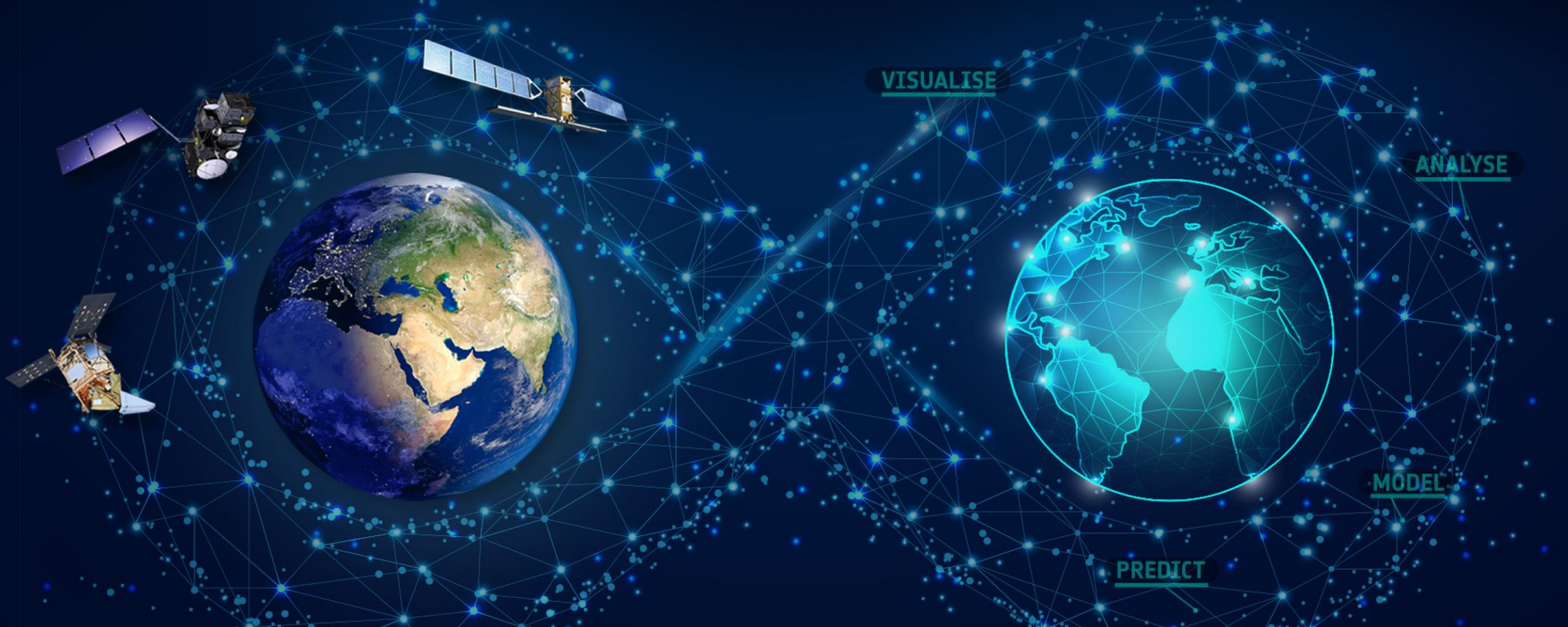




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# DESTINATION EARTH – The potential of high-performance computing

# DESTINATION EARTH

## A DIGITAL REPLICAF OF OUR PLANET

Destination Earth (**DestinE**) aims to develop a highly accurate digital model of Earth to monitor the effects of natural and human activity on our planet, anticipate extreme events and adapt policies to climate-related challenges.



# DESTINATION EARTH

## UNLOCKING THE POTENTIAL OF DIGITAL MODELLING

Utilising high-performance computing, machine learning and satellite data, the digital twins of **Destination Earth** will provide us with an accurate representation of the past, present and future changes of our world.



# DESTINATION EARTH

## SHAPING EUROPE'S GREEN AND DIGITAL FUTURE

Destination Earth (**DestinE**) will support the European Union's Green Deal and Digital Strategy and will enable policymakers and users to reach the next step in informed decision-making.

EVIDENCE-BASED  
POLICY DEVELOPMENT

ACTIONABLE  
PREDICTIONS

APPLICATION  
DEVELOPMENT



## ***Contribution to policy-makers:***

- monitor and simulate the Earth's system and the impact of human interventions,
- anticipate environmental disasters and resulting socio-economic crises,
- enable the evaluation of scenarios for sustainable development.

