Casos de Uso

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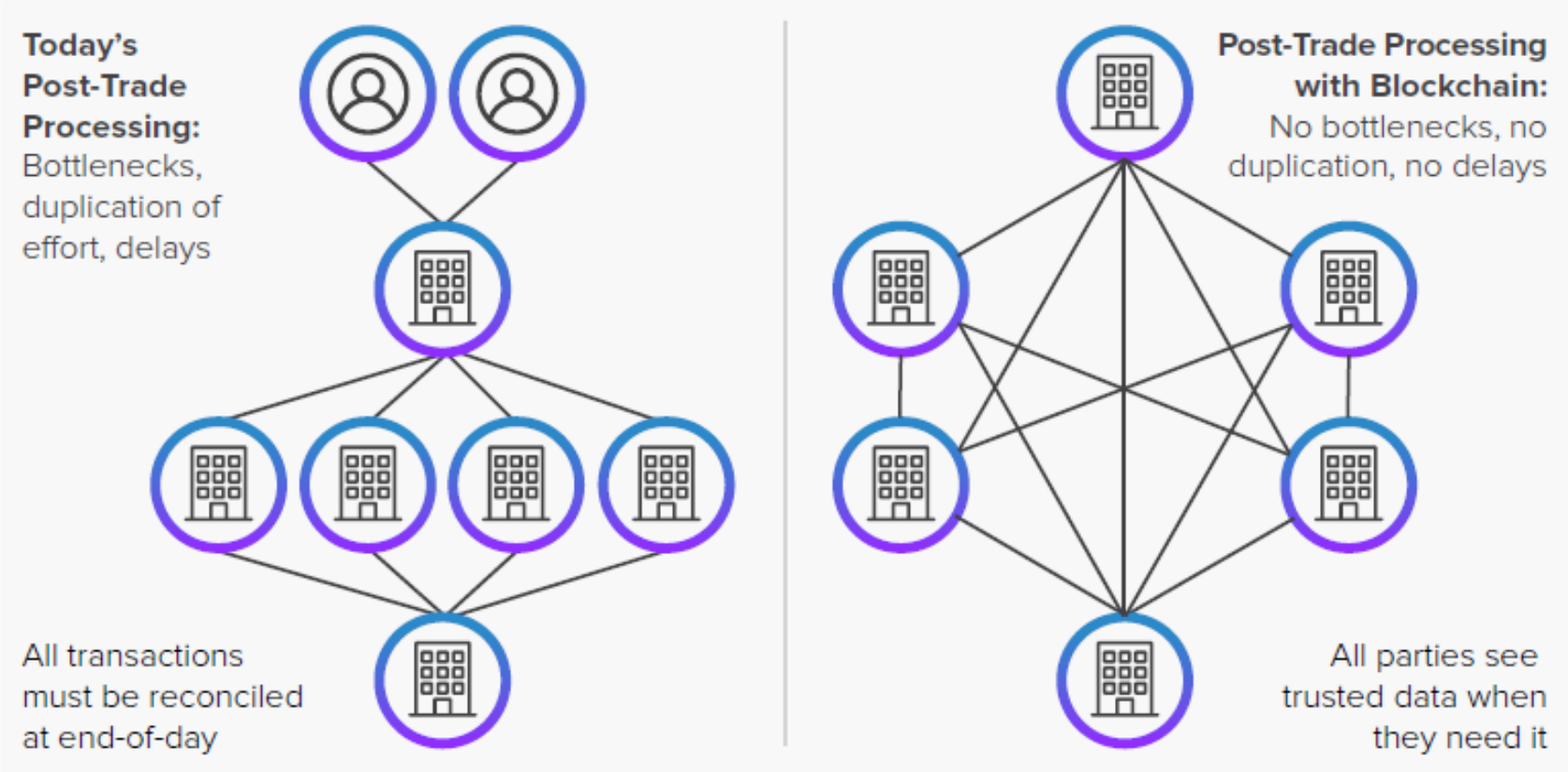
Estructura

- Comunidad Hyperledger
- Casos de Uso propios
  - Certificados de logros educativos.
  - Registro digital de objetos de investigación (blockchain4openscience).
  - Registros Notariales.
  - Contratos bancarios (otorgamiento, garantías inmobiliarias)
  - Transacciones de Activos Financieros

