

AI4DestinE Platform

Unlocking Artificial Intelligence power to explore potential and challenges in Destination Earth Service Platform.

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 Destination Earth

**Building a highly
accurate digital replica
of the Earth**

Destination Earth is a flagship initiative of the European Commission to develop a highly accurate digital model of the Earth to monitor and simulate natural phenomena, hazards and the related human activities.



DestinE Platform

The DestinE Platform integrates and operates services in an open and secured cloud environment. It is a flexible, scalable ecosystem of services easily adapted to the community needs.

In a nutshell

- Unique entry-point for accessing DestinE Data
- Open, scalable & secure infrastructure
- Offering free services to all registered users
- Seamless integration of AI workflows



DestinE Platform

Your gateway to a sustainable future

A unique ecosystem of services harnessing the power of Destination Earth.

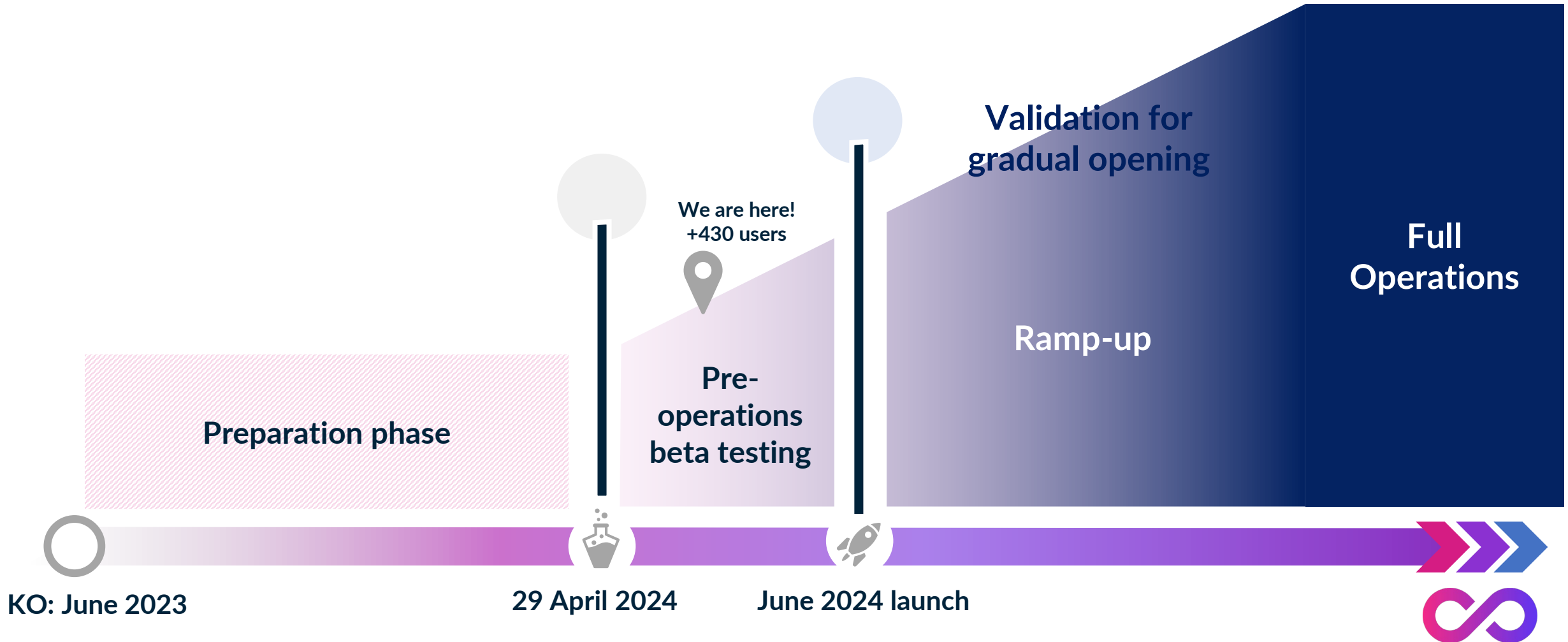
Consortium partners

The Serco-led consortium brings together leading European providers to deliver an open and scalable solution

