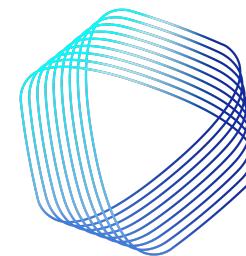




presentation

Minimal Viable Gaia-X



deltaDAO



- ▶ introduction to Gaia-X / Ocean Protocol
- ▶ Minimal Viable Gaia-X portal
- ▶ Minimal Viable Gaia-X catalogue
- ▶ Minimal Viable Gaia-X exchange logging service
- ▶ appendix

an introduction to Ocean Protocol



what Gaia-X is. dos and don'ts



Gaia-X AISBL is

- a single point of definition of the Gaia-X architecture & rules
- making available an open implementation to all
- a qualification authority for Gaia-X compliance

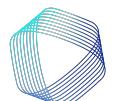
Gaia-X AISBL is not

- a formal standardization body
- a software or hardware product or cloud platform
- a runtime implementation of a Gaia-X service

Gaia-X vs AISBL

- Gaia-X project driven by the AISBL association
- Gaia-X architecture is developed by the AISBL members
- Gaia-X services will not be operated by the AISBL

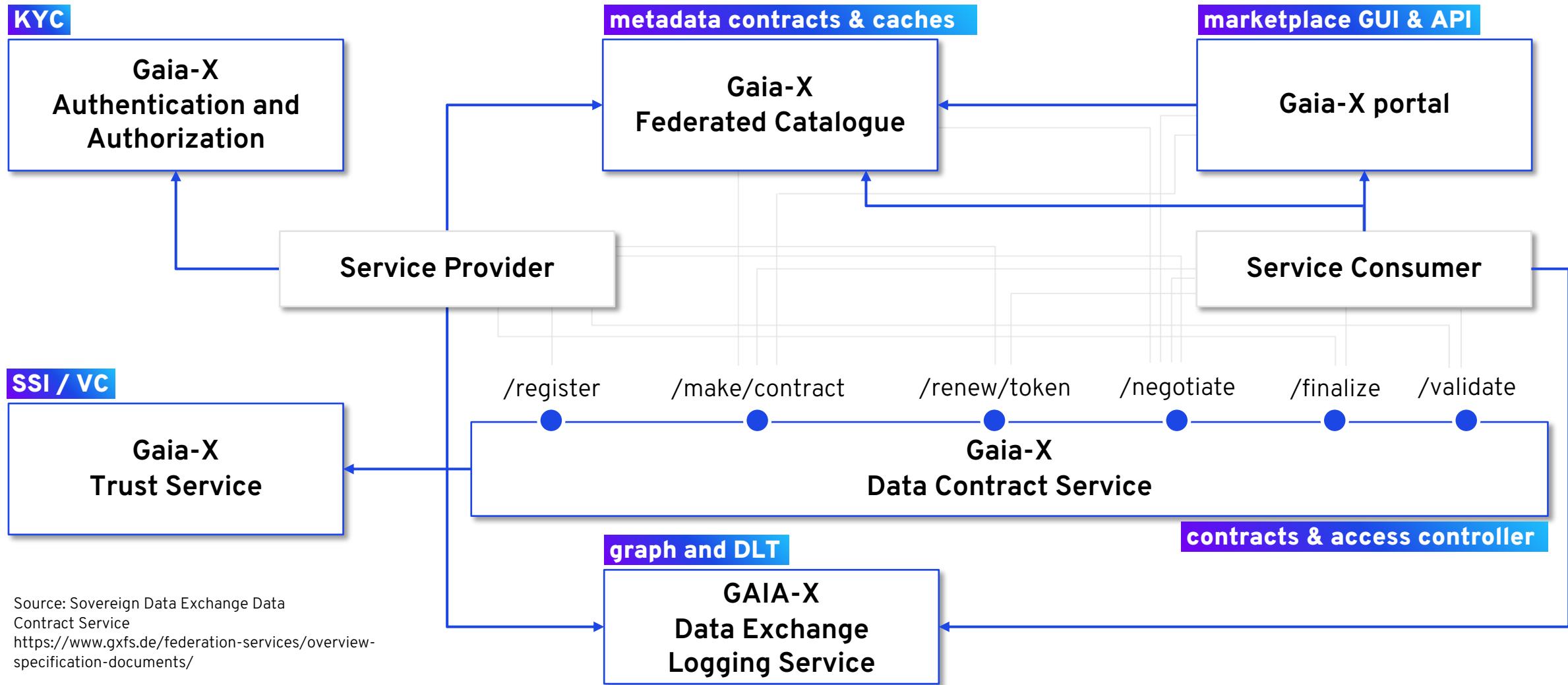
Source: Dominik Rohrmus, COO, Gaia-X AISBL



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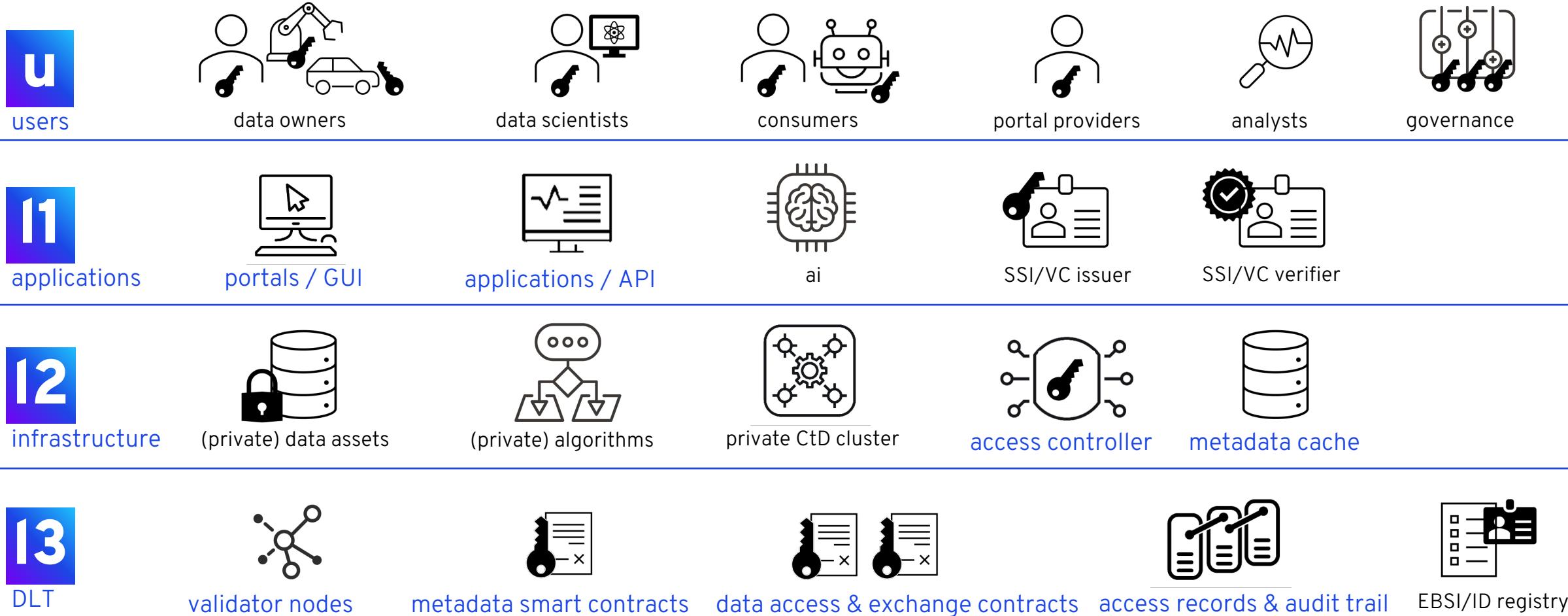
licensed under [CC-BY-4.0](#), deltaDAO AG

