EBSI

Promoted by the EC and Member States

LACCHAIN

Promoted by IDB (Inter-American Development Bank)

Colaboración público-privada en redes blockchain pan-europeas

Jesus Ruiz

Febrero 2021

ALASTRIA

Started by private companies, currently more than 500 members of all types.

EBSI

Meet

European Blockchain Services Infrastructure

HARNESS THE POWER OF BLOCKCHAIN SERVICES, INCREASING TRUST THROUGH DATA SECURITY, PRIVACY AND TRANSPARENCY

#Blockchain4Europe

Certified Transactions

Decentralised Trust

Joint initiative EC - Member States to deliver EU-wide **cross-border public services** using **blockchain** technology.

Objectives of EBSI

Cross border

enhance cross border services provided by government to the citizen

Mobility

enhance cross border citizen and enterprise mobility

Sustainable

reduce environmental impact of paper and transportation

Compliance

compliance with GDPR, eIDAS, SDGR...

Enabler

enable development of European technology hubs & projects

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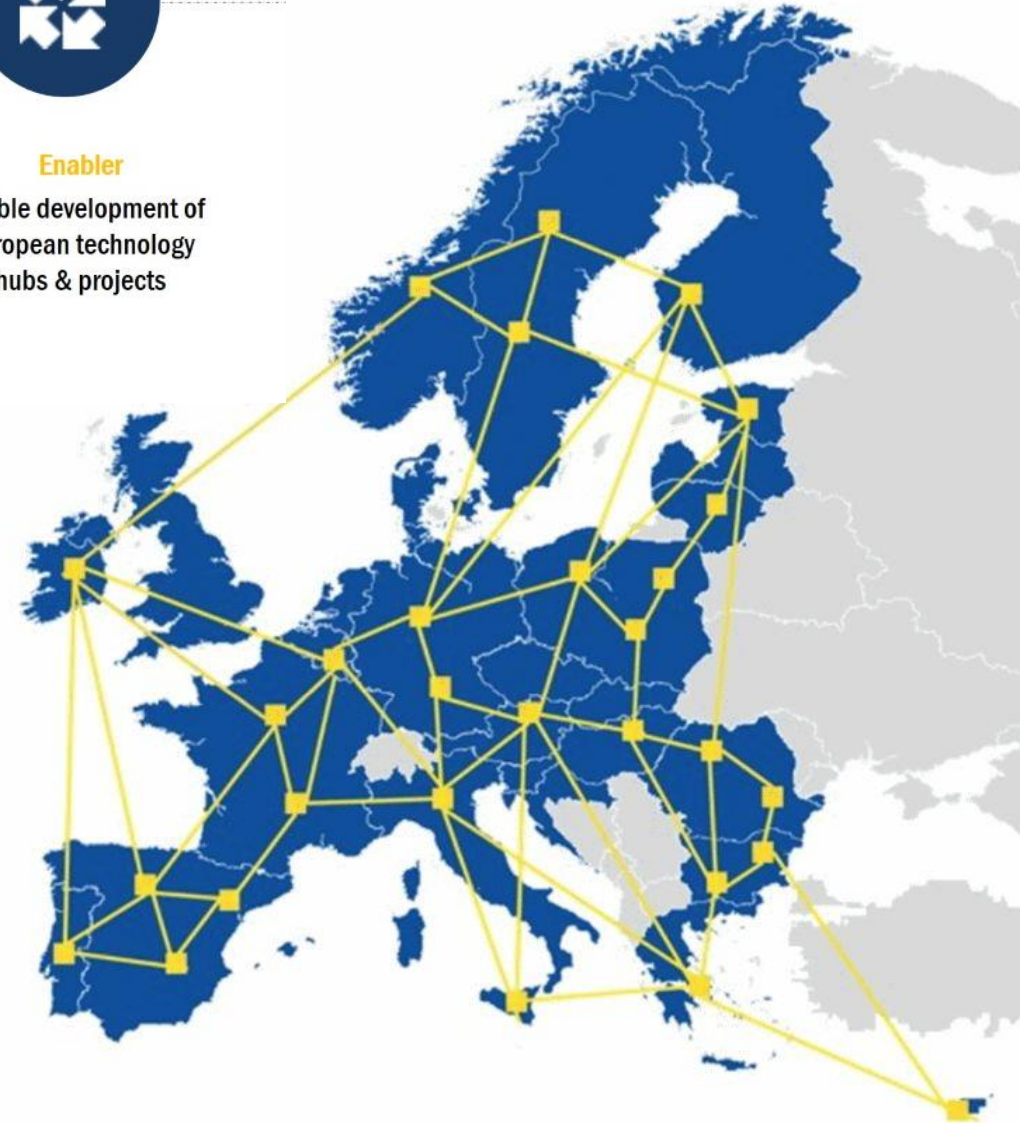
Compliance
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Status of the EBSI network

Status	Nodes
COMPLETE	33
ON-BOARDING	5
IN PROGRESS	3
WAITING	2

EBSI v1 use cases

European Self-Sovereign Identity

Generic Self-Sovereign Identity capability, allowing users to create and control their own identity without relying on centralized authorities.
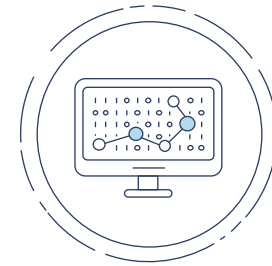
Notarisation of documents

Leverage the power of blockchain to create trusted digital audit trails, automate compliance checks in time-sensitive processes and prove data integrity.
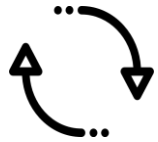
Diplomas Management

Give access to education credentials, with control by citizens, significantly reducing verification costs and improving authenticity trust.

Trusted data sharing

Securely share data (e.g. IOSS VAT identification numbers and import one-stop-shop) amongst customs and tax authorities in the EU.