## ***Contribution to researchers and scientists:***

- provide access to a wide set of intersectoral Earth-related data such as Earth observation data, output data from high-resolution Digital Twins, socio-economic data, etc.,
- create a science development ecosystem with most up-to-date tools and software, especially ML, for stakeholders to develop, share, and optimize Earth-related models.

## ***Contribution to the general public:***

- facilitate the access, exploitation, and visualization of Earth-related information to raise awareness and involve the global population in the topics of sustainability and environmental crisis.
-

# DestinE System Overview



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## 1 System view - 3 components

- Autonomously procured and operated by the 3 Entrusted Entities
- Light coupling through data access interfaces

# DestinE Timeline



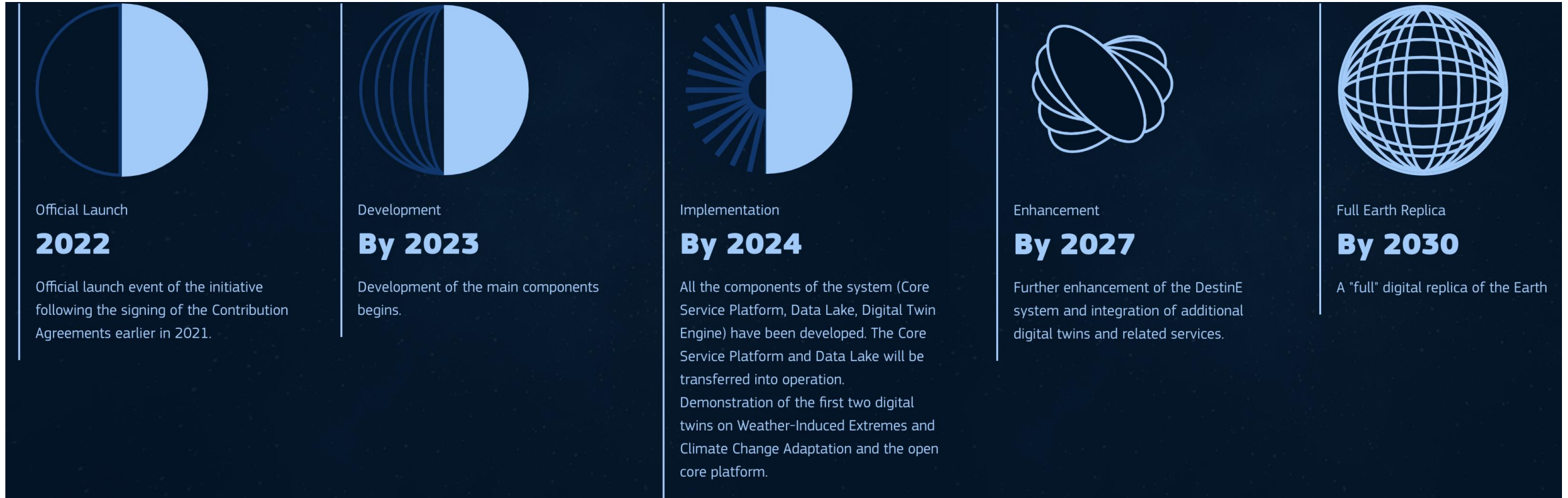
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## Phase 1

## Phase 2

## Phase 3



**Phase 1 (2022-2024):** Progressive entering into operations of routine services.

**Phase 2+ (2024-):** Routine operations associated to enhanced applications, collaborative environments uptake, and user access to DTs interfaces.

To be updated about DestinE Initiative activities and timeline, join the DestinE Community through the joint website: <https://destination-earth.eu/destine-community/become-part-of-the-destine-community/>.

With observation  
simulation capabilities  
and predictions

high-performance computing, satellite data and machine  
learning capabilities with unprecedented accuracy to predict the changes of our world

# DestinE Website

<http://destination-earth.eu/>

Join the DestinE Community

## CALL FOR USE CASES

Got an idea for  
a DestinE use  
case?

*Get your idea funded and  
apply now!*

## HACKATHONS

*/\* Get early access to DestinE  
and get recognised for your  
creative and impactful  
applications. \*/*

*# Join our next hackathon!*

## REQUIREMENTS

Have your say on DestinE's future  
functionalities.  
Provide feedback now!

