



FOod REsilience Living Lab (**FORELL**): a proposed Soil-Food Living Lab linking soil health to food sustainability and climate adaptation.

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SPECTRA
LAB

WHY THE GLOBAL SOIL SHORTAGE THREATENS FOOD

SOILS ARE THREATENED



60-70% of soils in Europe are considered "unhealthy".

Healthy soil has amazing water-retention capacity

Every 1% increase in organic matter results in as much as

25,000

gal of available soil water per acre.

Source: USDA-NRCS



SOILS STORE AND FILTER WATER

Functional soils play a key role in the supply of clean water and resilience to floods and droughts.

Soil is disappearing

Case study of Canada

Canada, Land Cover 2000

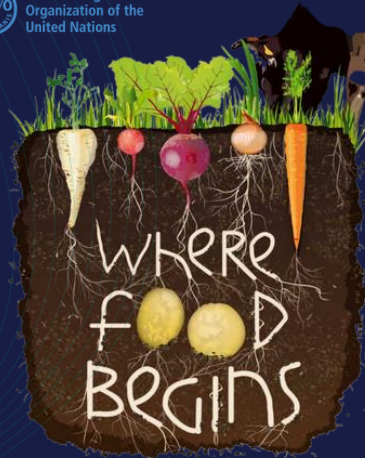
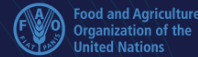


From 1972-2011 Canada lost 3.9 million hectares of farm land.



Source: Soil Conservation Council of Canada (SCCC)

FOOD AVAILABILITY RELIES ON SOILS



Healthy soil is key to feeding

9



by 2050

Source: www.fao.org/soils-2015

SYSTEM-BASED APPROACHES

EUROPEAN GREEN DEAL



From Farm to Fork:
Our food, our health, our planet, our future

The European Green Deal

Moving towards a more healthy and sustainable EU food system, a corner stone of the European Green Deal

- Make sure Europeans get healthy, affordable and sustainable food
- Tackle climate change
- Protect the environment and preserve biodiversity
- Fair economic return in the food chain
- Increase organic farming



