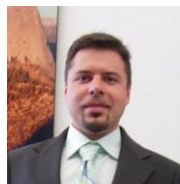


Workshop: Data Spaces & Semantic Interoperability

Requirements, standards, certification,
tools, licenses and more

3rd of June 2022, 9 am – 4:30 pm CEST | Vienna, Austria



Dr. Achille Zappa

Data Science Institute - NUI Galway
Insight SFI Research Centre for Data Analytics
Galway, Ireland



Insight 

SFI RESEARCH CENTRE FOR DATA ANALYTICS



**European
Commission**

Horizon 2020
European Union funding
for Research & Innovation

i3-MARKET Project

Design Principles supporting the Creation
of
Tools for the Interoperability of European
Digital Data Spaces and Marketplaces

June 2022
TRUST Workshop
Vienna



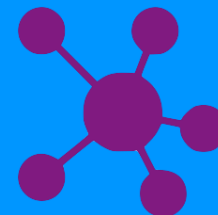
Marketplaces



Open Source



Security, Privacy
and Trust



Semantics



www.i3-market.eu

5

Large
Industries

5

SMEs

3

Universities

H2020-ICT13
Project ID: 871754



NUI Galway
OÉ Gaillimh

SIEMENS Atos



UNIVERSITAT POLITÈCNICA
DE CATALUNYA
BARCELONATECH



guardtime



IBM

GFT

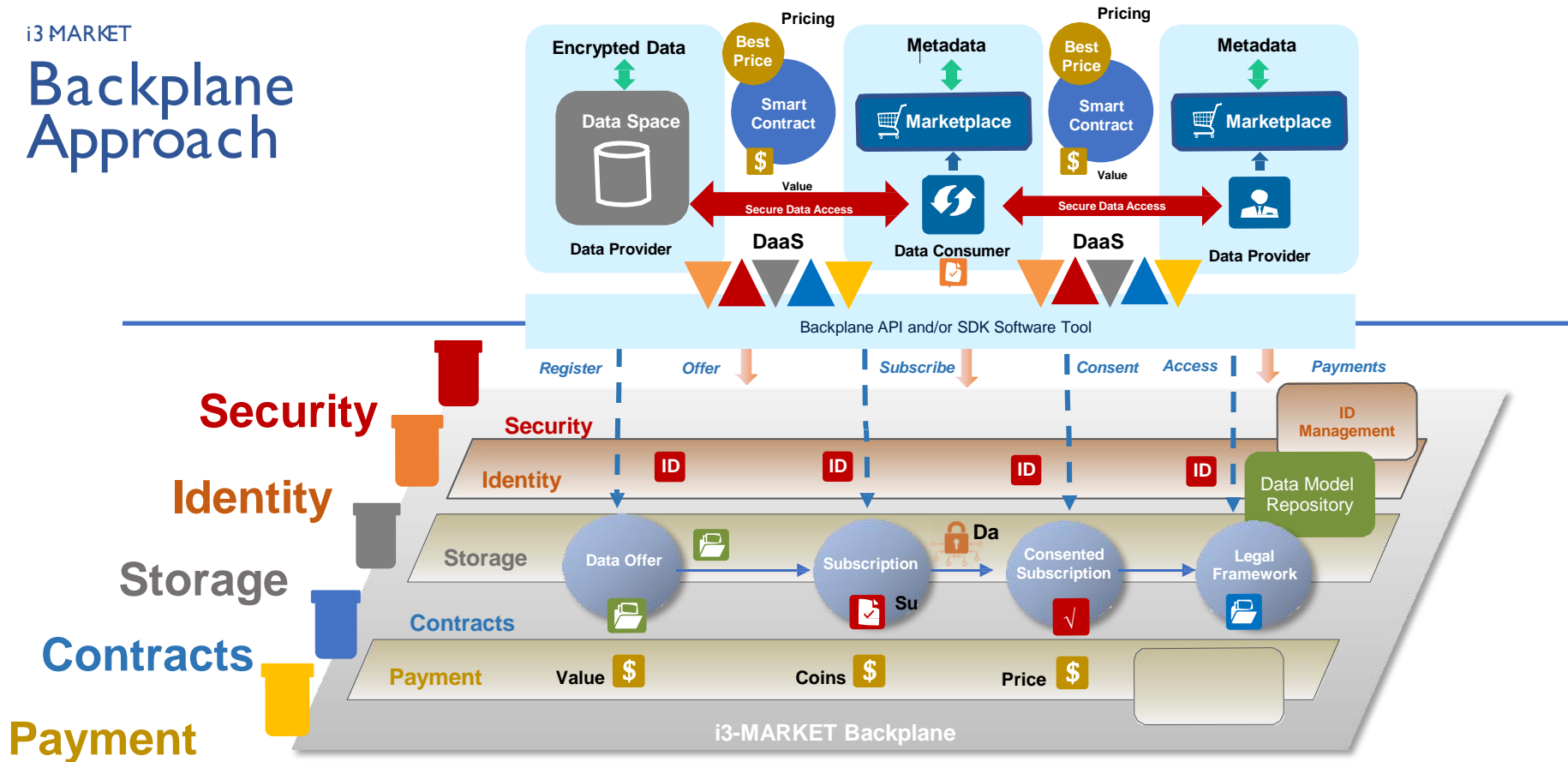


UNPARALLEL



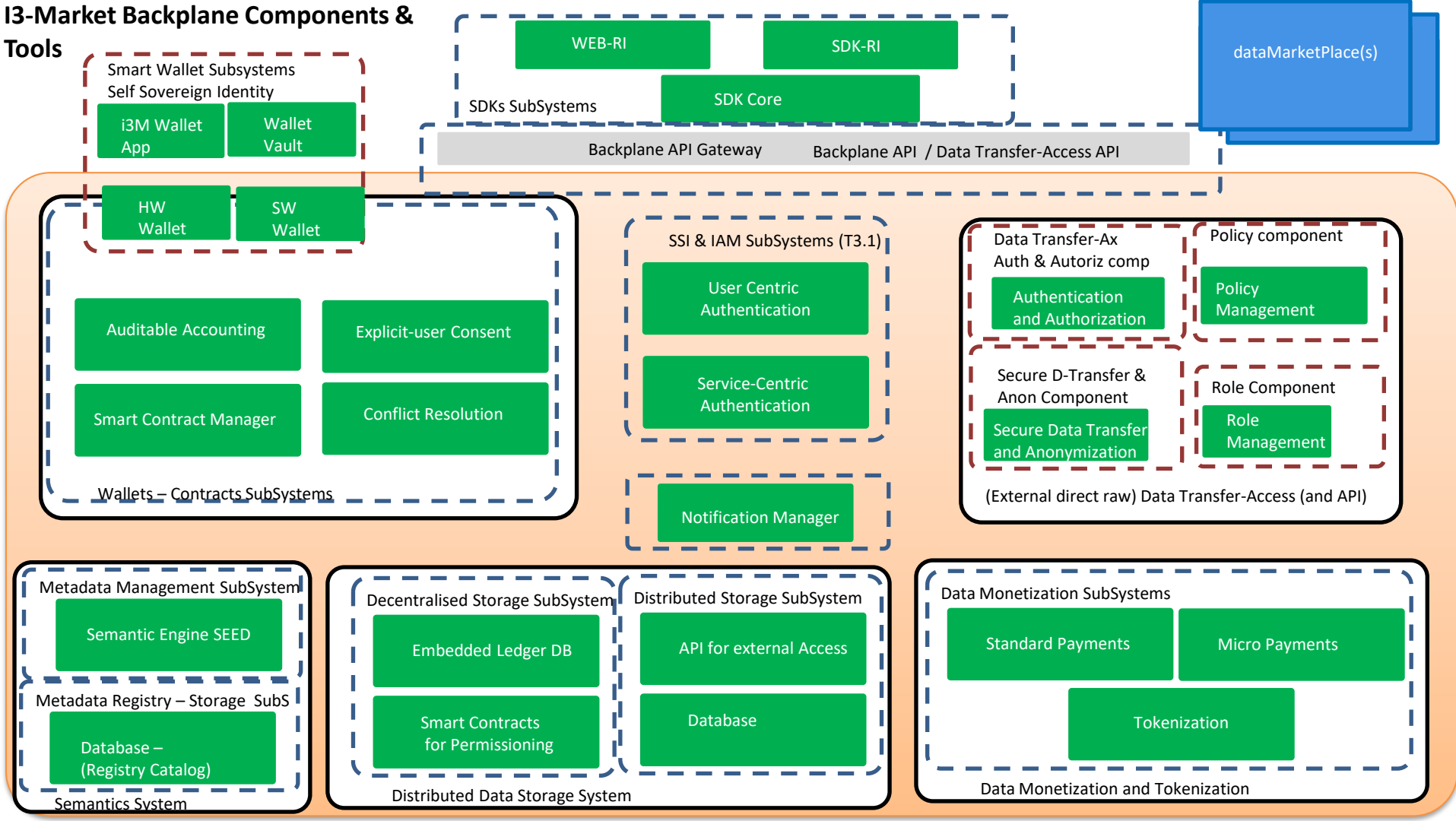
i3 MARKET

Backplane Approach



I3-Market Backplane Components &

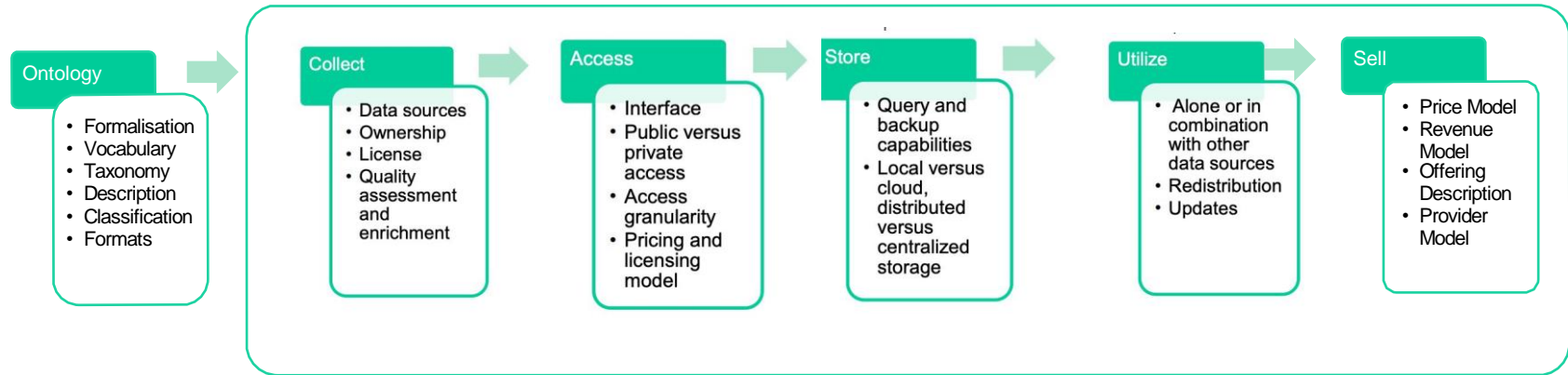
Tools



Data Lifecycle Process

What About the Information on Assets, Metadata and Modelling Activity

Semantic and Information Model & Data Lifecycle Process



Marketplace Data Lifecycle Process

i3-MARKET Semantic Models

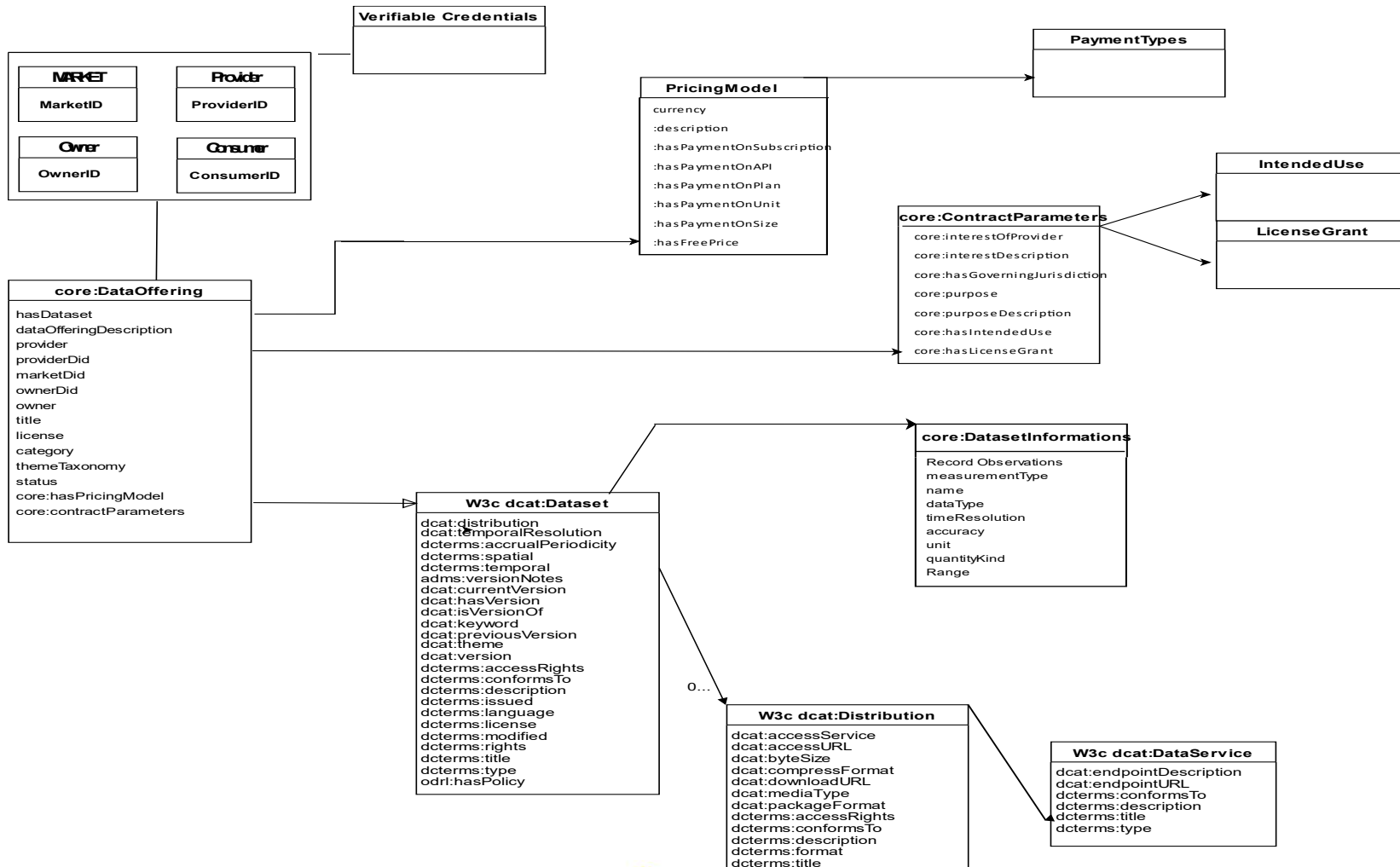
- Integrates different vocabularies and taxonomies in relation to Marketplaces Operation and Management
