



ALLIANCE

KNOWLEDGE DATABASE

HIGH LEVEL POLICY MATERIALS

PROJECT INFORMATION

The ALLIANCE project, a three-year initiative funded by the European Union's Horizon Europe program, aims to establish a comprehensive framework for ensuring data integrity, veracity, enhanced traceability, and transparency within quality-labelled food supply chains.

This framework is designed to foster evidence-based decision making for proactive interventions and actionable planning, ultimately strengthening the resilience and trustworthiness of the food sector.

ALLIANCE is developing systemic solutions that transcend current industry practices to improve traceability, guarantee authenticity, preserve quality, and eliminate fraud in food products. This involves deploying innovative methods and tools for on the spot adulteration detection and increasing transparency in quality-labelled supply chains—specifically for organic, Protected Designation of Origin (PDO), Protected Geographical Indication (PGI), and Geographical Indication (GI) foods—through advanced track-and-trace mechanisms. The project's ultimate goal is to provide food actors, farmers, public authorities, and policymakers with meaningful insights, demonstrated through seven diverse use cases.

MULTI-STAKEHOLDER COLLABORATION



FOOD SUPPLY CHAINS



**INDUSTRY-SPECIFIC
TECHNOLOGICAL
DEVELOPMENT**



PUBLIC POLICY



**INNOVATION
MANAGEMENT**



ACADEMIA



**PUBLIC
ADMINISTRATIONS**

**HOLISTIC APPROACH TO ADDRESS FOOD FRAUD,
SUPPLY CHAIN INTEGRITY**

APP OVERVIEW

Food fraud—including adulteration, substitution, and misrepresentation—remains a persistent threat to food safety, consumer trust, and market integrity. As supply chains grow more global and complex, vulnerabilities become harder to track and control.

The Digital Knowledge Base for Food Fraud is a prototype of an online platform which was developed within the ALLIANCE project to address this challenge. It brings together fraud cases, scientific methods, regulatory documents, and project-generated tools into one central, user-friendly hub. By offering structured knowledge and actionable insights, the platform empowers regulators, producers, researchers, and quality assurance stakeholders to detect, prevent, and monitor fraud more effectively.

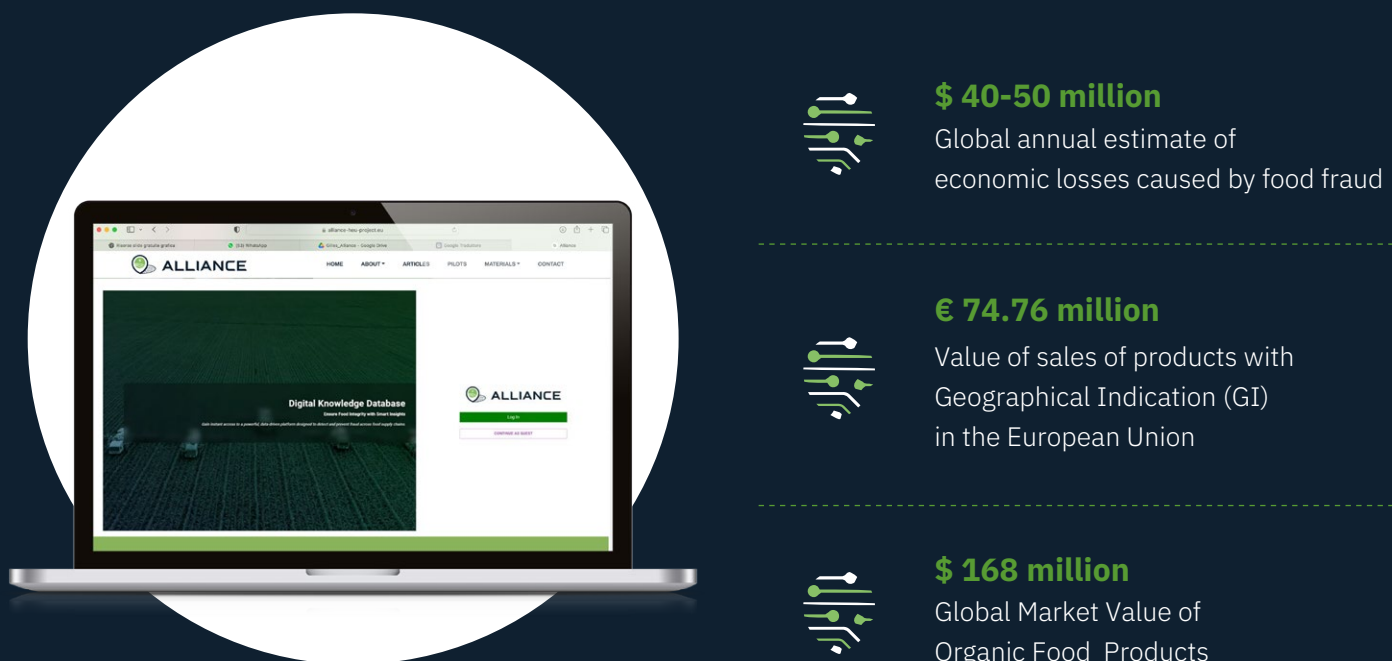


Figure 1: Digital Knowledge Database for Food Fraud

The architecture of the Digital Knowledge Base is grounded in a modular, scalable design consisting of distinct but interconnected layers—data ingestion, processing and analysis, knowledge representation, and visualization—each optimized to manage and leverage complex datasets. External data sources such as certification documents, product specifications, scientific literature, and fraud alerts are combined with structured results produced by the project (e.g., test outcomes, classifications, vulnerability assessments). This layered design ensures robust data handling, meaningful insights, and user-friendly access to critical information.

