



**Brokerage and market platform
for personal data**

KRAKEN

Big Data PPP Personal Data Platforms - "Empowering Citizens Leveraging their Data Power"

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(GoToWebinars, 8th May 2020)

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 871473



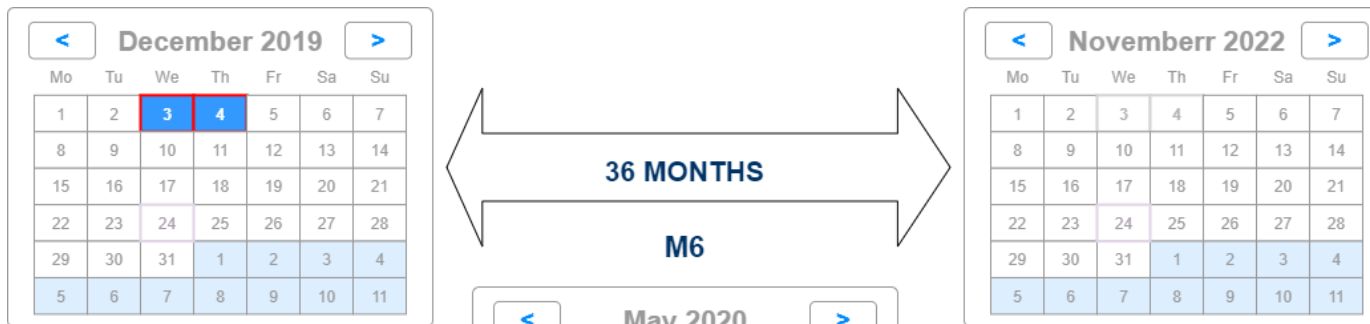
www.krakenh2020.eu



1. **Project Overview**
2. **Objectives**
3. **Key Innovations**
4. **Use cases and (key characteristics) of data sets involved**
5. **Expected business impact**
6. **Initial results**
7. **Challenges faced regarding data**