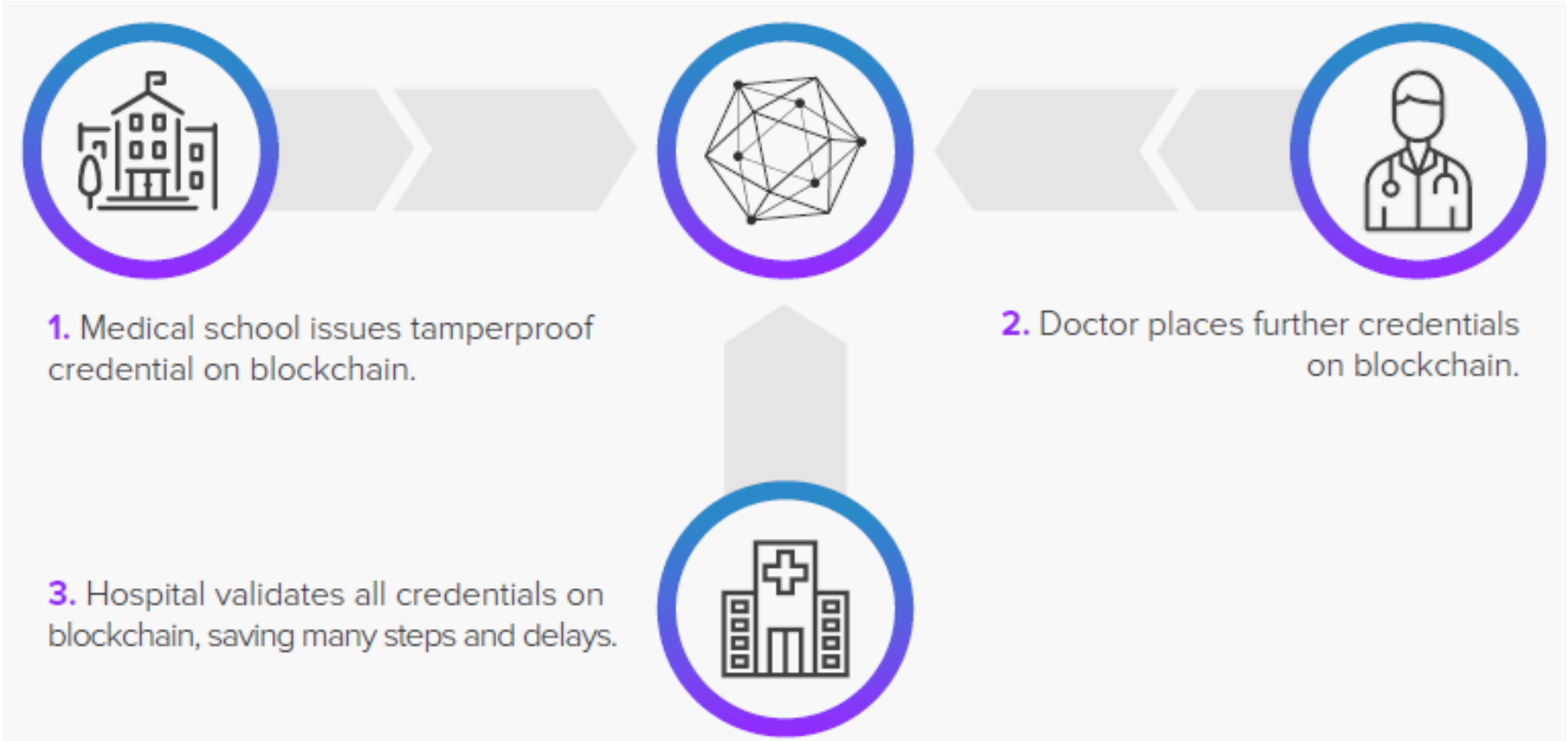
Comunidad Hyperledger

Introduction to Hyperledger, white paper (2018)

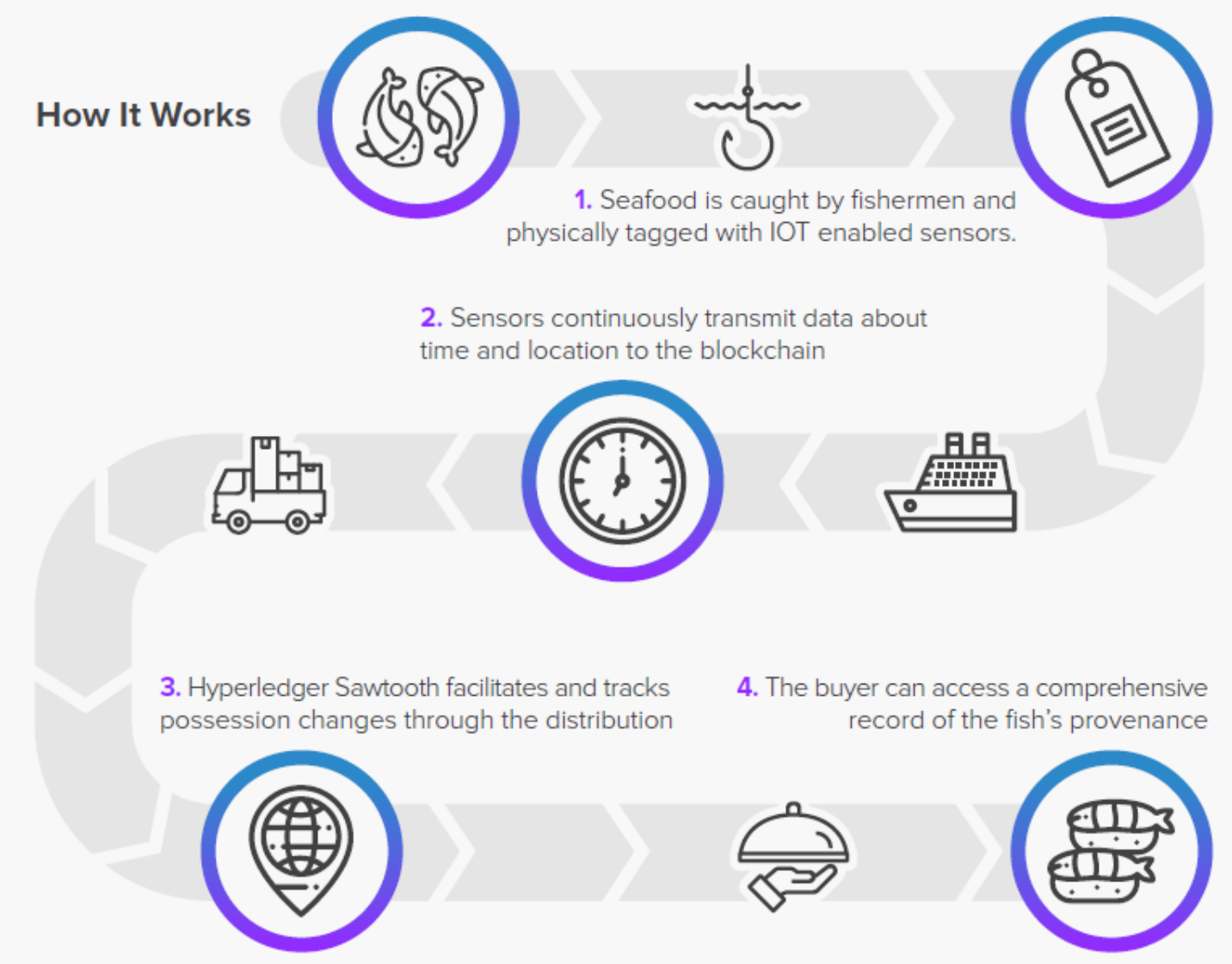
Financial Services: Post-Trade Processing



Healthcare: Credentials for Physicians



Supply Chain: Seafood



Otros Casos de uso

- MonetaGo: factoring India.
- National Association of Realtors: Real Estate and Digital Identity, US.
- Deutche Borse Group: administration colateral, post-trade processing,.. Alemania
- Hyperledger Global Forum 2018.