Healthy Soils



Foundation of



Sustainable Food Production



Contributing to

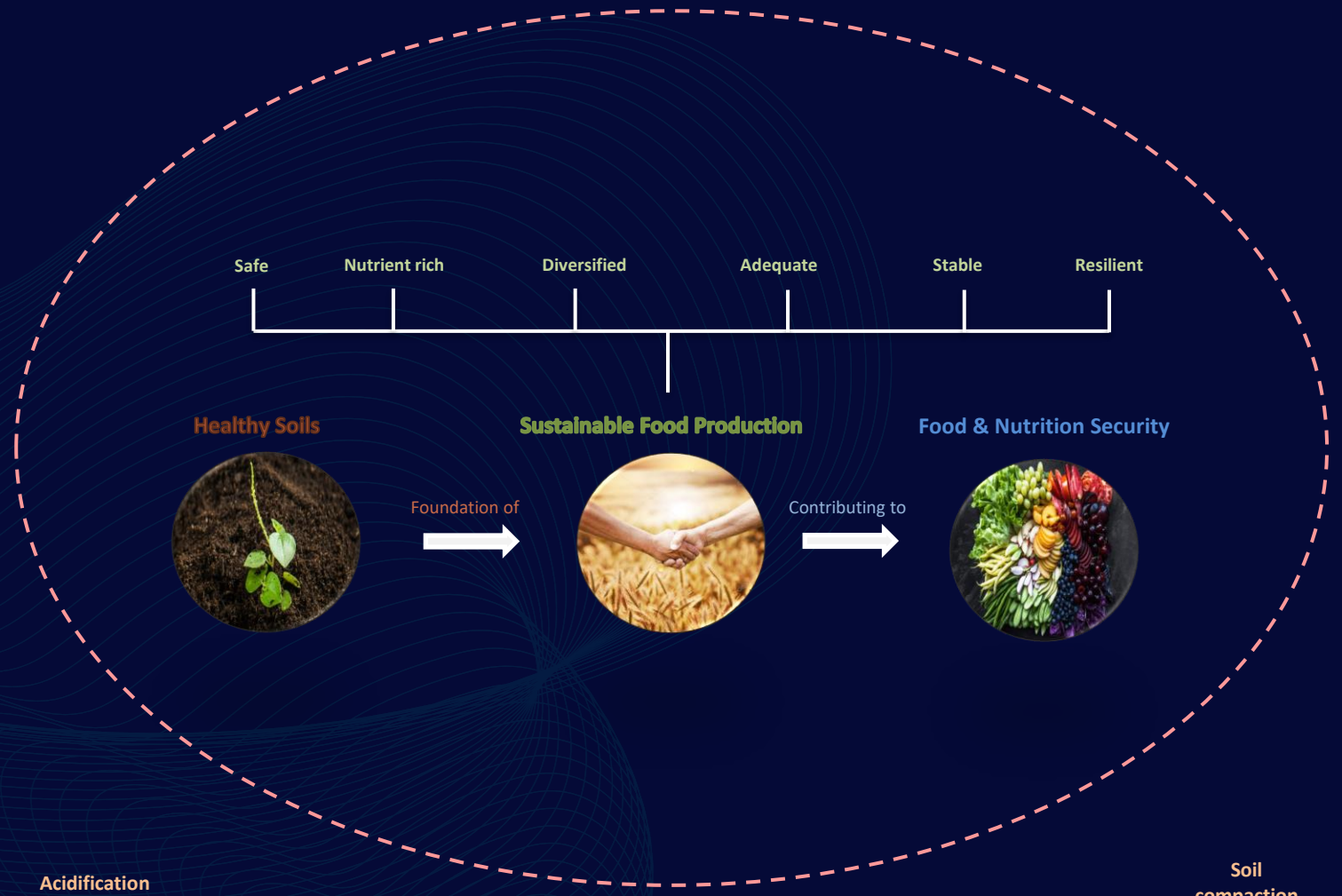


Food & Nutrition Security



Unsustainable soil management

Climate change



Soil sealing

Salinization

Soil contamination

Acidification

Reduction of soil biodiversity

Nutrients depletion

Soil compaction

Loss of organic matter

Soil erosion

Soil moisture depletion

Safe Nutrient rich Diversified Adequate Stable Resilient

Healthy Soils

Sustainable Food Production

Food & Nutrition Security

Foundation of

Contributing to

Soil Health monitoring



Co-development

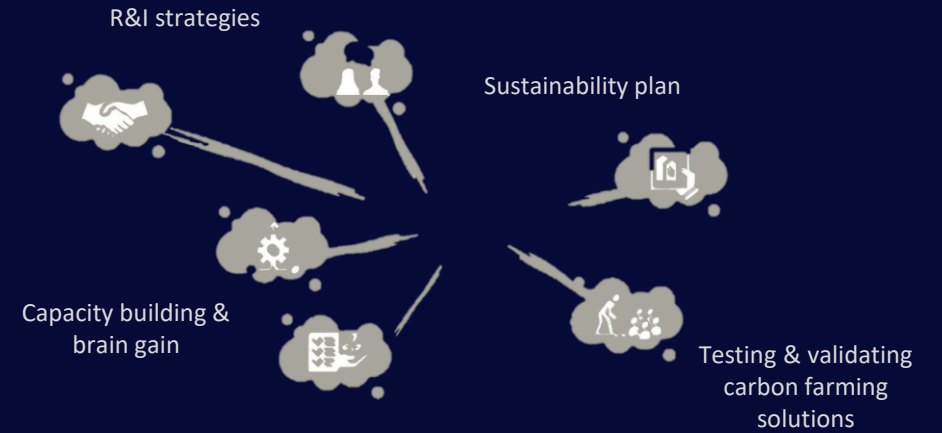
Tools / Services



Co-approach actions



Co-development



Co-approach actions



Food sustainability assessment

Toolbox