1- KRAKEN Overview 1/2

EU Horizon 2020 R & I programme under grant agreement No 871473

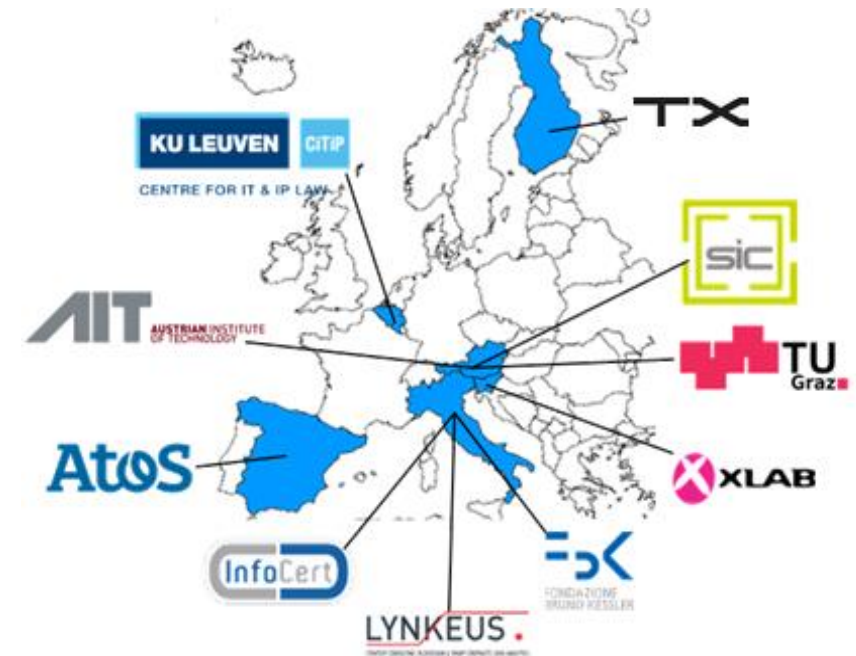


6 Countries

Spain
Italy
Austria
Slovenia
Belgium
Finland

5M €

10 Partners



INDUSTRY PARTNERS



- Coordinator
- SSI



- Technical Coordinator
- Business Coordinator
- SSI

RESEARCH ORGANIZATIONS



- Cryptography
- Standardization



- Education pilot
- SSI



- Legal expert



- UI

SMEs PARTNERS



- Cryptography
- Exploitation



- Health pilot

