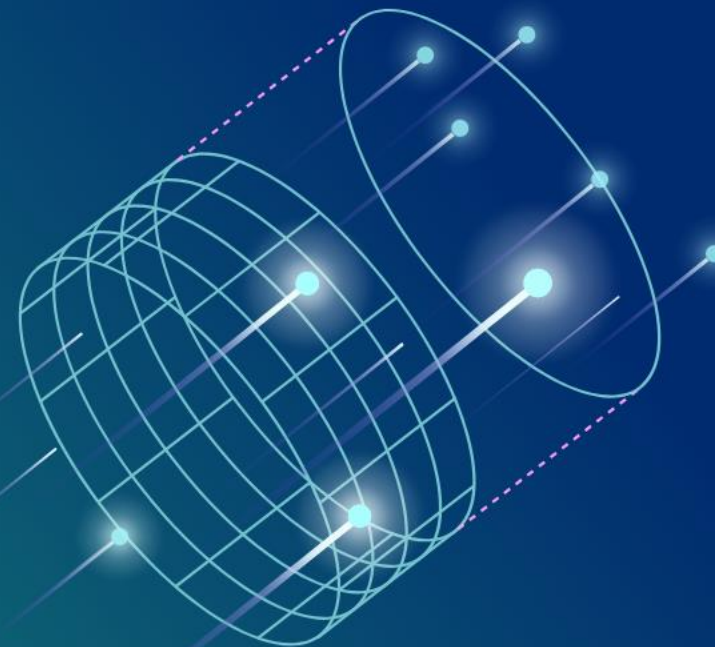




# KRAKEN

## Brokerage and market platform for personal data



ORGANISED BY:



IN COLLABORATION WITH:



UNDER THE AUSPICES OF:





# Hello! My name is Juan Carlos Pérez Baún

I belong to Atos Research & Innovation (Atos) at Blockchain, Identity & Privacy unit. I work on Identity and privacy and management aspects. I'm currently coordinating the KRAKEN project.