## NEWS

Don't miss  
DestinE ec  
news and  
series. [Get](#)

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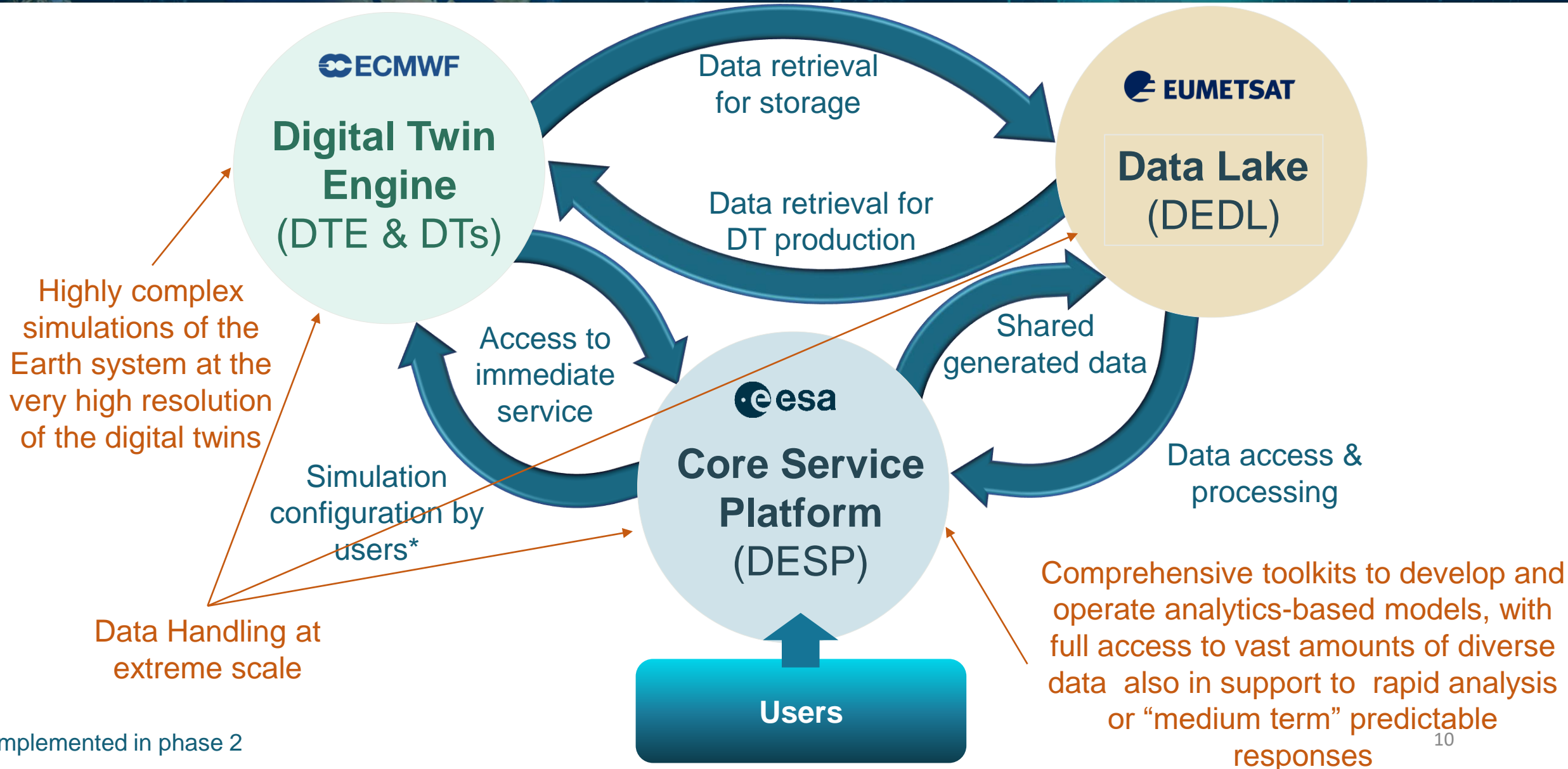