Casos de Uso Propios

Certificación Digital

Certificación digital: facilitar el proceso de verificación y transferencia de los certificados

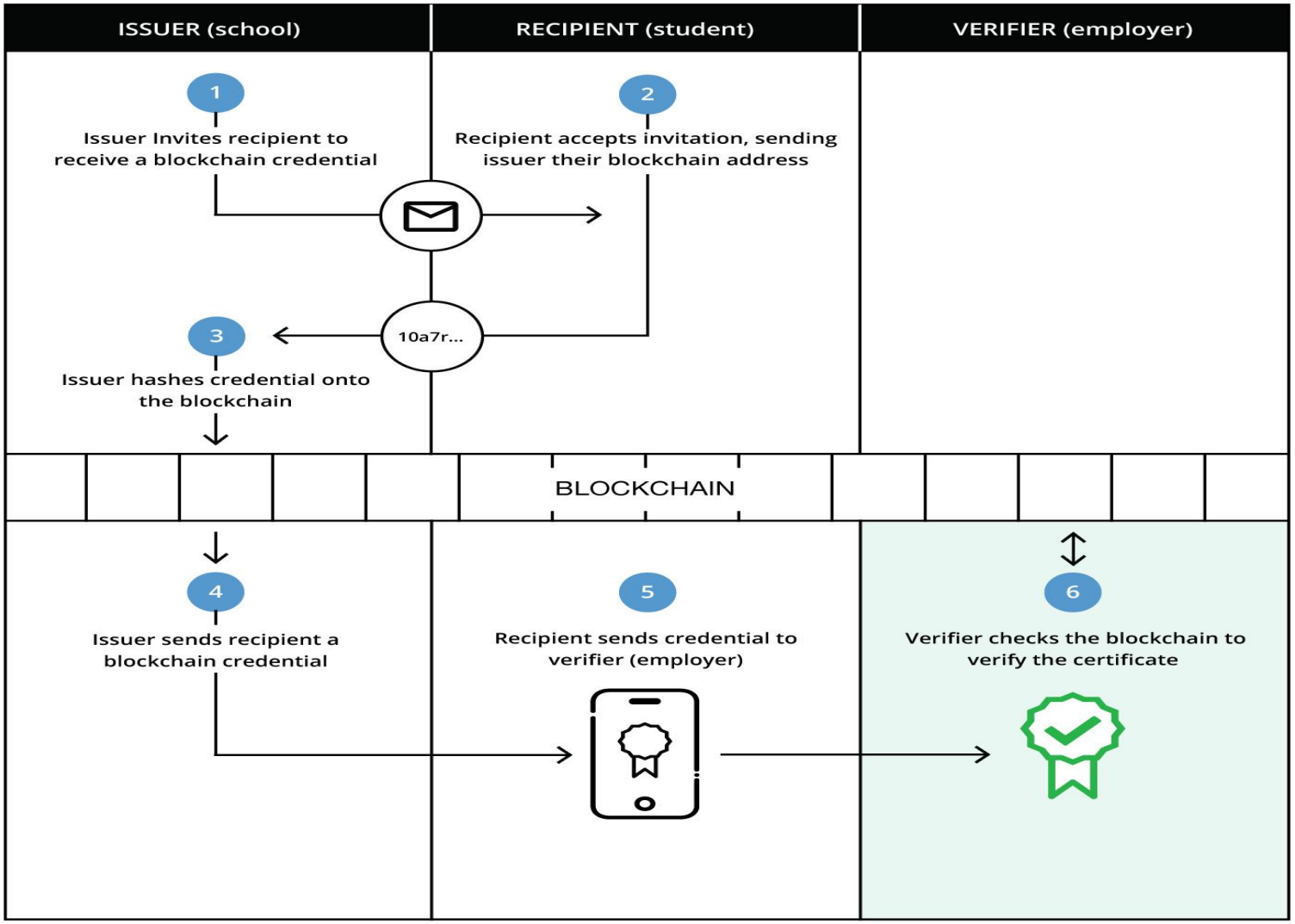
Explorar la posibilidad caso de uso tecnología Blockchain (descentralización, consenso, integridad, criptografía, smart contracts,..).

Este tipo de infraestructura permitiría a las personas o instituciones compartir sus logros y credenciales de una forma rápida, segura y confiable. Caso de uso MIT