Spectroradiometers



Services



Purity index



Organic Farming compliance marker



Soil quality report

Prevent food fraud

Facilitate certification process



Monitoring performance of the organic and GI food supply chains

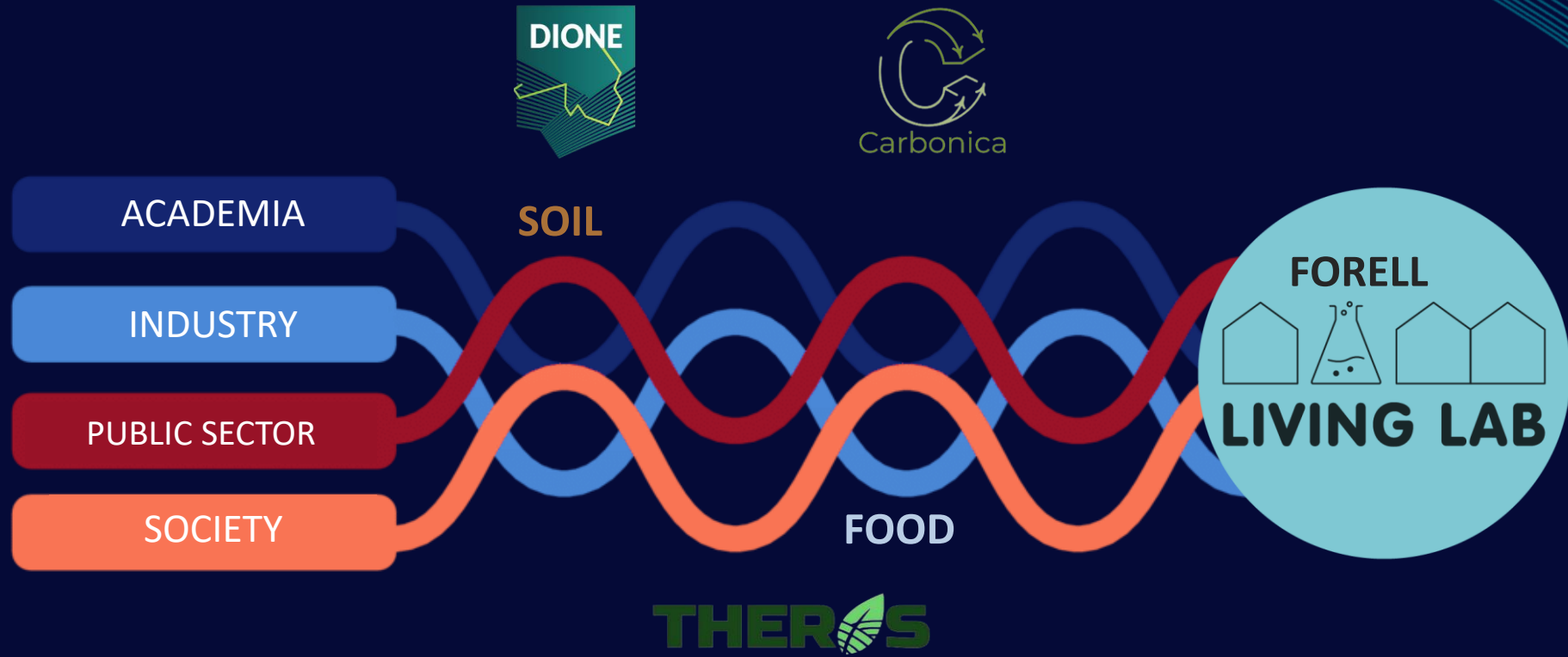
Increase transparency, traceability, trust and security in the organics and GIs supply chain



Sustainability of organic farming systems and ensure



Rapid and cost-effective verification of organic and GI food products





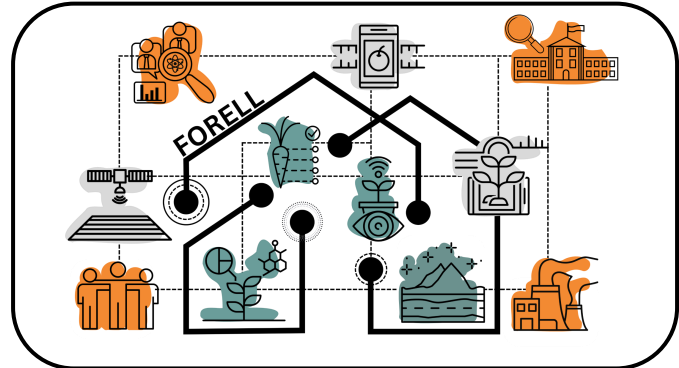
Integrated digital toolbox to modernize CAP area-based compliance checks & assessing environmental impact



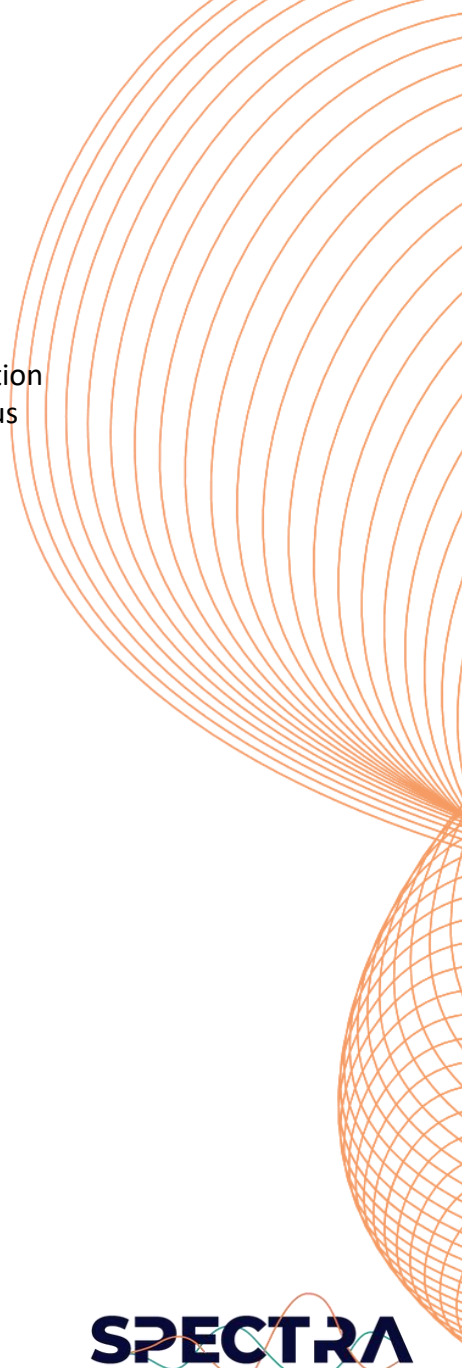
Excellence HUB connecting carbon farming innovation ecosystems of Greece, North Macedonia & Cyprus

