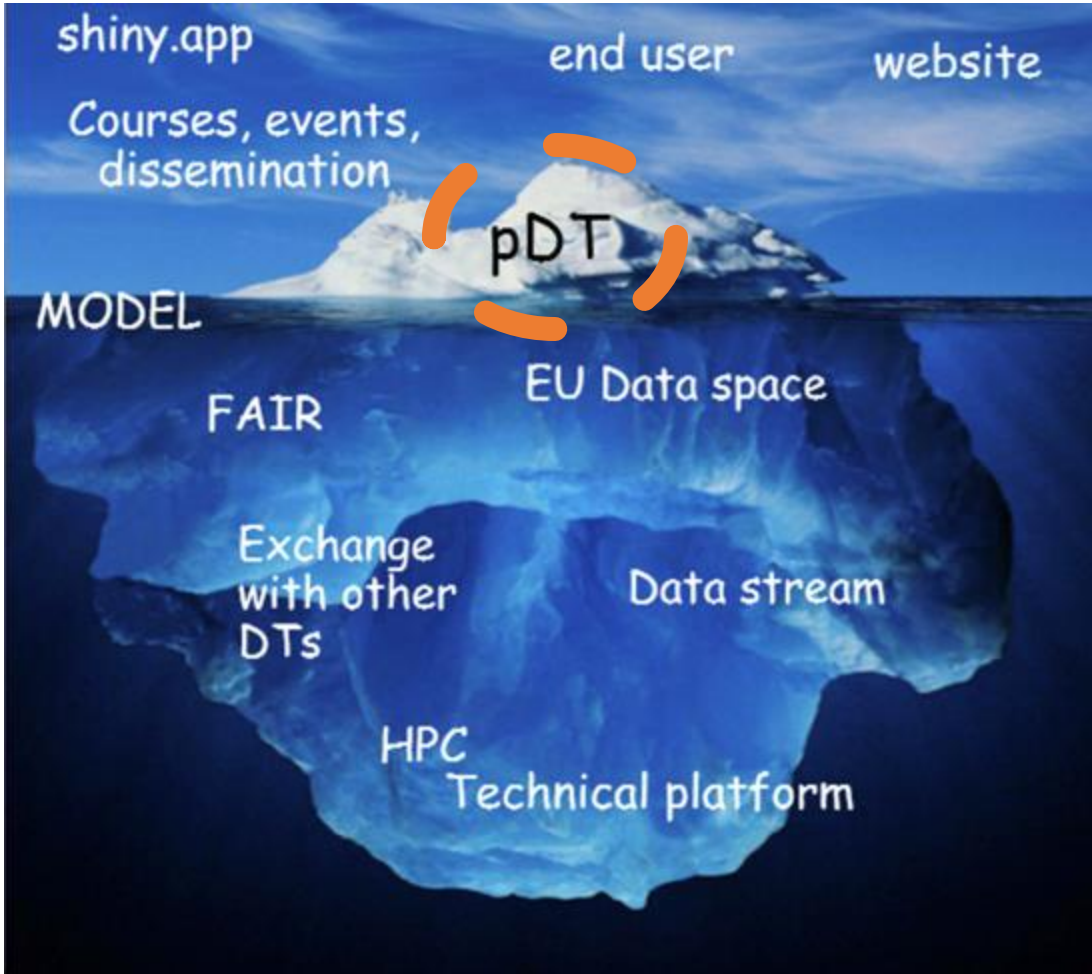




# Biodiversity Digital Twin for Advanced Modelling, Simulation and Prediction Capabilities

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**Species response to environmental change**



**Dynamics and threats from and for species of policy concern**



**Species interactions with each other and with humans**



**Genetically detected biodiversity**



Species response to environmental change

Cultural Ecosystem Services

Species interactions with each other and with humans

Honeybee

ed models for simulation and prediction capabilities, through practical use cases addressing critical

BioDT exploits the LUMI Supercomputer and employs FAIR data combined with digital infrastructure, predictive modelling and AI solutions, facilitating evidence-based solutions for biodiversity protection and restoration.

The project responds to key EU and international policy initiatives, including the EU Biodiversity Strategy 2030, EU Green Deal, UN Sustainable Development Goals, Destination Earth.

Species response to environmental change



-  Grassland Biodiversity Dynamics
-  Forest/Bird Biodiversity Dynamics
-  Real-time Bird Monitoring with Citizen Science Data
-  Cultural Ecosystem Services

Dynamics and threats from and for species

Genetically detected biodiversity



-  Crop Wild Relatives and Genetic Resources for Food Security
-  Genetically Detected Biodiversity in Cryptic Habitats
-  DNA Detected Biodiversity, Poorly Known Habitats

Species interactions with each other and

Where are the best locations  
and treatments to optimize  
honey production?



# pDT: Beehive dynamics and honey productivity

### Input Map

Click the  icon and select desired placement on the map.

Selected coordinates are:  
Latitude: 51.804322  
Longitude: 8.803878



### Simulation Parameters

Number of adult bees at the beginning of the simulation:

Number of Mites at the beginning of the simulation:

Number of infected Mites at the beginning of the simulation:

Honey Harvest

Varroa treatment with acaricide

Drone Brood Removal

Choose start year of the simulation:

For how many days:

### The first operational BioDT prototype of a digital twin: towards groundbreaking insights into honey bee performance



**PRESS RELEASE**

The first operational BioDT prototype of a digital twin: towards groundbreaking insights into honey bee performance



Land Use |  Maize |  Legumes |  Strawberries

## Run simulation

### Output plot

Choose experiment:



Download plot data

<https://app.biodt.eu/app/biodtshiny>

# A digital twin fosters collaboration by its nature:



- Data
- A model
- An application/representation = USERS
- Data <-> Model <-> Interface





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