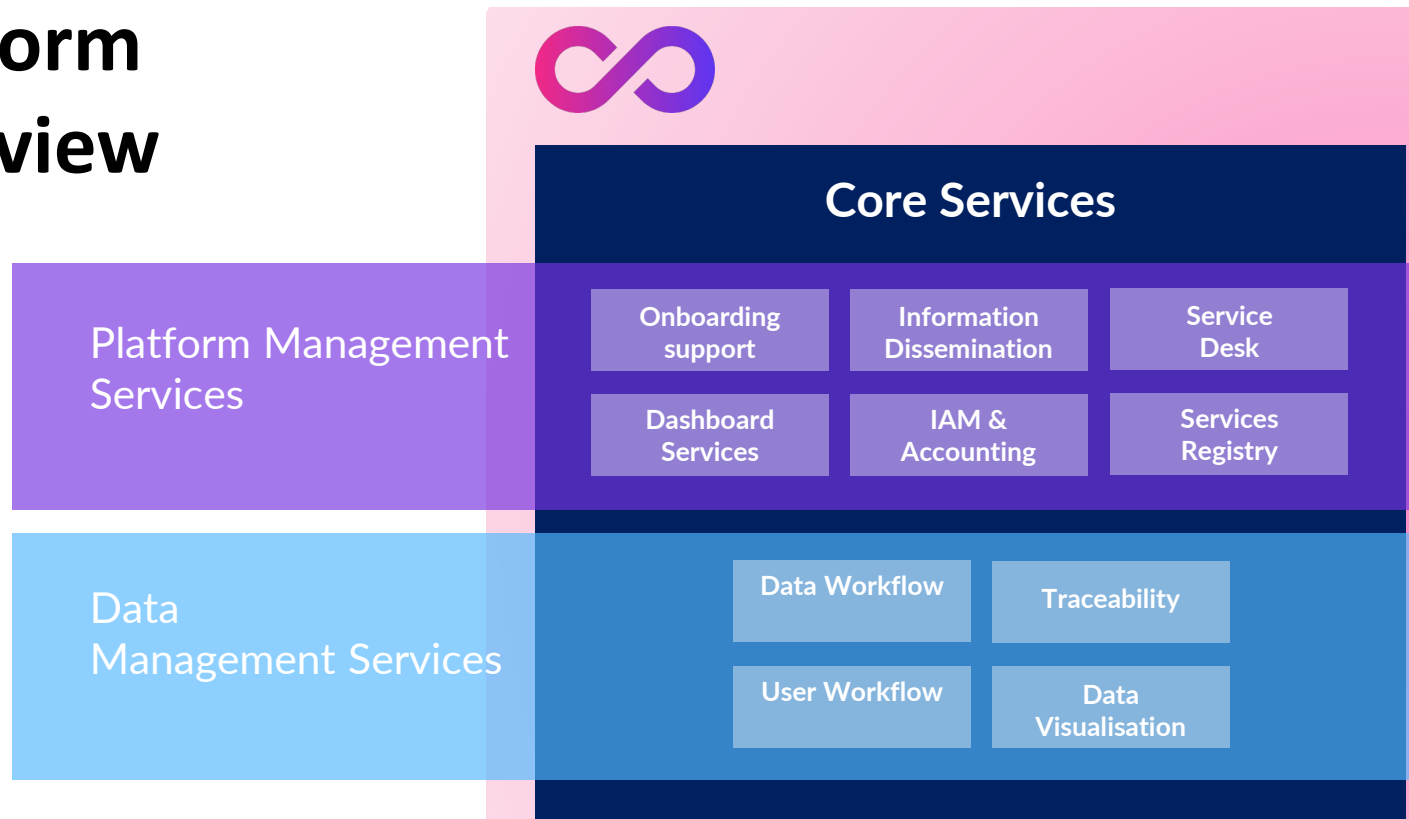


Serco	+
OVHcloud	+
Alia Space	+
B-Open	+
CGI	+
Deimos	+
Exprivia	+
GAEL Systems	+
GeoVille	+
MEE0	+
Thales Alenia Space	+