Gaia-X federation services & Ocean Protocol

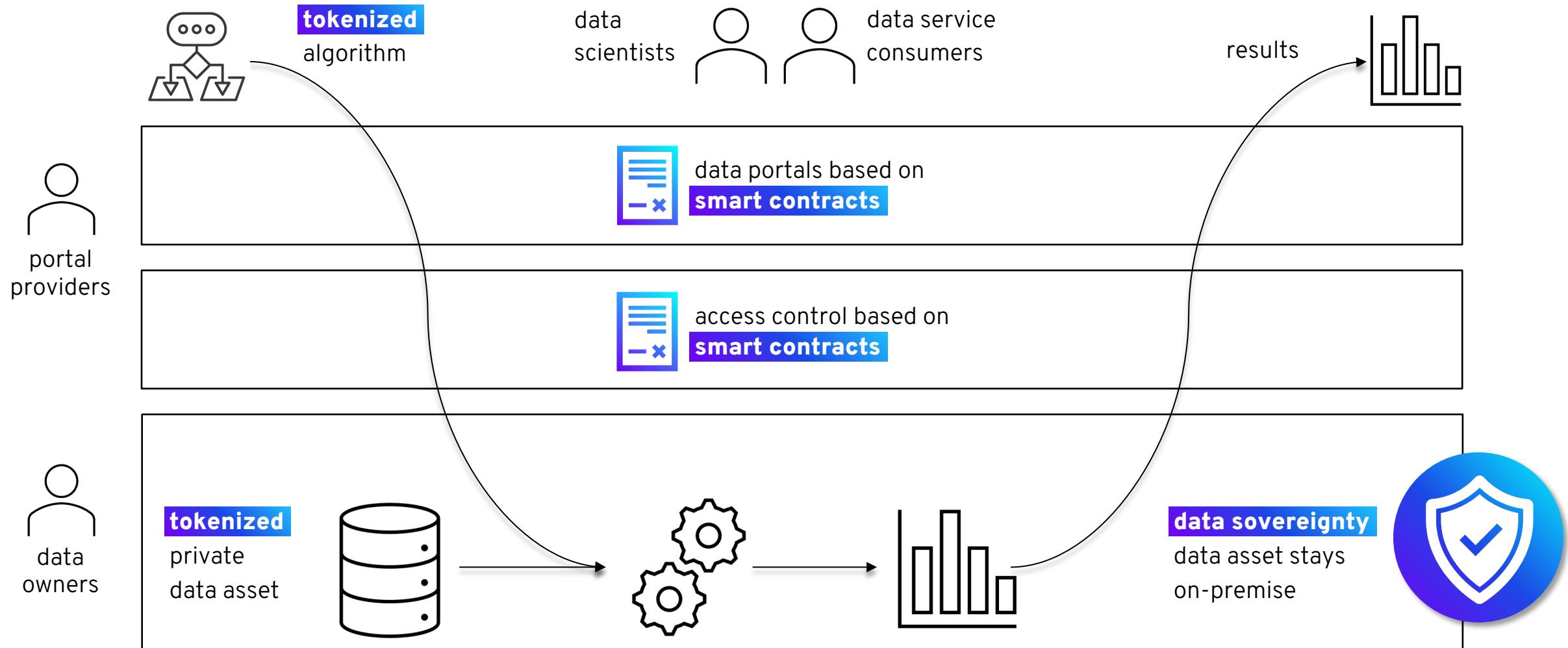


Source: Sovereign Data Exchange Data
Contract Service
<https://www.gxfs.de/federation-services/overview-specification-documents/>

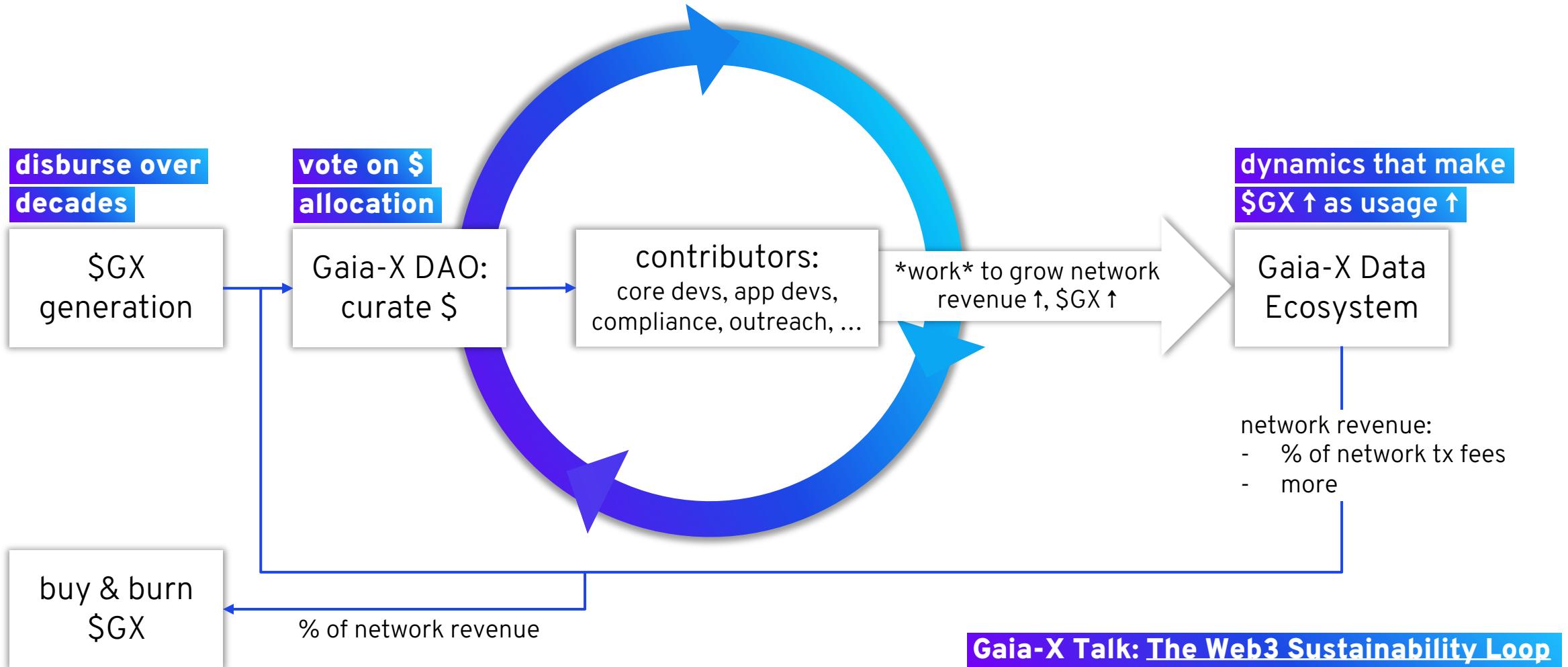
infrastructure & actors



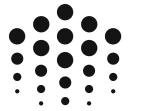
compute-to-data



creating a sustainable Gaia-X

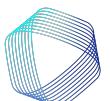


Minimal Viable Gaia-X portal

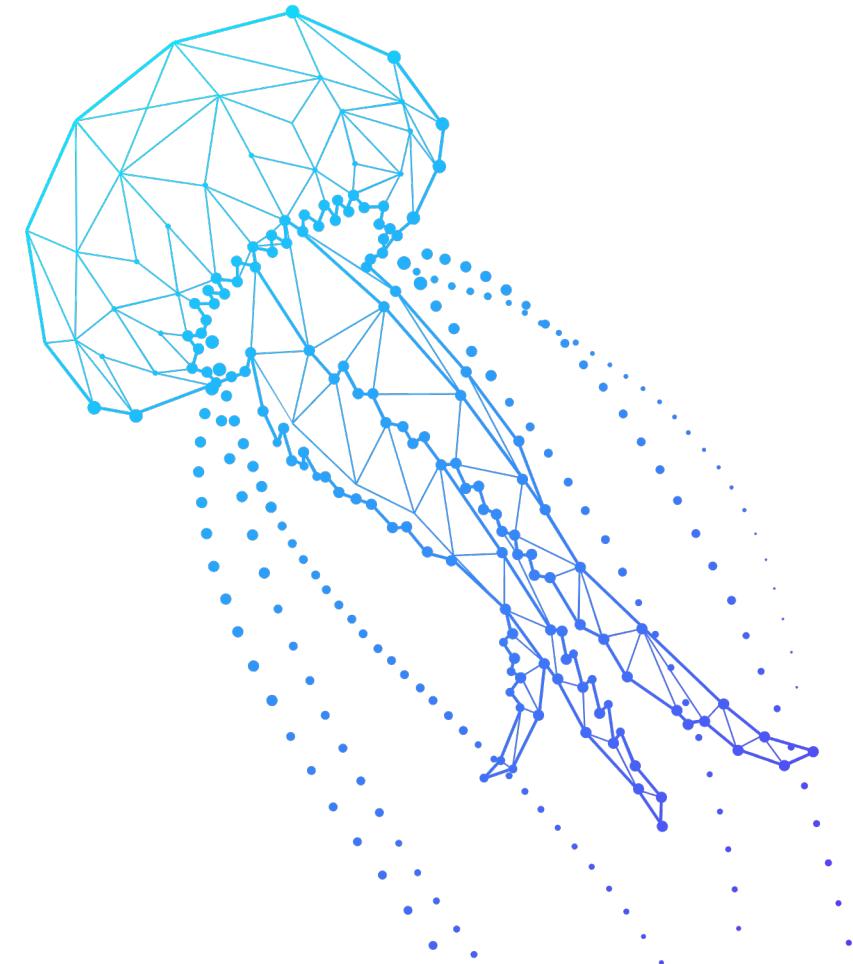


ocean

powered by
Ocean Protocol



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Gaia-X Hackathon #2
December 2-3, 2021

Gaia-X Hackathon

A one-stop overview page to discover all relevant resources related to the Gaia-X hackathons.

Overview
GitLab entrypoint for the 2nd Gaia-X hackathon. Find milestones, issues and other related activi...
<https://gitlab.com/gaia-x/gaia-x-community/gx-hackathon/g...>

Gaia-X Architecture Document 21.09
The Gaia-X Architecture describes the concepts federated open data infrastructure.
https://www.gaia-x.eu/sites/default/files/2021-10/Gaia-X_Arc...

