecosystem. This is achieved by embedding sustainability in the network's base layers and the upper decision-making that democratically commands the network. 5irechain is a Nominated Proof-of-Stake blockchain with validators that bring sustainability from the off-chain and governance mechanisms that assure the empowerment of working groups and decentralized organizations that work toward the implementation of the 2030 Agenda, thus bringing a shift from a for-profit paradigm to a for-benefit by altering the core concepts and leverage the true power of blockchain as a source of truth and multilayered oracles as the tools to bring forth this true power of DLT technologies and offering the most secure and advanced collaboratives tools that are based on E2E encryption data exchange open-source protocols to help DAOs and working groups at bringing forth value off-chain, to the world.





# SUSTAINABILTY

It is evident that the current industrial and economic activities are still centralized around specific siloed entities and corporations. These entities operate in isolated, sharded frameworks and business ethics with no means for interoperability, base layer, or common value models to guide the growth rates that the subject corporations are leaning to. This entropy had generated too much harm for the planet and humans. We live in a world where incertitudes are the only metrics we have about tomorrow. Now is the time for embedding corporations and collectives as moral entities inside an interoperable framework with sustainability, openness, inclusivity, and humanity as the base layer to bring forth a common value system and eliminate inefficiencies, lack of communication, and federation between legacy systems. 5irechain empowers [Innovation & Sustainability](#) to build the ecosystem of tomorrow while having Sustainability and UN SDGs as the common value system and WebAssembly as the underlying environment that assures 5irechain seamless upgradability toward more technological advances.



**UN SDGS ARE THE COMMON LANGUAGE OF 5IRE.**  
**INNOVATION IS THE TOOL.**







## GOVERNANCE

5irechain aims to be a launchpad of governance infrastructures where collectives and communities self-govern, federate and explore the future of governance systems. 5ire Ecosystem invites communities, working groups, and governments to form decentralized organizations on-chain while leveraging immutability, transparency, universal time system, tamper-proofing, and consensus properties that blockchain and DLT technologies have. 5irechain is inspired by sovereign nations. It is an Ecosystem that provides governance mechanisms, treasuries, liquid democracy & different voting mechanisms, and ways to form unions and confederations between DAOs. While 5irechain is itself a governance structure with on-chain decentralized proposal systems that powers stakeholders and DAOs that build 5ire Technologies and those aligned with UN SDGs and work toward achieving the UN 2030 Agenda.



**5IRE BUILD THE FUTURE SYSTEMS OF GOVERNANCE**



## FUTURE-PROOFING

One of the main requirements for the achievement of society 5.0 and digital communities is the future-proofing property that assures upgradability and elasticity of the digital solutions that will build the society and organizations of the future. Being built with substrate and based on WebAssembly gives the ability to upgrade and adapt to changes seamlessly, and 5irechain can achieve this while leveraging sophisticated governance mechanisms that will assure the longevity of the fifth industrial revolution purpose.