European Commission

EBSI v2 (new use cases)

Asylum process management

Facilitate the management of cross-border and cross-authority processes in dealing with asylum applicants.

European Social Security Identification Number

Ensure easier communication and data exchange between European countries and the EU Institutions to secure rights portability for citizens between different Member States and guarantee a uniform level of service. In addition, it will facilitate to fight frauds, errors, and duplication.

SME financing

Create an EU-wide platform with private and public entities to reduce barriers of entry and asymmetries and facilitate flow of financing from capital owners to SMEs and green economy.

Diplomas Management

Diplomas
ISSUE A DIPLOMA
VERIFY A DIPLOMA
REVOKE DIPLOMA
SUSPEND DIPLOMA

Student
REQUEST THE ISSUANCE OF THE DIPLOMA
ACCEPT DIPLOMA
SHARE DIPLOMA

Institution
ISSUE EDUCATIONAL ADSCRIPTION ATTRIBUTES (membership)
ISSUE LETTER OF RECOMMENDATION
VERIFY EDUCATIONAL ADSCRIPTION ATTRIBUTES (membership)

Governance
ADD EDUCATIONAL INSTITUTION
GRANT ACCESS TO AN EDUCATIONAL INSTITUTION
REVOKE ACCESS TO AN EDUCATIONAL INSTITUTION
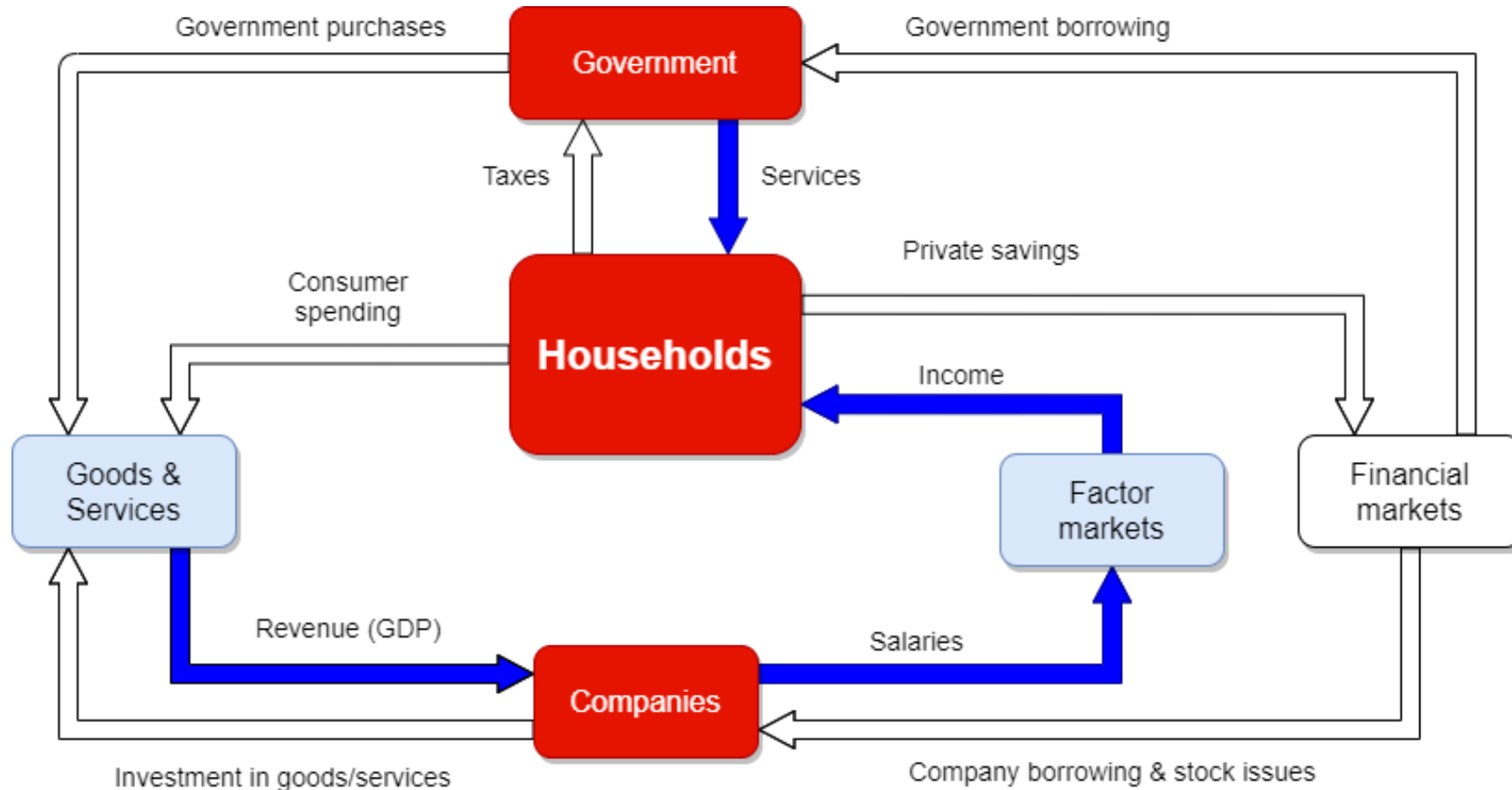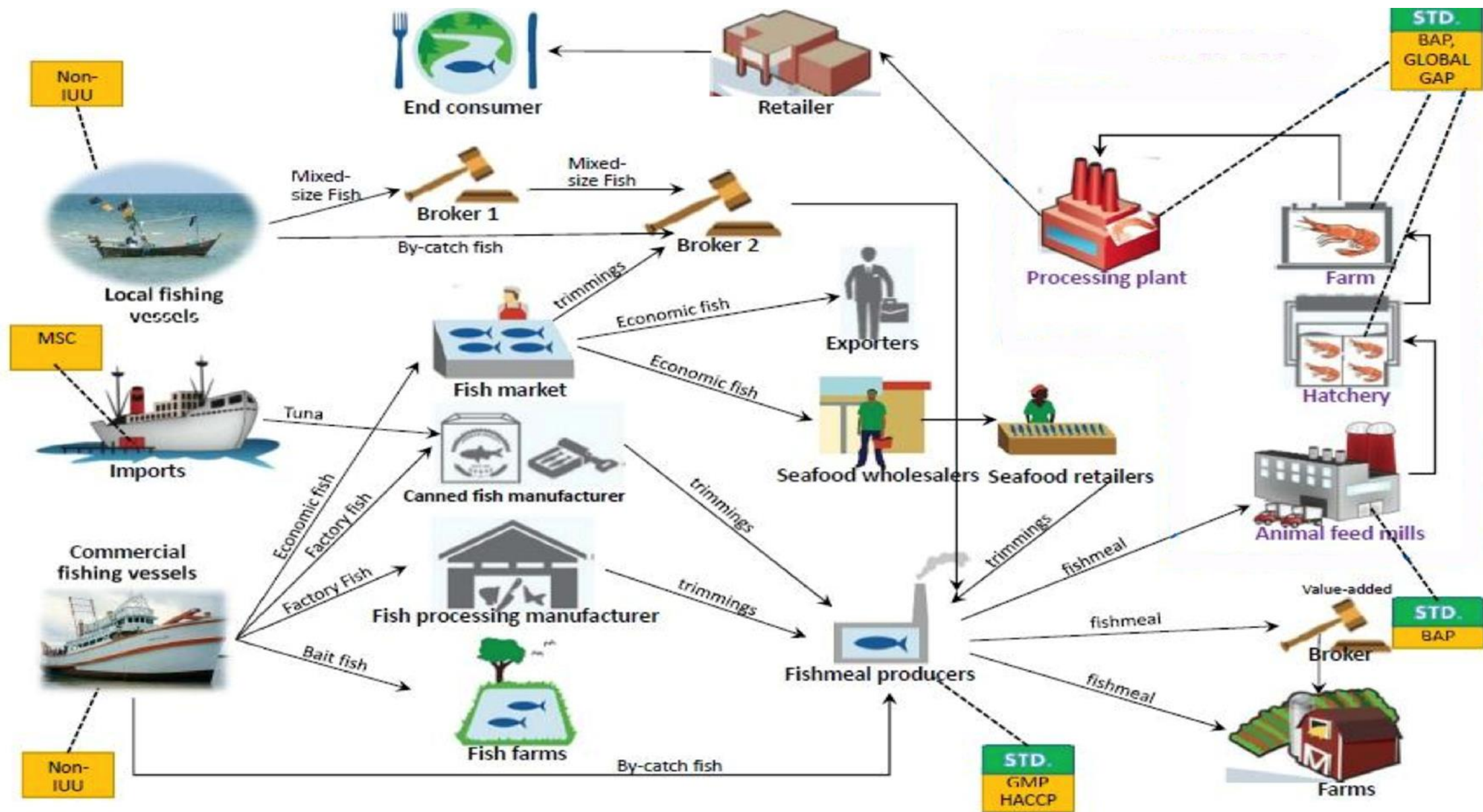REMOVE EDUCATIONAL INSTITUTION