Schedule & Agenda
Overview of the tracks and their sessions scheduled on December 2nd and 3rd.
<https://gitlab.com/gaia-x/gaia-x-community/gx-hackathon/g...>

Gaia-X Federation Services Whitepaper
This Whitepaper seeks to explain the concept of Gaia-X Federation Services as part of the bro...
https://gaia-x.eu/sites/default/files/2021-12/GXFS_1.pdf

Gaia-X Federation Services (GXFS)
GXFS represent the minimum technical requirements and services of the Gaia-X Ecosy...
<https://www.gxfs.de/>

DATA-TO-COMPUTE COMPUTE-TO-DATA IDENTITY & TRUST EDC SCS CONFIDENTIAL COMPUTING

<https://hackathon.minimal-gaia-x.eu/>



DATA-TO-COMPUTE COMPUTE-TO-DATA IDENTITY & TRUST EDC SCS CONFIDENTIAL COMPUTING

MVG Tutorial Playlist
A video series guiding you through the first steps on the MVG based on DLT and Ocean Pr...
https://youtube.com/playlist?list=PLIQKB1A_2lytB5Cf6P0uTTN4hRGbAxw7E

Compute-to-Data Milestones
Milestones and Issues for the 2nd Gaia-X Hackathon (GitLab Login required)
<https://gitlab.com/gaia-x/gaia-x-community/gx-hackathon/g...>

Academy
The Academy features an interactive education track about the Federation Services and Ocean...
<https://academy.delta-dao.com/>

Minimal Viable Gaia-X Portal
The Portal enables publication, discovery, consume and management of service offerings
<https://portal.minimal-gaia-x.eu/>

Minimal Viable Gaia-X Portal Repository
The Repository to set up your own Minimal Viable Gaia-X Portal
<https://github.com/deltaDAO/Ocean-Market>

safeFBDC Portal
The safe Financial Big Data Cluster (FBDC) Portal enables AML AI/ML on sensitive data.
<https://safefbdc.portal.minimal-gaia-x.eu/>

safeFBDC Portal Repository
The safe Financial Big Data Cluster (safeFBDC) Portal Repository
<https://github.com/deltaDAO/portal-safeFBDC>

UDL Science and Research Portal
An open research and science platform following the principles of findability, accessibi...
<https://udl.portal.minimal-gaia-x.eu/>

Foreverontheblockchain Portal
GDPR compliant data analytics for SMEs with Compute-to-Data
<https://forever.portal.minimal-gaia-x.eu/>

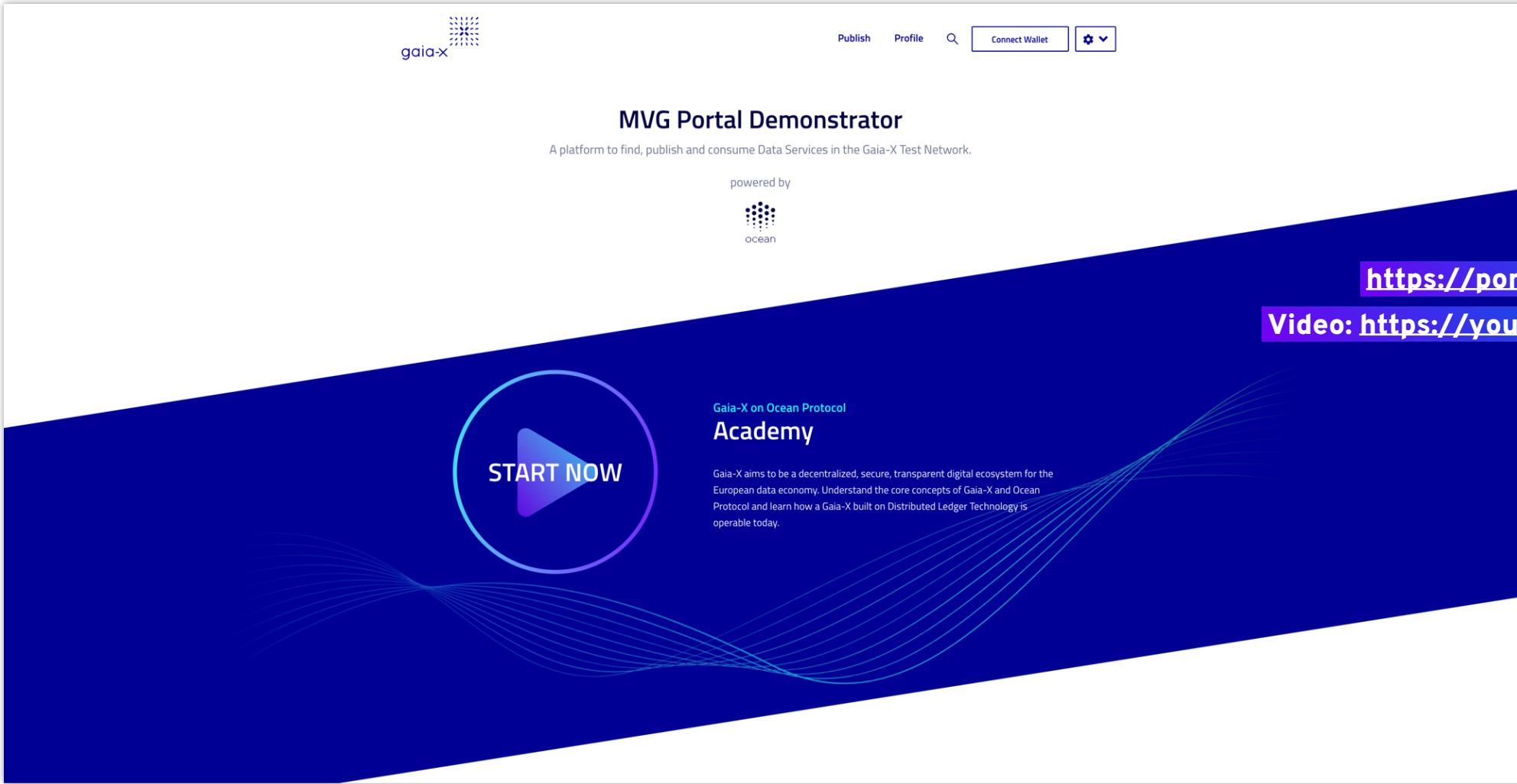
UDL Science and Research Portal Repository
The Universitat de Lleida MVG Portal Repository
<https://github.com/deltaDAO/portal-udl>

Foreverontheblockchain Repository
The Repository of the Foreverontheblockchain Portal
<https://github.com/deltaDAO/market-foreverontheblockchain>

SSI Onboarding for the MVG
A quick and easy four-step guide focussing on onboarding to the MVG SSI solution.
<https://github.com/deltaDAO/files/blob/main/SSKIT-onboar...>

Playlist: https://www.youtube.com/playlist?list=PLIQKB1A_2lytB5Cf6P0uTTN4hRGbAxw7E

MVG portal



<https://portal.minimal-gaia-x.eu>

Video: <https://youtu.be/R49CXPTRamg>



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Medium [Minimal Viable Gaia-X blogpost](#)

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MVG portal

The screenshot shows the MVG portal interface. At the top, there is a header with the AGRIGAIA logo, a navigation bar with 'Publish', 'History', 'Bookmarks', a search icon, a 'Connect Wallet' button, and a settings icon. Below the header is a large background image of a tractor in a field. Underneath the image, there is a section titled 'Our Data Services' containing six service cards:

- DELSEA-75**
Fuji-SfM dataset - 1-Mask-set - raw_images
0x4cF0..._E117
This is part of the Fuji-SfM dataset, it includes the 1 raw images of part (1) of the whole dataset. The ...
Free
GAIA-X Testnet
- CONWHA-61**
Yolov5 Algorithm
0x3C0F..._C344
Yolov5 Algorithm
1 OCEAN
GAIA-X Testnet
- DOWLIN-26**
Yolov5 Dataset examples
0x3C0F..._C344
Yolov5 Example
1 OCEAN
GAIA-X Testnet
- SCLUN-54**
Object Classification Algorithm
0x68C2..._246B
Yolov5: Object classification algorithm for automated scene understanding YOLOv5 is a family of object...
1 OCEAN
GAIA-X Testnet
- RUMPOR-68**
Image Classification Sample Data
0x68C2..._246B
This dataset consists of a small number of raw sample images for an annotation machine learning alg...
200 OCEAN
GAIA-X Testnet
- IRKSEA-47**
Agri-Gaia Logo
0x1e37..._e375
The Agri-Gaia Logo as MVG Test
1 OCEAN
GAIA-X Testnet

At the bottom of the 'Our Data Services' section is a green button labeled 'BROWSE ALL SERVICES →'.



MVG portal

Development build of the Universitat de Lleida portal for the Gaia-X hackathon #2.

Universitat de Lleida

publish account browse

UDL Science and Research Portal

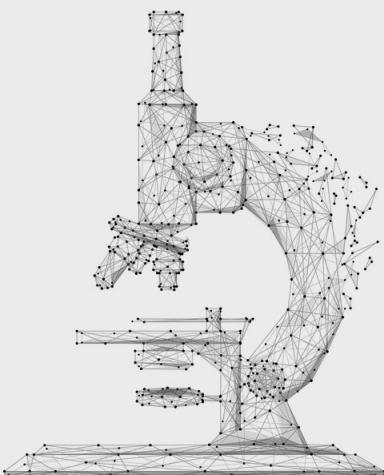
An open research and science platform following the FAIR guiding principles of findability, accessibility, interoperability and reusability.

powered by Ocean Protocol

ocean

Goal

The Universitat de Lleida MVG Portal aims to accelerate the progress of research and science, increase the quality of data, and foster collaboration between research and educational institutions. On the research portal, data scientists and researchers can find, consume and share research data sets and algorithms. Depending on the publisher's decision, the data assets can be consumed either by granting compute or download access to the data assets.