- Formalise the state of current marketplaces by using best practices and standards
- Vocabularies and Ontologies for Collecting, Accessing, Store, Utilise and Sell Data

Semantic Models, Management, Engine

- i3-Market Semantic Models
 - i3-Market Semantic Core Model
 - Contractual Parameters
 - W3c Data Catalog Vocabulary (DCAT)
 - W3c Verifiable Credentials and DID
 - Pricing
 - EU Vocabularies Frequency Named Authority List ,EU Vocabularies File Type Named Authority List , EU Vocabularies Languages Named Authority List , EU Vocabularies Continents Named Authority List , ADMS licence type vocabulary
 - Domain Annotations and QUDT
- Semantic Engine & Metadata Framework
 - a. Data Offering Creation
 - b. Data Offering Discovery
 - c. Data Offering Registry
 - d. Federated Discovery on different node registries
 - e. Management of Data Sharing Agreement and Service Agreement Parameters to comply with Smart Contract Manager
 - f. Alignment with entities and IDs in backplane Information models
- Semantic Vocabulary Management (Git Repository for models, files, cooperative engagement)

We developed and implemented dedicated software components for Semantic Engine System as SEED, that is in charge to manage the semantic metadata, descriptions, queries, discoveries, retrieve, create and map descriptions and manipulate registries, federated queries and components interactions and interfaces. To make easier the interface and use of functionalities we present the external operations via APIs that are more agnostic and easier to use also for non-semantic experts.