Related projects
ISSUE EUROPEAN STUDENT CARD
VERIFY EUROPEAN STUDENT CARD
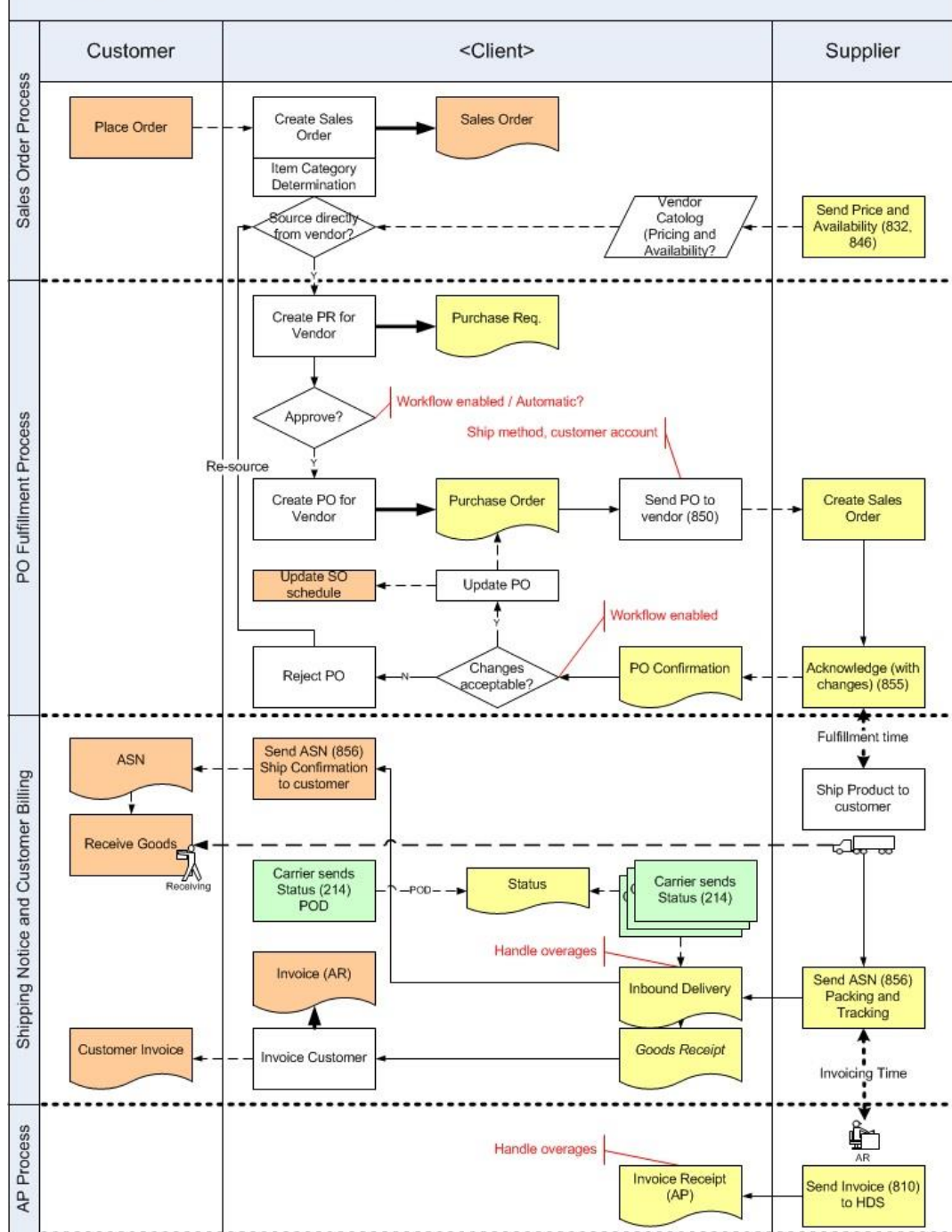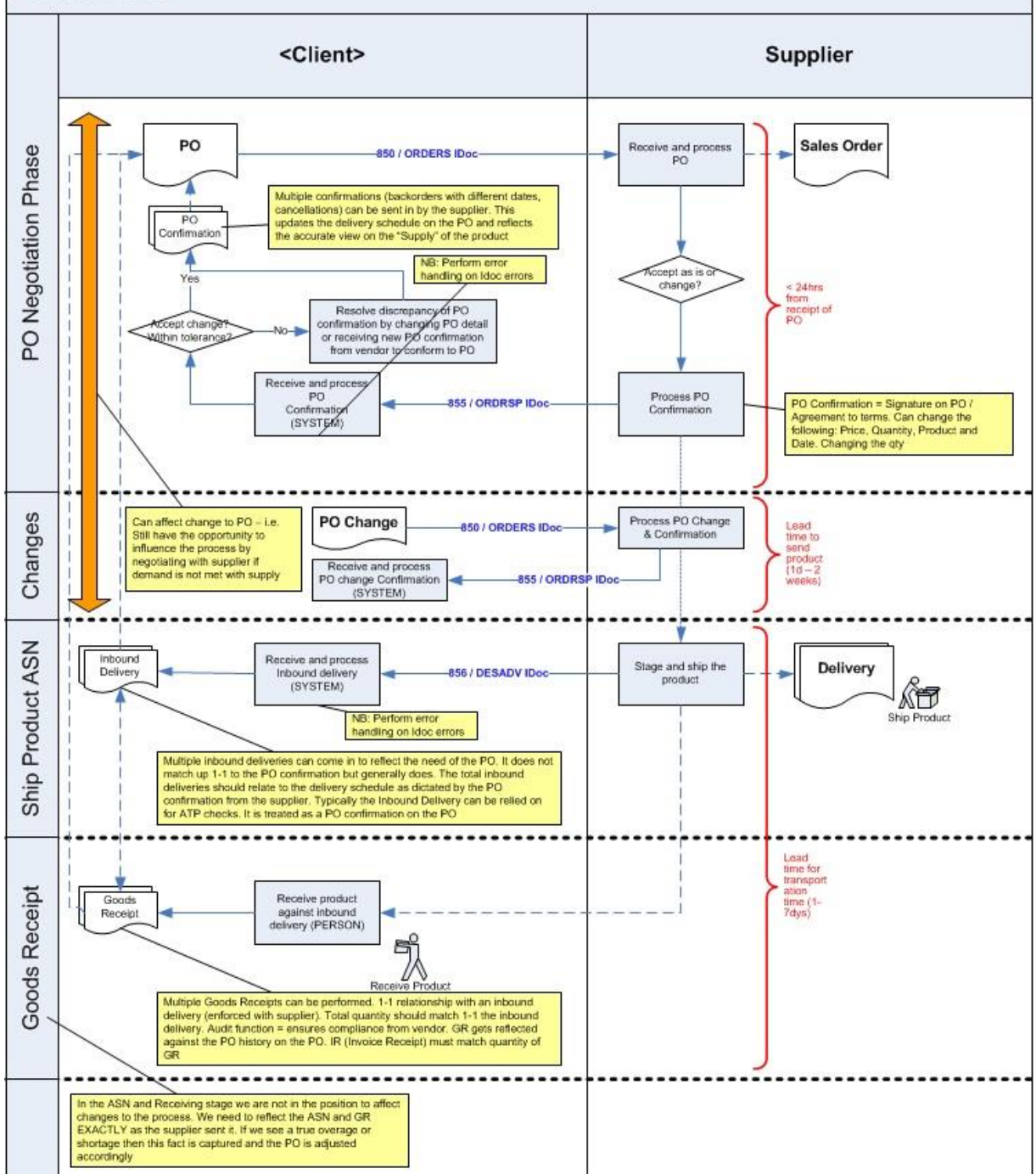
Focus on Real Economy and Government services