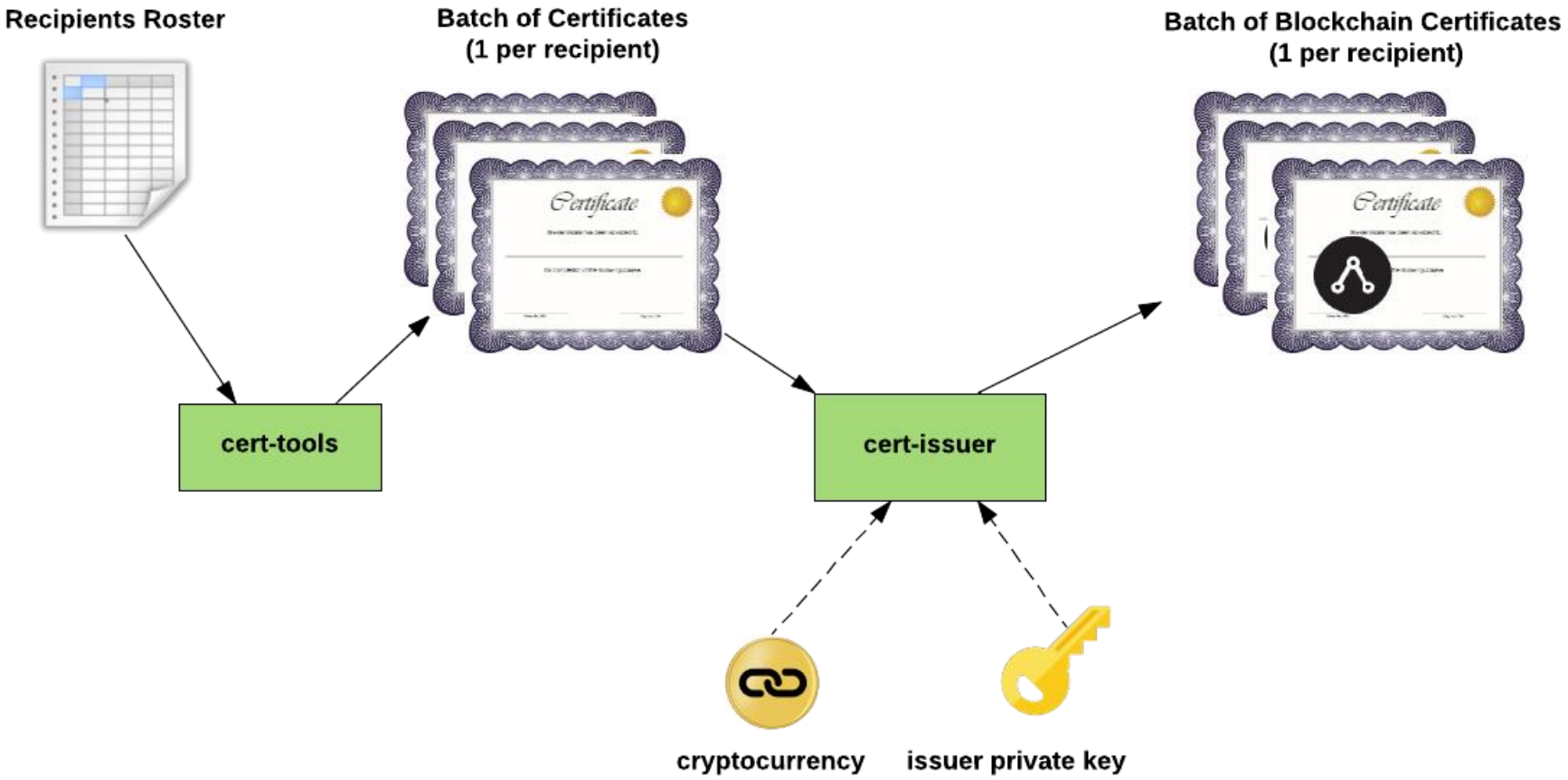
Estandares de Certificación

- La inmutabilidad de la tecnología Blockchain, se viene utilizando para garantizar la validez de un certificado que ha sido emitido.
- Blockcerts: the open innitiative for Blockchain certificates (MIT media Lab/Learning Machine)
- La firma digital de los bloques de certificados se incluye en el bitcoin blockchain.
- Incluye otras herramientas para verificar las firmas, visualizar certificados.
- Desarrolla estándares abiertos.

Como funciona Blockcerts



Generación de certificados



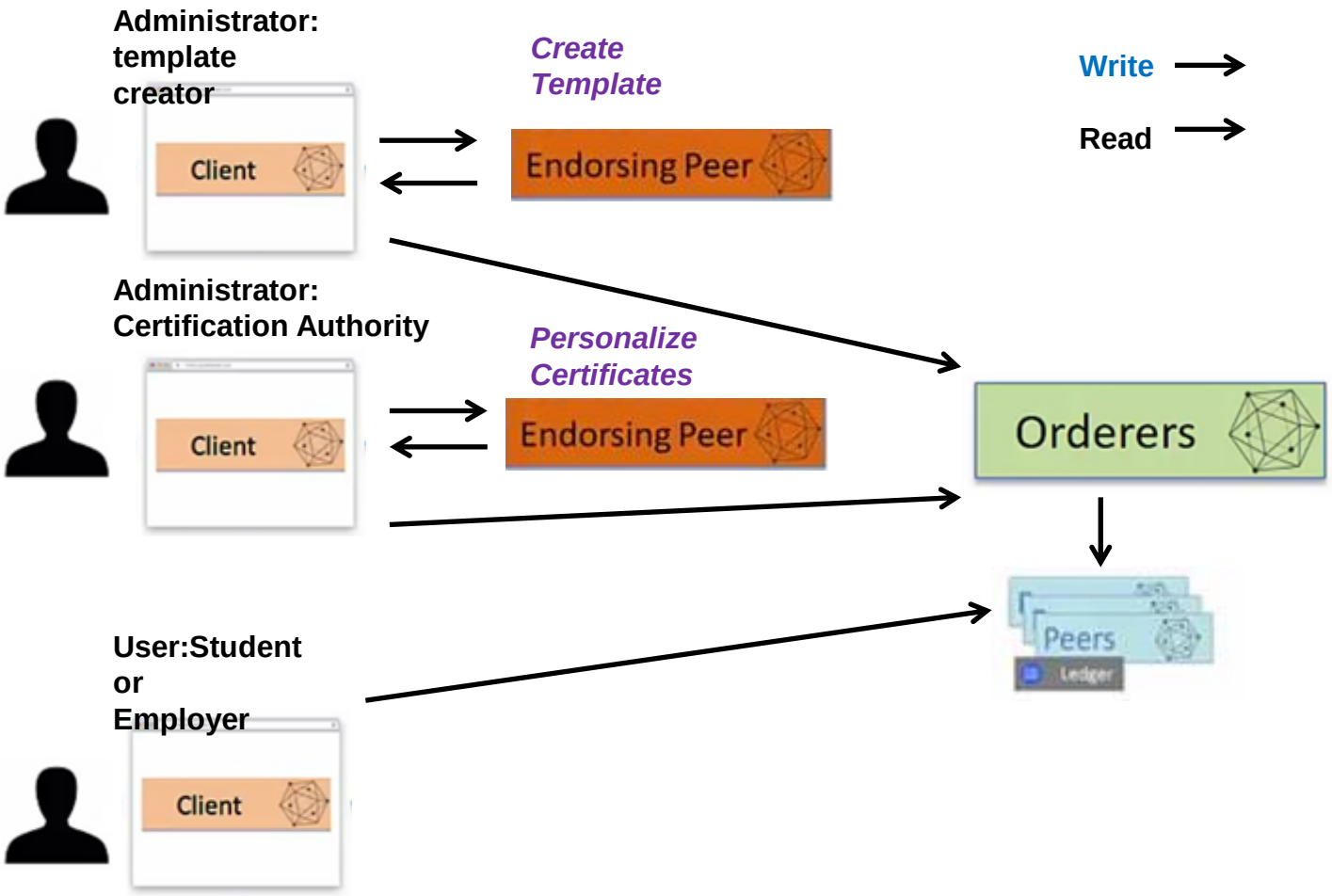
Certificados de logros educativos

- Aplicación Hyperledger (abierta-leer con permisos-escribir).
- No requiere criptomoneda.
- Ajustado Estándar de Blockcerts (procedimiento, campos y sub-campos): id; badge-issuer; recipient:publicKey, name; seguridad y autenticación.
- Prototipo funcional para una o varias organizaciones (registro, secretarias académicas); diseño de la red.

Certificados de logros educativos
El proceso (business logic)

- Diseño desde la perspectiva del emisor
  - Crear participantes involucrados en emisión.
  - Generación témplate: información que contiene certificado.
  - Emisión (personalización) de certificados
- Diseño desde la perspectiva del usuario
  - Consulta de certificado.
  - Verificar la validez del certificado.
  - Generación digital del certificado.