The Digital Knowledge Base was developed with a user-centric design philosophy, with smart filters and visual elements that support decision-making without overwhelming the user with complexity. The intuitive navigation menu presents a few key options:



DISCOVER FRAUDS

A section listing documented fraud cases. Each fraud entry opens into a dedicated page that provides product details, fraud types, and links to solutions or prevention tools. For example, clicking on “Raspberry origin misrepresentation” shows how the fraud occurs, and which tools are best suited for prevention.



ALLIANCE TOOLS

A library of analytical and digital tools developed during the project. Each tool page describes how the method works, what products it applies to, and how it can support fraud detection.

For instance, an olive oil DNA-blockchain tool entry explains its functionality and application in PDO olive oils. Also, it includes details of the partner in charge of the development of that specific tool.



SEARCH BAR (Core Functionality)

At the heart of the platform, the search bar allows users to type any query. The backend searches through the database and delivers the most relevant answers, connecting fraud cases, tools, references, and regulatory sources. This is where the “knowledge” aspect is applied, providing fast, intelligent, and context-specific insights.



PARTNERS PAGE

A space to learn about all project partners and their contributions, reinforcing transparency and collaboration.

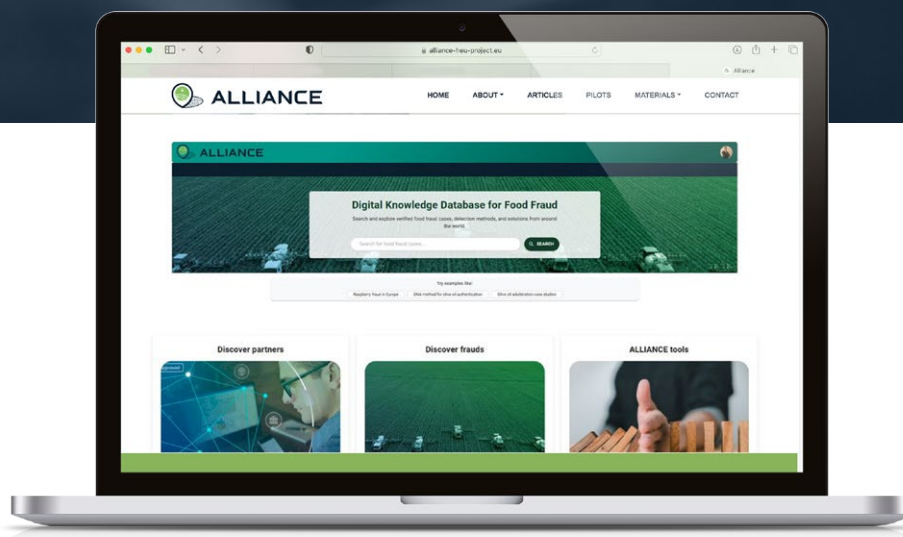


Figure 2: Digital Knowledge Database for Food Fraud

The knowledge database is relevant for various types of users.

A regulator, such as a food safety officer, may use it to retrieve documented cases of fraud related to a specific product-for instance raspberries-by accessing the “discover frauds section, or typing.

Raspberry fraud in Europe” *in the search bar*. The system returns documented cases of origin misrepresentation, detection methods, and related regulatory documents, helping the officer respond quickly with evidence-based measures.

The ALLIANCE knowledge Database is also relevant to other actors in the food supply chains.

An olive oil producer could navigate to Alliance Tools and opens a tool card on DNA fingerprinting combined with blockchain. The entry explains how the tool ensures authenticity and can be applied in olive oil supply chains. Information includes the name of the relevant partner within ALLIANCE, which the producer can contact for further information on how to adopt the tool.