**5IRECHAIN IS A FULLY UPGRADABLE BLOCKCHAIN.**





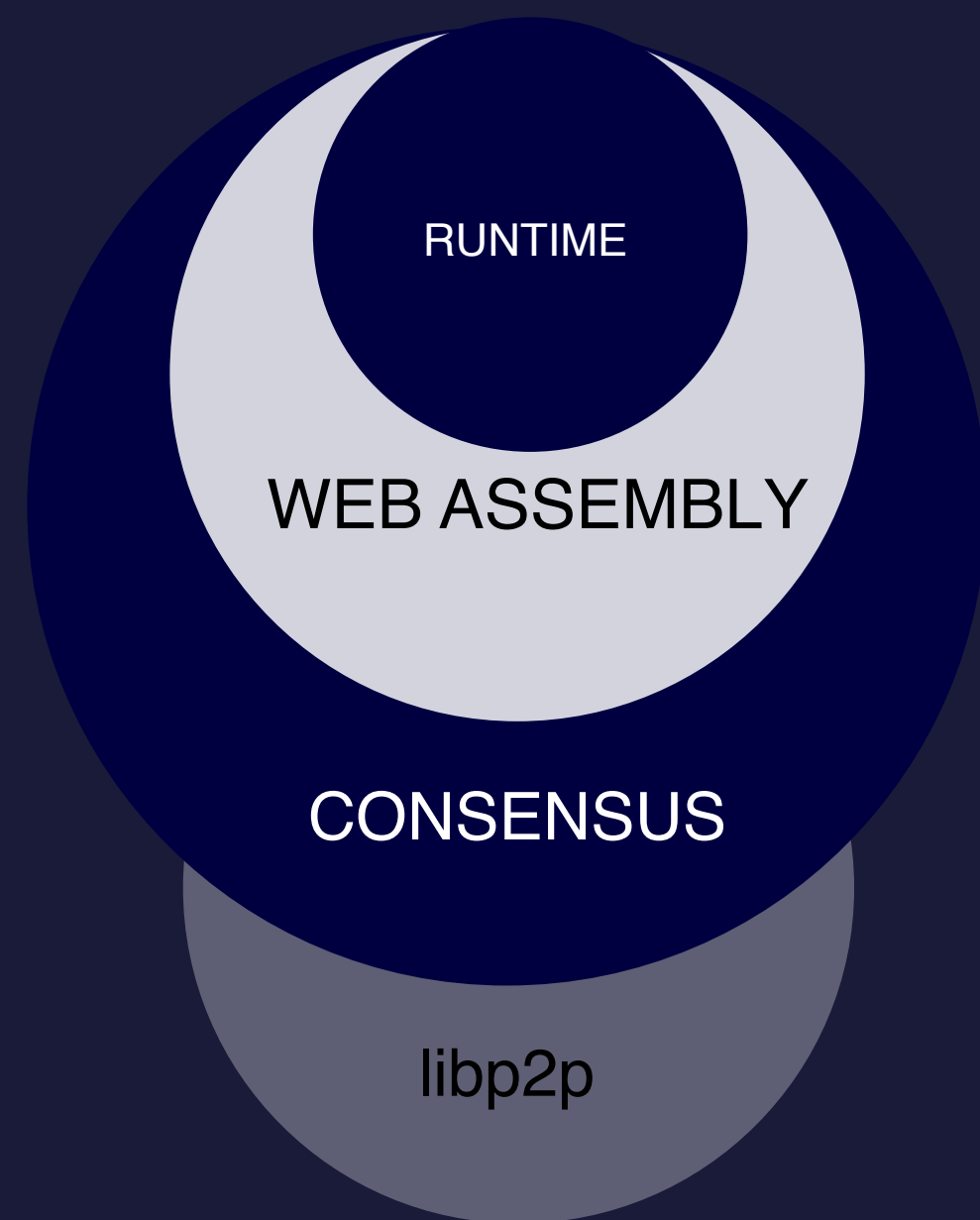
# SCALABILITY



5irechain takes a different approach to realize scalability. All the network actors and stakeholders can propose and vote on future network upgrades. The future-proofing nature of 5irechain assures a seamless upgrade and change, even for the entire logic and code. 5irechain will experience applying homogeneous and heterogeneous sharding to the network where 5ire envisions a future where the ecosystem is restructured as sovereign heterogeneous shards of a global network of connected blockchains and solutions—achieving true horizontal and vertical scalability that single chains can never achieve. An Ecosystem of sophisticated and dedicated ecosystems that work on building the 5th industrial revolution. 5ire assures openness, unity of purpose, and inclusivity. Thus, shaping the ethics of business and collaborations toward sustainability while providing the best technological stacks, rewards, and future solutions.



**5IRECHAIN IS CREATED TO EVOLVE.**



# DEVELOPABILITY

The 5irechain runtime is built with a modular approach and self-upgradability, allowing the combination between smart contracts logic and runtime modules to serve as building blocks for several fields, including IoT, on-chain Governance, Defi primitives, Self-sovereign digital identity management, and e-governance.

5irechain can execute EVM smart contracts with full compatibility with ethereum tooling, And the more powerful WebAssembly WASM smart contracts using Ink! As a rust-based e-DSL.







