DPP and Traceability concept for organic foods

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1st ICCS Digital Product Passport event

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THEROS Key Facts

🌱 **Project Title:** An integrated toolbox for improved verification and prevention of adulterations and non-compliances in organic and geographical indications (GI) food supply chain

🌱 **Call identifier:** HORIZON-CL6-2022-FARM2FORK-01-04

🌱 **Topic:** "Innovative solutions to prevent adulteration of food bearing quality labels: focus on organic food and geographical indications"

🌱 **Duration:** 01.01.2023 - 31.12.2025 (36 months)

🌱 **Funding scheme:** IA – Innovation Action

🌱 **EU contribution:** EUR 3,999,961.00

🌱 **Coordinated by:** Institute of Communication and Computer Systems (ICCS), Greece

THEROS Consortium

- ➤ **4 Research Institutes & Technology Organizations** (ICCS, AUTH, JSI, CERTH)
- ➤ **4 Control and Certification Bodies / Authorities** (ELGO, OCS, KIWA, BIO-HELLAS)
- ➤ **5 Large Enterprises & SMEs** (NTT DATA, SINERGISE, EBOS, SEABILITY, WRLS)
- ➤ **1 Regulatory Council for a DPO** (MEXILLON)
- ➤ **2 Retailers / Wholesalers** (UNIVER, SUMAVA)
- ➤ **1 Cooperative and Producer Association** (BIO-NET)
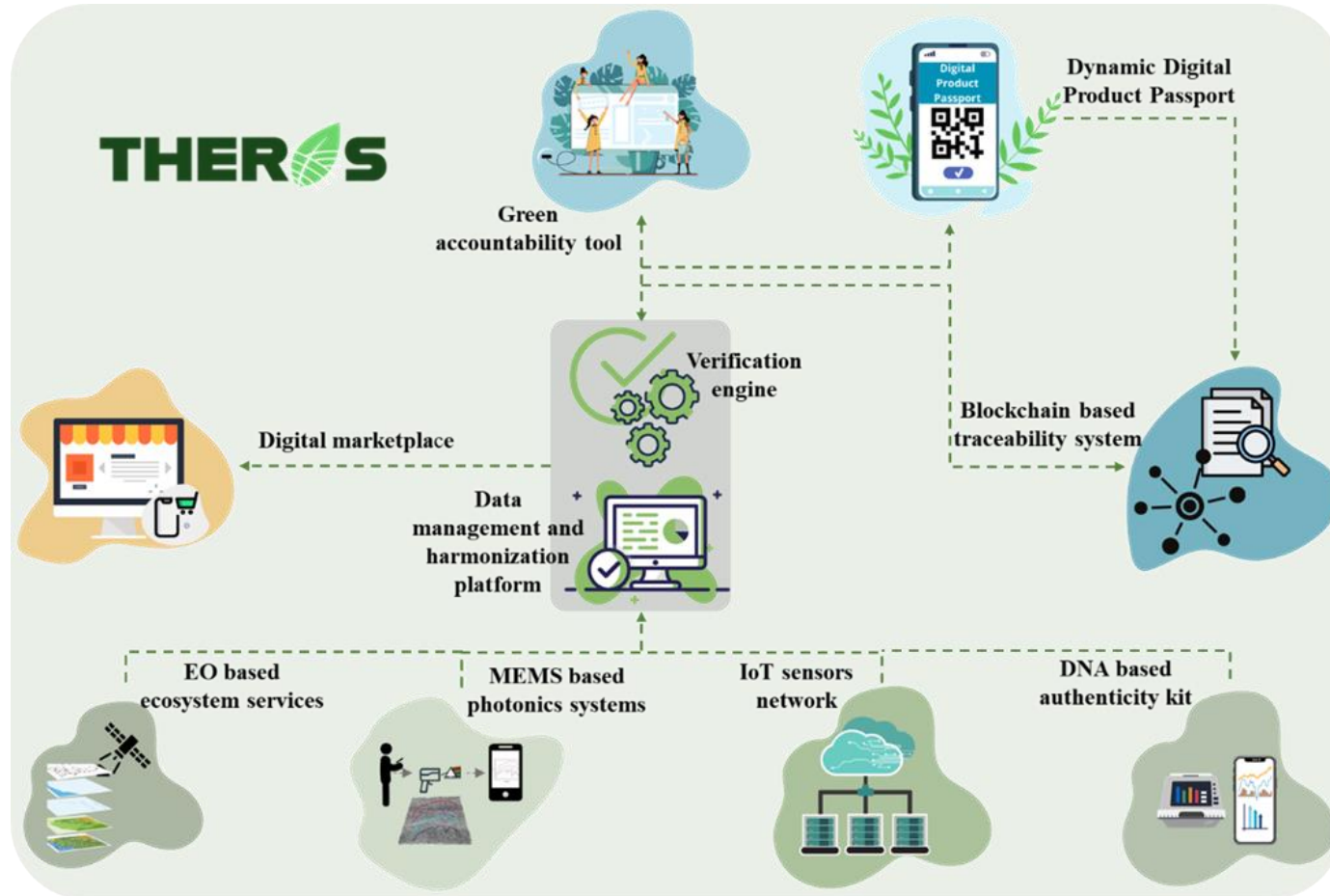
6 Participating Countries

17 Partners

THEROS Vision & Concept

THEROS aims to implement an integrated toolbox being capable to modernize the process of verifying organic and geographical indications food products and preventing adulterations and non-compliances, while demonstrating enhanced traceability, security and transparency in the supply chain, through the use of various technologies and innovations

that leverage *Earth Observation, photonics, internet of things (IoT), DNA metabarcoding, blockchain, digital interfaces and product passport, advance analytics, machine learning, artificial intelligence and business models*.

