Brokerage and market platform for personal data
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.
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<th><strong>Project Name</strong></th>
<th>Brokerage and market platform for personal data</th>
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| **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

**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

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

**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

**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

**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**

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

**GDPR compliant, W3C standards through implementation**

**Privacy metrics integrated & Apply Usability principles**

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

**KRAKEN Marketplace** including SMPC for analytics

**4 Health UCs + 3 Education UCs**
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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