# Digital Twin of a plant factory

A holistic approach for smart research and production

LIÈGE université
Gembloux
Agro-Bio Tech

Arnaud Bouvry
Digital Energy and Agriculture Lab

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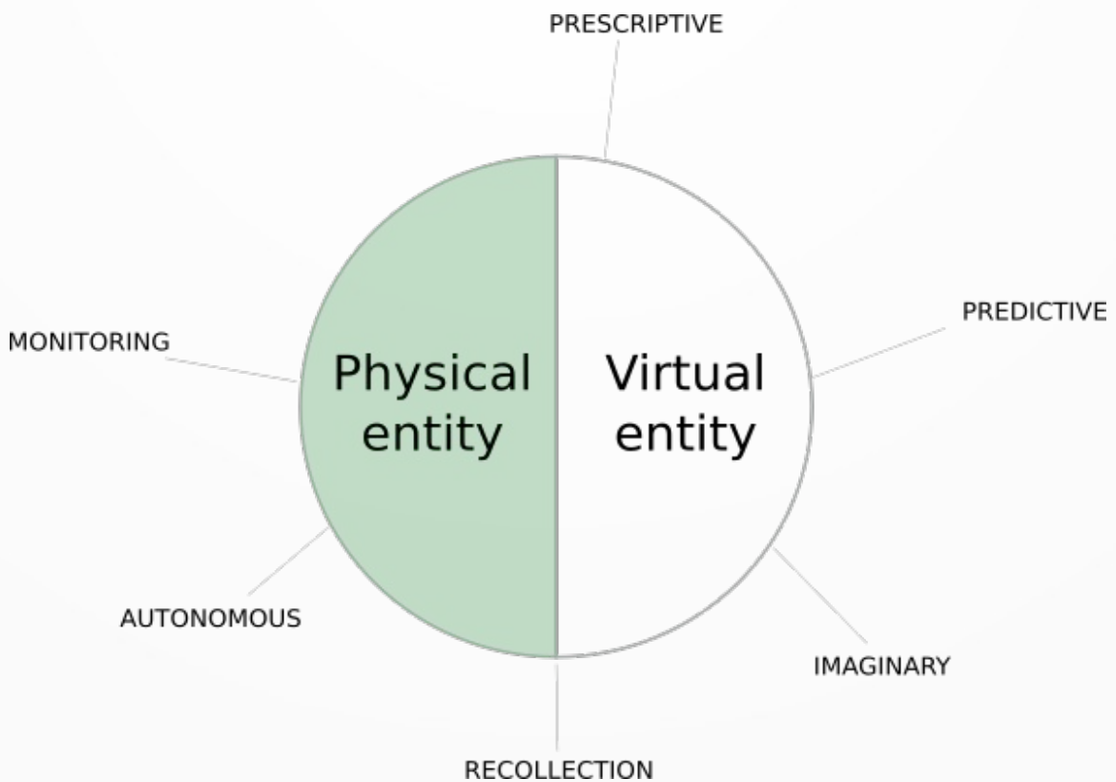
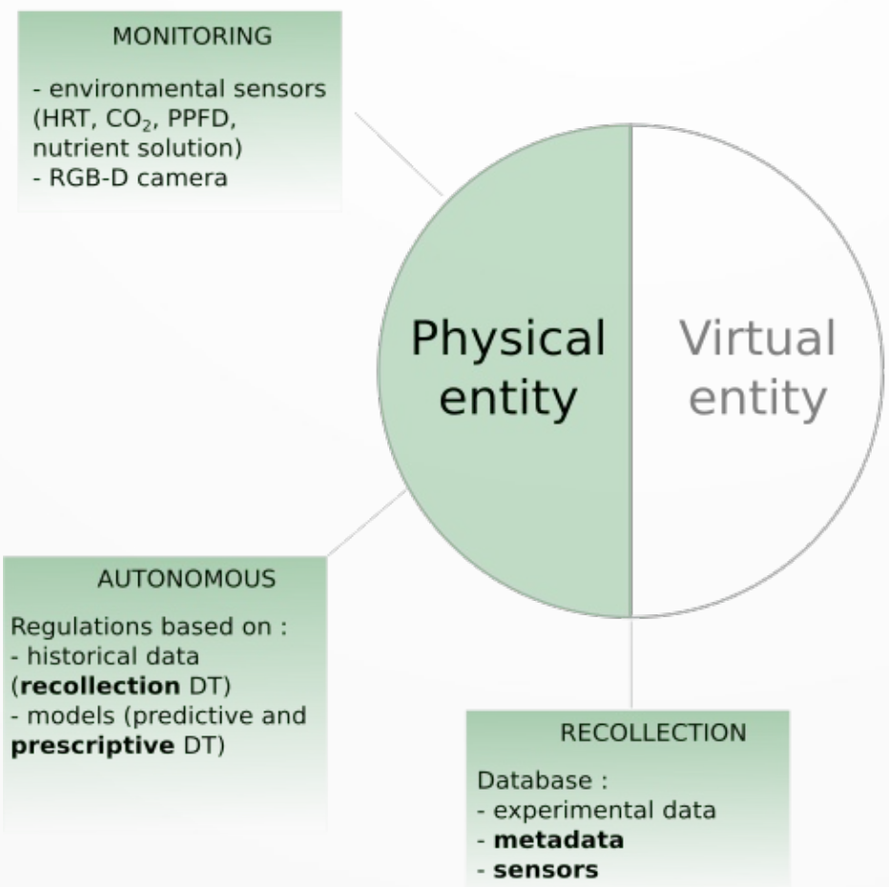
DIGITAL ENERGY &
AGRICULTURE LAB