Source: Sal Forest Report submitted to Oxfam (March 2014); CPF study

Virtual Skus Procurement Process

Swimlanes: Customer | <Client> | Supplier

Phases (left): Sales Order Process | PO Fulfillment Process | Shipping Notice and Customer Billing | AP Process

- Place Order → Create Sales Order → Sales Order
- Item Category Determination
- Source directly from vendor? ← Vendor Catolog (Pricing and Availability?) ← Send Price and Availability (832, 846)
- Create PR for Vendor → Purchase Req.
- Approve? — *Workflow enabled / Automatic?* — *Ship method, customer account*
- Re-source
- Create PO for Vendor → Purchase Order → Send PO to vendor (850) → Create Sales Order
- Update SO schedule ← Update PO
- *Workflow enabled*
- Changes acceptable? → Reject PO (N) / PO Confirmation ← Acknowledge (with changes) (855)
- Fulfillment time
- Ship Product to customer
- ASN ← Send ASN (856) Ship Confirmation to customer
- Receive Goods (Receiving)
- Carrier sends Status (214) POD — POD — Status ← Carrier sends Status (214)
- *Handle overages*
- Invoice (AR)
- Inbound Delivery ← Send ASN (856) Packing and Tracking
- Goods Receipt
- Invoicing Time
- Customer Invoice ← Invoice Customer
- *Handle overages*
- Invoice Receipt (AP) ← Send Invoice (810) to HDS

PTP Process

Swimlanes: <Client> | Supplier

Phases (left): PO Negotiation Phase | Changes | Ship Product ASN | Goods Receipt

- PO —850 / ORDERS IDoc→ Receive and process PO → Sales Order
- PO Confirmation
- Multiple confirmations (backorders with different dates, cancellations) can be sent in by the supplier. This updates the delivery schedule on the PO and reflects the accurate view on the "Supply" of the product
- NB: Perform error handling on Idoc errors
- Yes
- Accept change? Within tolerance? — No → Resolve discrepancy of PO confirmation by changing PO detail or receiving new PO confirmation from vendor to conform to PO
- Accept as is or change? — < 24hrs from receipt of PO
- Receive and process PO Confirmation (SYSTEM) ←855 / ORDRSP IDoc— Process PO Confirmation
- PO Confirmation = Signature on PO / Agreement to terms. Can change the following: Price, Quantity, Product and Date. Changing the qty
- Can affect change to PO – i.e. Still have the opportunity to influence the process by negotiating with supplier if demand is not met with supply
- PO Change —850 / ORDERS IDoc→ Process PO Change & Confirmation
- Lead time to send product (1d – 2 weeks)
- Receive and process PO change Confirmation (SYSTEM) ←855 / ORDRSP IDoc—
- Inbound Delivery ← Receive and process Inbound delivery (SYSTEM) ←856 / DESADV IDoc— Stage and ship the product → Delivery (Ship Product)
- NB: Perform error handling on Idoc errors
- Multiple inbound deliveries can come in to reflect the need of the PO. It does not match up 1-1 to the PO confirmation but generally does. The total inbound deliveries should relate to the delivery schedule as dictated by the PO confirmation from the supplier. Typically the Inbound Delivery can be relied on for ATP checks. It is treated as a PO confirmation on the PO
- Goods Receipt ← Receive product against inbound delivery (PERSON) (Receive Product)
- Lead time for transportation time (1-7dys)
- Multiple Goods Receipts can be performed. 1-1 relationship with an inbound delivery (enforced with supplier). Total quantity should match 1-1 the inbound delivery. Audit function = ensures compliance from vendor. GR gets reflected against the PO history on the PO. IR (Invoice Receipt) must match quantity of GR
- In the ASN and Receiving stage we are not in the position to affect changes to the process. We need to reflect the ASN and GR EXACTLY as the supplier sent it. If we see a true overage or shortage then this fact is captured and the PO is adjusted accordingly
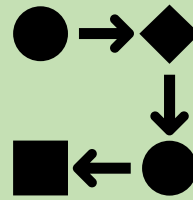
Notarization

- Diplomas
- Many types of certificates

Proof of existence in the past of an object external to the blockchain.

One write in the past and many verifications (reads) in the future.

Decentralized Workflow

Generalization of Notarization.

Registers what each entity says about something done outside of the blockchain.

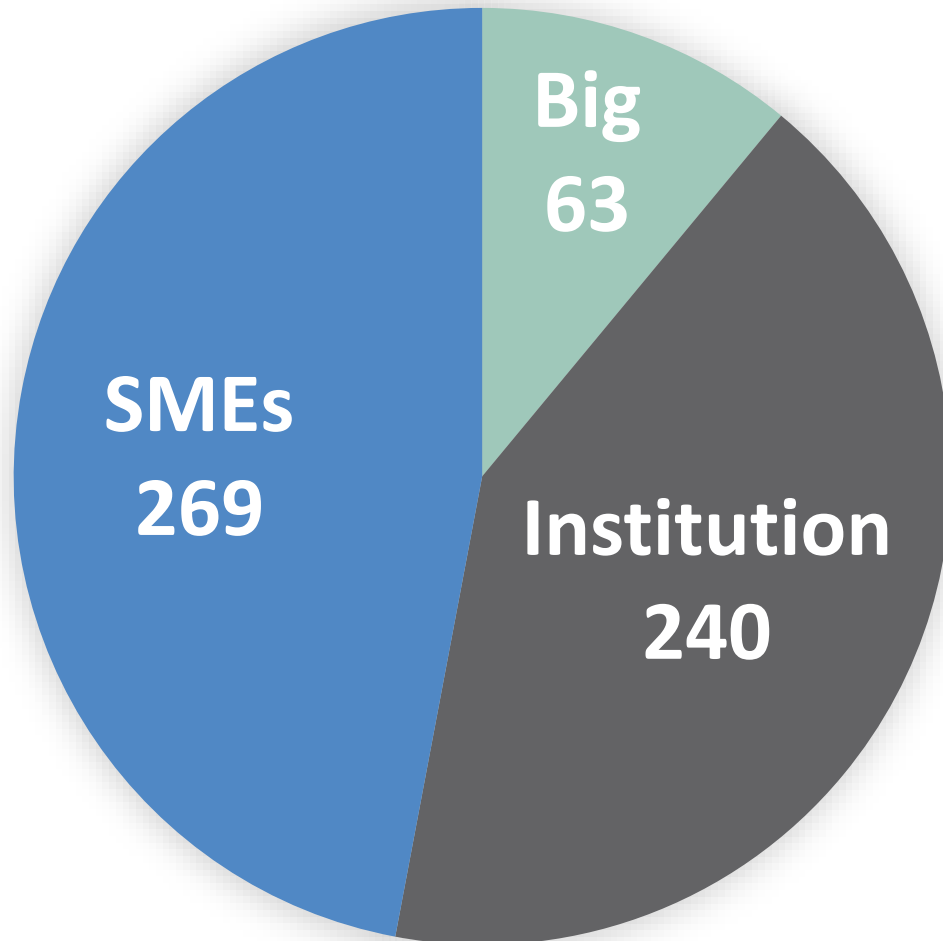Includes change of ownership of a good, if the register exists also outside of the blockchain.