Hyperledger: Fabric (aquitectura)



Hyperledger: Composer (business logic)

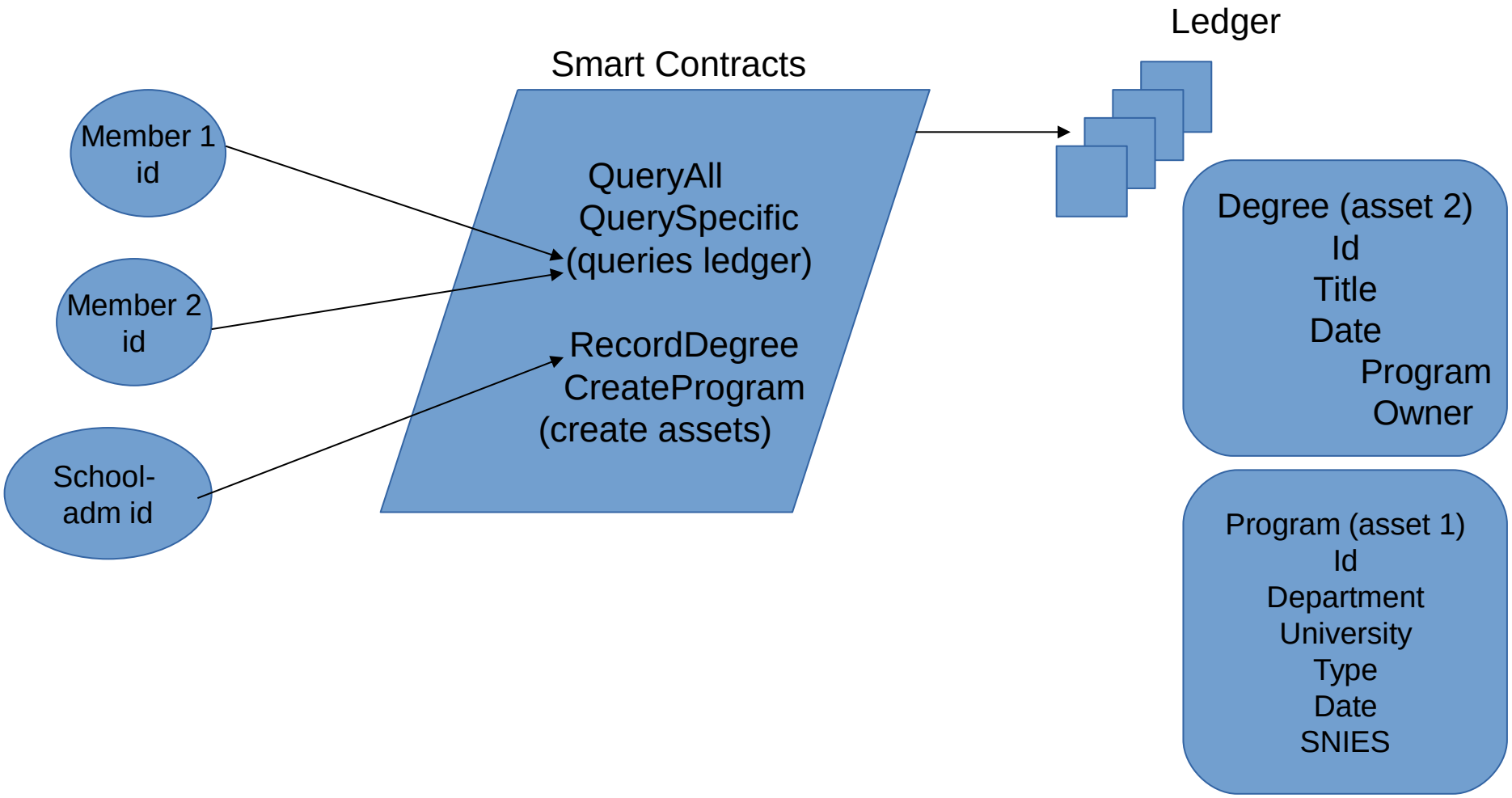
- Participants (registrados)
  - Administrator (certificate tempate creator): define optional fields (issuer info, certificate info, images,..) and mandatory fields (Blockcert/Open Badges) compliant.
  - Administrator (certification authority): Upload roster, selects relevant template and executes personalization of certificates (batch instantiation).

User (student or employer): View and query certificates on the ledger, verify certificate and download.