At the same time, efficient mechanisms will be employed in order to ensure interoperability with existing control systems, as well as improved accessibility and sharing of data through harmonized and standardized means, whilst also demonstrating their uptake by relevant stakeholders for improved decision-making.
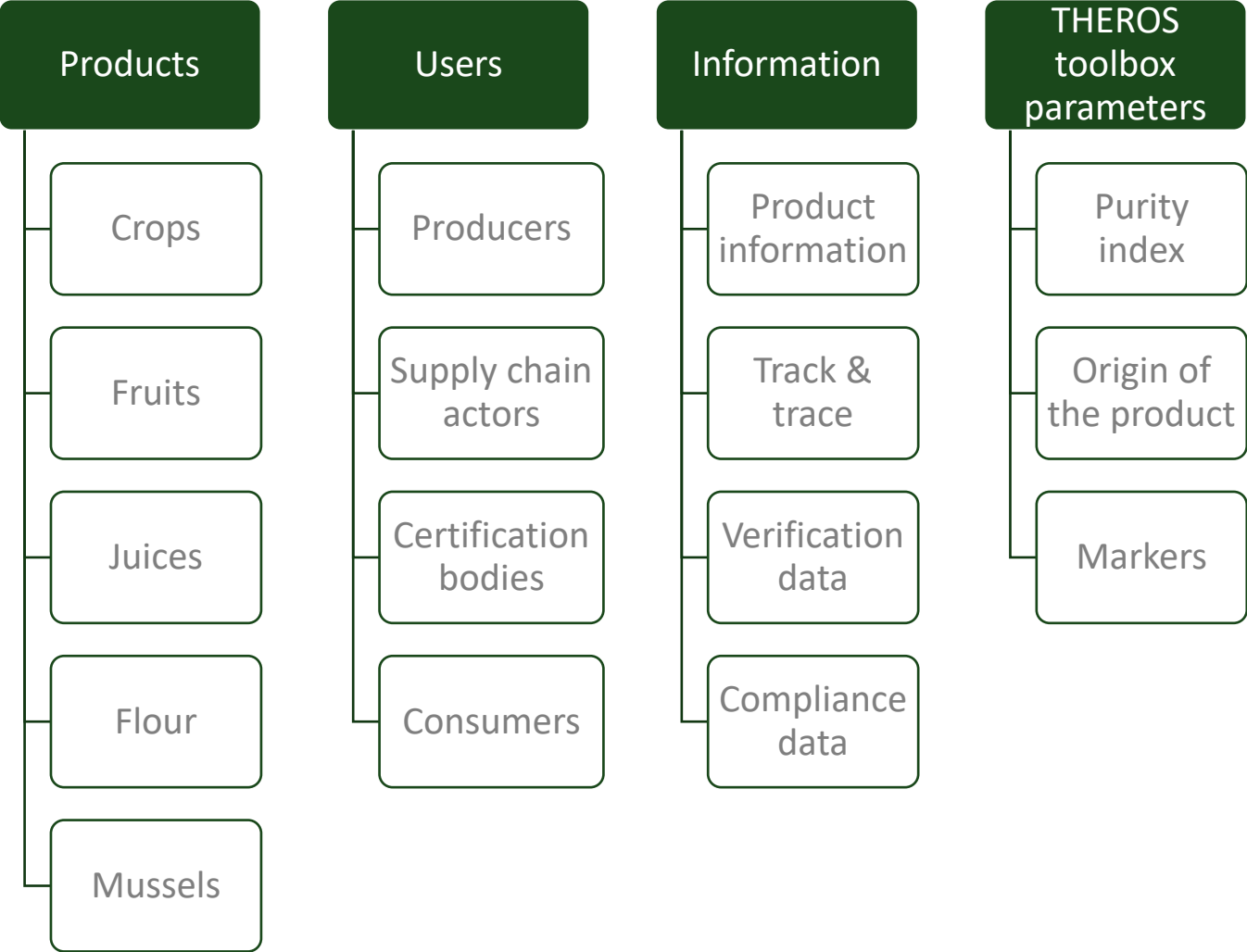
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Why DPP for organic and GI food assets?