<https://udl.portal.minimal-gaia-x.eu>

Development build of the foreverontheblockchain portal for the Gaia-X hackathon #2.

foreverontheblockchain account browse Search... Connect Wallet + ⚙

GDPR compliant data monetization with Compute-to-Data

powered by Ocean Protocol

ocean

01 compute-to-data

Compute-to-Data, powered by Ocean Protocol, enables privacy-preserving data monetization for anyone. A trusted algorithm is brought to the data and is executed on-premise while the data always stays with us. We keep full ownership and control while you are invited to obtain valuable insights from our customer base. Ocean Protocol solves the trade-off between monetizing private data and the risk of exposing it while being fully

<https://forever.portal.minimal-gaia-x.eu>



Development build of the safeFBDC portal for the Gaia-X hackathon #2.

safeFBDC Portal account browse

Search... Connect Wallet ⚙️

powered by Ocean Protocol

ocean

20
21

safe FBDC

Our vision Our vision of FBDC is a federated ecosystem that provides business, academic, and regulatory stakeholders with a secure, data sovereignty-preserving infrastructure for the exchange and AI-powered mobilization of financial data.

- We develop, prototype, and validate infrastructures for the processing and secure exchange of financial data.
- We ensure that data owners retain sovereignty over their data.
- We develop AI-powered applications to process, exploit, and monetize distributed datasets based on various use cases.
- We ensure the compatibility of our structures and developments with the requirements of the markets and with important data structures under development, such as Gaia-X or International Data Spaces.

20
21

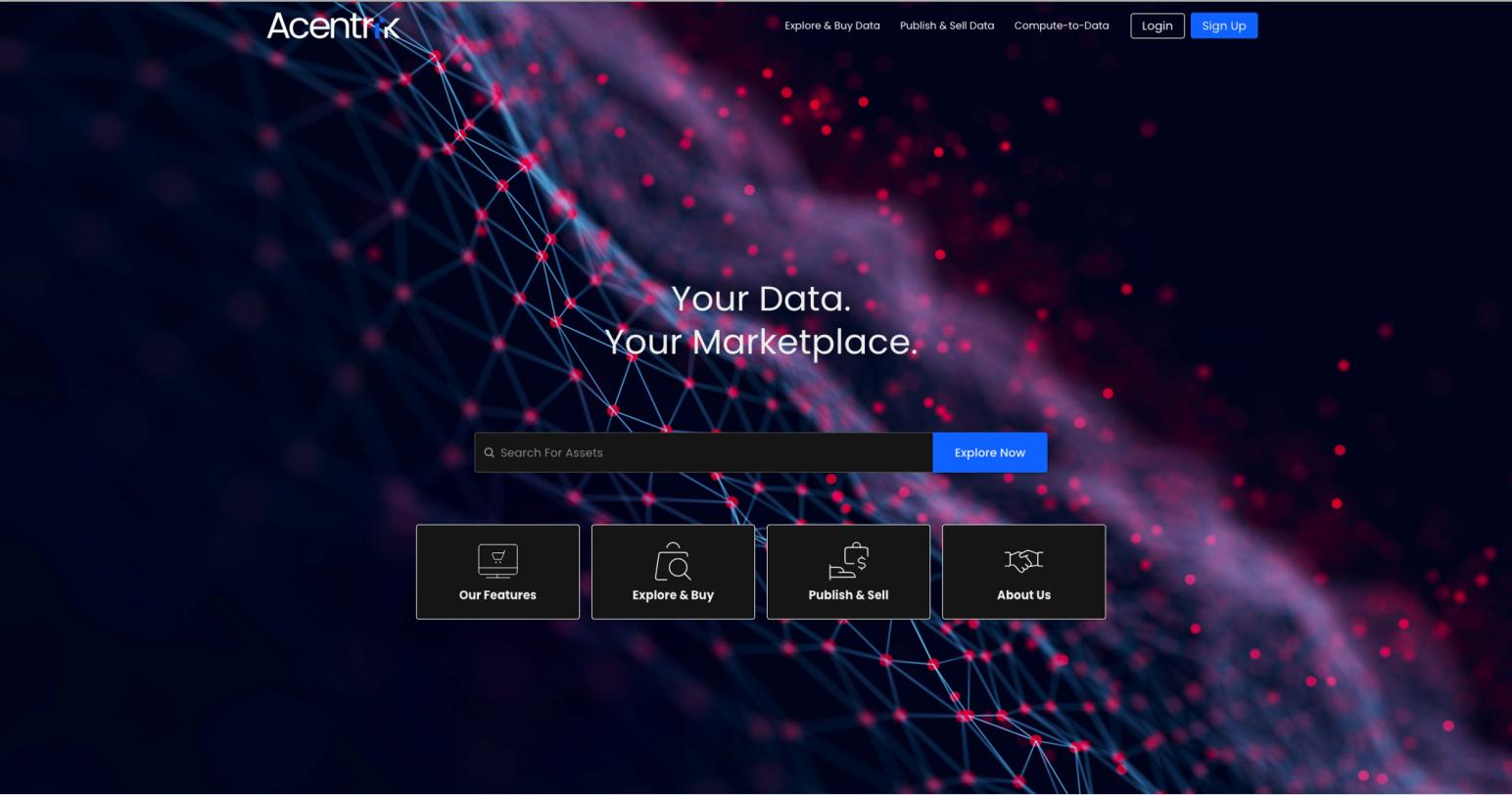
Background

safeFBDC is a research project funded by the Federal Ministry for Economic Affairs and Energy (BMWi) with a three-year project duration (2021-2023). The consortium under the leadership of TechQuartier consists of eleven founding and 30+ associated partners covering a large part of the German financial industry and beyond.

20

<https://safeFBDC.portal.minimal-gaia-x.eu>

MVG portal



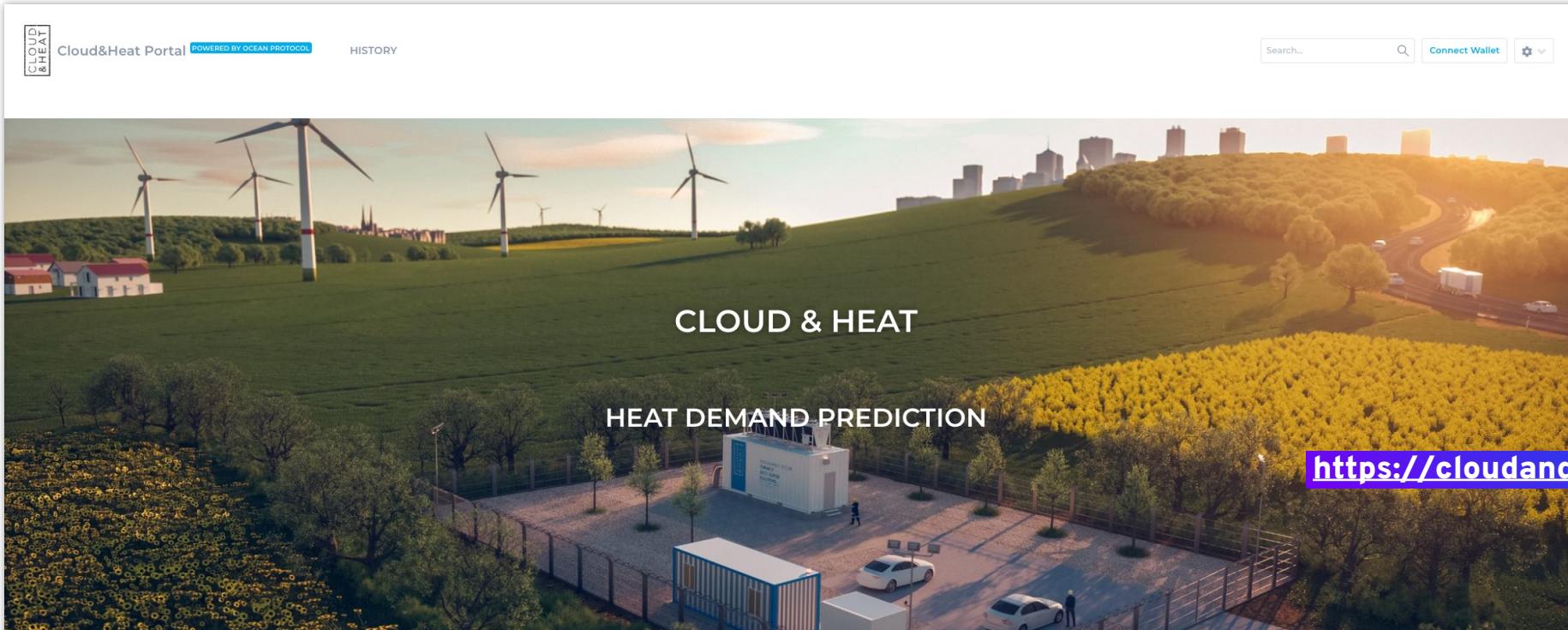
<https://sandbox.acentrik.io/>

Medium [Acentrik blogpost](#)

This screenshot shows the "Explore Available Assets" section of the Acentrik Data Marketplace. It features a grid of asset cards. At the top left is a search bar and a "Category" dropdown. On the right are "Sort By" and filter buttons for "Dataset" and "Algorithm".