Exchange of digital value

- Tokenized money
- Tokens which only exist in the blockchain

Change of ownership of a good, where the good and register only exist in the blockchain.

Public-Permissioned blockchain network

2.9 MILLION TRANSACTIONS/MONTH

99.99% AVAILABILITY

120 NODES

Public
Anonymous

The best of both worlds

Private
Consortium

**Decentralized
Governance**

**Public
Permissioned**

Permissioning

GOVERNING
the COMMONS

ELINOR OSTROM
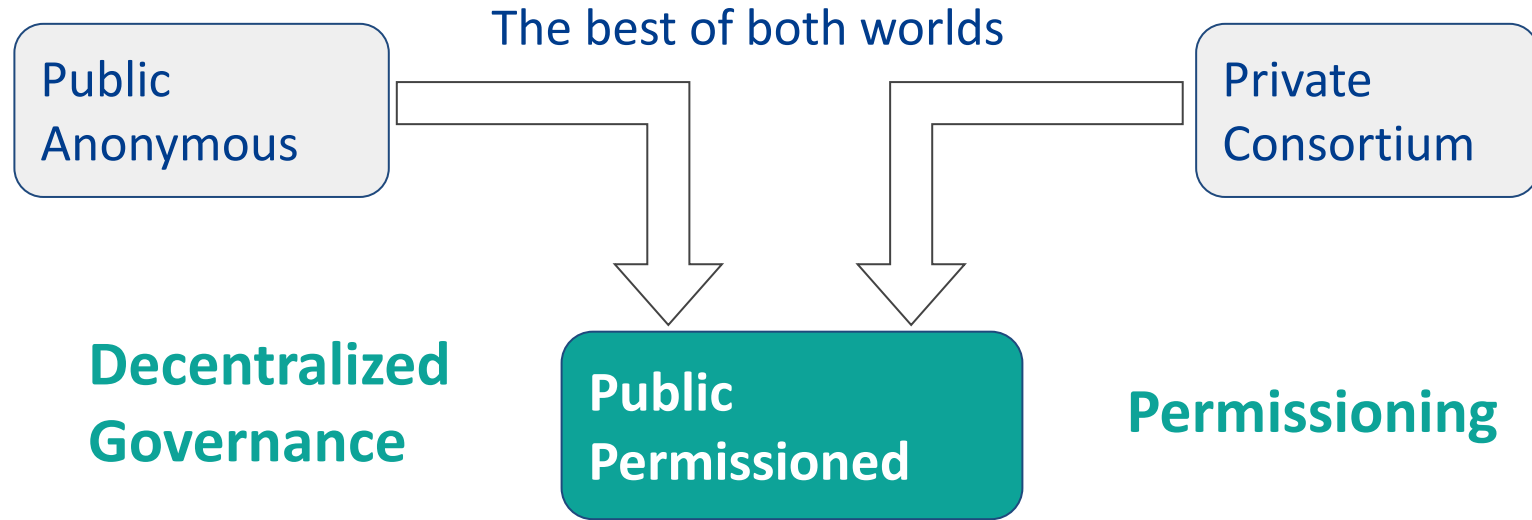
The Evolution of Institutions
for Collective Action

Nobel Prize in Economics 2009

Decentralized Governance Model (DGM)

The DGM describes the Member State agreed **Operational Boundaries** required to ensure that the **TRUST** (relative immutability) and **RESILIENCE** in the EBSI network conform to the aims, strategy and rules of the European Blockchain Partnership and the European Union aims and rules they sit within.

Legal instruments supporting governance

DLT-Node consortium agreement (among EBSI nodes)

This **multiparty** legal agreement implements the **decentralised technical governance** framework and regulate the relationships between any entities acting as nodes, taking into consideration that the **execution of the consensus mechanism as a form of distributed computing is a kind of consortia**. The agreement must consider a legal basis, functions and responsibilities, and liabilities.

DLT-based service agreements (for EBSI Use Cases between user and service provider)

Two legal agreements regulating the relationships between a user and a DLT-based service provider (e.g. a VC issuer service provider) and the DLT consortium, covering the DLT operation needed to support an off-chain service (such EBSI ESSIF and Diploma Use Cases)

SSI service agreement and disclaimer (EBSI ESSIF and Diploma use case)

This legal agreement regulates the issuance of Verifiable Credentials (of any sorts, including Verifiable IDs, Verifiable Attestations, etc.), including legal basis, functions and responsibilities, and liabilities. The agreement set forth terms and conditions between issuer and user, and sets out duties and rights of third parties (verifiers of credentials)

Call for tenders CNECT/2020/OP/0055

# EU Blockchain pre-commercial procurement

Open procedure

Some key use cases of EBSI

- Circular economy and the exploitation of **digital product passport** enhancing the traceability and circularity of all products and components on the EU market.

- **Tracking of raw materials** in physical products that are traded and used across the EU or, for instance, data that should be tracked through different life cycles of products (e.g. batteries).

- **Traceability** of data and documents concerning entire buildings, equipment and materials.