## INTEROPERABILITY

5irechain assures interoperability with most of the existing blockchains. One of the 5ire main goals is to build interoperability between legacy systems and on-chain activities through building off-chain workers oracles and decentralized web technologies that will bring sustainability indicators and off-chain legacy processes on-chain to showcase the ability of blockchains to create sustainable, decentralized communities, democratic governance, sophisticated identity and documents management solutions. 5irechain will assure interoperability through building bridges to existing blockchains and provide cross-chain communication with 5ire Ecosystem.



**BLOCKCHAINS BRING FORTH TRUTH, NOT TRUST.**

# ORACLES & OFF-CHAIN WORKERS



NOT JUST AS PRICE FEEDS.

Since the birth of bitcoin, humanity is able and for the first time in history to have a common source of truth that is backed by physical laws and mathematical assumptions behind cryptographic primitives, surpassing the old paper agreement models which are built on top of a “Trust me” model instead of “Truth”. One of the undervalued aspects of Blockchain technologies is Oracles. 5irechain deals with the oracle problem by building off-chain workers and off-chain data bridges to bridge the gap between legacy systems, real-world scenarios, and DLT technology thus bringing forth the true power of blockchains by separating facts from narratives and blockchain offers an unprecedented “Cryptographic Truth” that can be used as the backing for how humans agreements are done. 5irechain is heavily focused on bringing off-chain data and Artificial intelligence to blockchain decision making. And 5ire is building ESG-family sustainability indexes and next-generation united nation SDG indicators and reporting standards for society 5.0, all of this while Leveraging the true power of blockchains and oracles.



Off-chain workers and oracles



Artificial intelligence



Trusted Execution Environment  
(TEE)



IPFS and distributed  
communication protocols

# USE CASES



# 1. E-GOVERNANCE

One of the main goals of 5irechain is to become a governance framework that proposes a strategic pathway that enables interoperability between off-chain digital legacy systems and governmental infrastructures with blockchain technology, thus enabling a marriage between the two currently distinct fields and bringing the powerful features of blockchain to legacy systems. The adoption of blockchains by organizations has pointed to the integration and interoperability between blockchains and other systems as one of the most promising use cases of distributed ledger technology.

The integration of off-chain worker oracle mechanisms in the 5ire ecosystem will enable a whole new shift in how legacy systems work where the processing of citizens and users claims can become verified through the 5ire ecosystem and be assured of the non-repudiation of the whole process of claiming and verification.

## The benefit of the interoperability between legacy systems and the 5ire Ecosystem:

- Governance by design.
  - Sustainability is at the core of blockchain activities.
  - Transparency and accountability.
  - Sophisticated document control systems.
  - Reducing corruption and error.
  - Elimination of inefficient intermediaries and introduction of data validation through off-chain oracle networks.
  - Strong security guarantees. Confidentiality, Integrity, Authentication, and Non-Repudiation.
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- ✓ Land Registry and land-title transfers.
  - ✓ Agricultural insurance
  - ✓ Intellectual property protection and digital rights management.
  - ✓ Voting.
  - ✓ Healthcare.
  - ✓ Supply chain



## 2. SOCIETY 5.0 AND SMART CITIES

According to the United Nations data booklet “The World Cities in 2018”, By 2030, 60 percent of the world population will live in cities. And as cited in the booklet, understanding the key trends in urbanization is crucial to the implementation of the 2030 Agenda for Sustainable Development, including Sustainable Development goals. This increase in the urbanization rate of growth surely can bring economic benefits. Yet this includes high risks of environmental and social problems. Thus we see a considerable need for wrapping this growth rate in a for-benefit sustainable operating model instead of a destructive for-profit paradigm.

The G20 Global Smart Cities Alliance and FY 2020 Japan smart city project have shared a framework of common principles for the implementation of Smart City Technologies that should be highlighted for blockchain utilization in building smart cities of the future.

- ✓ Define a clear and sustainable vision.
- ✓ Interoperability.
- ✓ Formulate regional organization/initiative
- ✓ Scalability and Future-Proof.