**Project Name**

- Brokerage and market platform for personal data

**Project Consortium/GA**

- 10 partners, 6 Countries
- GA ID: 871473

**Call / Project Type**

- Topic: H2020-ICT-13
- Project Type: IA

**Total Budget/Max EU Contribution**

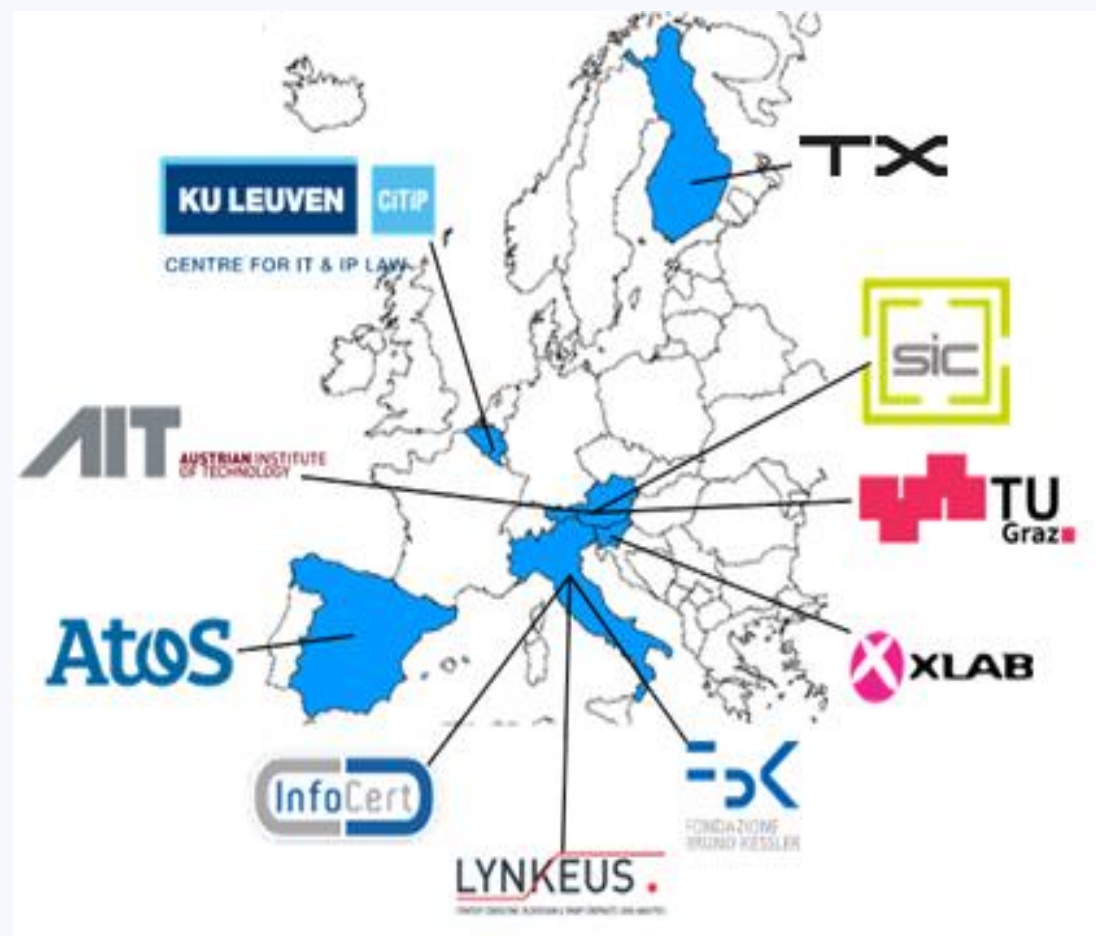
- € 5.999.787.50/5.017.662,50

**Start Date**

- 1 December 2019

**Duration**

- 36 months (30 November 2022)



# Objectives & Achievements



**KRAKEN Marketplace including SMPC for analytics**

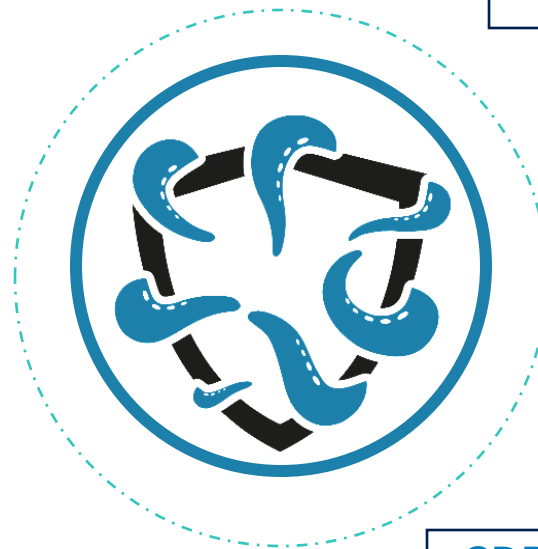
**O1:** Facilitating the implementation of a **highly trusted and secure yet scalable** and efficient **personal data sharing and analysis platform** through adaptation of state-of-the-art technologies and **building on existing CREDENTIAL and MHMD computing platforms**

**Data Unions, xDai BC for payment transactions, pay per access to data, pay per computation**

**O6:** Creating economic value and innovative business models for 'personal data spaces' and supporting the **Digital Single Markets'** data economy by **incentivizing parties**, in particular **SMEs**, to actively engage in the data market

**4 Health UCs + 3 Education UCs**

**O5:** Demonstrate in **two high-impact pilots –Health and Education-** the maturity, feasibility and applicability of KRAKEN, with full **multi-dimensional evaluation** of achieved results vis-a-vis pre-defined **success criteria and KPIs**, and consolidating **lessons learned** for generalizing **adoption** in further economic sectors