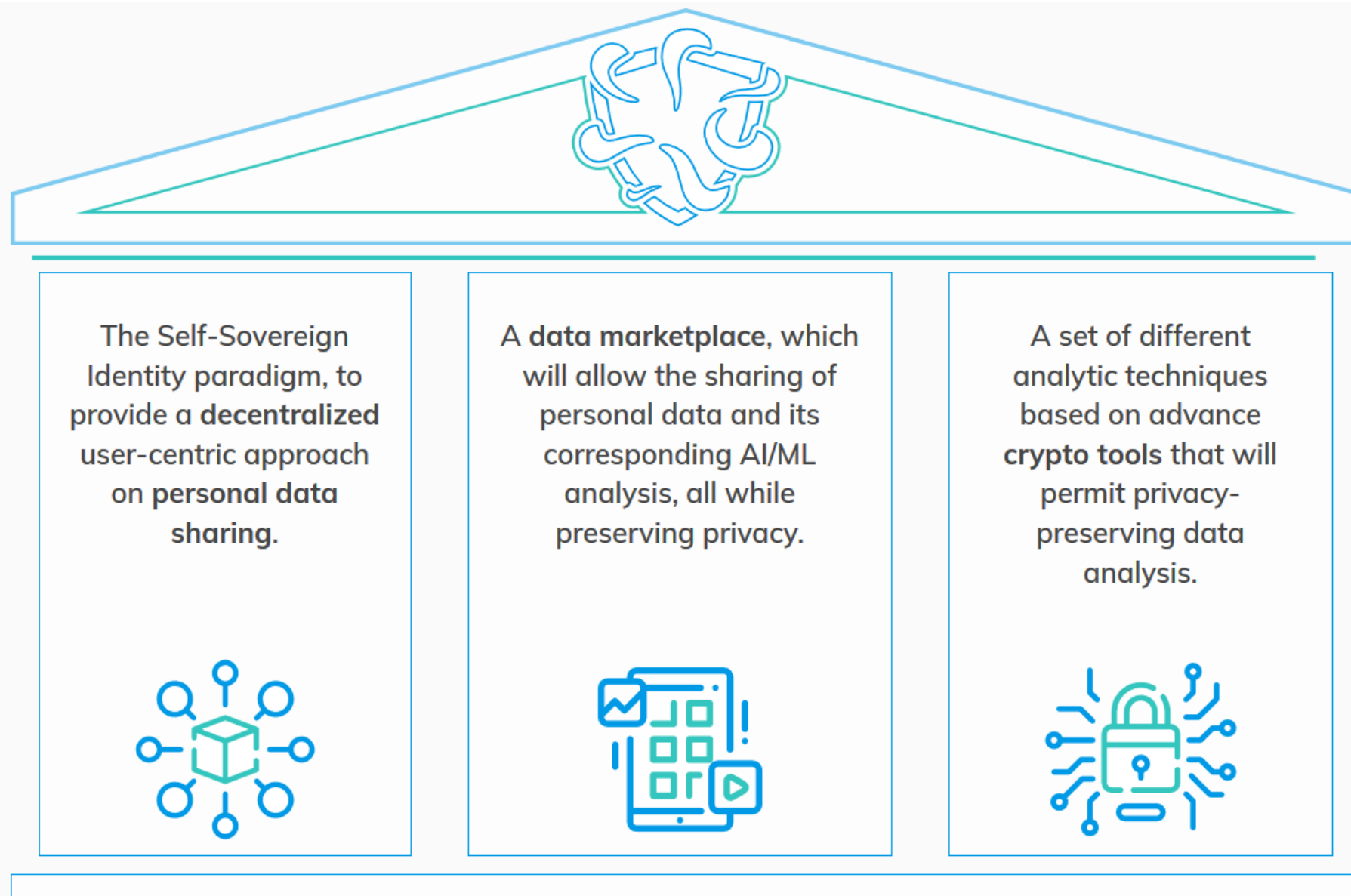


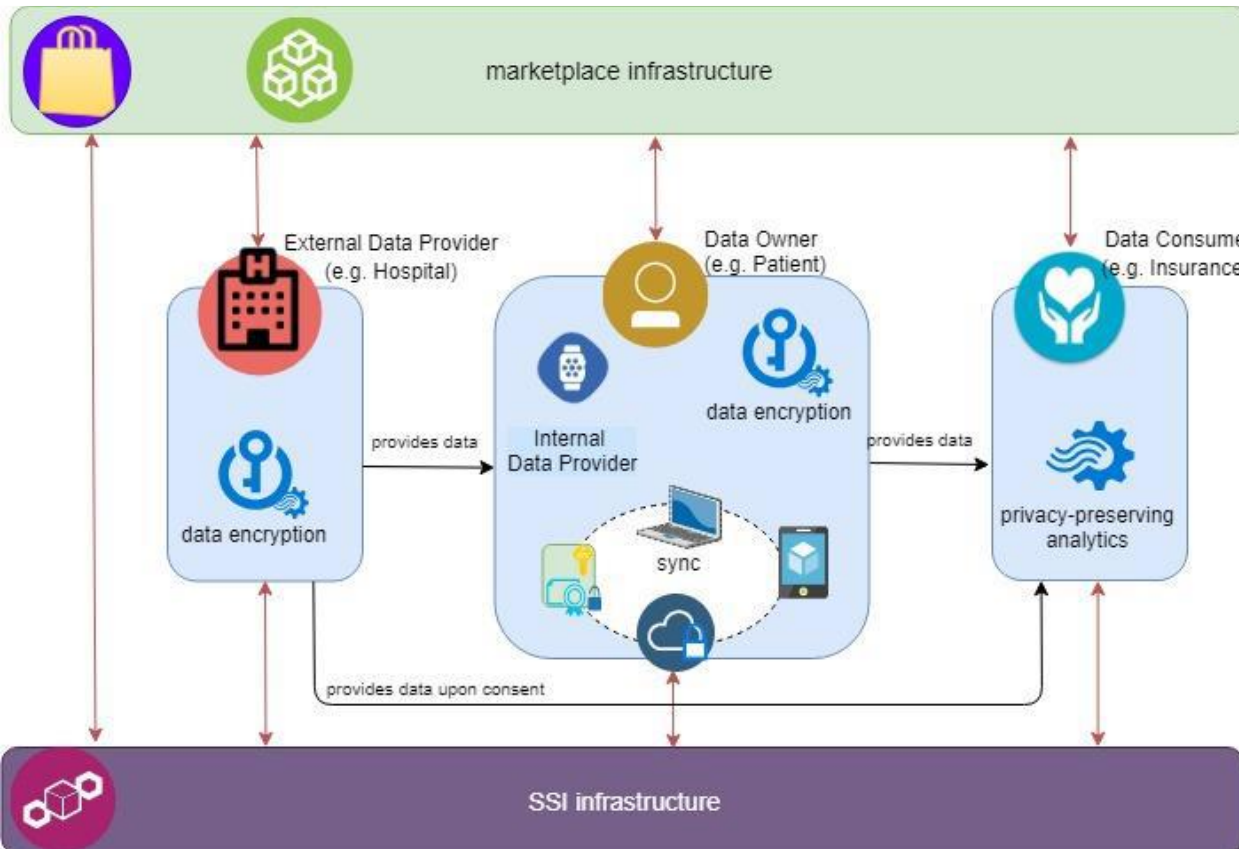
- Marketplace



- Cryptography
- Standardization

2- Objectives: Main objective 1/2





- **Highly trusted and secure yet scalable and efficient personal data sharing and analysis platform**
- **SSI management & user-centric**
- **Regulatory compliant**
- **Two high-impact pilots (Health & Education)**
- **Economic value and innovative business models supporting SMEs**
- **Agile methodology**