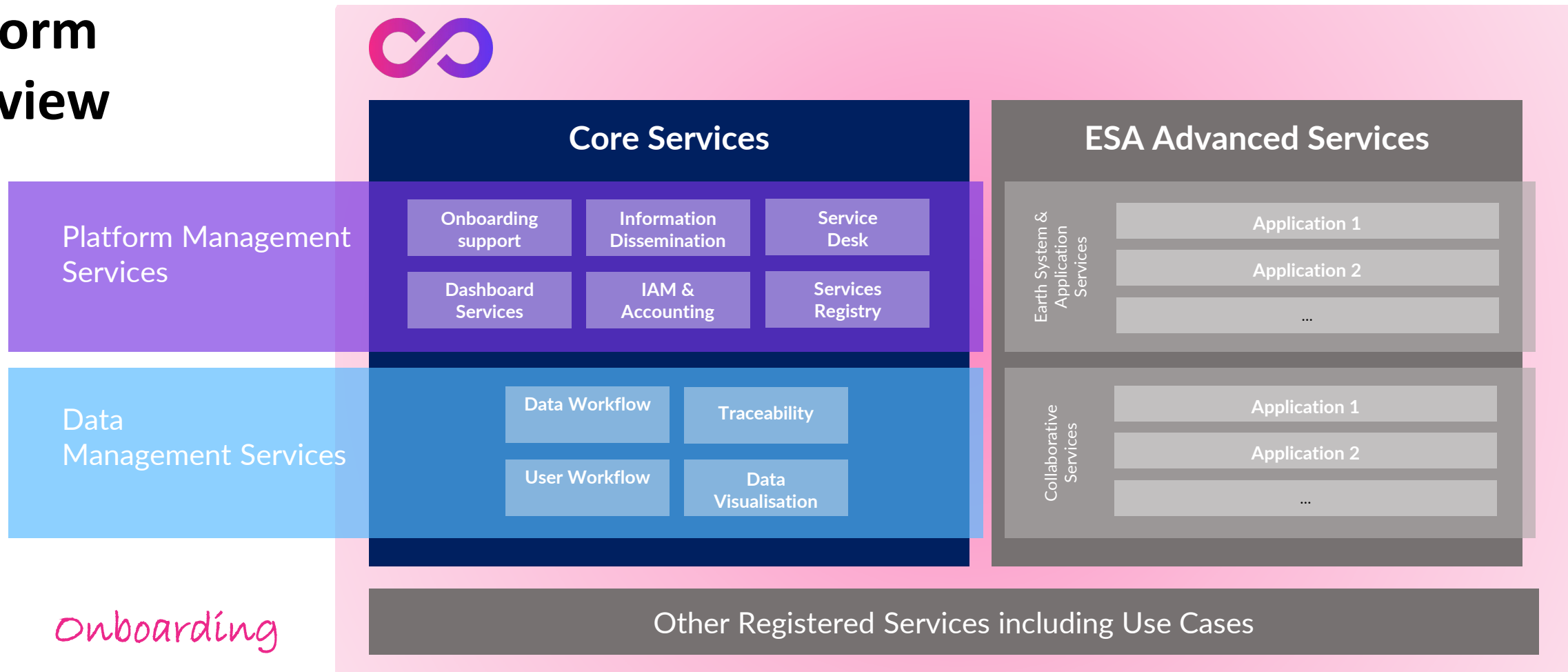
Timeline



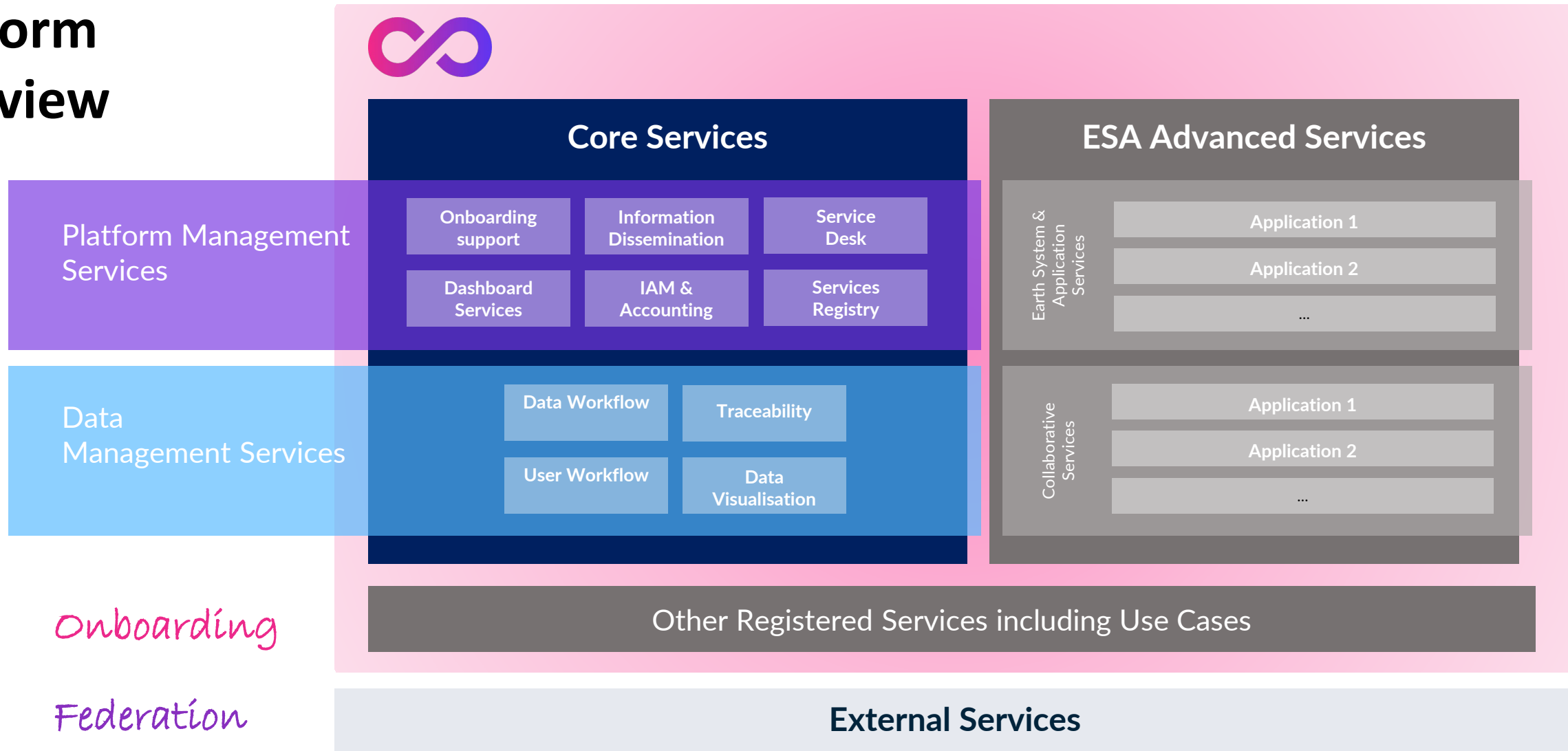
Platform overview



Platform overview



Platform overview



Platform Management Services

platform.destine.eu

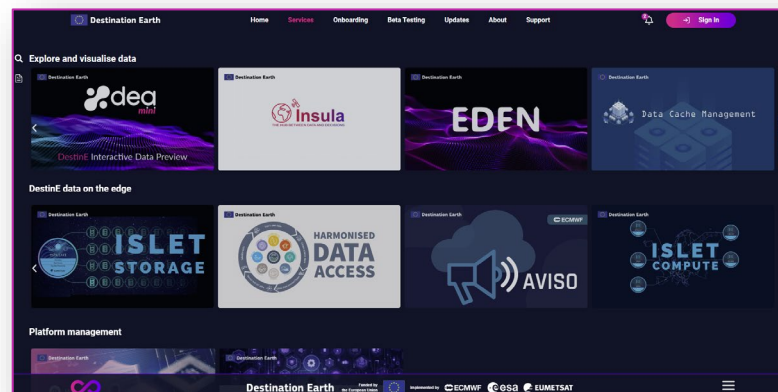


Information Dissemination

Up to date and accurate information on Services, events and other relevant topics.