- Handwriting Recognition** (Published by Daimler South East Asia)
This dataset consists of more than four hundred thousand handwritten names collected through...
Purchase for 1 week: 2 days ago
File type: Jpg (125.39MB)
Downloaded (10)
1 USDC = -US\$1.00
- Micha's Test** (Published by Energy Web Foundation)
Use this algorithm to gain insights on the heart attack dataset. This is for testing purposes only.
Purchase for 1 hour: 2 weeks ago
File type: Python 3.7
Downloaded (10)
1 USDC = -US\$10.00
- Customer Preference for Mercedes Vehicles** (Published by Daimler South East Asia)
Dataset showing Mercedes vehicle types, categories, subcategories, their release year and counts of...
Purchase for 1 week: 4 weeks ago
File type: Jpg (25MB)
Downloaded (10)
5 USDC = -US\$5.00
- Vehicle Crash Reporting Data** (Published by Ocean Protocol)
This data sheet is a record of vehicle crash reports detailing all important crash information, including crash...
Purchase for 1 month: 1 month ago
File type: Jpg (25MB)
Downloaded (10)
2 USDC = -US\$2.00
- Key Supplier Market Share** (Published by Ocean Protocol)
The statistic Audi's suppliers worldwide and the parts they supply from 2011 to 2015, based on worldwide...
Purchase for 1 week: 1 month ago
File type: Jpg (25MB)
Downloaded (10)
2 USDC = -US\$1.00
- Vehicle Break Failure** (Published by Ocean Protocol)
This algorithm calculates the Top 5 vehicle models with break failures against the vehicle crash records of...
Purchase for 1 week: 1 month ago
File type: Python 3.7
Downloaded (10)
5 USDC = -US\$5.00
- Key Supplier Market Share** (Published by Ocean Protocol)
The statistic Mercedes suppliers worldwide and the parts they supply from 2011 to 2015, based on worldwide...
Purchase for 1 week: 1 month ago
File type: Jpg (25MB)
Downloaded (10)
2 USDC = -US\$2.00
- Measuring Innovation using...** (Published by QuadV)
This dataset is designed to show a proxy of innovation measurement from changes in sales (which Fortune 500...
Purchase for 1 week: 1 month ago
File type: Jpg (25MB)
Downloaded (10)
5 USDC = -US\$5.00

MVG portal



The screenshot shows a landscape with wind turbines in the foreground and a city skyline in the background. Overlaid text includes "CLOUD & HEAT" and "HEAT DEMAND PREDICTION". A blue button at the bottom right contains the URL <https://cloudandheat.portal.minimal-gaia-x.eu>.

Cloud&Heat

Since its foundation in 2011, the mission of Cloud&Heat has been to make sustainability and security a driver of digital innovation. Cloud&Heat develops, builds, and operates secure and energy-efficient digital infrastructures that meet the requirements of the digital future. Since 2019 we are contributing in several working groups to the Gaia-X Ecosystem to drive digital sovereignty in Europe forward. More about Cloud&Heat Technologies: www.cloudandheat.com

CLOUD

Medium **Owned by noone, open to everyone.**

MVG portal

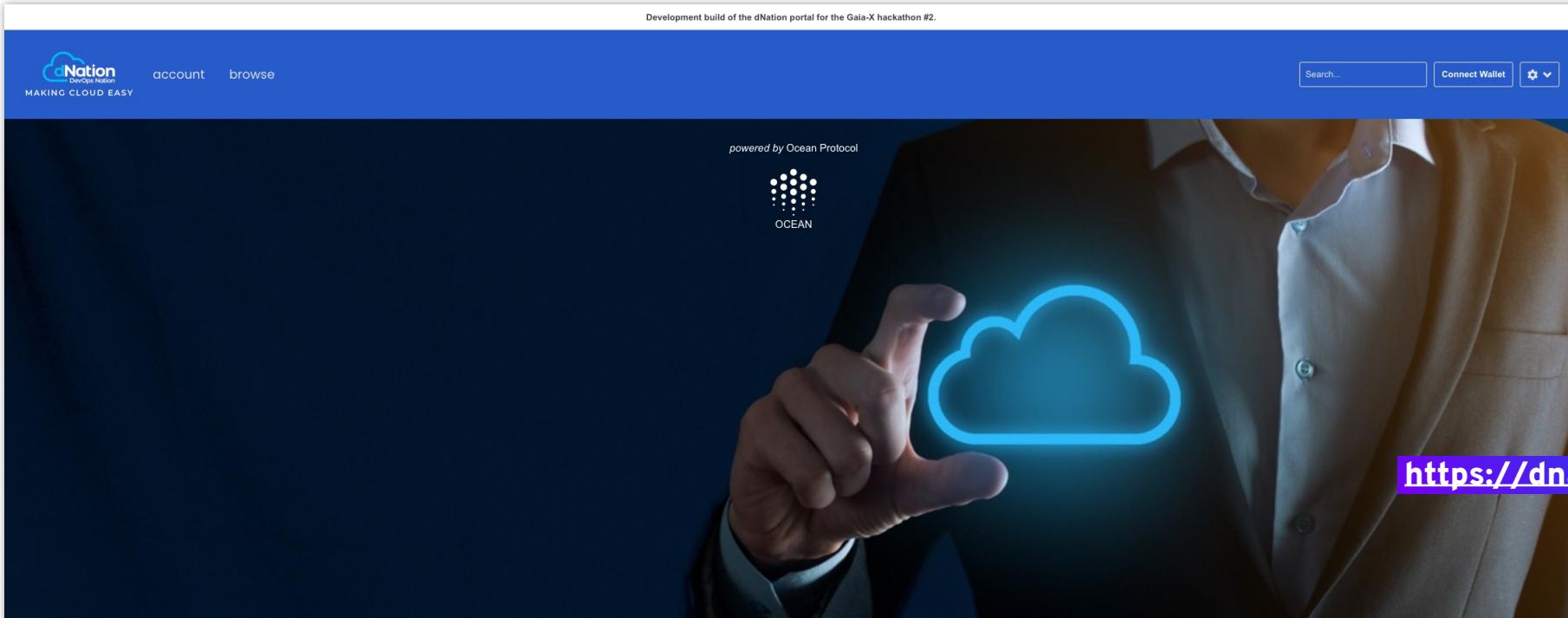
Development build of the dNation portal for the Gaia-X hackathon #2.

account browse

Search... Connect Wallet ⚙️

powered by Ocean Protocol

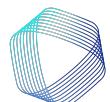
OCEAN



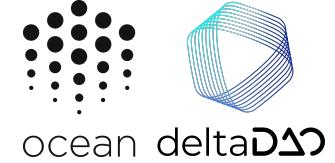
<https://dnation.portal.minimal-gaia-x.eu/>

Recently Published

SPABAR-86 Count data points Winston Wolfe	ARTSHR-25 Demonstrator Algorithm A European Data Economy in 2... deltaDAO AG	LACJEL-5 Demonstrator - Sample Weatherdata 0x68C2...246B
Simple algorithm written in JavaScript/Node.js counting the rows in a csv file. Outputs the resu... 1 OCEAN GAIA-X Testnet	The Vision The future of data markets is embedded in the European Digital Single Market and t... 1 OCEAN GAIA-X Testnet	The Vision The future of data markets is embedded in the European Digital Single Market and t... 1,088 OCEAN POOL GAIA-X Testnet

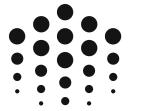


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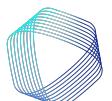
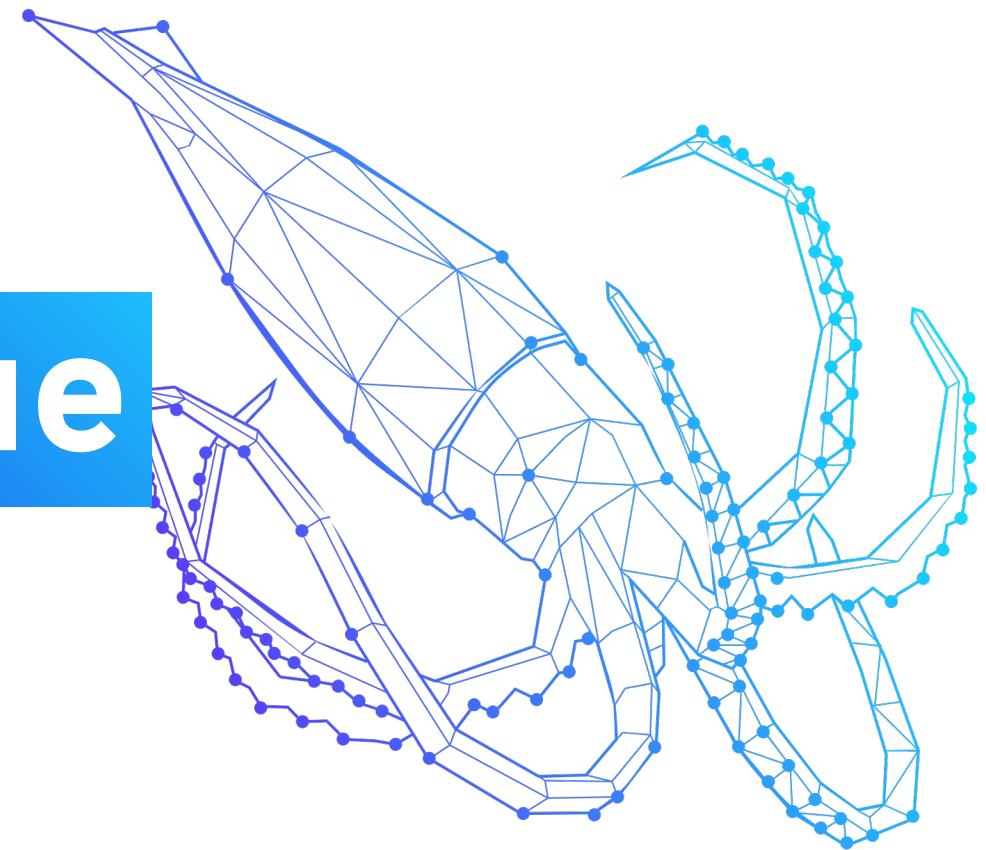
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Minimal Viable Gaia-X catalogue



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MVG portal



gaia-x

Search... 