3- Key Innovations & Timeline 1/1



ETHICAL & LEGAL FRAMEWORK

AUGUST
2020



HEALTH & EDUCATION USER STORIES

SEPTEMBER
2020



KRAKEN DESIGN FIRST DELIVERY

NOVEMBER
2020



KRAKEN SOLUTION FIRST DELIVERY

JULY
2021

4- Use cases: Health pilot 1/4



- A biomedical and wellbeing data marketplace connecting data providers
 - Individual citizens
 - Healthcare organizations
- Sharing medical and wellness data streams with data consumers (academic research centers, health-tech companies, insurers, public authorities, wellbeing services providers) in exchange for economic value, in full compliance with the GDPR.
- The platform will leverage existing blockchain data infrastructures:
 - MyHealthMyData (MHMD)
 - Streamr: decentralized P2P pub-sub system for transfer of data streams
- 4 Use Cases (sell, buy, monetize and Data Analytics aaS)

4- Use cases: Health pilot types of data 2/4

DATA PRODUCERS

Individuals, hospitals, data unions, app providers, patient associations, etc.



DATA BUYERS

Research centers, AI developers, insurance companies, device manufacturers, etc.

DATA


- **Health records:**
medical histories
lab results
procedures
etc
- **Health and wellbeing, real-word data** by mobile apps and wearable devices:
heart rate
dietary
physical activity
etc



UTILITY

- **Data-driven biomedical research:** disease biomarkers, innovative drugs and therapeutic approaches, disease characterization
- **Clinical trials:** patient stratification, virtual cohort generation
- **Clinical decision marking:** early diagnosis, patient management and stratification, therapy assignment
- **Medical device development:** design, testing and validation
- **Artificial Intelligence:** algorithm training and validation, real-time AI stream processing and analytics
- **Human resources** management systems, Recruitment companies, professional social networks.
- **Insurance companies**
- **Disease risk profile determination**
- **Data analytics services**

- Data marketplace connecting data providers
 - Students
- Sharing grades, certifications, courses with data consumers (recruitment agencies) in exchange for economic value, in full compliance with the GDPR.
- Use of a dedicated LinkedIn page as recruitment company
- 3 UCs where produce academic data, purchase/access data, processing academic data

DATA OWNERS 
Students to trade their academic records in a **privacy-preserving** way



DATA BUYERS

Recruitment agencies to acquire this data and process it, keeping the **student's privacy** intact.

DATA



Certification



Enrolment status



Student career path



Student qualifications



UTILITY

- **Human resources** management systems, Recruitment companies, professional social networks.
- Training, **education**, life-long learning institutions
- **Market consultants**, Research and advisory companies
- **Government**, education ministries, European networks (Eurydice, ENQA)

5- Expected Business Impact 1/1

KRAKEN develops a trusted and secure personal data platform with state-of-the-art privacy aware analytics methods, guaranteeing on metadata privacy, including query privacy

Benefits for Data Users

Easy **Access to data**

Added value data through **data-driven services**, analytics tools and new AI-based models

New improved **business services*** thanks to added value data

GDPR responsibility decreases thanks to the use of privacy-protection schema



Benefits for Data Subjects

Increased trust thanks to high **security and privacy by design** . No information are stored into the public ledger

Real control over their own data. Everything is stored in a wallet under **user's control**