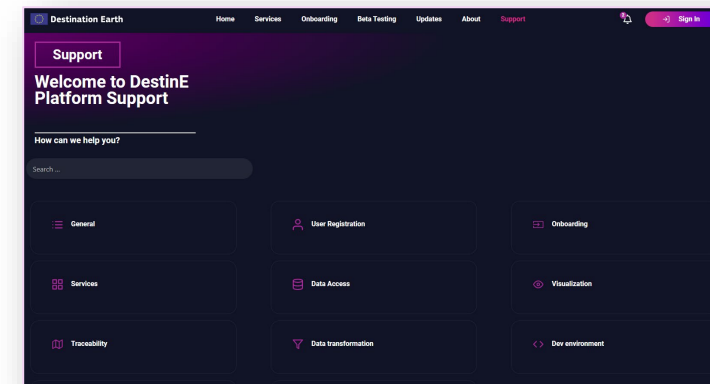
Service Registry

Search for registered services in the catalogue using tags and informative keywords related to data and service portfolio.



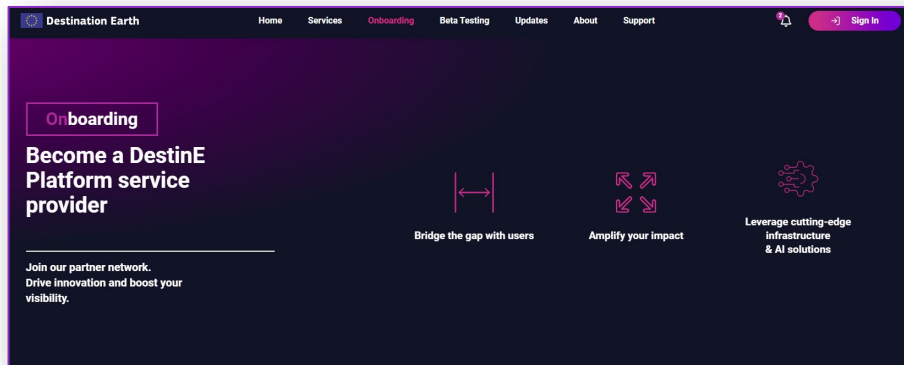
Service Desk

Thematic discussion forums, issue management, ticketing and technical support.

