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HIGH-LEVEL METROLOGY SERVICES IN FOOD AND NUTRITION FOR THE ENHANCEMENT OF FOOD QUALITY AND SAFETY

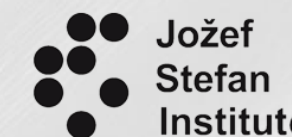
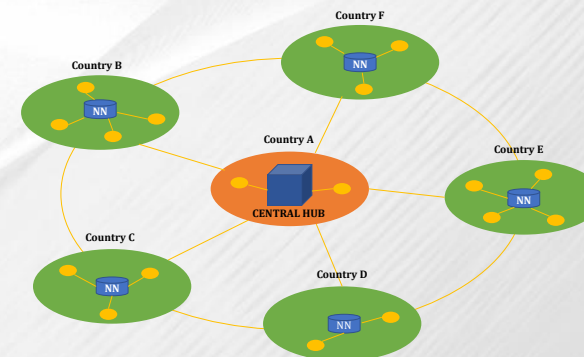
MISSION



HIGH-LEVEL METROLOGY SERVICES IN FOOD AND NUTRITION FOR THE ENHANCEMENT OF FOOD QUALITY AND SAFETY



- **12 Countries**
- **52 Institutes**
- **Hub & Nodes model**
(Central Hub & National Nodes)





Physical-RI



e-RI

Metro

Plants and Labs for RM development

RM Preparation

Stability and homogeneity studies

Analytical Labs.

- Sampling, pretreatment and storage
- Food composition and characterization
- Inorganic contaminants
- Organic contaminants
- Chemical and biological markers and profiles
- Microbiological analysis
- Development of sensors and devices
- Environmental Analysis
- Testing (rheological, leaching, etc.)
- Other

Food

Experimental fields/farms

- Crop production
- Animal breedings
- Fish farms

Facilities for food processing and storage

- Industrial processing
- Packaging
- Supply chain and storage
- Food preparation

Software development

- development of new databases
- Integration of existing databases
- graphical interfaces development
- database maintenance and updating