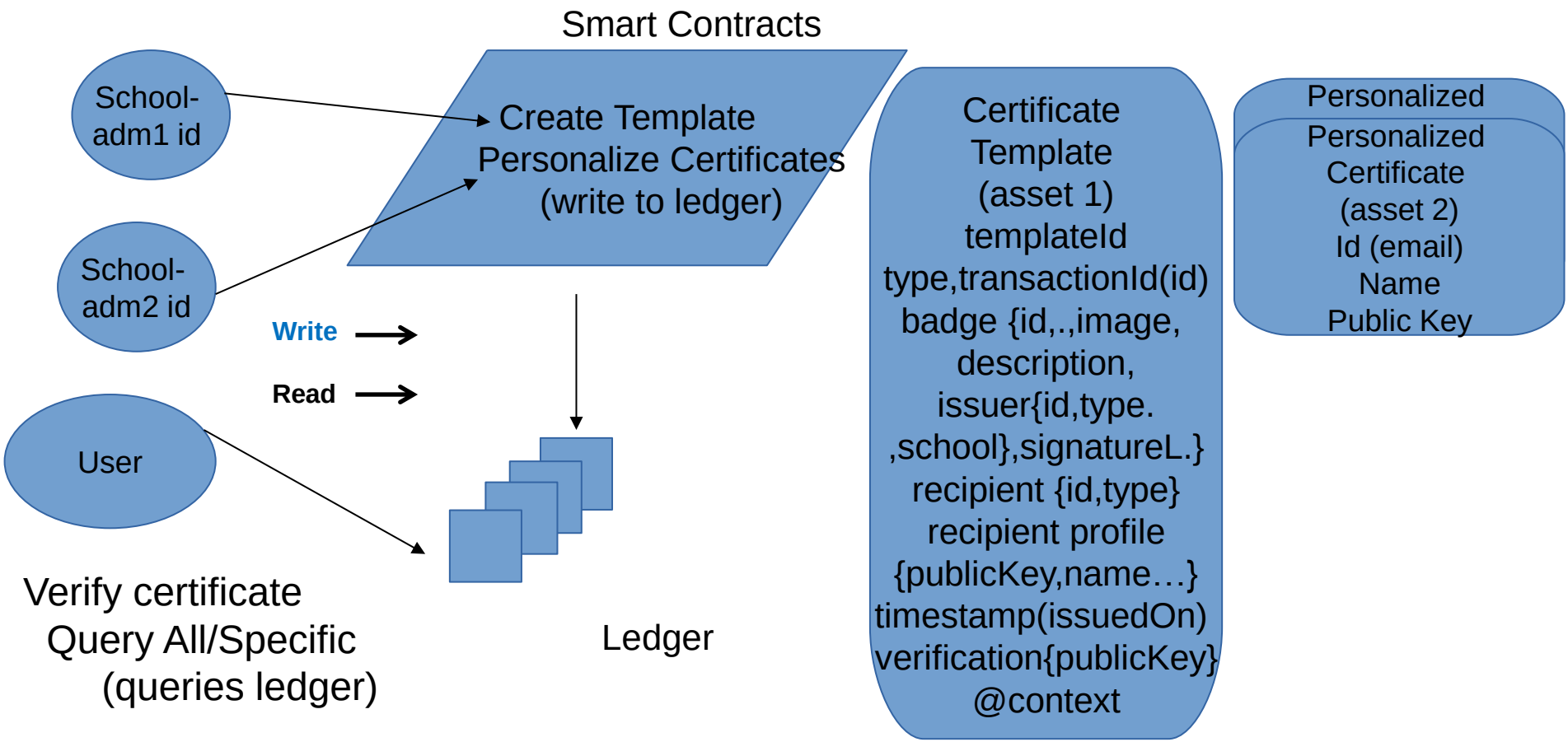
Hyperledger: Composer

- Assets
  - Certificate Template.
  - Personalized Certificates.
- Transactions
  - Create Participants
  - Create (asset) Certificate Template
  - Personalize (modify) Certificates
- Client-side
  - Verify the integrity of the Certificate in the ledger.

Business Network, edu-degree-network-v1.bna (playground)



Business Network, edu-degree-network-v2.bna



Open Badges v2.0 Blockcerts-Extension JSON schema

Certificados de logros educativos Verificacion

- Integridad del certificado: no manipulación de la información registrada. Firma criptográfica.
- Autenticidad del emisor: validar firma del emisor (externa o interna).
- Verificar la integridad de los registros: blockchain integrity, sistema de bloques.
- Recibo del registro publico, para blockchain publico, bitcoin blockchain.

Registro digital de objetos de investigación

Blockchain4openscience

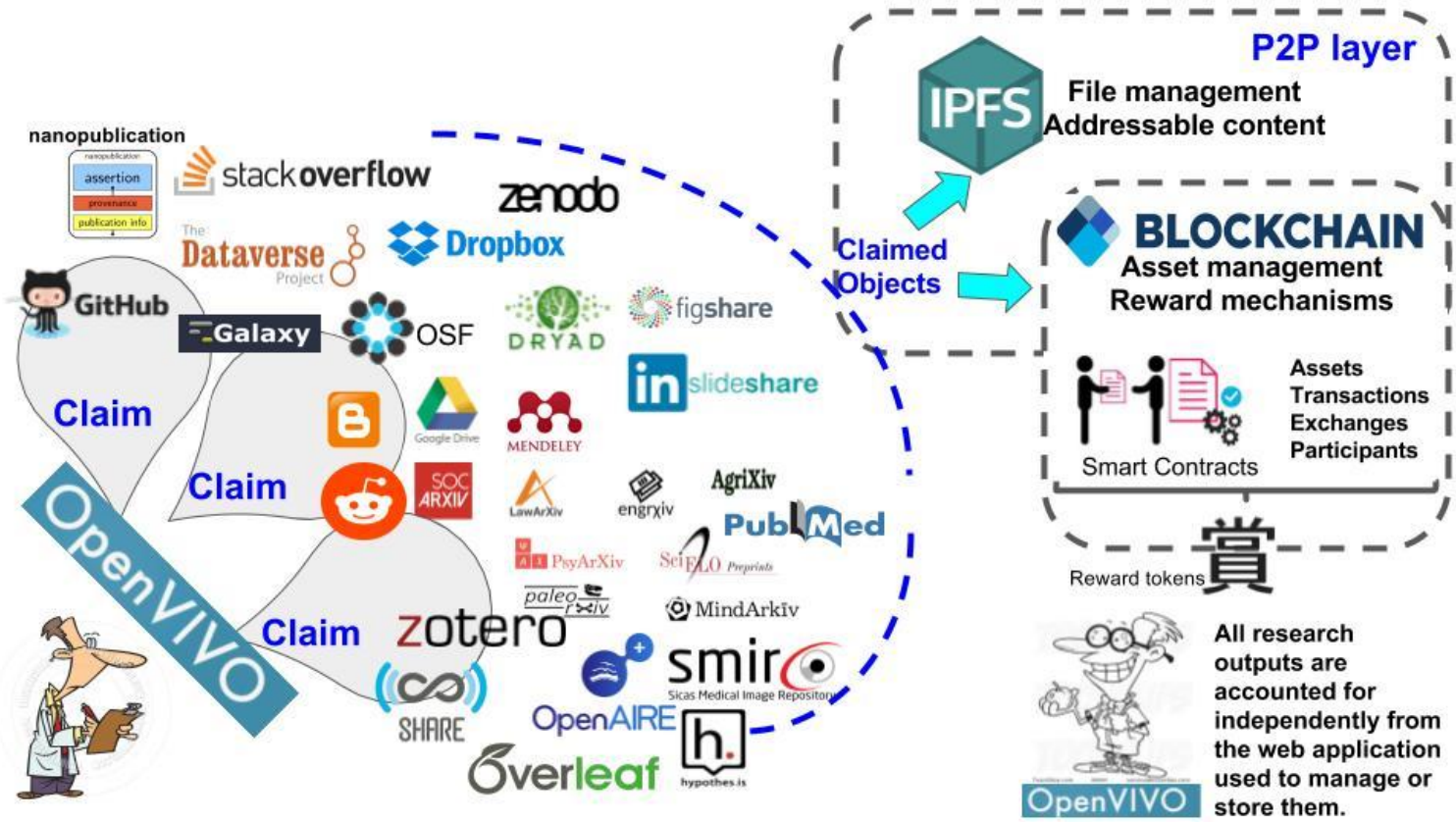
Open science is a new movement in science that promotes principles of open access to research data, publications, and scientific collaboration. Open science promises to increase transparency and quality of research, provide reproducibility by reusing scientific datasets and increasing trust in the scientific collaboration.