- **Traceability** of products for limiting counterfeiting.

- **Proving the origin** and conditioning of product in food and agri chains. .

- IoT-enabled customs **item tracking** and other IoT apps, such as real-time tracking of the geo-positioning and system status of fast-moving objects across frontiers.

- **Tracking** of transactions or invoices for VAT purposes (limiting VAT fraud).

- EU wide **management of IP rights** (like patents, trademarks, copyrights).

Circular economy digital product passport

- Support 500 Million people and 30 Million businesses
- IoT-enabled customs item tracking:
  - **25 million** new product registrations per **minute**
  - **15 billion** total transactions per **minute** (both read & write)
  - **120 trillion** updates over the course of one **year**

European Self-Sovereign Identity: the user in control of her data
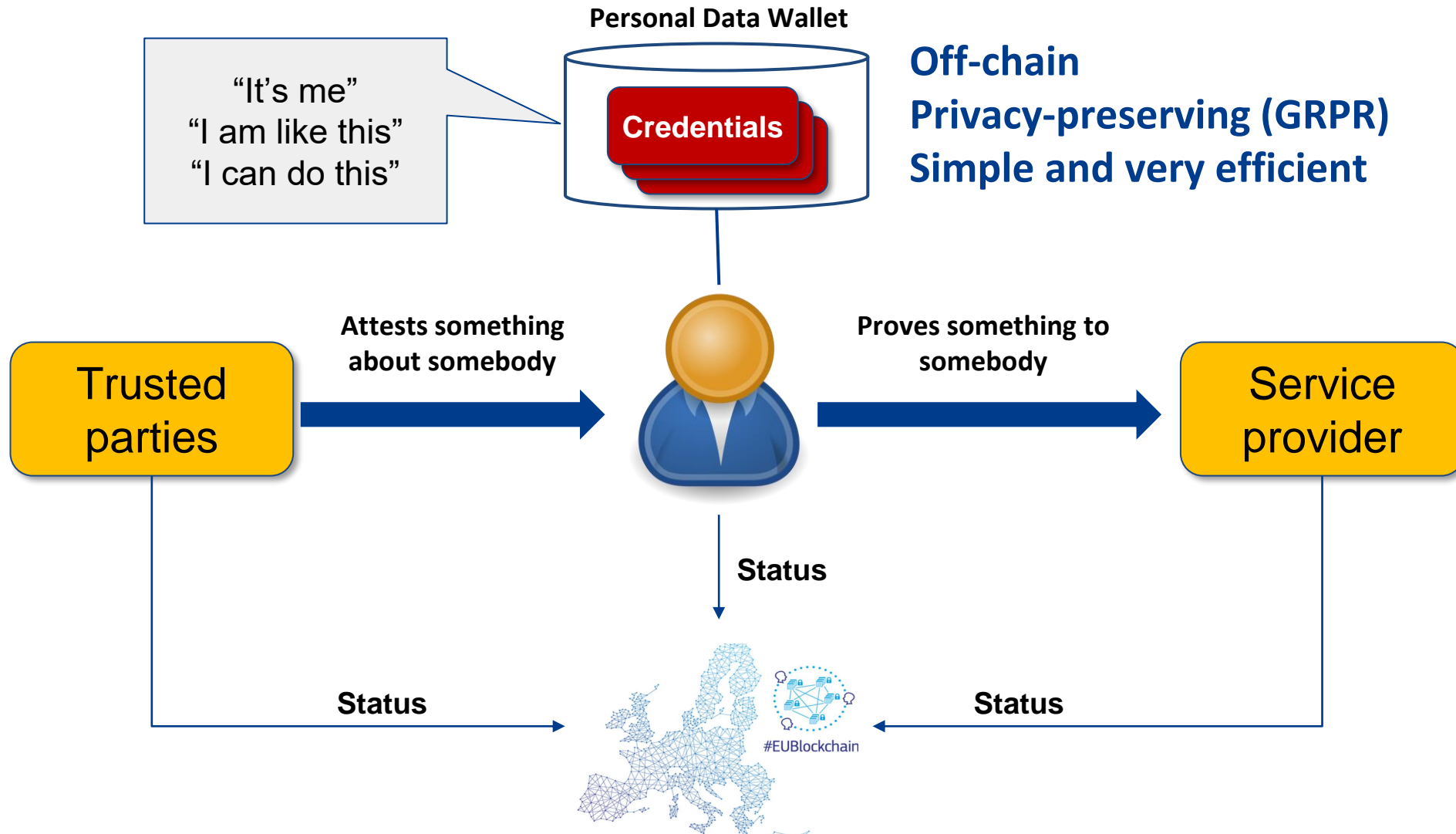
"Every time an App or website asks us to create a new digital identity or to easily log on via a big platform, we have no idea what happens to our data in reality.

That is why the Commission will soon propose a secure European e-identity.

One that we trust and that any citizen can use anywhere in Europe to do anything from paying your taxes to renting a bicycle. A technology where we can control ourselves what data and how data is used.

State of the Union 2020 - President von der Leyen's speech
16th of September 2020