Data collection

Data analysis

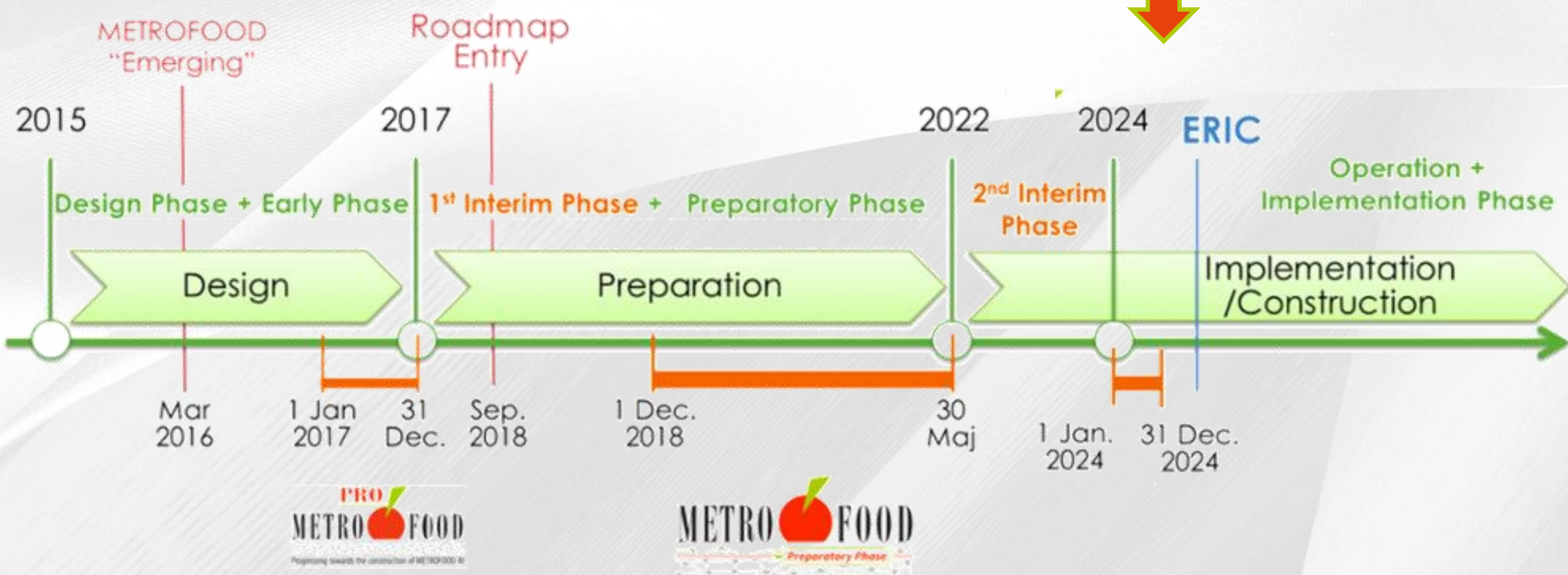
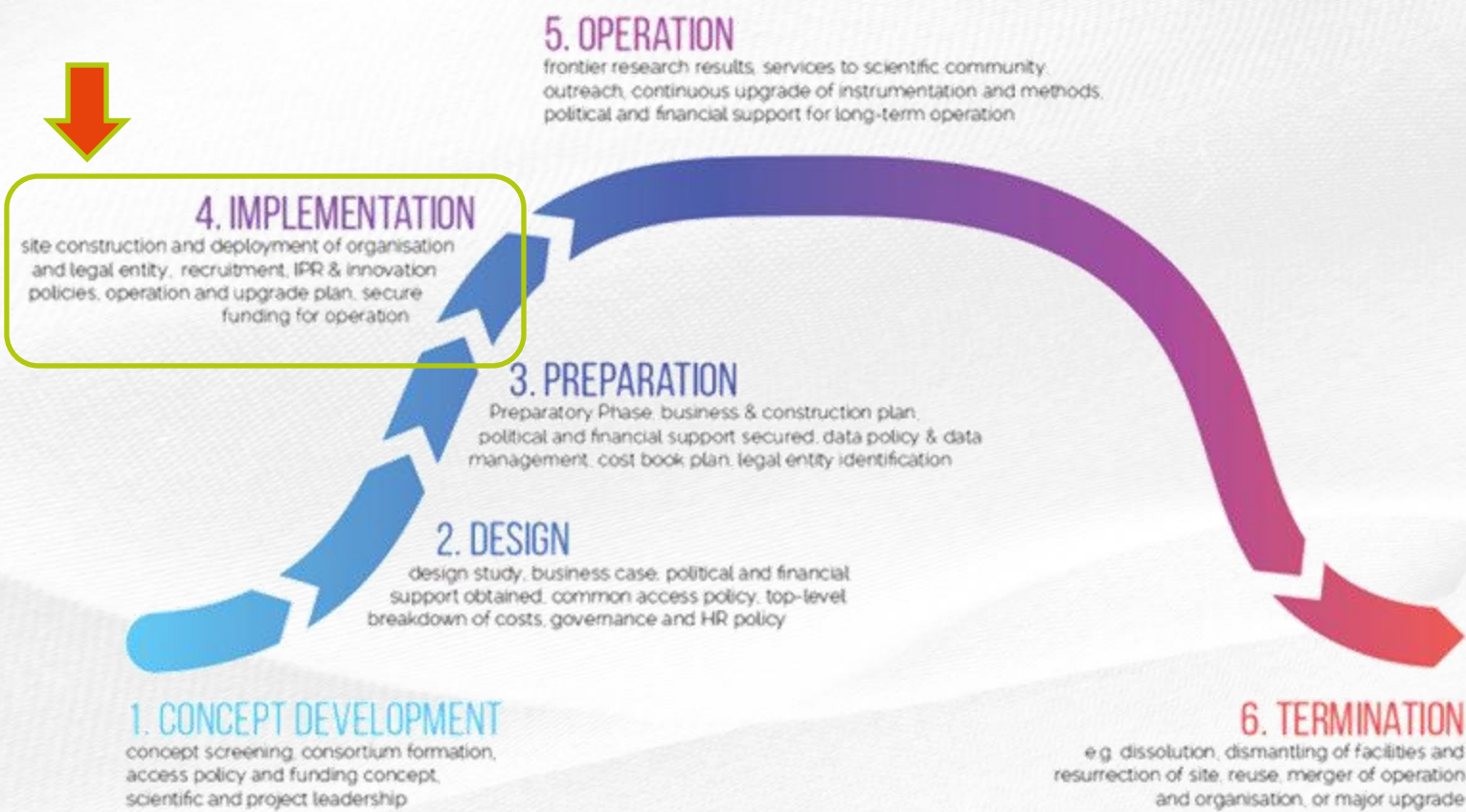
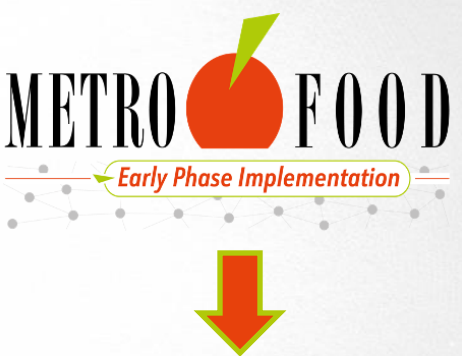
Management of Interlaboratory tests