Blockchain4openscience

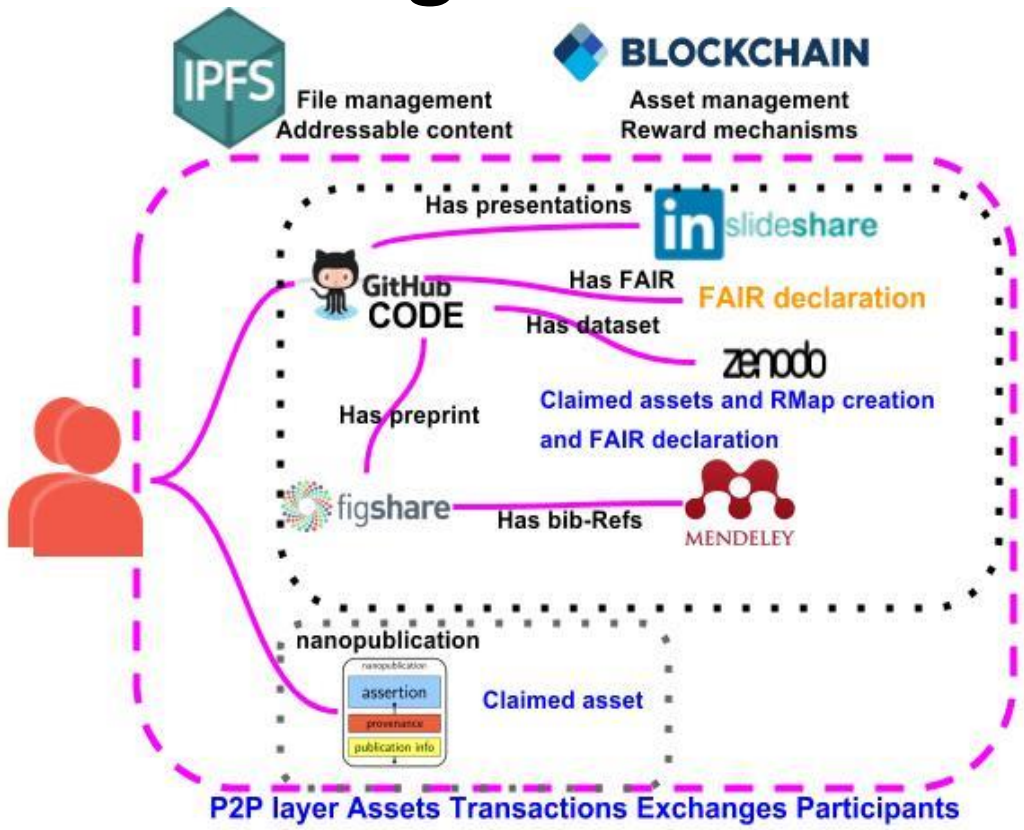
Blockchain fits the mindset of open science and can help to fulfill open science principles: transparency and availability of blockchain makes scientific outputs open & transparent; disintermediation removes subjectivity from scientific reviews; integrity and possibility to secure transactions in the competing environment increases trust in scientific results; smart contracts allows to manage access to scientific outputs; immutability represents precise relationships between the works with such features as richness, time-based relationships, and logical precursors: a digital continuum

Blockchain4openscience

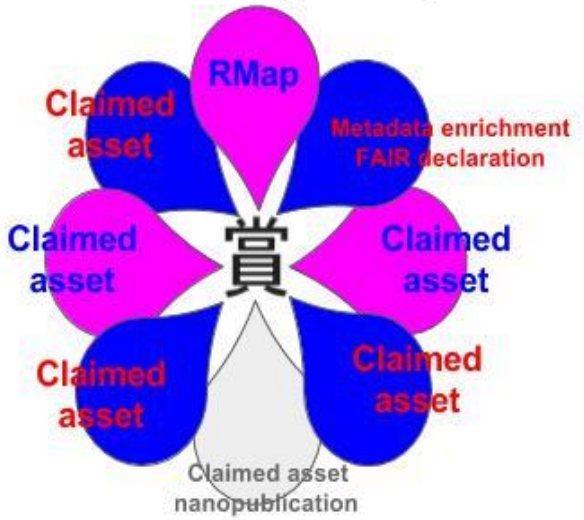
Successful integration of a registry, the storage of the asset and a reward system (tokens), using existing frameworks:



Claim, enrich and get rewards from digital research objects



The token is built upon the definitions for assets, transactions, participants and smart contracts. This means that communities can define their own features and still interact with all other nodes in the ledger/IPFS space.