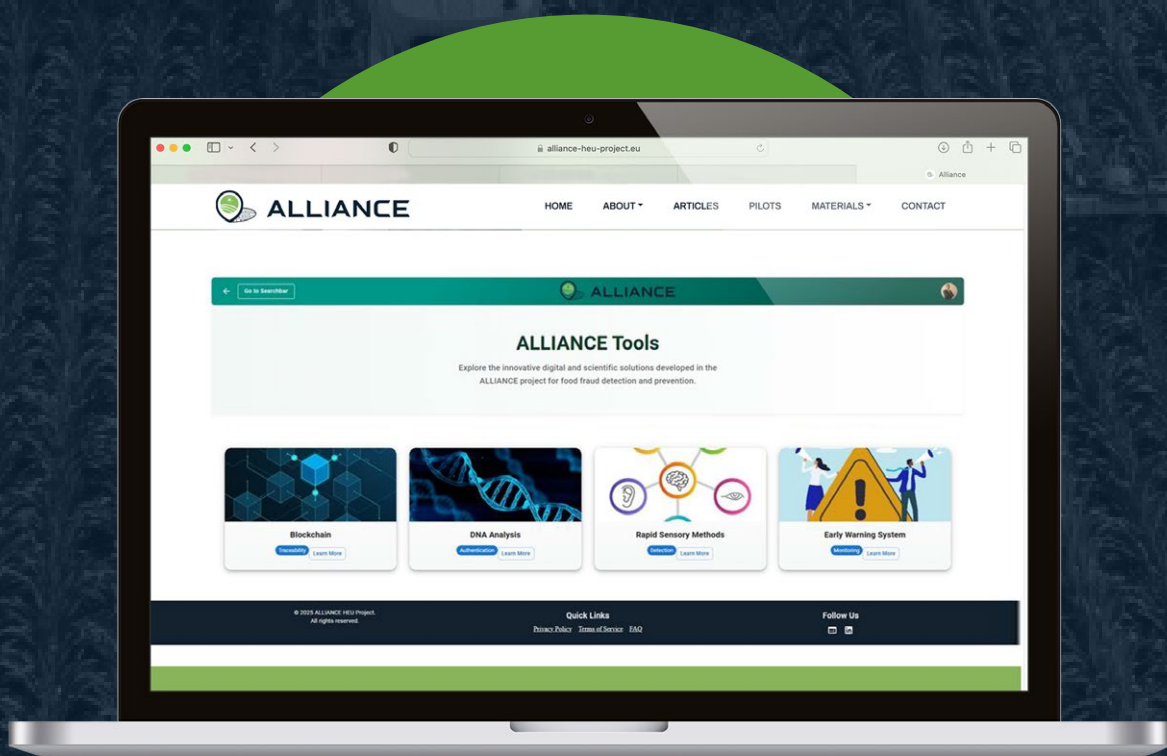


Figure 3: Alliance Tools

The Digital Knowledge Base for Food Fraud turns scattered data into structured, actionable knowledge. By combining search, navigation, and project-developed tools, it provides stakeholders with reliable insights that improve transparency and resilience across food supply chains.

RELEVANCE OF THE APP BEYOND ALLIANCE

The Digital Knowledge Base for Food Fraud has clear potential beyond the ALLIANCE project.

While it was initially developed to support selected value chains (such as raspberries and olive oil), its design is modular and adaptable, making it suitable for broader use across the food sector.

WIDER APPLICATION IN OTHER SUPPLY CHAINS

- The platform can easily integrate fraud data and detection tools from other high-risk products.
- PDO and PGI products across Europe can benefit from structured fraud documentation and linked detection tools, supporting quality protection and consumer trust.
- The core search and categorization engine is flexible enough to manage diverse data sources, making the tool applicable across any supply chain.



EXPANSION OF FEATURES

- Implementation of for e.g. semantic search and AI-driven tagging could allow stakeholders to ask questions in natural language and receive precise answers.
- Network Visualisation could reveal cross-product and cross-region fraud patterns, offering value to researchers and regulators.
- Integration with real-time alerts from government or industry databases would provide dynamic monitoring capabilities



BUSINESS AND SUSTAINABILITY POTENTIAL

Beyond project use, the Knowledge Base can be developed as:

- A subscription-based service for producers and retailers who want continuous fraud monitoring.
- A regulatory tool for food authorities and certification bodies.
- An educational resource for universities, research institutes, and training providers.



The modular design ensures scalability, and governance structures can secure its sustainability long after the project ends. By expanding to other products and regions, the Digital Knowledge Base has the potential to become a cornerstone resource for sharing knowledge and safeguarding food authenticity across Europe and globally.



ALLIANCE

DOWNLOAD ALL HIGH-LEVEL POLICY MATERIALS



<https://alliance-heu-project.eu/high-level-policy-materials>



Netcompany



theLisboncouncil
think tank for the 21 century

MIGROS
TICARET A.Ş.



LA FABRICA
Asturias
PUBLICA



Agricoltori biologici
dal 1978

ΗΡΑΚΛΕΙΟΣ
ΟΙΚΟΝΟΜΙΚΑ ΚΑΙ ΕΓΚΛΗΜΑΤΑ

BIOTECHNICON



GOBIERNO DEL
PRINCIPADO DE ASTURIAS

ΟΡΙ
ΓΙ
ΝΑΛ



Bavarian Health
and Food Safety Authority

ASINCAR



WISEFOUR

The World Bee Project



AGRICOLTORI ITALIANI
UMBRIA

EuroFIR
European Food Information Resource



Co-funded by
the European Union

This project has received funding from the European Union's HE research and innovation programme under grant agreement No 101084188