# DESTINATION EARTH – Distributed and High Performance Computing

# DestinE System and HPC



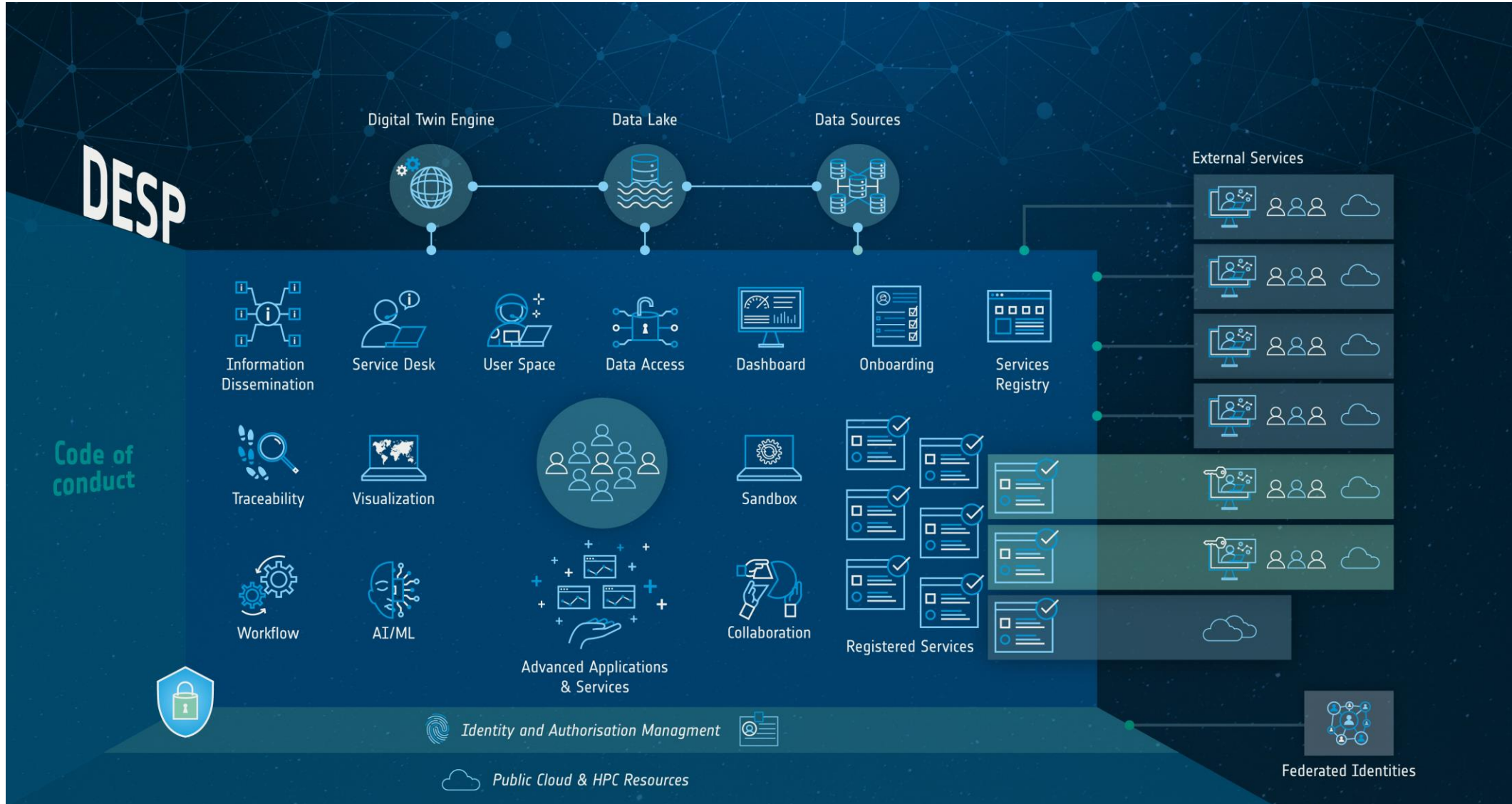
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# DestinE Service Platform



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The users gateway to DestinE services

- Can we identify rapid analyses or extensive computational applications that would require open access to HPC?
  - What would be the strategic advantage compared to cloud implementation?
- Can today's European HPC infrastructure solve the technical and organizational challenges associated with flexible and interactive access to HPC resources? What is the operational model behind?
- Can Europe's HPC infrastructure implement an 'HPC as a Service' solution available to the general public via the cloud? If so, how?

# Some technical challenges

- Job Throughput Enhancement
- Checkpointing & Restart Procedures
- Machine-Specific Porting
- Data Management & Caching
- Simplified Access in Federated Environments
- Interactive & Dynamic Access





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# THANK YOU!

Luca Girardo – [luca.Girardo@esa.int](mailto:luca.Girardo@esa.int)