



Why does the European Commission support the development of a Digital Twin of the Earth?



Digital Earth Twins to Build
Resilience to Climate Change
4 April 2023

Christian KIRCHSTEIGER

European Commission

DG CONNECT C.1 - Open Science and Digital Modelling

A Highly Accurate Digital Model of the Earth

Implemented by   

Destination Earth

A Highly Accurate Digital Model of the Earth

To monitor, simulate and predict natural phenomena and the impact of human activity on Earth



To assist in designing accurate adaptation strategies and climate change related mitigation measures



To accelerate the EU's green and digital transition



To leverage existing and new data sources and EU's advanced digital and computing infrastructure



To create and test "what if" scenarios and to integrate impact sector applications for more sustainable development



To support near real-time decision-making at various levels (e.g. EU, national, regional, local)



To go beyond the current complex systems designed mainly for expert use



To scale up existing models and fuse simulation with observation



Destination Earth - Implementation



- The Commission (**DG CNECT**) leads in coordination with Member States and Associated Countries
- **Strategic partnerships with:**
 - European Space Agency (**ESA**)
 - European Centre for Medium-Range Weather Forecasts (**ECMWF**)
 - European Organisation for the Exploitation of Meteorological Satellites (**EUMETSAT**)
- Funding under the **Digital Europe Programme**
- Significant Involvement of the EU industry
- Important R&I activities under Horizon Europe to support evolution of Destination Earth
- Synergies with other EU programmes, like Copernicus and the EuroHPC Joint Undertaking

2021-2024

- Operational cloud-based platform
- First two digital twins

2024-2027

Platform integrates the next operational digital twins and offers services to public sector users

2027-2030

Towards a full “digital twin of the Earth” through a convergence of multiple digital twins on the platform

DestinE added value

✓ Provide support to evidence-based policy development / implementation for high-stake issues

- Resolution at km-scale necessary to map local features, like river basins & urban areas
- Support near-real time decision-making with a resolution capturing local events
- Go beyond the current highly complex systems designed mainly for expert use and enable informed usage for a variety of concrete end-users: policy / science / public



✓ Develop an open infrastructure to test / benchmark models / data

✓ Develop a new interdisciplinary research agenda bringing technology & science together, incl. social science to support concrete end-users