5irechain is the missing point in providing an implementation for the framework of G20 Global Smart Cities Alliance common principles to build Smart Cities and society 5.0. While providing IoT with on-chain and off-chain components. This hybrid approach is the answer to the current limitation of both sides. With blockchain technology and Matrix protocol assuring the most secure and efficient way for data transfers.

- ✓ Sustainability and service of humanity by design.
- ✓ Interoperability by bridges and cross-chain communication.
- ✓ Governance and Democracy by design.
- ✓ Scalability through hybrid consensus and future sharding of the network.
- ✓ Future-Proof by Forkless upgradeability of the runtime.

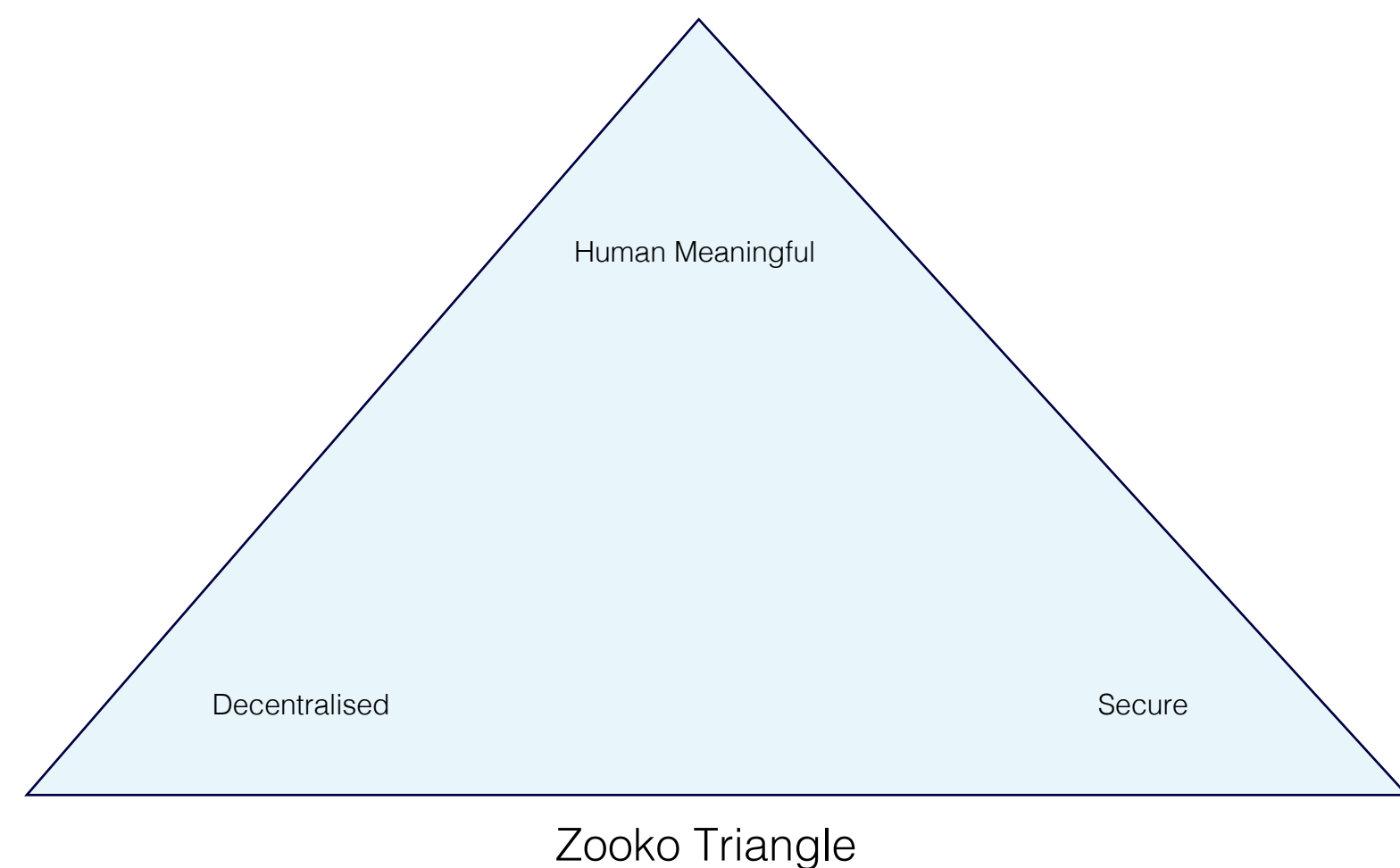


# 3. THE FUTURE OF NAMING SERVICES

The current DNS is a distributed network that allows you to recover IP addresses. By its hierarchical nature, it represents a high-value attack vector. Because it is mostly centralized, the tiniest of errors could bring down the entire internet. The DNSSEC was brought forth to add a layer of trust on top of the existing DNS system by providing authentication,

but it still lacked protection against DoS/DDoS and was also difficult to deploy.

Blockchain technology offers an innovative solution to these challenges, and while it may have its own shortcomings, it is a promising approach to building more secure naming Systems.