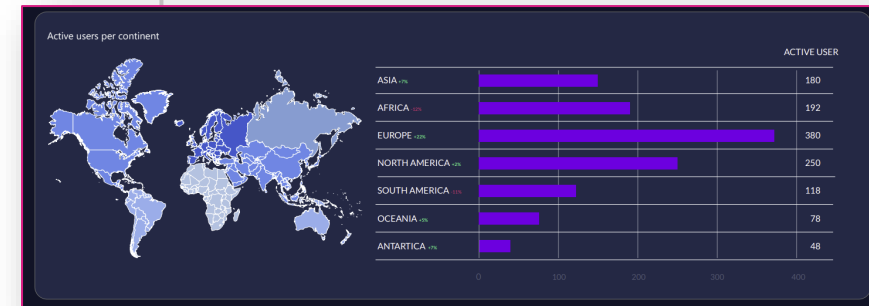


Platform Management Services

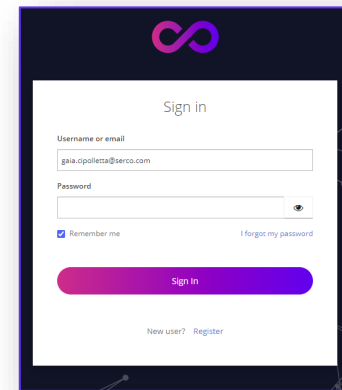
Dashboard & Monitoring
Consumption metering and Services monitoring informative analytics.



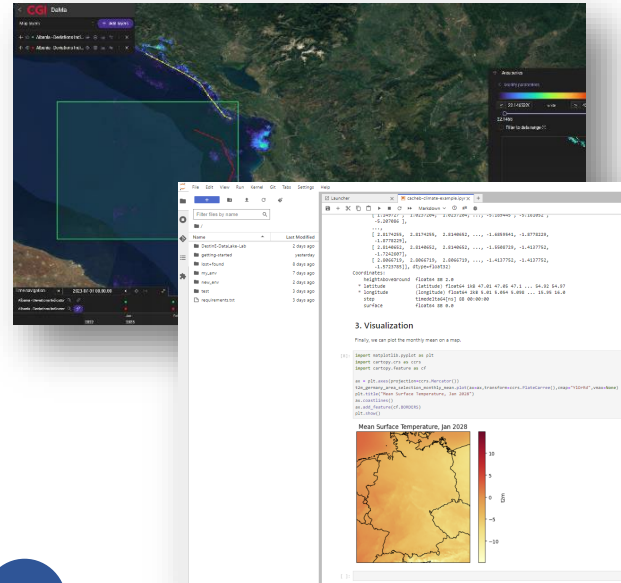
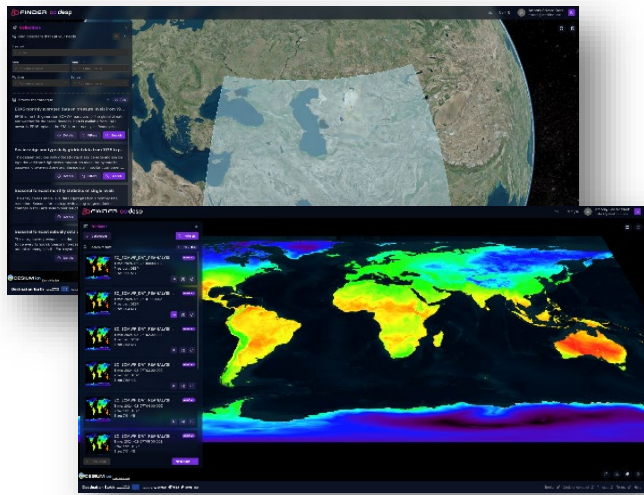
Identity Management
User and Services registration, profile management and default access



Onboarding Support
Integrate new Services in the platform



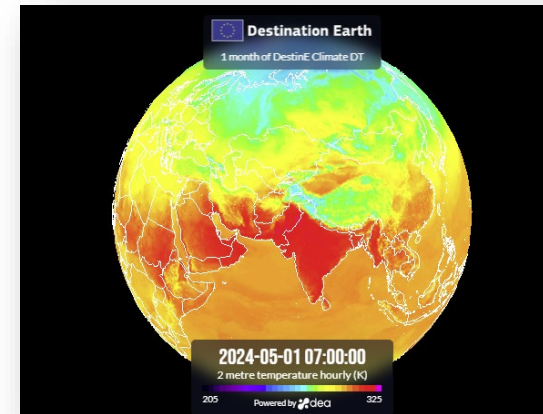
Data Management Services



Data Workflow
Harmonized access to data on the edge

User Workflow
Data Transformation and Workflow instancing at scale near the data

Data Visualization
Streamlined visualization to build interactive data previews

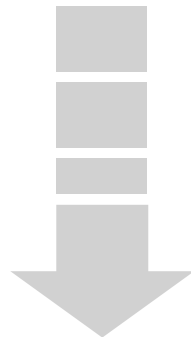


Traceability
Tracking and documenting the history and origin of data throughout their lifecycle