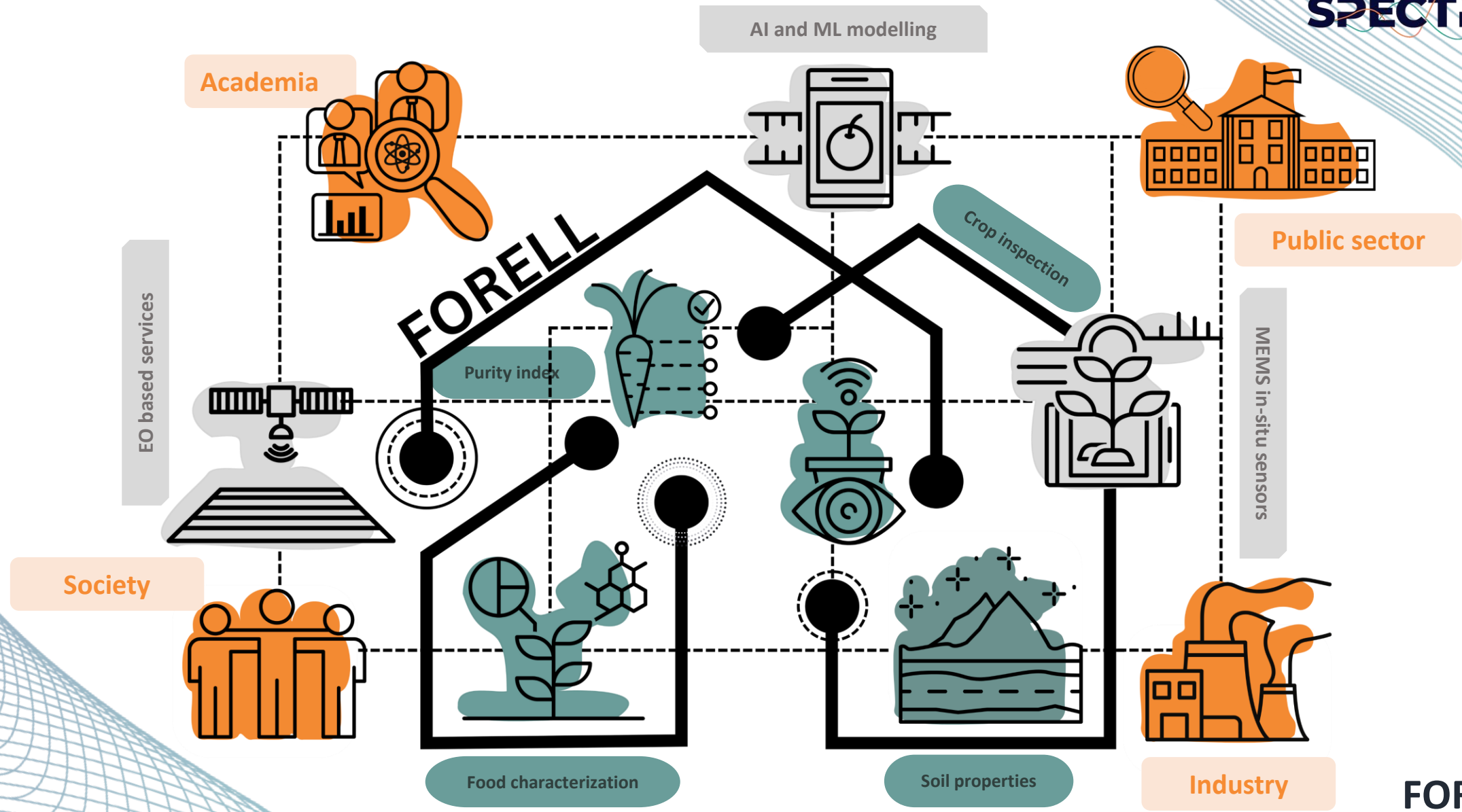


AI & photonics solutions for the detection of adulterations and non-compliances in organic & GI food supply chain