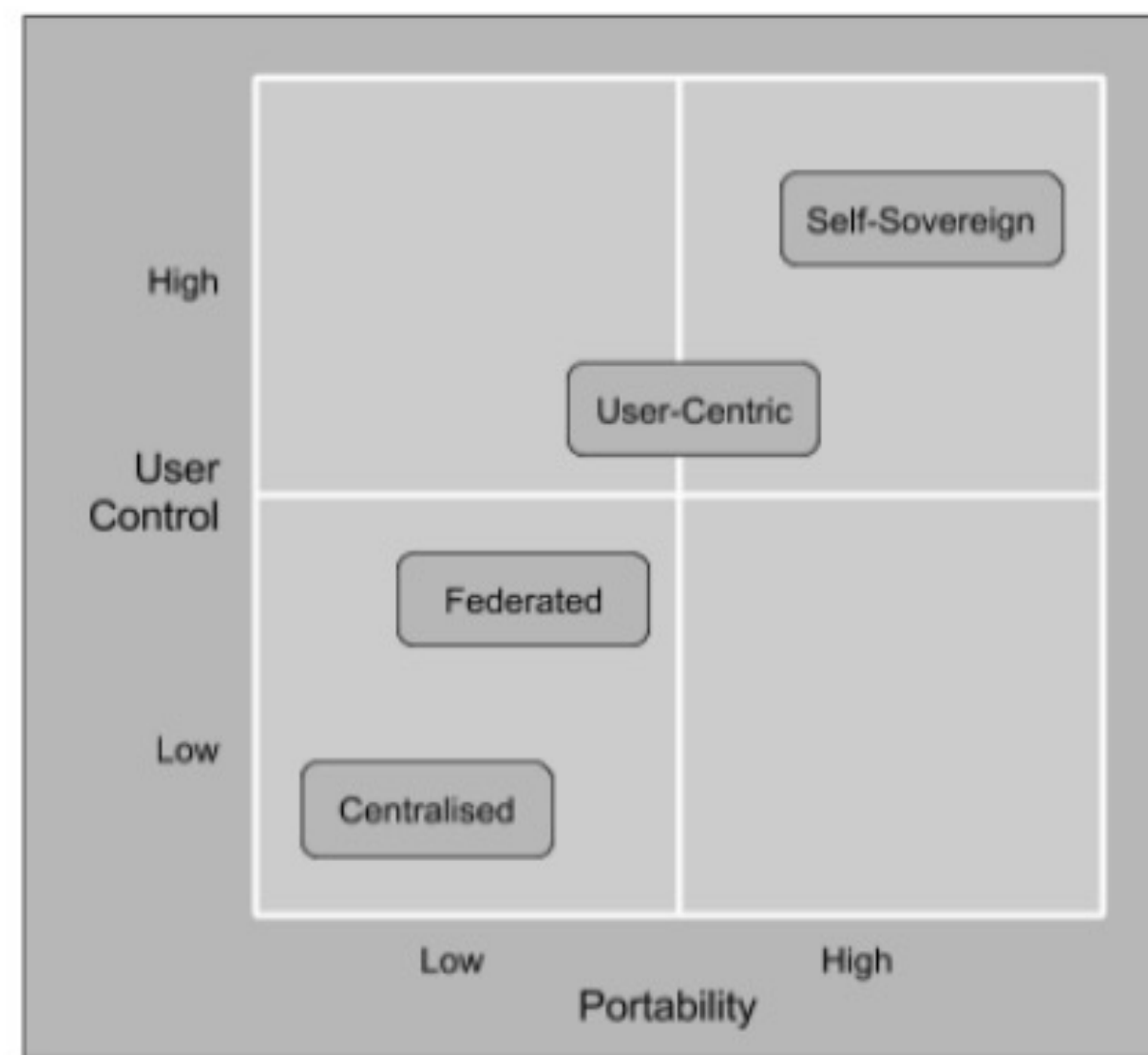


- ✓ Current naming systems are centralized and fragmented, adding significant management costs while leveraging less utility.
- ✓ DNS suffered from attacks like Man In The Middle, DNS Tunneling, DNS Hijacking, Reflection/Amplification DNS, TCP SYN Flood, and DoS et DDoS attacks
- ✓ Blockchain aims to create powerful, easy to access, and immutable naming services that can be used by anyone and for a variety of use cases. And bring decentralized governance to the DNS hierarchy.



# 4. IDENTITY MANAGEMENT AND SELF-SOVEREIGN DIGITAL IDENTITY

5irechain will give legacy systems, governments/enterprises workers, and citizens the opportunity of owning their self-sovereign identities while still permitting the verification of credentials on-chain. Nowadays, digital legacy management tooling encounters severe security, scalability, portability, and elasticity issues. 5irechain identity management's vision is to give back the right of owning identities to citizens and users alike. A self-sovereign approach where identities reside on the user side while maintaining a cryptographical process of issuing and verifying credentials and information contained on them without revealing other sensitive data.



The 5irechain-based self-sovereign digital identity management system can form the basis for many governmental tracking and validation services.



Verification of academic credentials and validation of professional qualifications.



Electronic healthcare records and vaccination tracking.



Management of student loans and innovation grants.

## 5. METAVERSE: THE NEW REALITY

5irechain believes in the utility VR and AR in the improvement of the way organizations of the future collaborate and interact with each other, but the present-day IoT and VR solution providers and vendors are creating the silos we had already witnessed in other technology areas such as instant messaging and also blockchains.

5irechain prioritizes the improvement of how organizations collaborate and believes and DAOs as the becoming of collaborations.