➢ Products, which are especially vulnerable to fraud and adulterations

➢ Products being more vulnerable to storage and transportation conditions

➢ To increase transparency and traceability

➢ To facilitate decision making - communication to consumer is especially important

➢ To increase confidence about food safety and environmental impact

THEROS DPP - factsheet

| Products	Users	Information	THEROS toolbox parameters
Crops	Producers	Product information	Purity index
Fruits	Supply chain actors	Track & trace	Origin of the product
Juices	Certification bodies	Verification data	Markers
Flour	Consumers	Compliance data	
Mussels			

THEROS Traceability Platform (1/2)

Traceability Platform - GS1 EPCIS Standard

THEROS Traceability platform uses GS1 EPCIS Standard.

EPCIS events are created in critical tracking points inside the value chain, answering the "what, where, when, and why" questions. For example:

➢ **What**: Oranges were harvested

➢ **Where**: An orange grove in Athens, Greece

➢ **When**: September 8, 2024

➢ **Why**: Oranges were ripe and ready for processing

Greek Pilot - Critical Tracking Events
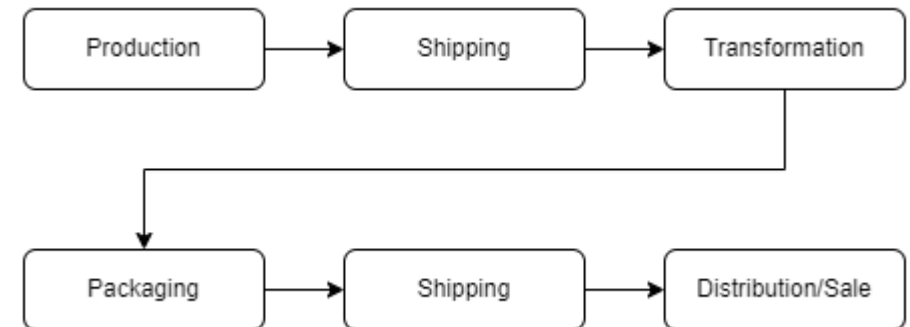
THEROS Traceability Platform (2/2)

Traceability Platform - Blockchain

Traceability platform is built on top of a private blockchain network.

Storing EPCIS events in the blockchain has many advantages, including:

➢ **Enhanced Data Integrity**: Blockchain's immutability ensures events cannot be altered

➢ **Improved Transparency**: All stakeholders can access the same verified data, building trust

➢ **Strengthened Security**: Data is encrypted and decentralized, reducing reliance on a single point of failure and enhancing resilience against unauthorized access

THEROS Digital Product Passport

DPP Service (backend)

The Digital Product Passport (DPP) service collects data from the traceability platform (EPCIS events along the supply chain) to provide a comprehensive, digital profile of a product.
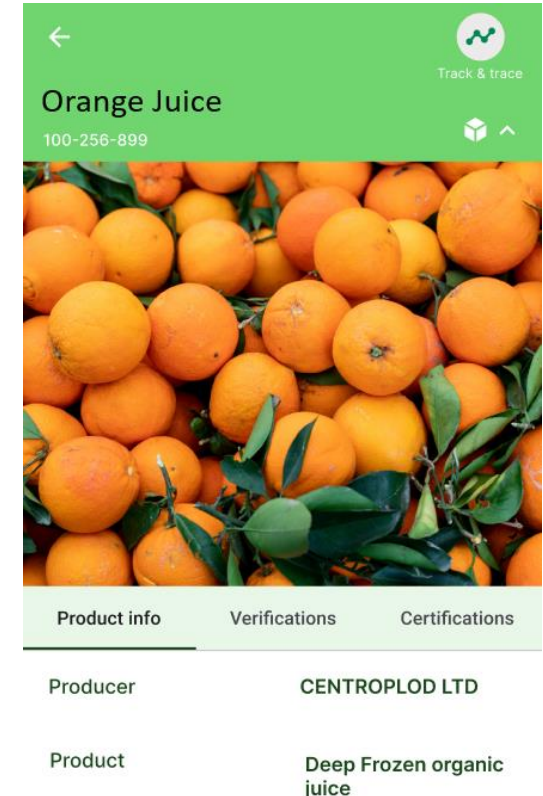
The data is organized into the following categories:

➢ Product Information

➢ Certifications

➢ Verifications

➢ Track & Trace

➢ Circularity & Sustainability – *under development*

DPP Mobile APP (frontend)

The DPP app enables consumers, businesses, and regulators to easily verify product history, certifications, and authenticity.

It promotes sustainability, transparency, and trust in the supply chain.

Encountered Challenges

➢ Evolution of the legislation (food products not yet in scope)
➢ Food sector DPP data selection and availability
➢ Stakeholders capacity building
➢ Heterogenous food sector production processes
➢ Difficulty in extracting product information through traceability events
➢ Data reliability

References

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- European Parliament and the Council of the European Union, Proposal for a regulation of the European Parliament and of the Council establishing a framework for setting ecodesign requirements for sustainable products and repealing Directive 2009/125/EC, (2022)

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- GS1 EPCIS Standard, https://www.gs1.org/standards/epcis