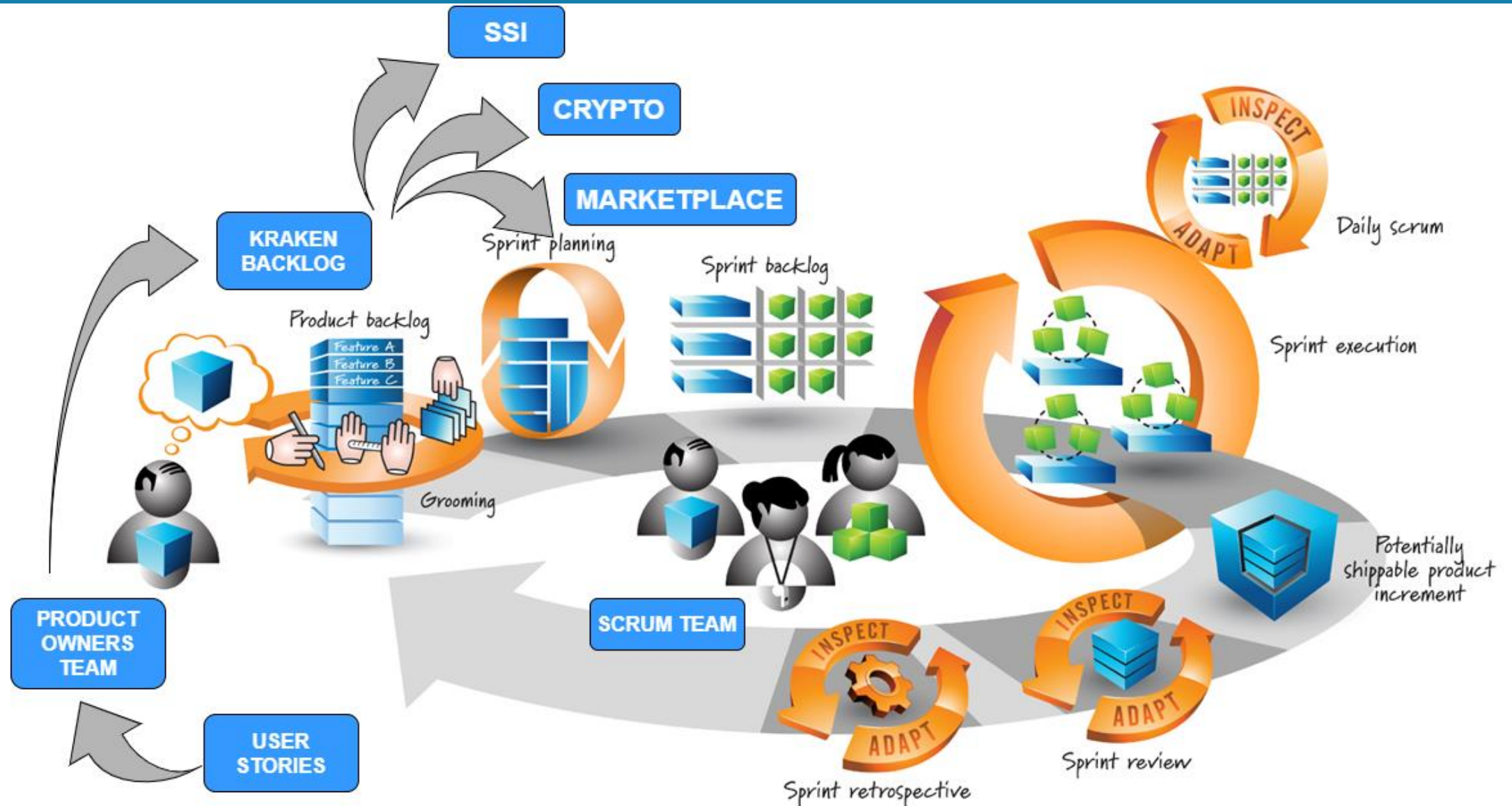
Make **profit from data**

A shift from trusting central authorities to trusting math

Based on **Blockchain technology** and Distributed Ledger every information can be easily verifiable

* health prevention, education certification etc.