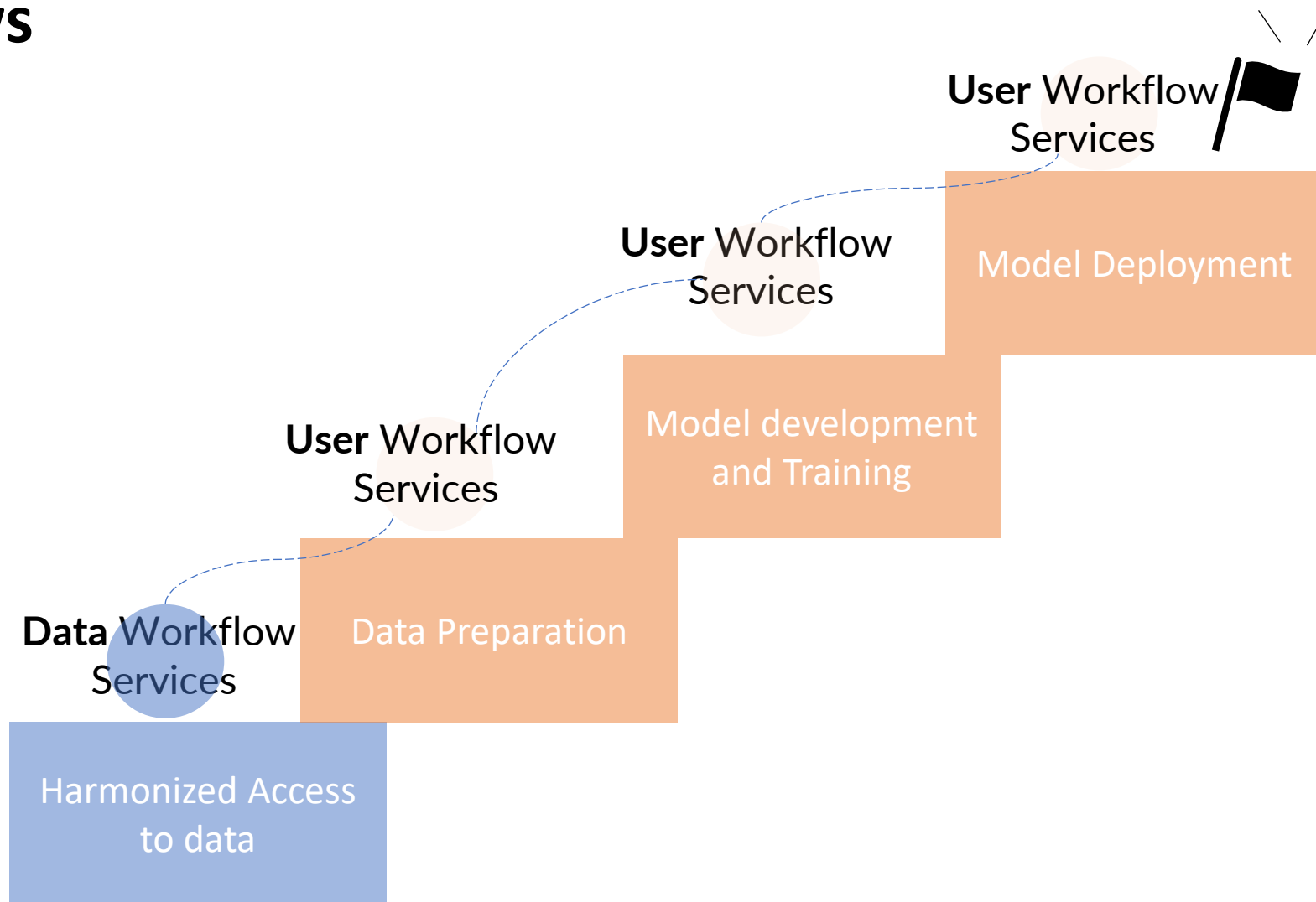
Supporting AI Workflows



Users often face challenges when training models on data or seamlessly transitioning their prototypes into fully operational systems



DestinE Platform facilitates AI workflows by deploying infrastructure, functions, and applications at scale, ensuring proximity to the data