Diffusion and Training

- Reference Materials
- Official and Reference Methods
- Reference Laboratories
- Vocabularies, Guidelines and procedures
- PTs Providers
- Food composition
- Contaminants in food
- Food markers
- Characteristics of production areas and technologies
- Food consumption



INFRASTRUCTURE'S LIFECYCLE



To advance the building process of METROFOOD-RI as infrastructure consolidated for its full implementation and ensure an effective start of the operational phase



WORK DONE



SERVICE CHART

Research services

Agrifood

- Food & crop production
- Food preparation, processing, packaging, & storage
- Food quality, authenticity & traceability
- Food safety in production and food chain
- Novelty in foods, new materials & technologies

Metrology tools

- Reference Materials
- Proficiency Testing

Health

- Nutritional quality & dietary insights
- Food safety and public health
- Risk assessment
- Health effects & toxicology

Environment & Sustainability

- Agroecosystem management
- Environmental monitoring
- Circular bioeconomy
- Waste management

ICT & Data services

- Existing software & repositories
- Software development
- Data repository development
- Website development
- Data analysis
- Hosting
- Computing
- Virtual research environments

Advisory services

- Regulatory compliance
- Expertise & Support

Education & Training

- Laboratory & technical training
- Webinars
- Seminars
- Conferences
- Workshops
- E-learning & guidelines
- Internships
- Summer/Winter schools
- Study visits