Metadata Descriptions



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"context": {
  "core": "http://i3-market.eu/backplane/core/",
  "dcat": "http://www.w3.org/ns/dcat#",
  "pricingModel": "http://i3-market.eu/backplane/pricingmodel"
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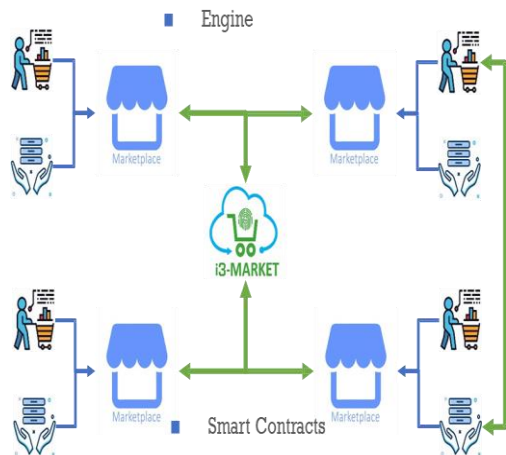
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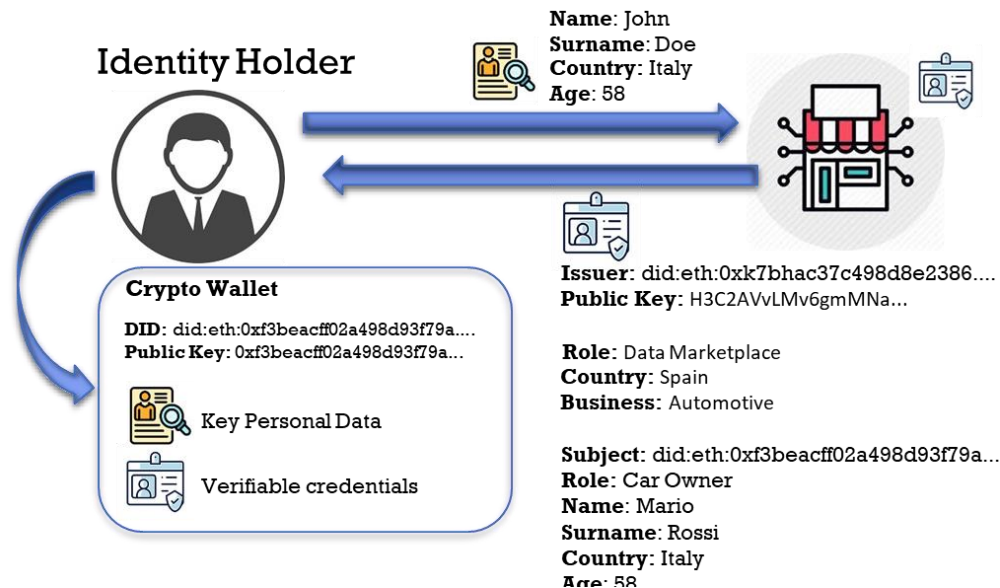
Data Offering Description