Data Workflow Services

EDEN, Data Cache Management, HDA

- Data Catalogue and discovery
 - Explore and visualize DestinE data via GUI and API
- Data cube zarr access to DestinE data via S3 and STAC standards
- DestinE data on the edge via EUMETSAT HDA and ECMWF Polytope services

```

{
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  "type": "Catalog",
  "id": "s3gs-atac-ast",
  "title": "S3GS Astrogology STAC API",
  "description": "A STAC API for planetary data",
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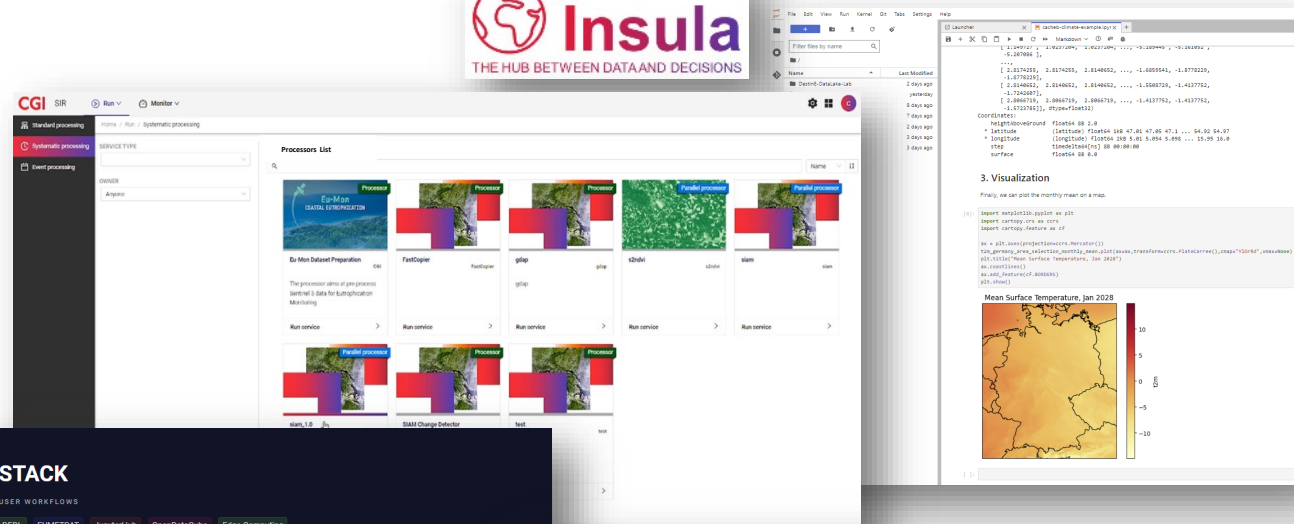
Free tier services available!

User Workflow Services



Insula, HOOK, STACK

- Development environment
 - Jupyter and Beaker Notebooks
 - Python, R, Julia
 - Various POD size CPU/GPU
- Processing environment for pipeline management
 - Workflow creation and management
- AI and ML ready environment for advanced Data analysis
 - Libraries and frameworks available
 - Customizable frameworks
- Mount object store S3 containers to host user's data
- Artifact repository for collaboration purposes
- Import containerized applications



HOOK
USER WORKFLOWS
DEDL EUMETSAT FaaS Workflow Edge Computing
Version: 1.0

DestinE Data Lake HOOK Service (FaaS - Workflows)

Website: Hook Priority Service
Operated By: EUMETSAT

Destination Earth

STACK
USER WORKFLOWS
DEDL EUMETSAT JupyterHub OpenDataCube Edge Computing
Version: 1.0

DestinE Data Lake Stack Service (SaaS - Jupyterlab/ DASK) facilitates data processing.

Website: Stack Priority Service
Operated By: EUMETSAT

github.com/SercoSPA/DESP-UserWorkflowService-Templates

SercoSPA / DESP-UserWorkflowService-Templates

DESP-UserWorkflowService-Templates (Public)

gipolletta Re-organization of repository and addition of venv requirements... 4 days ago

EDEN Re-organization of repository and addition of venv requirements... 4 days ago

coming_soon Re-organization of repository and addition of venv requirements... 4 days ago

cacheb Re-organization of repository and addition of venv requirements... 4 days ago

polytope Re-organization of repository and addition of venv requirements... 4 days ago

gitignore Adding credits 3 weeks ago

LICENSE Initial commit 5 months ago

README.md Re-organization of repository and addition of venv requirements... 4 days ago

requirements.txt Re-organization of repository and addition of venv requirements... 4 days ago

DestinE Jupyter Notebook Tutorials for the Insula's Code Lab

This set of Jupyter Notebook tutorials equips users with the skills to access and exploit Digital Twin data from DestinE for the Insula Code Lab. Examples are all written in Python.

- DestinE Platform CacheB data access: this example supports the user in accessing the DESP Data CacheB Service and work with Climate Adaptation DT data.

Free tier services available!

Federated AI Services

OVH AI Notebooks, AI Training, AI Deploy, AI Dashboard

OVH AI offering can be selected by the users to run their jobs

- **Development environment** for prototyping, many frameworks available, possibility to add storage containers
- **Training** environment to run jobs on user's own algorithms
- **Deploy** containerized applications
- **Monitoring** to get information and metrics on AI usage

The image displays three overlapping screenshots of the OVH AI platform interface:

- Top Screenshot:** Shows the 'Available frameworks' selection screen. It lists various AI frameworks such as 'Alice & Bob Felis', 'Atos myQLM', 'AutoGluon + MXNet', 'C12', 'fastai Course', 'Hugging Face Transformers', 'JAX', and 'Miniconda'. Each framework includes a brief description and a 'Deploy' button.
- Middle Screenshot:** Shows the 'Application to deploy' configuration screen. It includes a 'Your Docker image path' field (e.g., 'ovhcom/ai-deploy-hello-world'), a 'Name of your AI App' field (e.g., 'hello-world-clear-cronin'), and a 'Labels' section for adding key-value pairs.
- Bottom Screenshot:** Shows the 'Dashboard' with four main sections: '1. Store Object Storage', '2. Explore AI Notebooks', '3. Train AI Training', and '4. Deploy AI Deploy'. Below these are 'AI Tools billing' and 'Security' sections, with the Security section displaying '1 Users' and '0 Tokens'.

Roadmap

Use Cases (UC) and Advanced Applications Services (AAS) onboarding will bring value to the AI services portfolio

- **Enlarge data cache offering**
- **Free usage of tools and frameworks leveraging AI**

variety

Beta testing
Pre-operational phase

Forerunners
Integration (FlyPix, ...)

Other use cases integration
(UrbanSquare, DRE)

AAS integration
and open calls

Use Case
integration (CityNexus)

KO: June 2023

29 April 2024

June 2024 launch



FlyPix AI - GeoAI Platform

few-click access to earth observation insights

COMING SOON



Extracts semantics from aerial and satellite images



Allows building new AI-based applications by non-experts users offering diverse capabilities



Based on award-winning ML techniques and approaches

- Area segmentation
- Object/Instance detection
- Area/objects/instances properties analysis
- Tracking over time and change detection
- Anomaly Detection
- Custom ML models and analytics

FlyPix AI GmbH
Robert-Bosch-Str. 7,
64293 Darmstadt, Germany



BUSINESS
INCUBATION
CENTRE

Hessen

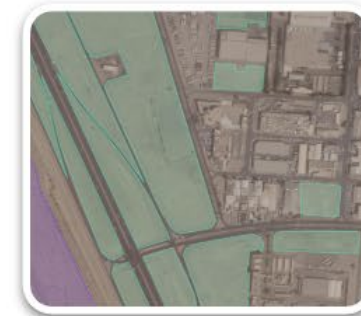
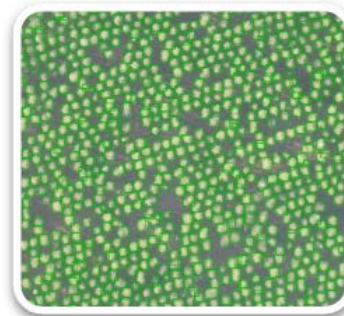
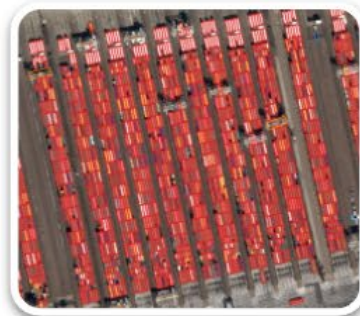
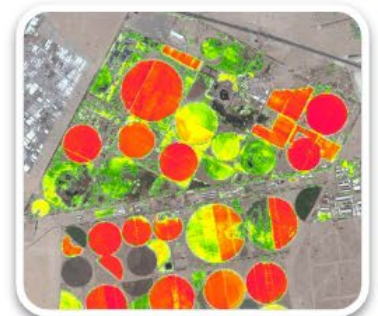
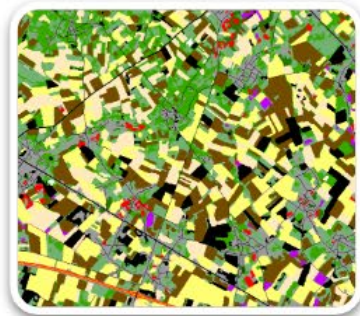
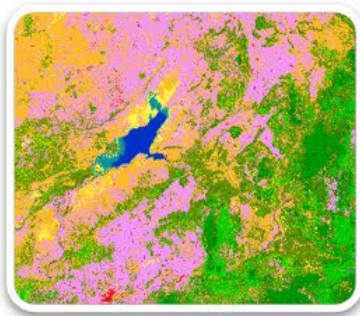


esa AI4EO Winner

FlyPix AI – Use Case Examples

COMING SOON

- Variety of EO imagery and related applications



FlyPix AI – Use Case Examples

- **Hazards management**

High-risk areas identification

Monitoring environment impacts

Hazards detection

Damage assessment and restoration



References

- <https://platform.destine.eu> DestinE Platform Knowledge Base
- <https://code.insula.destine.eu/> User Workflow Code Lab
- <https://finder.eden.destine.eu/> Data Workflow EDEN Finder
- <https://mini.dea.destine.eu/> MiniDEA (Visualization)
- <https://flypix.ai/> FlyPix (AI Forerunner)
- <https://flypix.ai/blog/the-benefits-of-using-flypix-ai-for-disaster-management-and-response/> FlyPix (AI Forerunner)
- <https://www.ovhcloud.com/fr/public-cloud/ai-machine-learning/> OVH Cloud AI offering





DestinE Platform

Your gateway to a sustainable future

A unique ecosystem of services harnessing the power of Destination Earth.

Register



We want you!

13

Services already available

Explore

6

Services coming soon

Explore

431

Registered Users

Join us

Thank you!

For more info: gaia.cipolletta@serco.com