104 results

DATASETS ALGORITHMS CATEGORIES ▾

		SORT	Published
FULL - Copernicus Sentinel Data Fusion with CNES Orfeo toolbox (Algorithm)	TENANE-58	 ALGORITHM	1 OCEAN
QUICK - Copernicus Sentinel Data Fusion with CNES Orfeo toolbox (Algorithm)	STUJEL-8	 ALGORITHM	1 OCEAN
Copernicus Sentinel Data Fusion with CNES Orfeo toolbox (Dataset)	INVDOL-81	 DATA SET	1 OCEAN
Provider tests	PERWHA-66	 ALGORITHM	1 OCEAN
Provider test	BILCOD-50	 DATA SET	1 OCEAN
Bids test	VIBSEA-6	 ALGORITHM	1 OCEAN
Test Dataset	GENSHA-68	 DATA SET	1 OCEAN
Foreverontheblockchain Algorithm	JUDSTA-51	 ALGORITHM	1 OCEAN
Foreverontheblockchain Dataset	QUICLA-8	 DATA SET	1 OCEAN
Yolov5 Algorithm	CONWHA-61	 ALGORITHM	1 OCEAN
Yolov5 Dataset examples	DOWLIN-26	 DATA SET	1 OCEAN
QUICK - Copernicus Sentinel Data Fusion with CNES Orfeo toolbox	ADACUT-79	 ALGORITHM	1 OCEAN
FULL - Copernicus Sentinel Data Fusion with CNES Orfeo toolbox	ADACUT-79	 ALGORITHM	1 OCEAN
Data Fusion Dataset - Copernicus Sentinel-1 SLC IW and Sentinel 2 L2A	HUBHER-51	 DATA SET	1 OCEAN



Publish Profile  GAIAX Testnet  0x4CB4...4A52 

Publish

Highlight the important features of your data set or algorithm to make it more discoverable and catch the interest of data consumers.

Publishing Data Set

Successfully published! Now create a price on your data set.

GO TO DATA SET →

Collected Form Values

```
{ "name": "", "author": "", "dataTokenOptions": { "name": "", "symbol": "" } }
```

Transformed DDO Values

```
{ "context": "https://w3id.org/did/v1", "dataTokenInfo": { "name": "", "symbol": "" } }
```

gaia-x

Simple Data Test

GAIAX Testnet

DATA SET | Binance Anonyme Token - BLANE-89

Published by [DataC3...1f64](#) 5 minutes ago

A simple test containing dummy data ...

DATA AUTHOR OWNER

Simple.io [DataC3...1f64](#)

DDO

dairop:24ec315eBdc5Cde76cd84F05F7988
a057EA3ce

METADATA HISTORY

* published 5 minutes ago >

USE

2 OCEAN ≈ 2,10 €

Select an algorithm to start a compute job

Search by title, dataset, or DID...

No assets found.

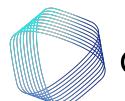
You will pay 2 OCEAN

BUY COMPUTE JOB

You do not have enough OCEAN in your wallet to purchase this asset.

<https://catalogue.minimal-gaia-x.eu>

Tutorial: <https://youtu.be/eAbnM5bfEMc>



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Publish Profile TEST | 0x68C2..246B |

safeFBDC - Pooled Dataset

GAIA-X Testnet

DATA SET | Parsimonious Barracuda Token — PARBAR-25 |

Published By 0x0aec...8cdf
17 days ago — updated 10 days ago

safeFBDC, the Financial Big Data Cluster, joins the 2nd Gaia-X Hackathon to prototype first Gaia-X use cases for the financial sector. In collaboration with deltaDAO AG and Ocean Protocol the safeFBDC consortia will explore Compute-to-Data to enable develop a secure, legally compliant, and user-friendly financial data platform to advance machine-learning solutions across Europe's financial ecosystem. In ensuring secure access to currently unavailable financial data, safeFBDC will be able to contribute substantially to building and securing the long-term operations and growth of a European data ecosystem. This is not limited to financial data, but also across many other industries to produce economically viable projects and develop data-based products.

- safeFBDC Portal -

The first use case "AML detection on graphs" aims to advance the development of detection methods for previously undetected cross-institutional patterns in money laundering.

USE

1 OCEAN
3.74 MB ≈ €0.77

Select an algorithm to start a compute job

Search by title, datatoken, or DID...

safeFBDC - AML Algorithm ↗
AMUSW0-27 | did:op:B7c8e6e01327DC39ca24E1CE151f35CB8D47Cc15

You will pay 2 OCEAN ⓘ

<https://minimal-gaia-x.eu/asset/did:op:F800D793B1cc637431E9895fdCe649438acC3db8>

DDO

```

    "tags": [
      "safe-fbdc",
      "combined-data"
    ],
    "links": [],
    "termsAndConditions": true
  },
  "encryptedFiles": [
    "0x040dd60e455f2471fa3e0bd64759568ee0387f83be9fd176543697f637798aa7714e79426
    "curation": {
      "rating": 0,
      "numVotes": 0,
      "isListed": true
    }
  ],
  "index": 0
},
{
  "type": "compute",
  "index": 1,
  "serviceEndpoint": "https://provider.safefbdc.delta-dao.com",
  "attributes": {
    "main": {
      "name": "dataAssetComputingService",
      "creator": "0x0aec046a558F13Ff18aAEc5E6f76084185358cdf",
      "datePublished": "2021-11-25T18:26:35Z",
      "cost": "1",
      "timeout": 604800,
      "provider": {},
      "privacy": {
        "allowRawAlgorithm": false,
        "allowNetworkAccess": false,
        "allowAllPublishedAlgorithms": false,
        "publisherTrustedAlgorithms": [
          {
            "did": "did:op:B7c8e6e01327DC39ca24E1CE151f35CB8D47Cc15",
            "containerSectionChecksum": "270bbdbaf474f35d6bb4efb236ae25fcfd6268e05ff87a2e9d81f69e72e41ae41"
          }
        ]
      }
    }
  }
]
  
```

Set allowed algorithms

Selected Algorithms

Search by title, datatoken, or DID...

- Demonstrator Algorithm  European Data Economy in 2021 ↗ CERFIS-7 | 1
- QUICK - Copernicus Sentinel Data Fusion with CNES Orfeo toolbox (Algorithm) ↗ REDWHA-3 | 1
- FULL - Copernicus Sentinel Data Fusion with CNES Orfeo toolbox (Algorithm) ↗ TENANE-58 | 1
- QUICK - Copernicus Sentinel Data Fusion with CNES Orfeo toolbox (Algorithm) ↗ STUJEL-8 | 1
- Provider tests ↗ PERWHA-66 | 1
- Bids test ↗ VIBSEA-6 | 1
- Foreverontheblockchain Algorithm ↗ JUOSTA-51 | 1
- Yolov5 Algorithm ↗ CONWHA-61 | 1
- QUICK - Copernicus Sentinel Data Fusion with CNES Orfeo toolbox ↗ ADACUT-79 | 1

Choose one or multiple algorithms you trust to allow them to run on this data set.

All Algorithms

Allow any published algorithm

Allow any published algorithm to run on this data set.

SUBMIT **CANCEL**

Allow ETH Address

e.g. 0x12345678901234567890abcd **ADD**

Enter ETH address and click ADD button to append the list. Only ETH address in allow list can consume this asset. If the list is empty means anyone can download or compute this asset.

Deny ETH Address

e.g. 0x12345678901234567890abcd **ADD**

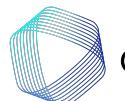
Enter ETH address and click ADD button to append the list. If ETH address is fall under deny list, download or compute of this asset is denied.