FORELL
A Proposed
Agroecosystem Living Lab





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 <https://spectralab.gr/>

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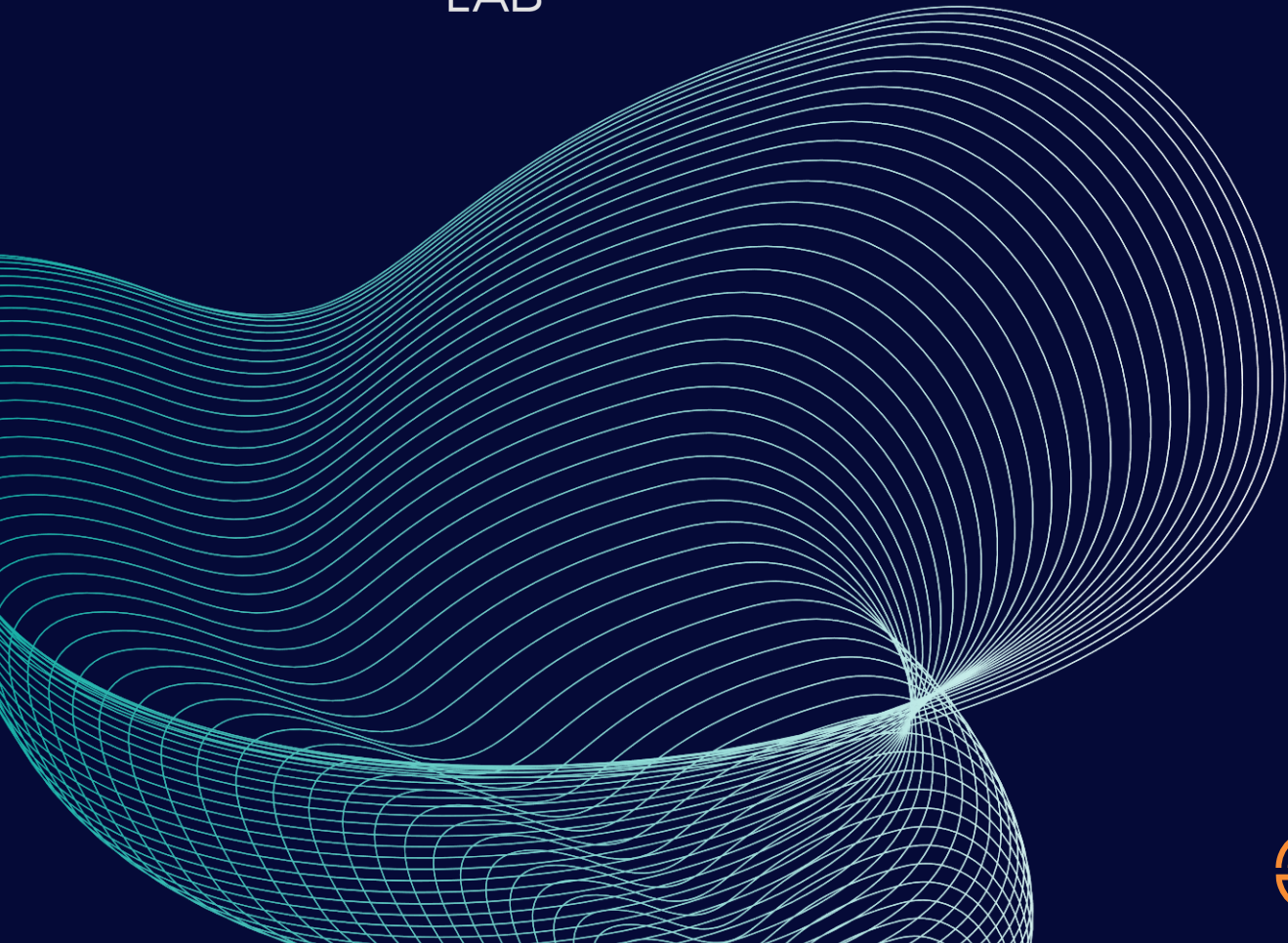


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Thank you for your attention!

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 **adaptation**
futures 2023

THEROS 



Funded by
the European Union

"THEROS project is funded by the European Union, under grant agreement No 101083579. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Research Executive Agency (REA). Neither the European Union nor the granting authority can be held responsible for them."