**SSI solution for onboarding and login to the Marketplace and University**

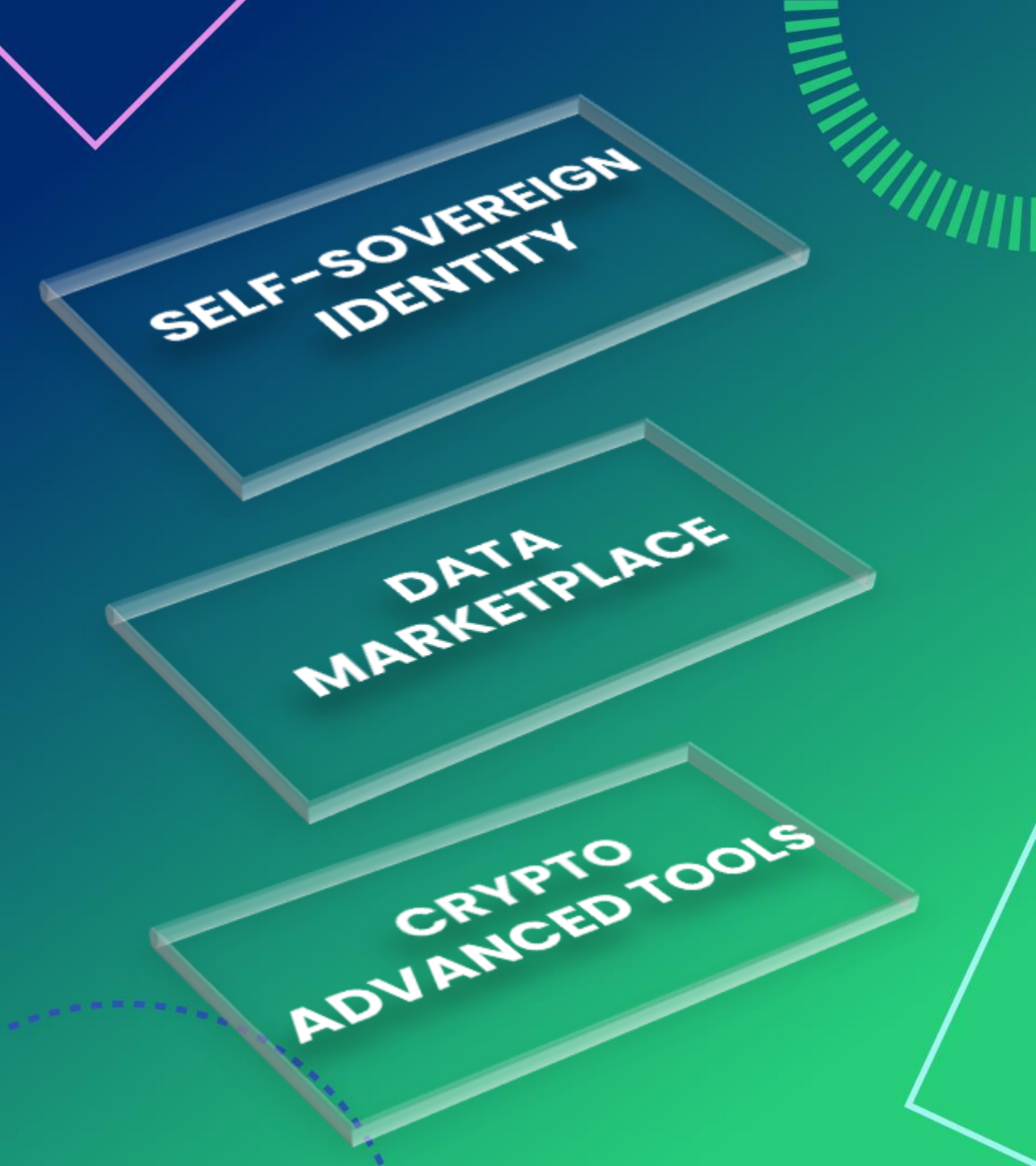
**O2:** Enabling decentralized, open standards-based and **self-sovereign identity management** and **user centric access control** to personal data in support of a **paradigm shift** that creates a true alternative to organization-centric data management

**Privacy metrics integrated & Apply Usability principles**

**O3:** Developing easy-to-understand **privacy metrics and usable interfaces** for end users and data Subjects

**GDPR compliant, W3C standards through implementation**

**O4:** Complying with **regulatory and technical constraints** such as data protection laws, authentication frameworks, and industry standards, promoting **best practices** for personal information management services