SUBMIT **CANCEL**

```

13 },
14 "id": "ex:de_NBI",
15 "@type": "gax-participant:Provider",
16 "gax-participant:hasLegallyBindingName": "de.NBI",
17 "gax-participant:hasLogo": {
18   "@id": "https://bonian.de/denbi_small.png"
19 },
20 "gax-participant:hasCommercialRegister": {
21   "@type": "vcard:Address",
22   "vcard:street-address": "Universitätsstraße 27",
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28   "vcard:postal-code": "33615"
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Tutorial: https://youtu.be/vFfYo8LxbzM?list=PLIQB1A_2lytB5Cf6P0uTTN4hRGbAxw7E



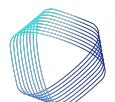
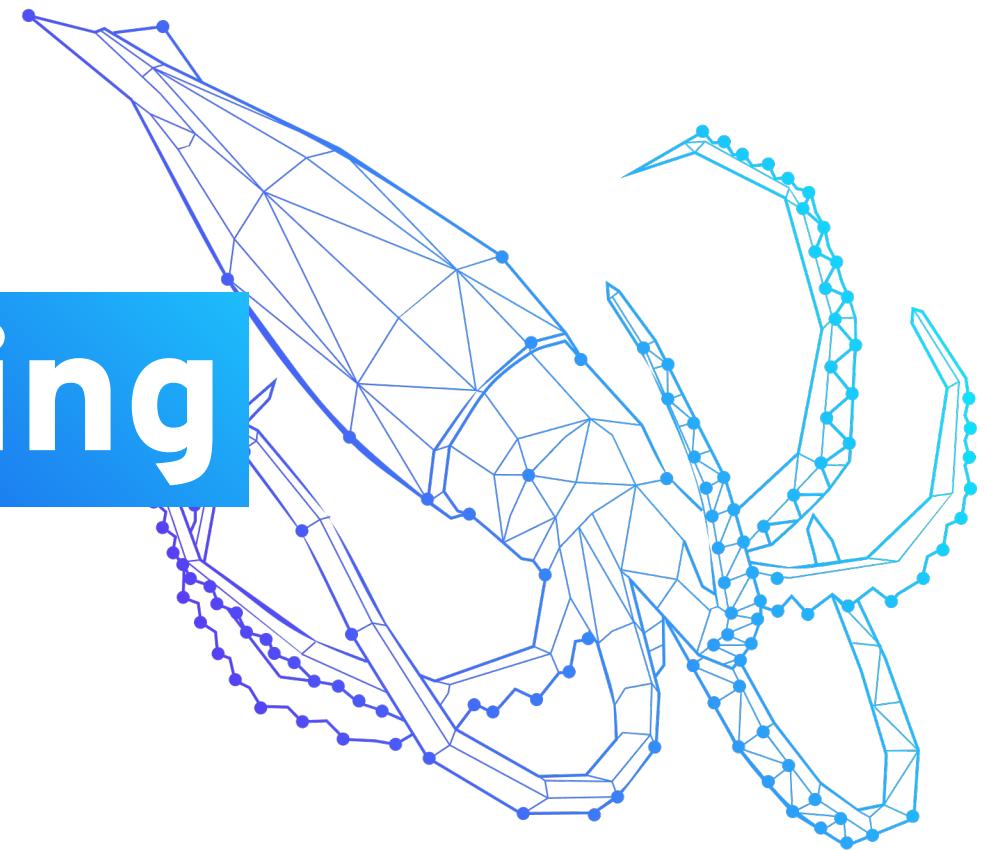
MVG

Exchange Logging

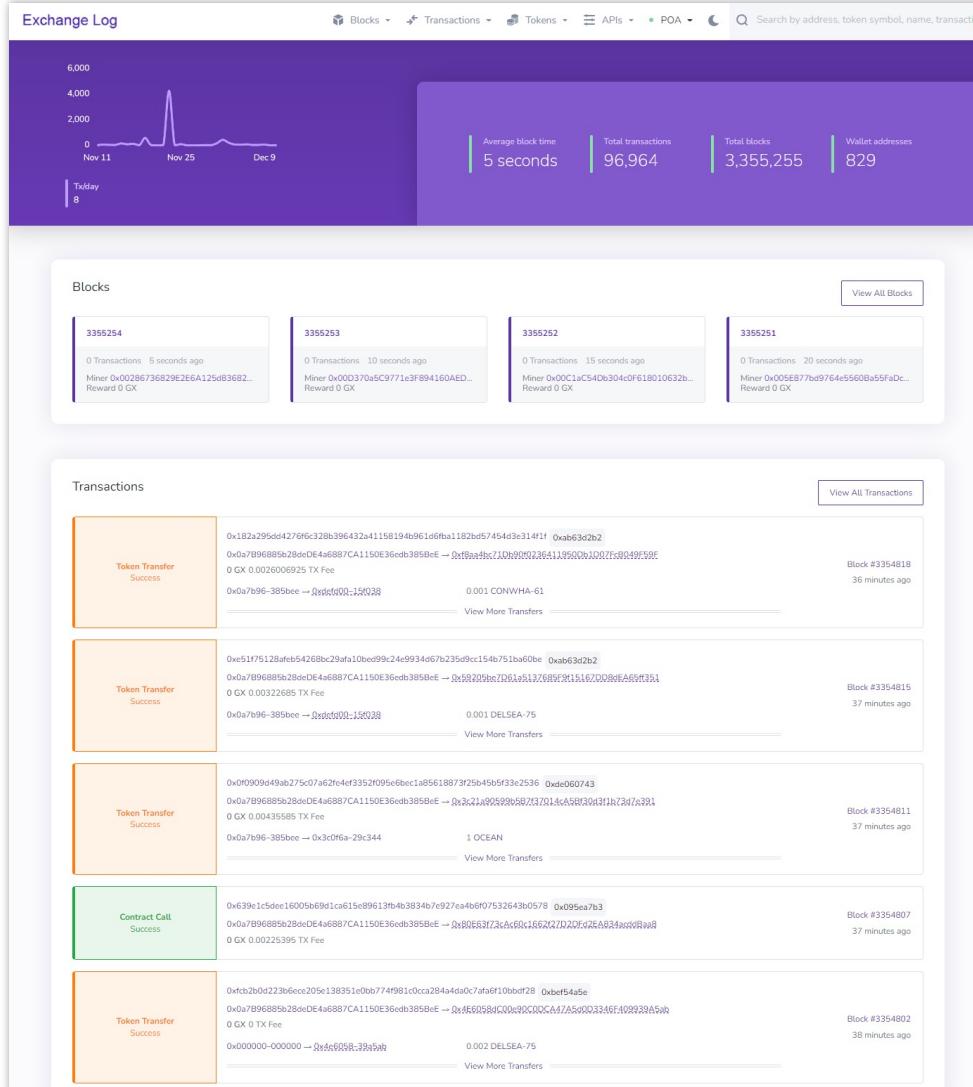


ocean

powered by
Ocean Protocol



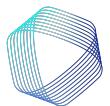
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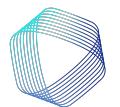
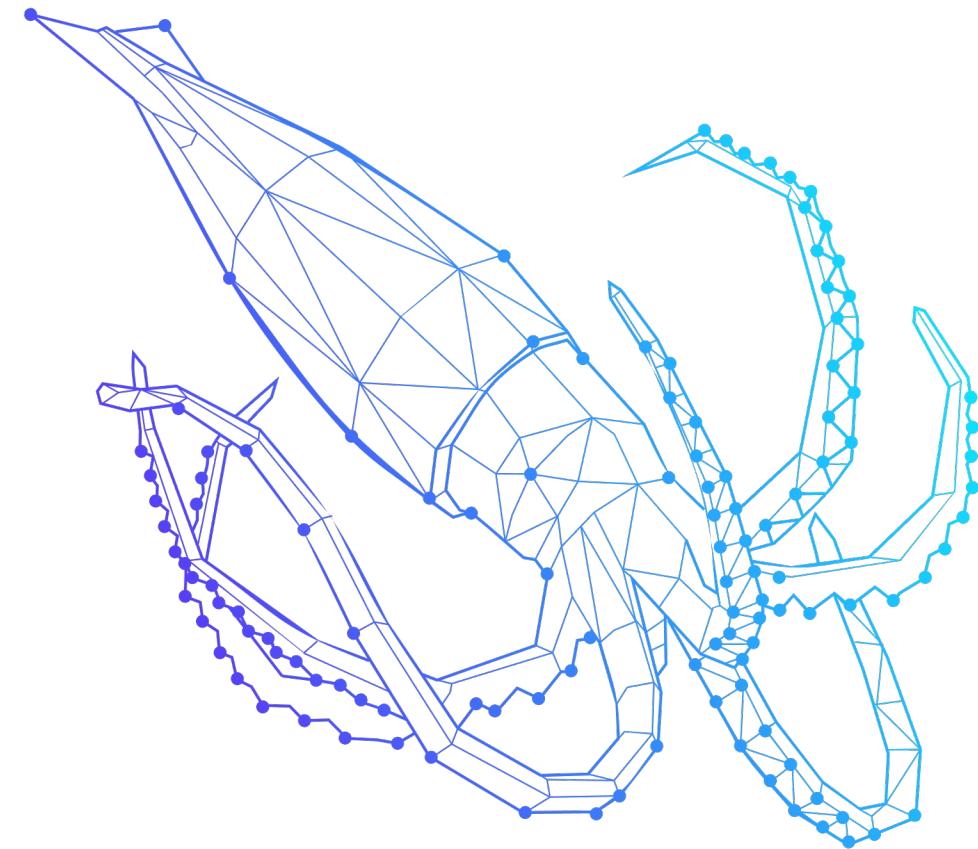
Transaction Details

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ℹ Block	3354818
ℹ Timestamp	① 3 hours ago December 12-2021 06:25:50 PM +1 UTC Confirmed within <= 5.0 seconds
ℹ From	0xa7b96885b28dede4a6887ca1150e36edb385bee
ℹ Interacted With (To)	0xf8aa4bc71db90f0236411950db1d07fcba049f59f
ℹ Tokens Transferred	<p>From 0xa7b96885b28dede4a6887ca1150e36edb385BeE</p> <p>To 0x3c0F6a52c84A79eBC52C56Ff8C029a30F929C344</p> <p>For 0.998 CONWHA-61</p> <p>From 0xa7b96885b28dede4a6887ca1150e36edb385BeE</p> <p>To 0x9984b2453eC7D99a73A5B3a46Da81f197B753C8d</p> <p>For 0.001 CONWHA-61</p> <p>From 0xa7b96885b28dede4a6887ca1150e36edb385BeE</p> <p>To 0xDefD0018969cd2d4E648209F876AdE184815f038</p> <p>For 0.001 CONWHA-61</p>
ℹ Value	0 GX
ℹ Transaction Fee	0.0022258425 GX
ℹ Gas Price	52.5 Gwei

<https://exchangelog.minimal-gaia-x.eu/>



appendix



vision Gaia-X & European data economy

fairness
&
competitiveness

GDPR-compliance
&
data security

increase access,
lower barriers
& transaction costs

minimize lock-in
&
open-source software

incentives to share
&
incentives to collaborate

enable investments,
foster innovation,
& fair returns

auditability,
provenance &
transparency

open private data
&
increase B2B use

reduce fragmentation
& EU-wide regulatory
framework

advantages enabled through smart contracts

data monetization with automatic price discovery

GDPR-compliance by design

sustainable **business model** and aligned **incentives** for all participants

scaling: cross-listing of datasets across all datamarkets

data owners always keep **full control**

accessability and availability

auditability, provenance and transparency by design

trustlessness

no vendor lock-in

Gaia-X federated services & Ocean Protocol



4. Gaia-X Operating Model-Concept

Gaia-X in its unique endeavor must have an operating model enabling a wide adoption from small and medium-sized enterprises up to large organizations, including highly regulated markets, to be sustainable and scalable.

To achieve the above statements, a non-exhaustive list of Critical Success Factors (CSFs) includes:

1. The solution must provide clear and unambiguous added **values** to the Participants.
2. The solution must have a **transparent governance model** with identified accountability and liability.
3. The solution must be **easy to use** by its Participants.
4. The solution must be **financially sustainable** for the Participants and the Gaia-X Association.

4.1 Decentralized Autonomous Organization

Decentralized Autonomous Organization , DAO, is a type of governing model where:

- There is **no central leadership**.
- **Decisions** are made by the community's members.
- The **regulation** is done by a set of automatically enforceable rules on a distributed ledger whose goal is to incentive its community's members to achieve a shared common mission.