i3-MARKET – Secure Federation Data Economy Concept Approach

IDM and Self sovereign identity

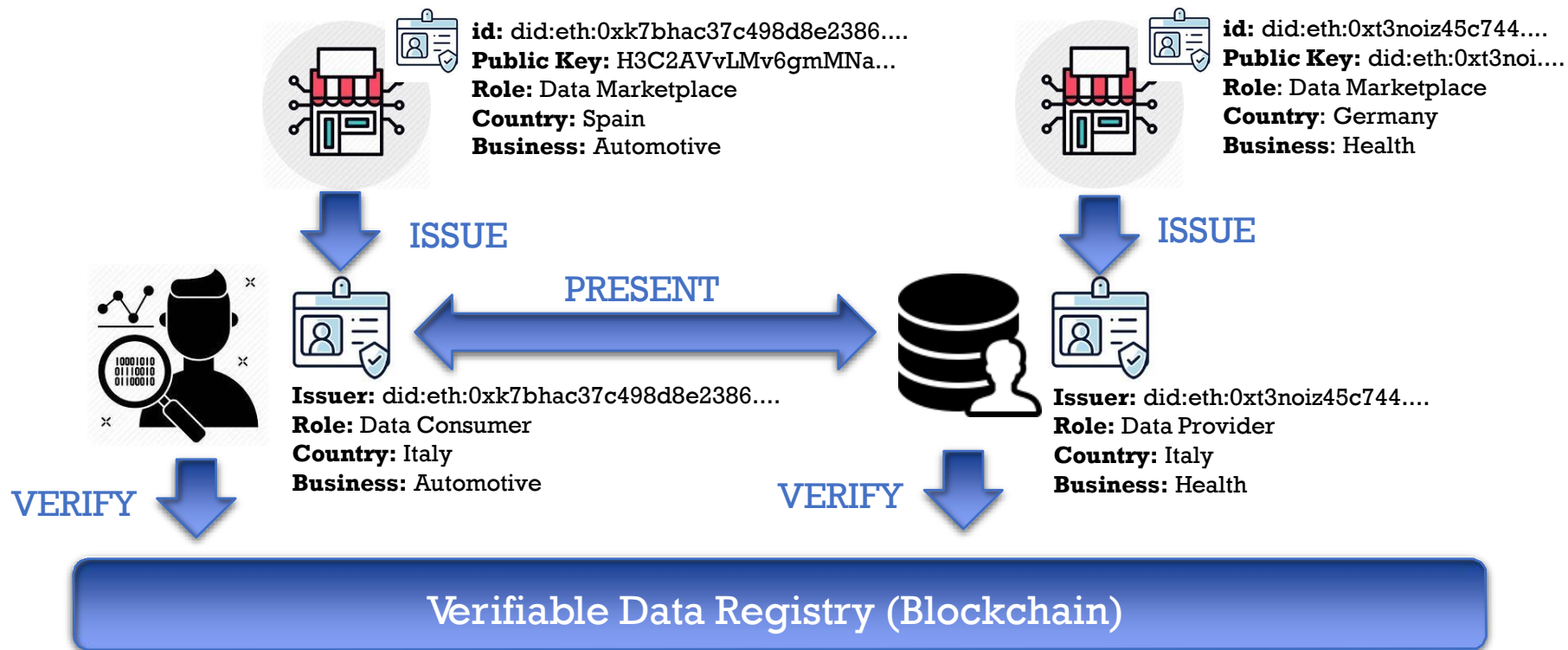


- OPENID standard authentication
- CryptoWallet
- Distributed Identity
- Verifiable Credentials
- Crypto token



i3-MARKET – Secure Federation with Distributed Consent

Verifiable Credentials



Introduction to Data Sharing

Non-personal data

FMT:BoldGuidance on sharing private sector data /FMT
FMT:Boldin the European data economy/FMT
Big Data & Issues & Opportunities: Data Sharing Agreements
(Bird&Bird)

Data Sharing Agreements

There is no universal law that regulates all aspects of data sharing across sectors, especially in non-personal data. Data sharing, especially in B2B context, is typically implemented on the basis of contracts, through which the parties agree on the subject and value of the trading as well as on all other modalities

Commission guidance on sharing private sector data in the European data economy Five Principles for B2B DSAs in EU

Principles	DSAs should therefore...
Transparency	Identify the persons or entities that will have access and use the data generated by the product or service in question and specify the purposes for such data use.
Shared value creation	Recognise that, where data is generated as a by-product of using a product or service, several parties have contributed to creating the data.
Respect for each other's commercial interests	Address the need to protect both the commercial interests and secrets of data holders and data users.
Ensure undistorted competition	Address the need to ensure undistorted competition when exchanging commercially sensitive data.
Minimised data lock-in	Allow and enable data portability as much as possible, particularly where companies offer products or services that generate data as a by-product.