The future is a network of interoperable networks

#EUBlockchain

Trust?   Trust?
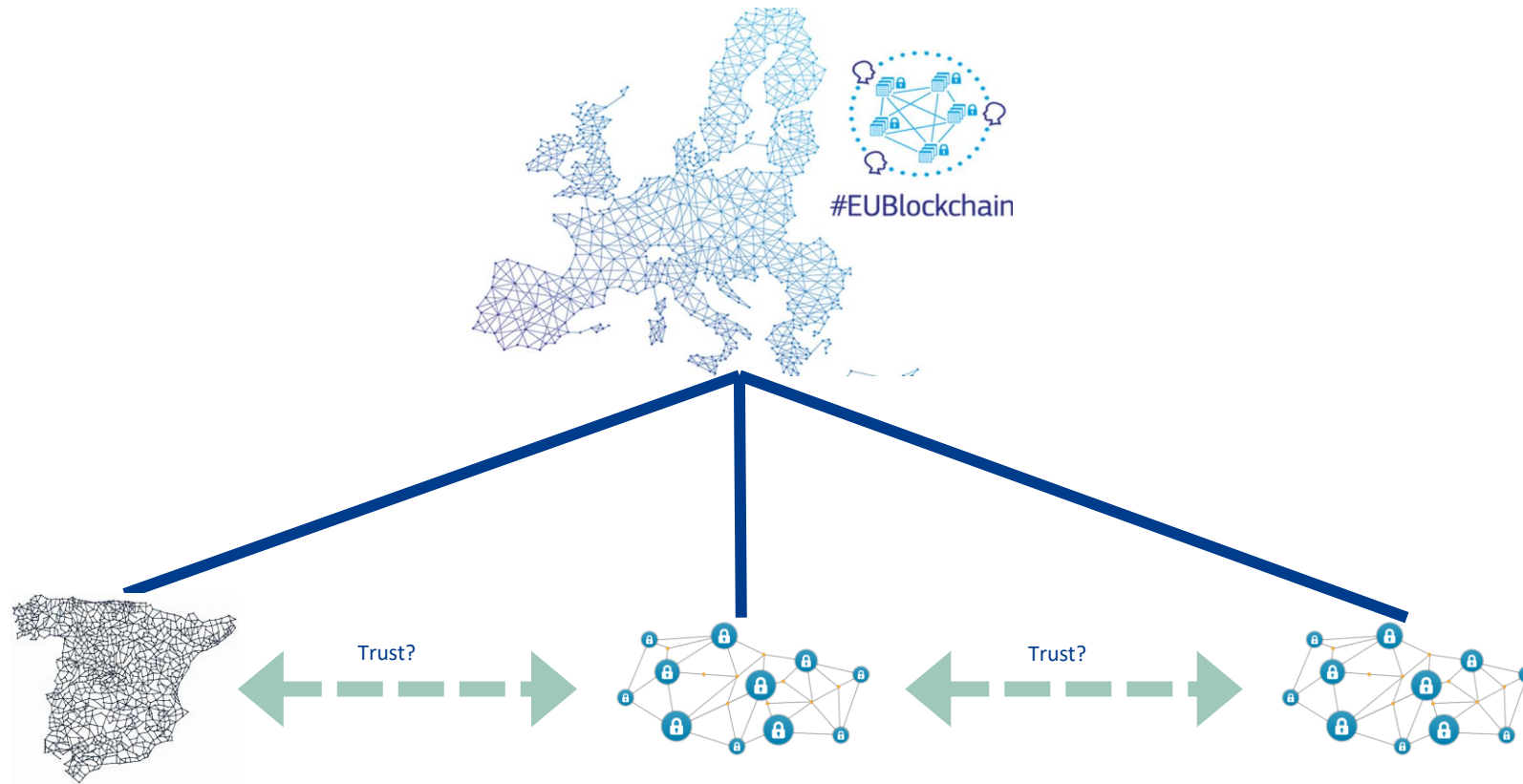
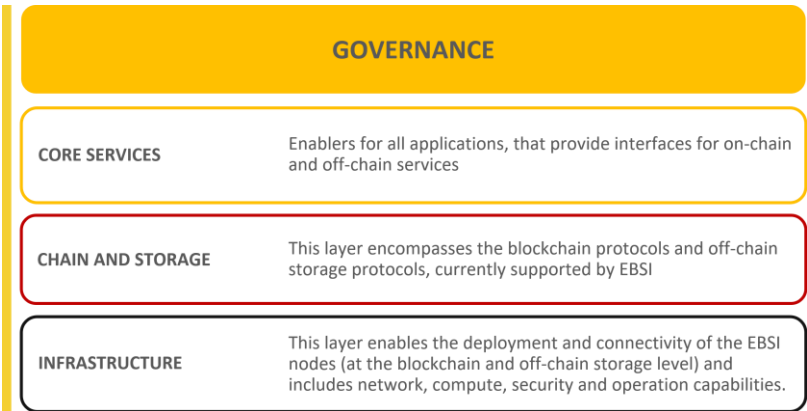**Country networks, Private consortiums, existing systems**

Collaboration across public and private sectors is critical
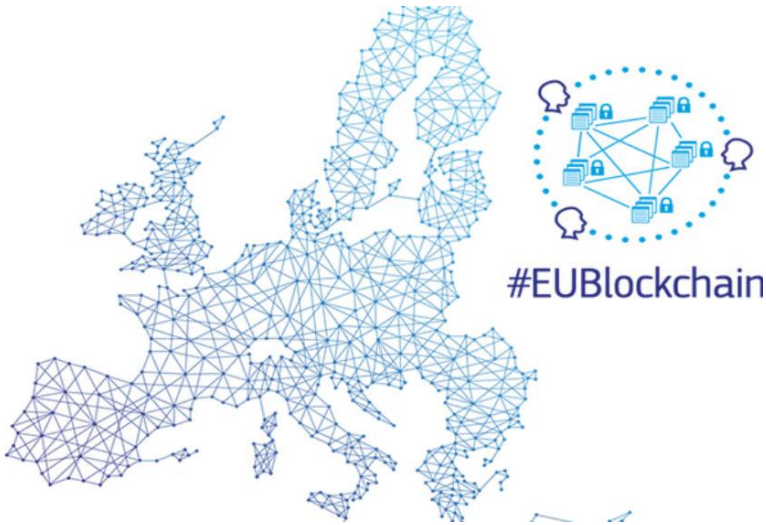
**Private sector &
Local Government**

Capillarity

Interoperability

EBSI

Regulatory backbone

We are collaboration across Public-Permissioned blockchain networks

Common mission
Common rules
Parallel collaboration

The End