Integrated services



Traceability, authenticity
and transparency in the
food chain



Emerging food risks



Novelty in foods, food
additives & ingredients
and alternative food
systems



Innovative food
processing



Valorization of side
stream for circular
bioeconomy approaches
in agrifood



New generation
packaging solutions

Service pillars



RESEARCH Services



ICT & DATA Services



ADVISORY Services



TRAINING & EDUCATION

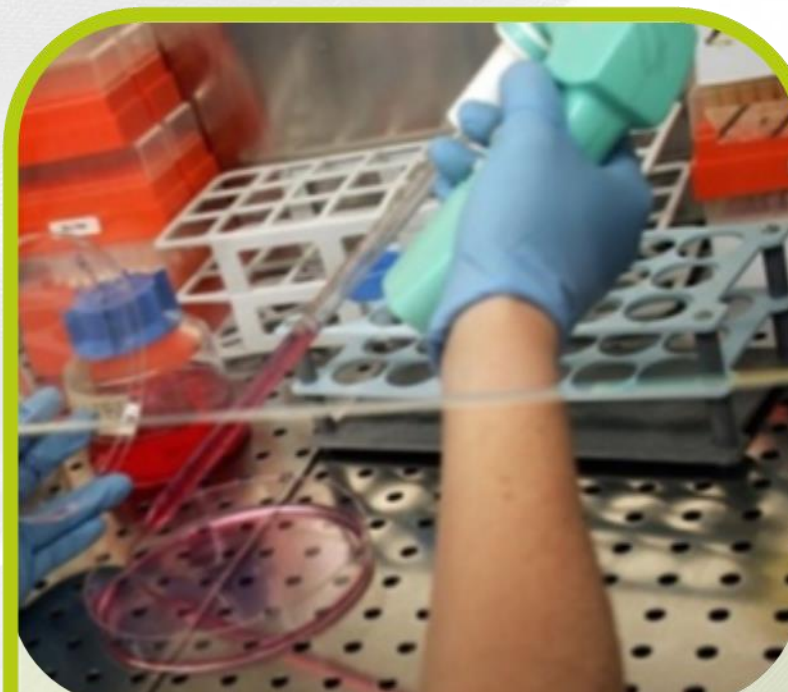
RESEARCH Services



Agri-food



Metrology
tools



Health



Environment &
Sustainability

Integrated services

~ Integrated services combine multiple METROFOOD-RI offerings to address complex research challenges by leveraging diverse expertise, resources, and infrastructure, delivering holistic solutions aligned with strategic goals ~



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Innovative food
processing



Valorization of side
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in agrifood



New generation
packaging solutions

Support to Agrifood System Digitalisation



Physical testing of food

Animal species, origin, nutritional claims, ...



Food sensing technologies

Fast methods for analysis and characterization of food, link to IoT



<https://www.wur.nl/>

Internet of Things (IoT)