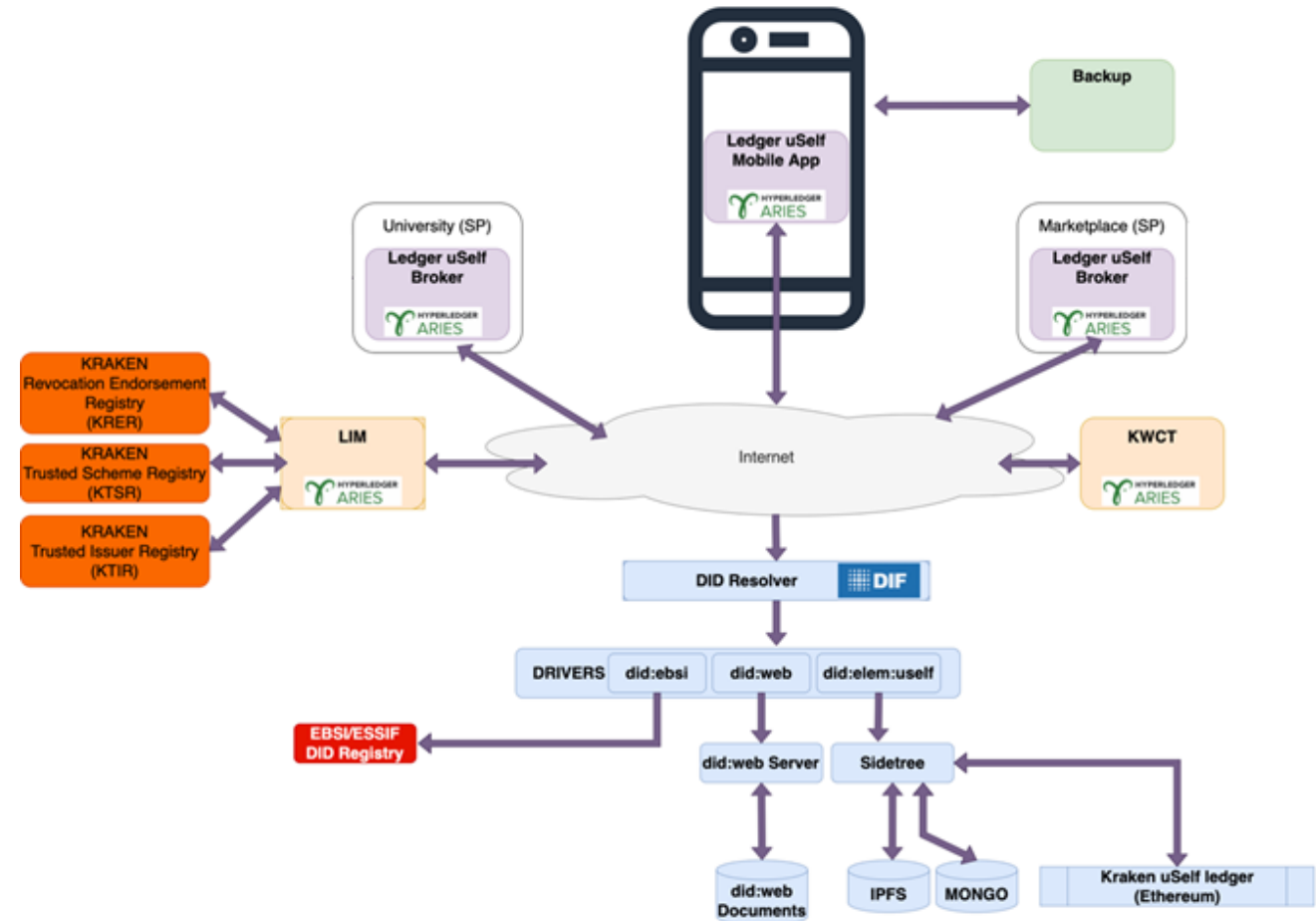


**KRAKEN**

# Self-Sovereign Identity



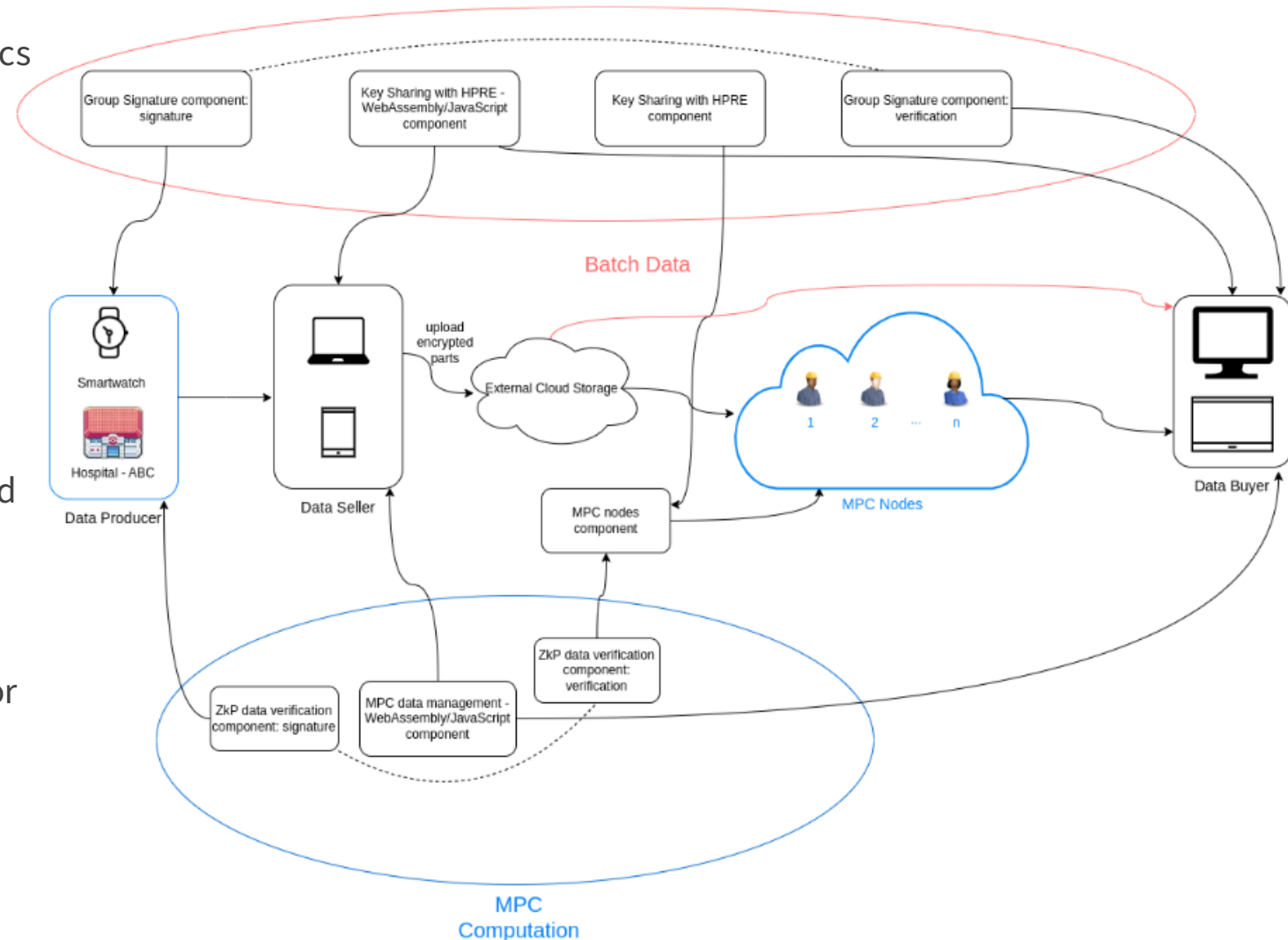
- SSI provides a decentralized user-centric approach on personal data sharing
- **SSI mobile app** for managing VCs and key material
- **Ledger USelf broker** for SP integration
- **VCs with different level of assurance** for accessing the services the platform provides. **LIM**: VCs from eIDAS and signing pdf docs.
- **Backup service** allowing the use of several devices. Device lost or stolen
- **Trust framework** to ESSIF/EBSI alignment.