5irechain will provide a hybrid approach that takes into consideration what can be done on-chain and provide a virtual machine for building Metaverse legos and also build on top of interoperable and federated open-source communication protocols that act as the unifying base layer for bridging many existing IoT Silos.

## 7. DECENTRALIZED FINANCE

Decentralized finance on top of 5irechain will provide various financial applications and services in a sustainable way with its user-centric vision that does not include intermediaries. 5irechain purpose is to make sustainable Defi accessible to the unbanked people and ensure that financial services are working in a for-benefit paradigm and will host a variety of applications and services alike.

Developers can seamlessly migrate Dapps or build solutions that take advantage of the interoperability and cross-chain bridging capabilities of 5irechain that will open the doors to decentralized applications that synchronize with third-party blockchains, such as Bitcoin, Ethereum, and EOS & substrate-based blockchains.

- Ethereum EVM smart contracts
- WebAssembly WASM smart contracts

## 6. CBDC

5ire ecosystem is highly focused on building e-governance solutions including central bank digital currencies and secure solutions for assets management and transfers, identity, and contracts. 5ire uses next-generation permissioned blockchain platforms aimed at helping businesses and financial institutions manage digital assets. Major central banks across the world are racing to deliver credible solutions for legacy payment systems. Distributed ledger technologies (DLT) were deemed the most promising way of implementing such systems where 5ire can cooperate with governments for the creation of nation scale DLT solutions while assuring secure and privately interoperable systems that offer financial inclusion, efficiency, and safety, as well as promote the use of governments local currencies.

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