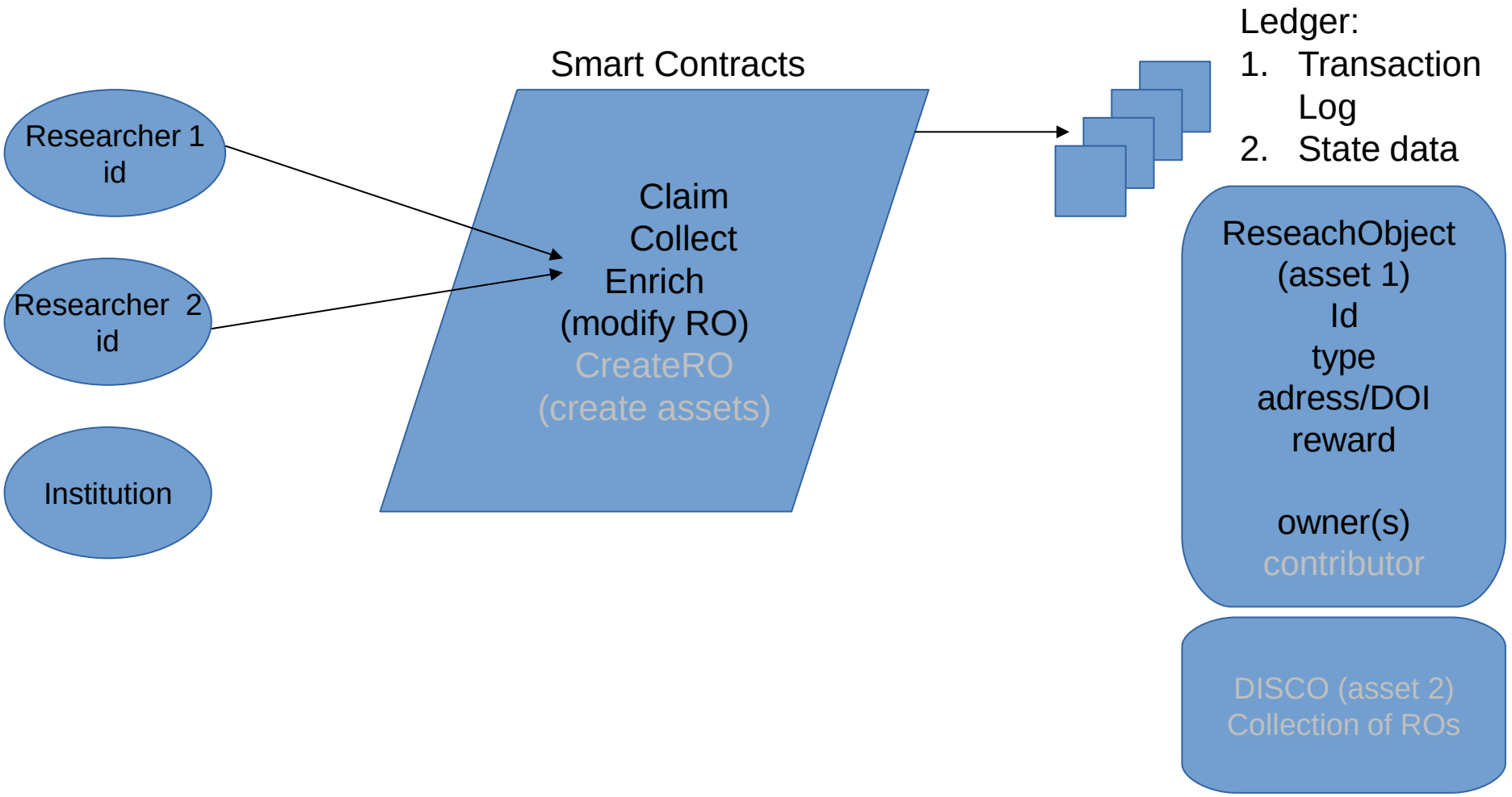


A Registry of digital research objects

Blockchain4openscience

Open science is a new movement in science that promotes principles of open access to research data, publications, and scientific collaboration. Open science promises to increase transparency and quality of research, provide reproducibility by reusing scientific datasets and increasing trust in the scientific collaboration.

Business Network, blockchain4sciencev1.bna (playground)



Pluggable registry for science

Scientific contributions are kept in many decentralized repositories (GitHub) and tagged on different sites (RO2share) that provide a historical record of individual or group contributions. This record requires additional steps to keep it up to data, lacks proper security regarding who contributed what and how this contribution relates to other scientific contributions.

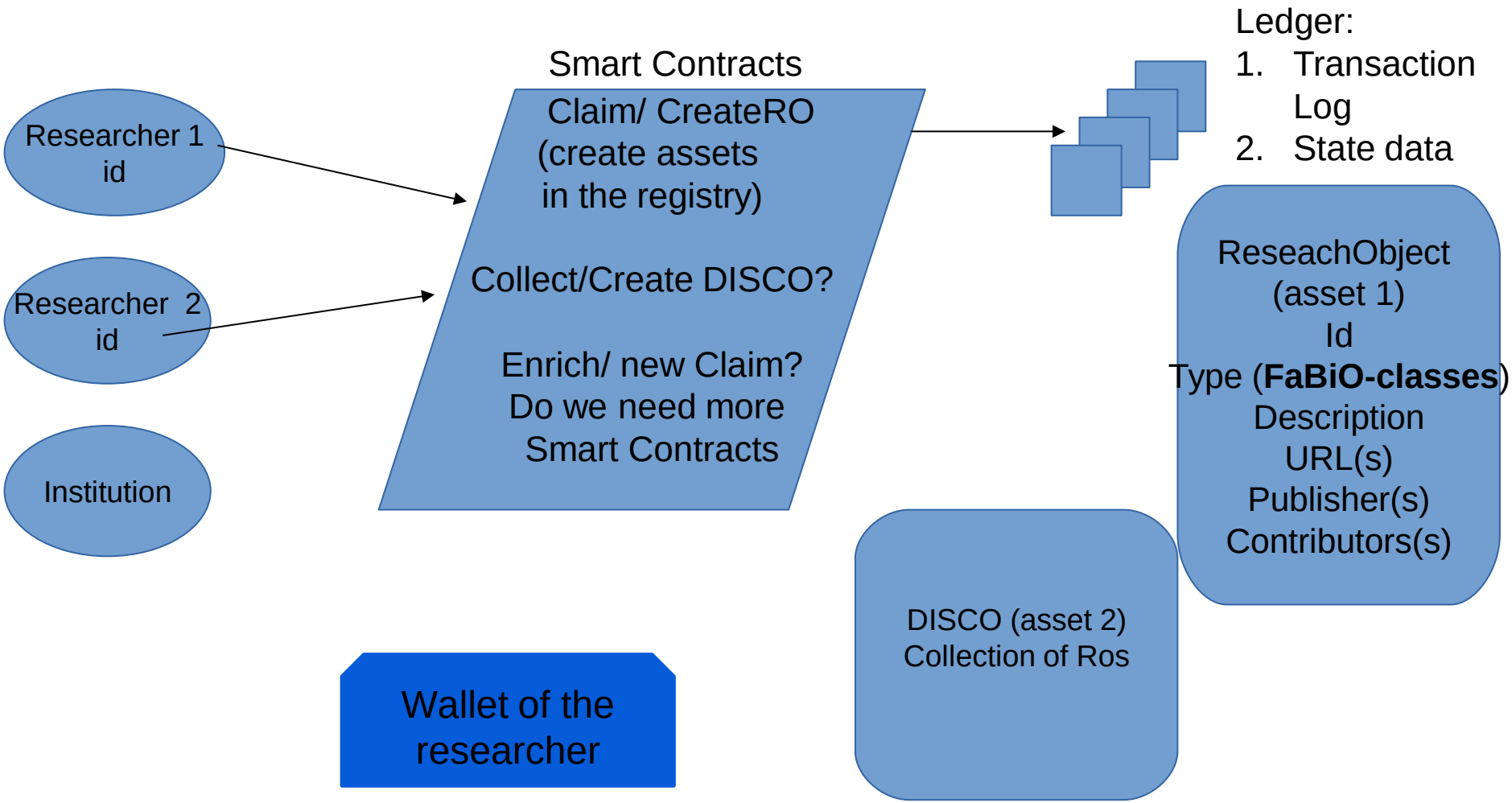
existing archive

1. User log-in.
2. Queries and displays www DB's for RO under user name.
3. Claim RO

Blockchain Business Network

1. Create participant (if 1st time). Instantiate wallet.
2. Create an asset (Capture metadata).
3. Claim asset
   a) Assign ownership (with and without approval)
   b) Update wallet (event)

Business Network, bforosv2.bna (playground)



Pluggable registry for science

A collection of research objects (creation of a DISCO) has two objectives:

1. To aggregate related RO of a researcher of a group of researchers related to a common theme (code, DB, paper..)
2. To stablish (and register) relationships and reusability of RO across researchers.