# Cryptographic tools



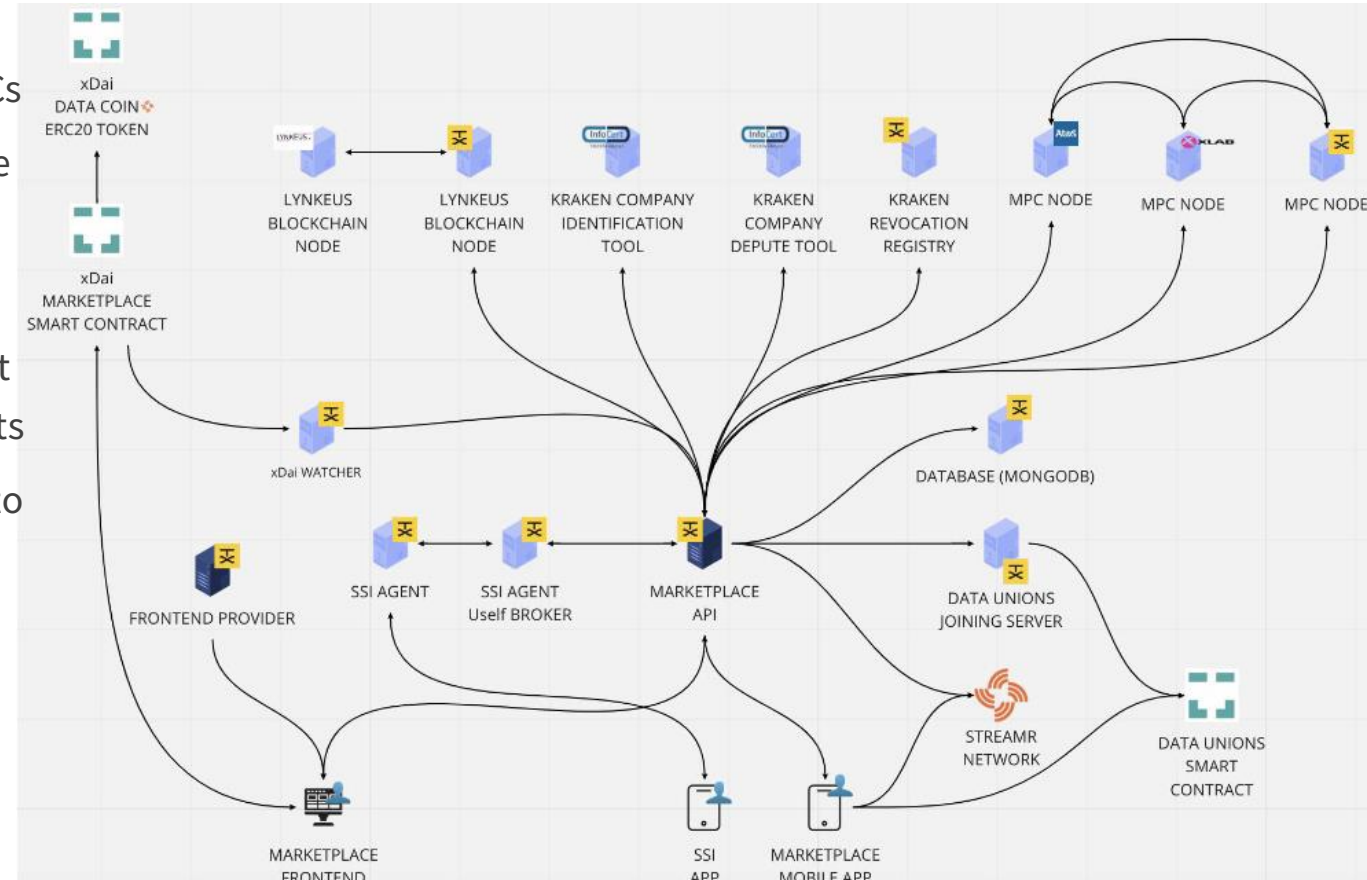
- **Secure Multy-Party Computation (SMPC)** for analytics on data and nodes
- **Key sharing using homomorphic proxy re-authenticator (HPRA)**
- **Group Signatures (GS)** for signing data
- **Zero-Knowledge Proof (ZKP)** data verification for authenticate data without revealing the data itself and authenticate the data shared (combined with MPC nodes)
- **Marketplace calls functions via JS/webAssembly** for key sharing and MPC data management
- **Key management & trust:** share key material
- **Secure cryptographic implementation guidelines**



# Data Marketplace



- **Marketplace backend and frontend:** handling requests and allow users of the marketplace to perform operations
- **Catalogue Database:** Data Product's metadata; users' account, VCs
- **Smart contract:** publication and purchase of Data Products on the xDai blockchain
- **xDai Watcher** for update events: publish/modify Data Products
- **Data Union (DU):** aggregate data in a single Data Product for profit and **Data Union Smart contract:** facilitates one-to-many payments
- **Streamr Network:** a P2P network for publishing and subscribing to Data Union Data Product in real-time
- **Consortium Blockchain Network:** run smart contracts handling the catalogue, user data and data access control policies
- **Marketplace Mobile app:** functionalities for marketplace users
- **Depute and Company Identification tools** for managing natural persons acting on behalf of a company embedding SSI solution





Thank you!  
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