- The organization has its **own rules**, including for managing its own funds.



Source: <https://www.gaia-x.eu/publications>

Gaia-X federated services & Ocean Protocol



4.2 Gaia-X Association roles

The Gaia-X Association, Gaia-X European Association for Data and Cloud AISBL, has several defined roles, to:

1. Provide a decentralized network with smart contract functionality, via a Gaia-X distributed ledger.
2. Provide a Gaia-X token enabling transactions on the decentralized network.
3. Provide the minimal set of rules to implement interoperability among Participants and Ecosystems. Those rules include how to validate Self-Descriptions, how to issue Labels, how to discover and register on the Gaia-X network another community's Ecosystems and Participants. The rules will be enforced via smart contracts and oracles.
4. Provide and operate a decentralized and easily searchable catalogue .
5. Provide and maintain a list of Self-description URIs violating Gaia-X membership rules. This list must be used by all Gaia-X Catalogue providers to filter out inappropriate content.



Source: <https://www.gaia-x.eu/publications>

Gaia-X Architecture Document 21.06

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access control

tokenized data access control on DLT

access to data services managed by smart contracts

if a consumer spends a **datatoken**, access is granted
more **conditions** in the SC are possible

**data access rights in the form of datatokens can be transferred on-chain
smart contracts become a tool to pool data and conditionalize data sharing**



access control

token-based data access control on DLT

data portals

buy & sell data services on data portals, enabled by smart contracts

download, stream, or access data via **compute-to-data** enabled by smart contracts

smart contracts enable on-chain datamarkets with integrated price discovery



simplify data exchange and monetization
easy to share, consume, sell and buy

data traceability and integrity



each access to data services is recorded on-chain

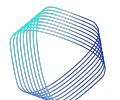
results of computations can be registered on-chain
as well

subsequent data uses can be tracked and traced

smart contracts enable trustless traceability and auditability of data services, also for subsequent data use



ensure data traceability and integrity
AI model and Data Lineage Tracking
traceability by design
enabled by smart contracts



price discovery

assets can be **dynamically priced** by the market

price discovery through Smart Contracts

if data is sold the price moves accordingly

community supports data service & price adapts

**smart contracts are the missing piece in a decentralized data economy
they enable the automatic and dynamic pricing of data services**



enable automatic price discovery
by smart contracts

data exchange, monetization & incentives

smart contracts enable **sustainable business models**

incentives of all actors are aligned

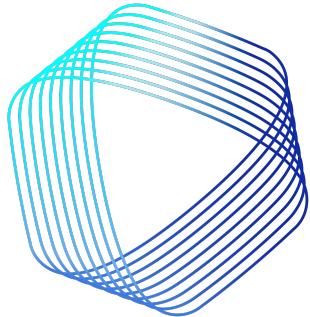
data owners, publishers, shareholders, market providers and developers earn fees, managed by Smart Contracts

smart contracts enable trustless data exchange and monetization with incentives to cooperate on a platform level and to compete on a product level



**sustainable business models
and incentives**

all participants can rely on a sustainable business model. Incentives of all actors are aligned



deltaDAO

data economy solutions – GDPR compliant

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Presented by

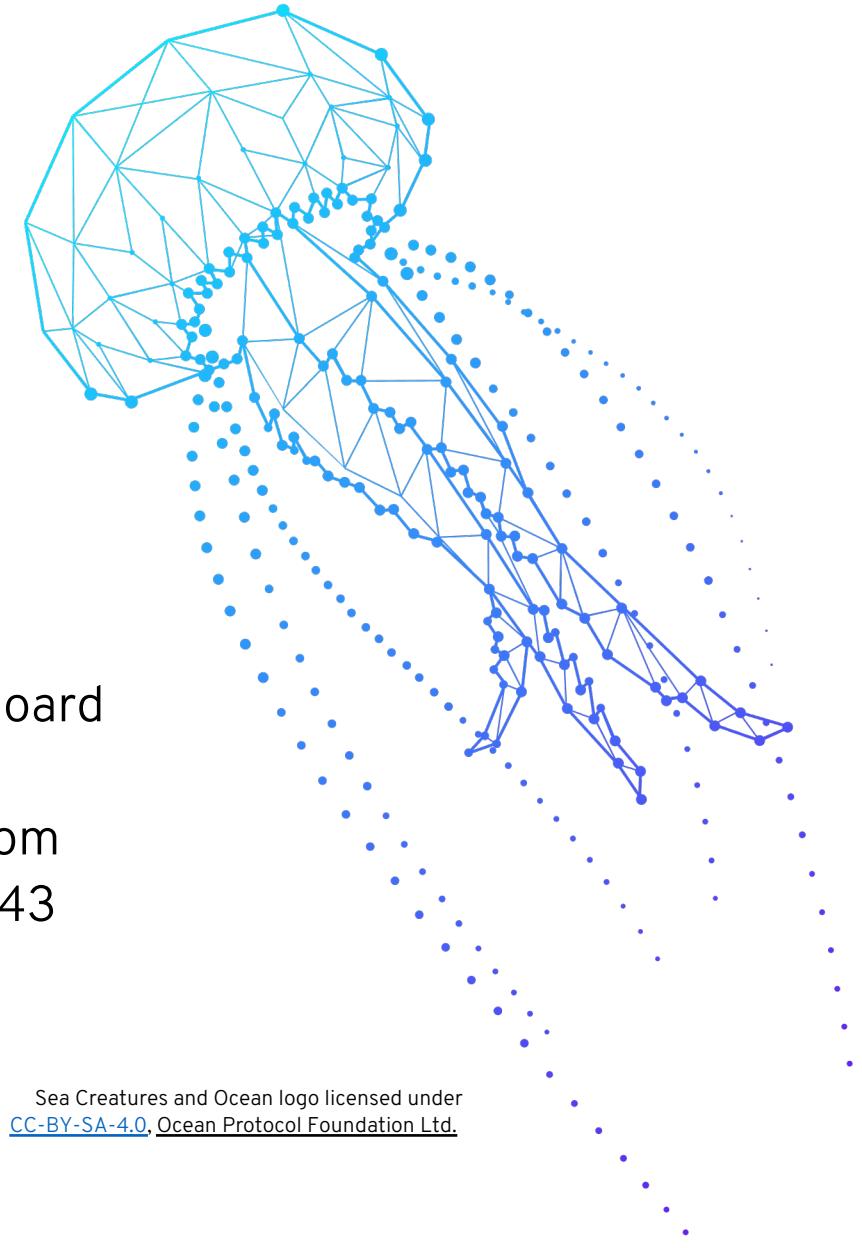
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