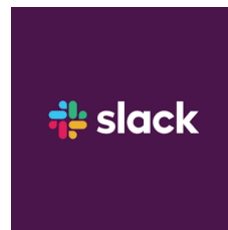
6- Initial results: Agile methodology 1/4



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6- Initial results: Tools Availability 2/4

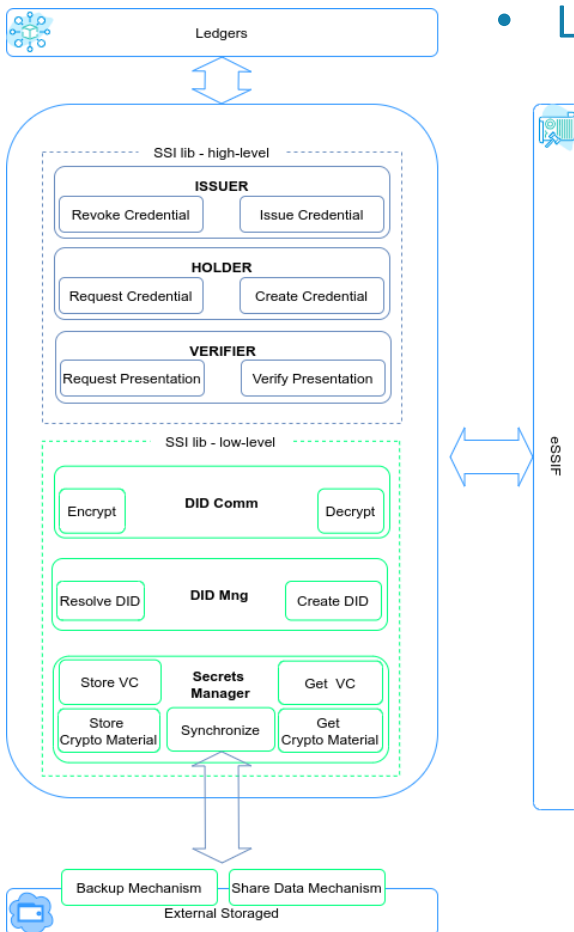
- Taiga: Project management and issue tracking
- Slack: Communication tool between partners
- Mural: Work in a collaborative way between partners at the same time
- GitLab CE: Source repositories and wiki
- Jenkins: continuous integration and deployment CI/CD
- Sonarqube: Quality assurance
- Nexus: Binary artefacts repository