Smart Contracts and Data Sharing Agreements

Most common clauses for DSAs

DSAs for non-personal data

Report on EU law applicable to sharing of non-personal data

○ General legal provisions

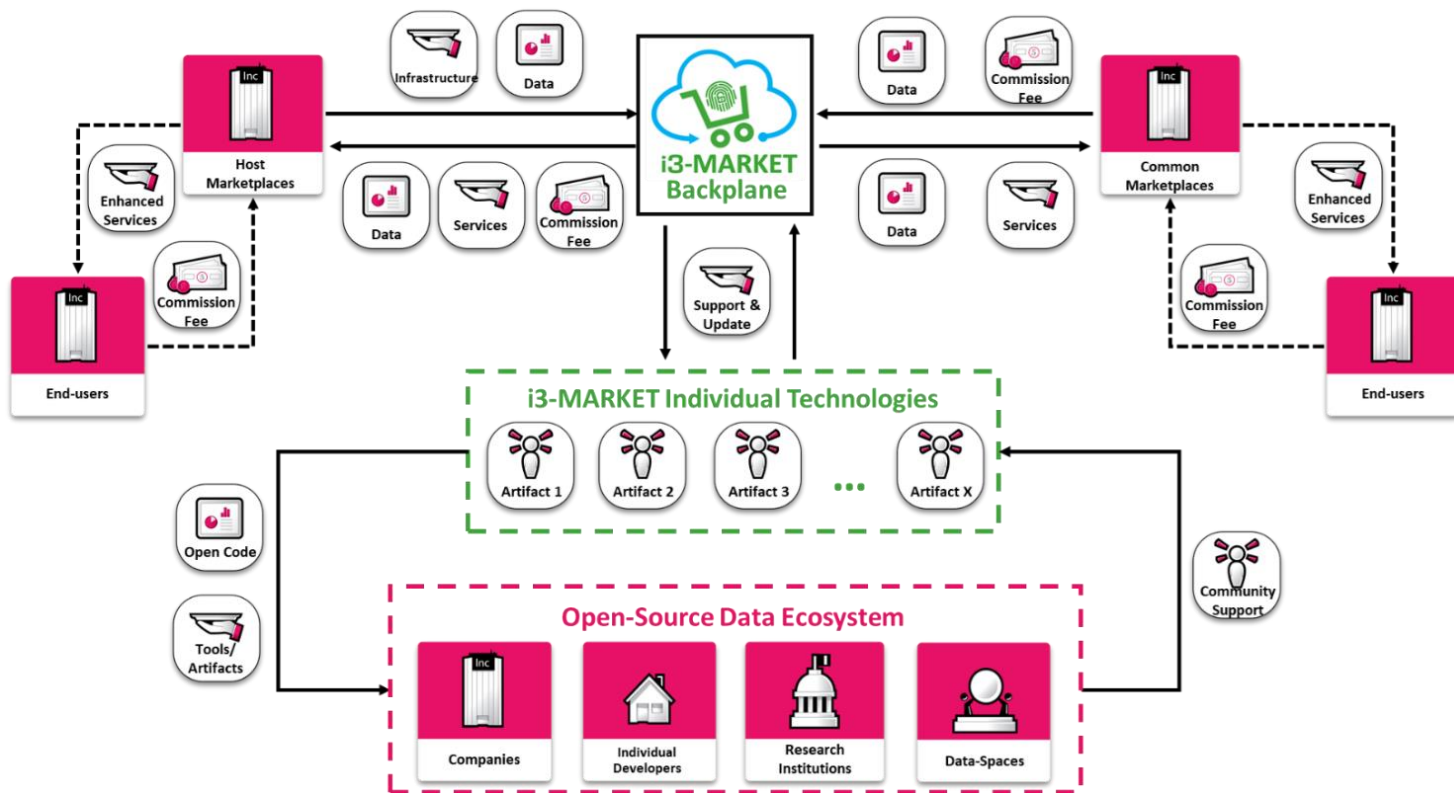
- Parties and Roles
- Preamble, Scope of the Agreement, and Definitions
- Description/ Specification of the Subject Matter → Description/Scoping of the data and data trading and the Agreement
- Duties/Obligations and Rights → Terms & Conditions for data trading (room for flexibility)
- *Intended use*
- Warranties → Room for flexibility
- Liability and Dispute resolution mechanisms → Room for flexibility
- Duration and Termination → Performance, Breach, Modification, Conditions for premature termination & consequences

○ Specific License Types

What the colors mean:
Maybe not applicable in smart contracts
Not necessarily there in all DSAs



i3-MARKET – Ecosystem



i3-MARKET

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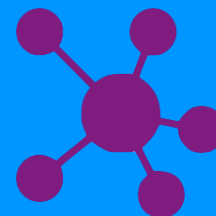
<http://open-source.i3-market.eu>



Marketplaces



Security, Privacy
and Trust



Semantics



Intelligent, Interoperable, Integrative and deployable
open source MARKETplace backplane with trusted and secure
software tools for incentivising the industry data economy



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IDEMIA
Advanced Identity



ATHENS UNIVERSITY
OF ECONOMICS
AND BUSINESS



UNIVERSITAT POLITÈCNICA
DE CATALUNYA
BARCELONATECH

European
DIGITAL SME
Alliance

guardtime



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