# Digital Twin concept




Adapted from Verdouw et al. (2021)

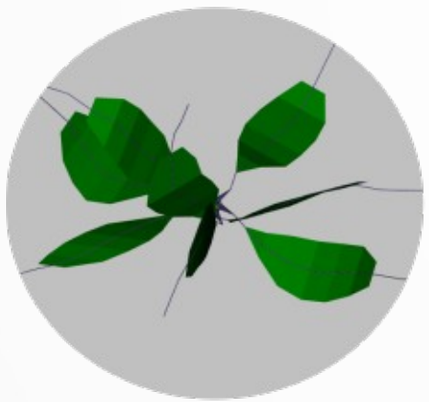
# Physical entity



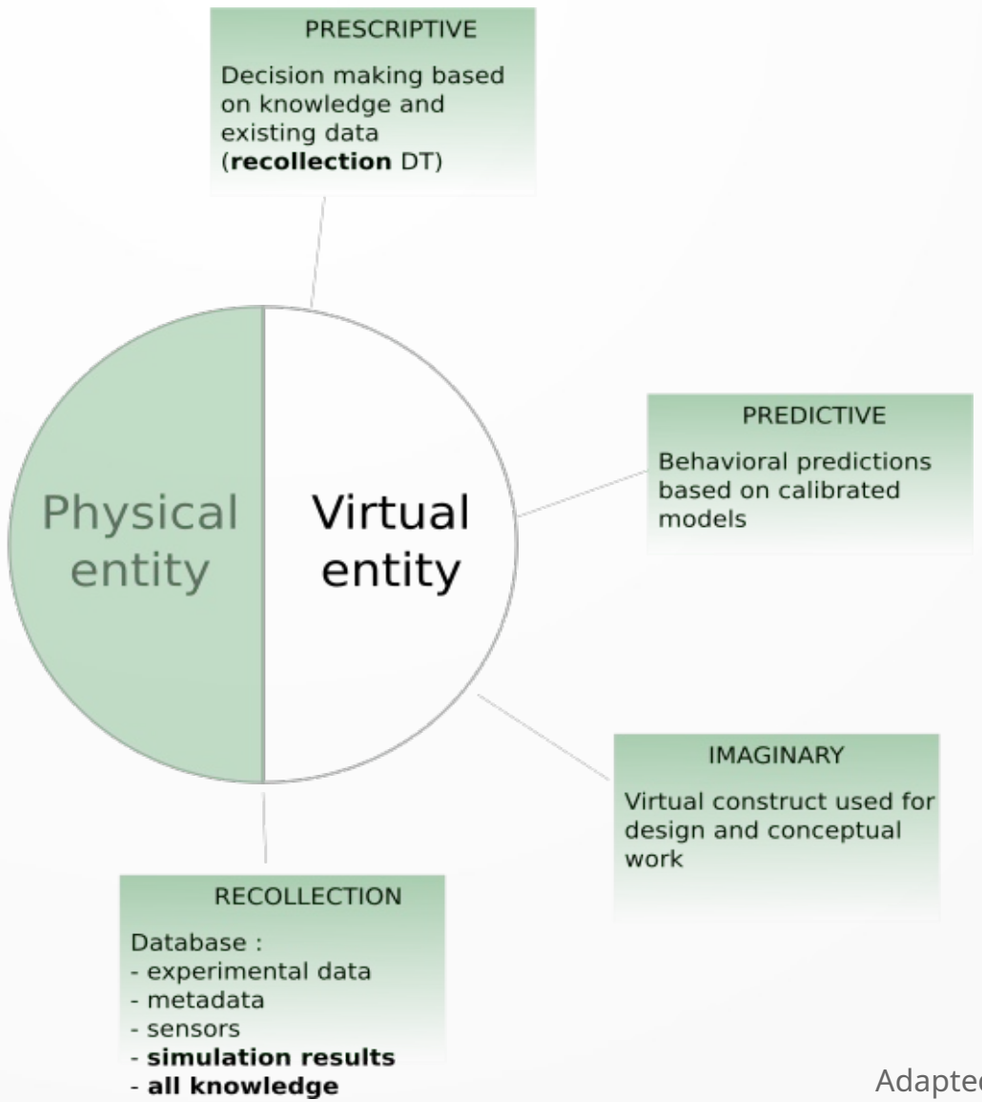

*Top-view of a young lettuce plant in the growth chamber*

Adapted from Verdouw et al. (2021)

# Virtual entity

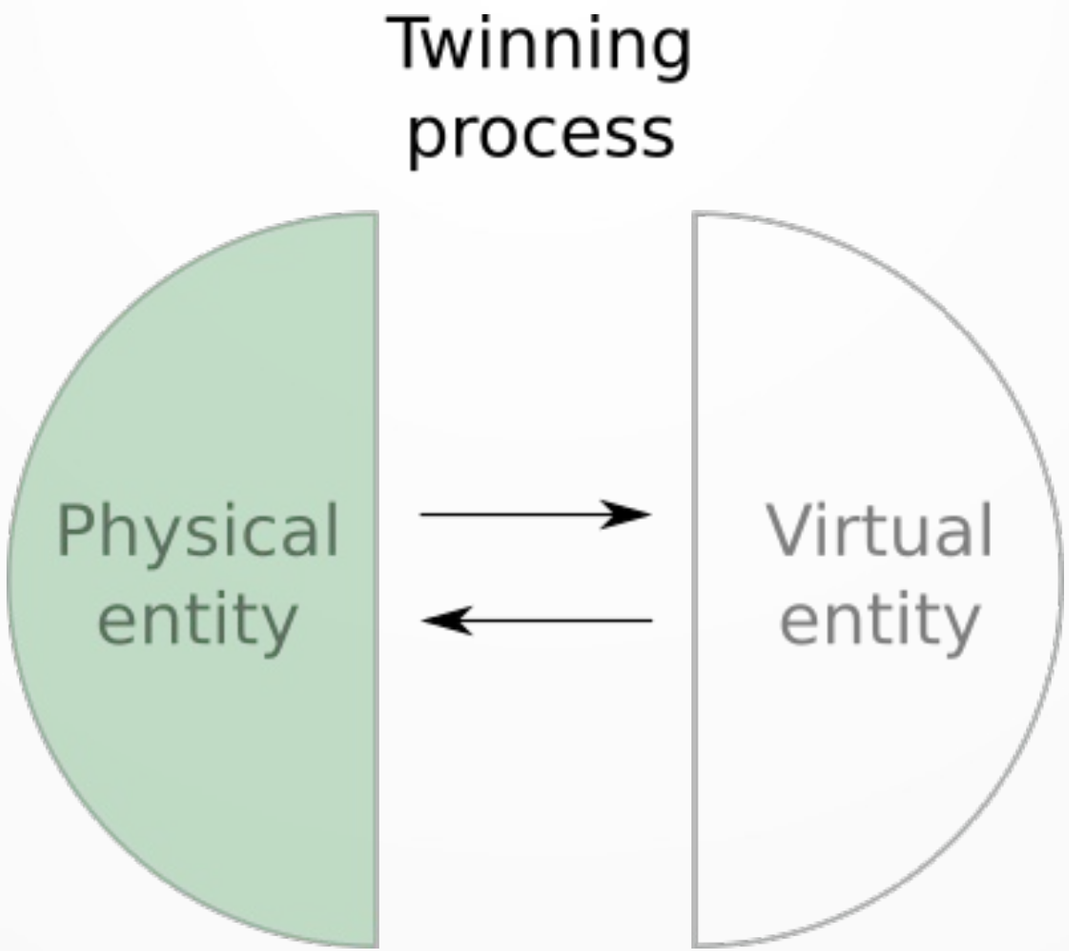


*Top-view of a young lettuce plant modeled in CPlantBox*




Adapted from Verdouw et al. (2021)

# Twinning process




Grieves et al. (2014)

# To sum up

- Coexistence of physical and virtual counterparts built on any of **6 tenets**
- Both are linked through the **twinning** process
- Automation of the **physical-to-virtual** part of the twinnin
- Scope : **photosynthesis** response in artificial lighting conditions

Main reference

Verdouw et al., *Digital twins in smart farming.* Agricultural Systems, 189(January) https://doi.org/10.1016/j.agsy.2020.103046

Arnaud Bouvry

abouvry@uliege.be