6- Initial results: Technical 3/4

WP2 Architecture specifications

- Architecture initial version
- Leverages ESSIF for eIDAS connection

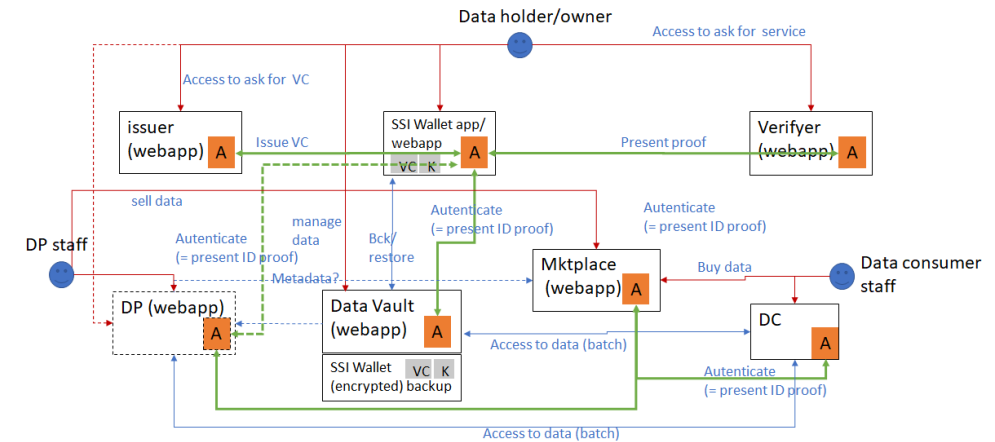


WP3 Decentralised Ledger Solutions

- Specifications from WP2

WP4 Crypto technologies & Analytics

- Data Analytics as a Service
- Very draft 1st version of FE prototype



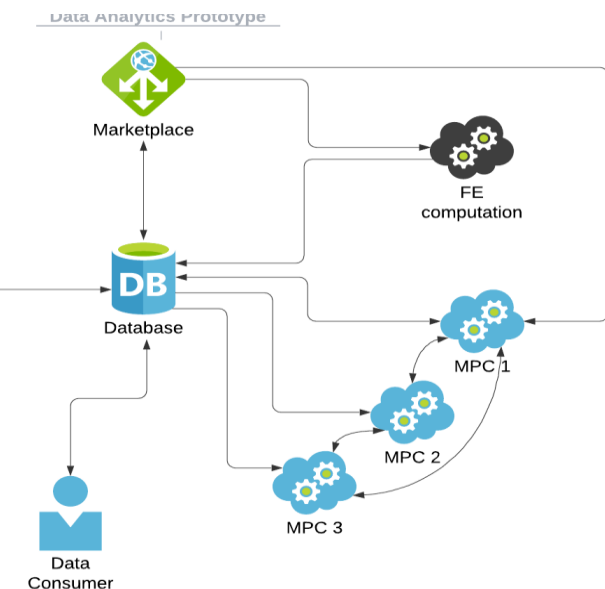
Overall picture

Still missing:

- Access to data streams
- Analytics functions

Other open issues:

- Naming conventions
- sequence diagram for each of the flows
- Consent management

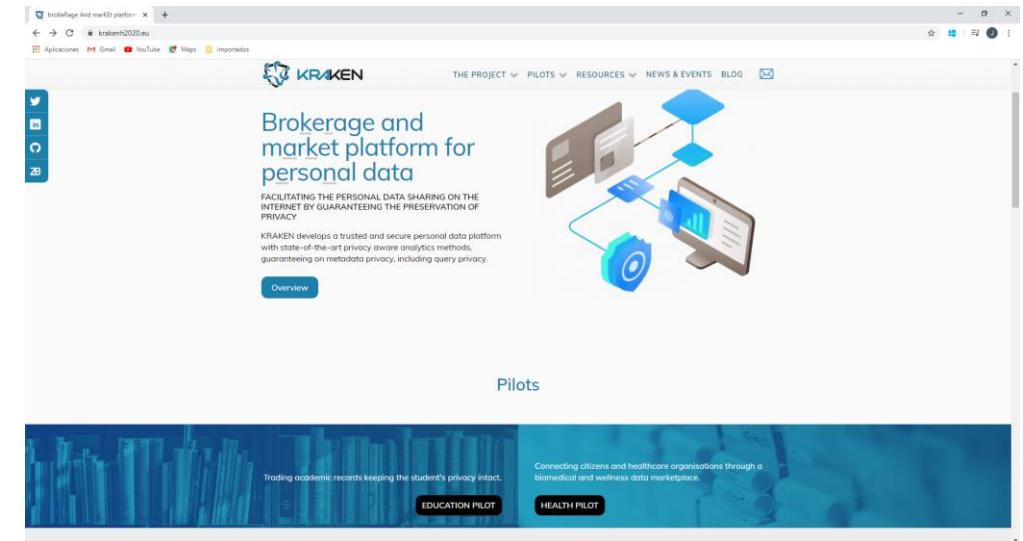


6- Initial results: WPs 3/6



WP6 Business, Exploitation & Communication

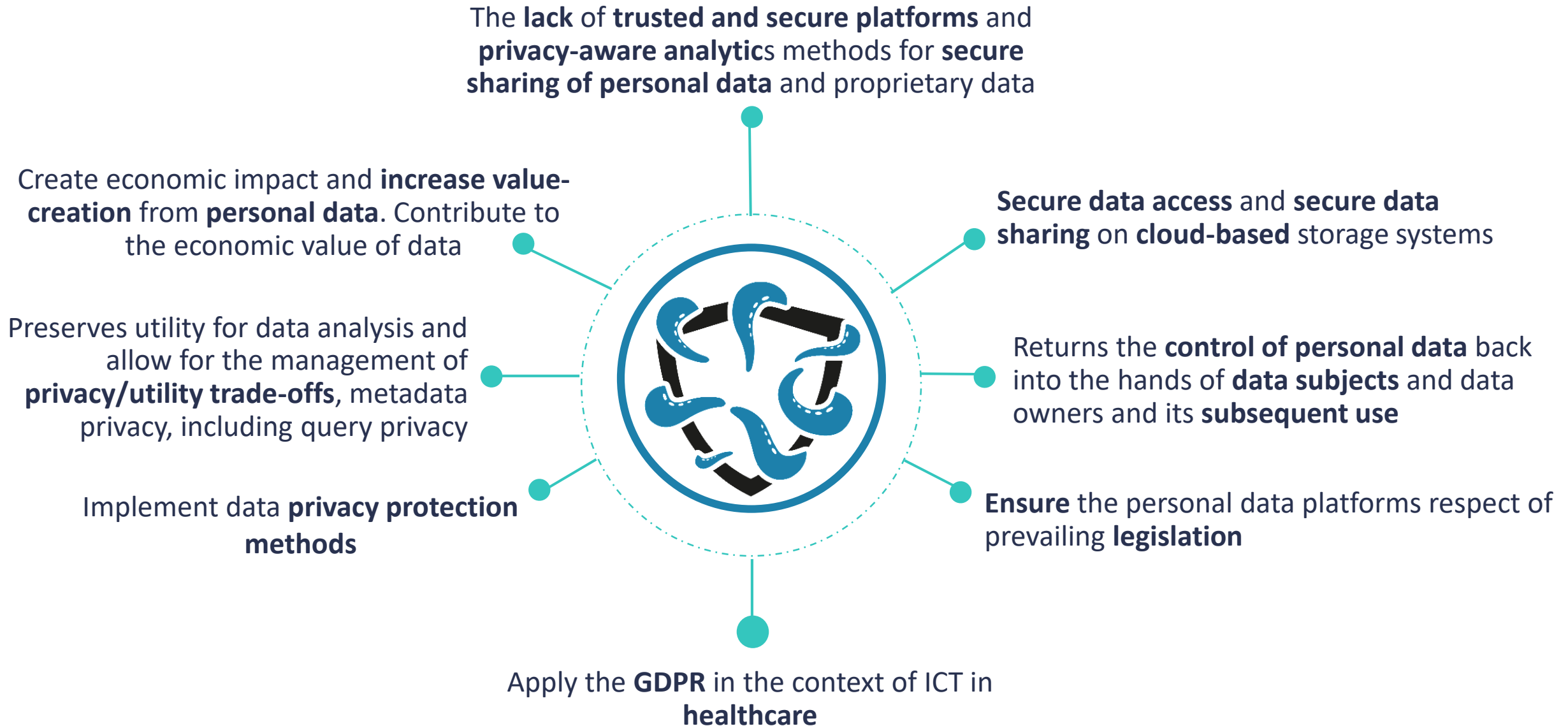
- <https://www.krakenh2020.eu/>
- Social channels (Twitter, Linkedin, Zenodo)



ESSIF Liaison

- The European self-sovereign identity framework (eSSIF)
- Part of European Blockchain Service Infrastructure (EBSI)
- Use eSSIF infrastructure for eID authentication
- Contribute to this initiative: Collaborative development







Thank you for your attention !

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Atos

Fondazione
Bruno Kessler

AIT
Austrian Institute
of Technology



LYNKEUS
Strategy Consulting | Blockchain & Smart Contracts | Data Analytics



TX

KU LEUVEN
CITIP
Centre for IT & IP Law

IAIK
TU
Graz

InfoCert
TINEXTA GROUP



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