Hardware devices linked to the internet to assist in data gathering

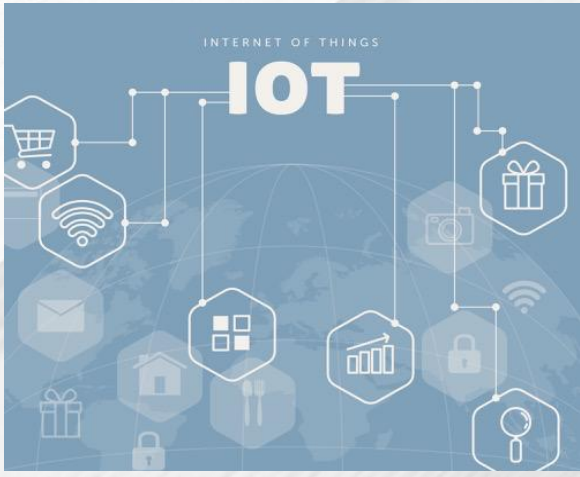
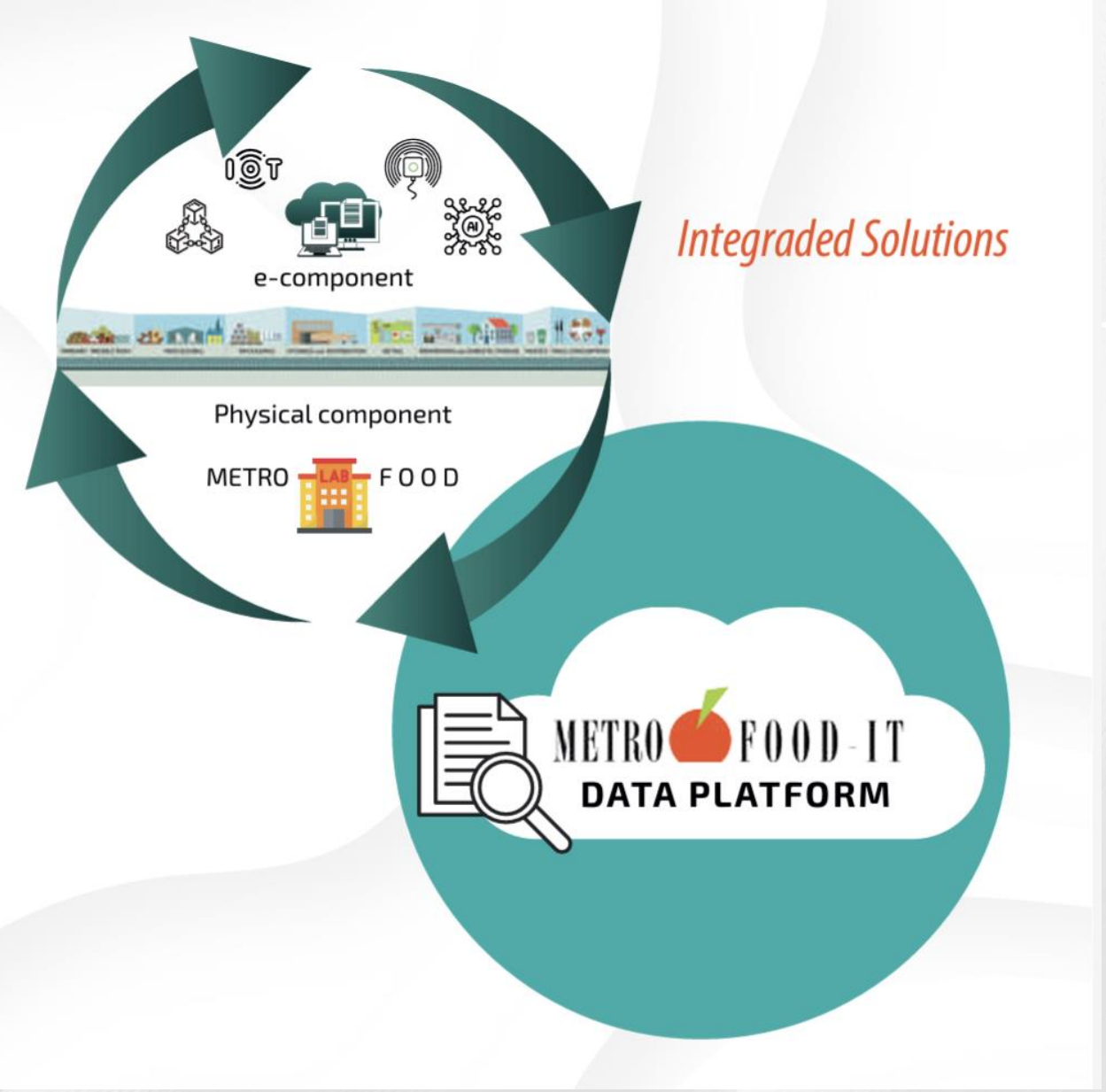
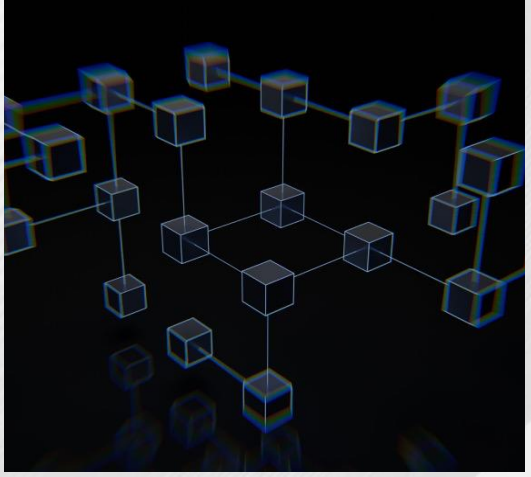


Image by Freepik

Software - Blockchain Technologies & Artificial Intelligence

Blockchain and non-blockchain solutions, and Software as a Service

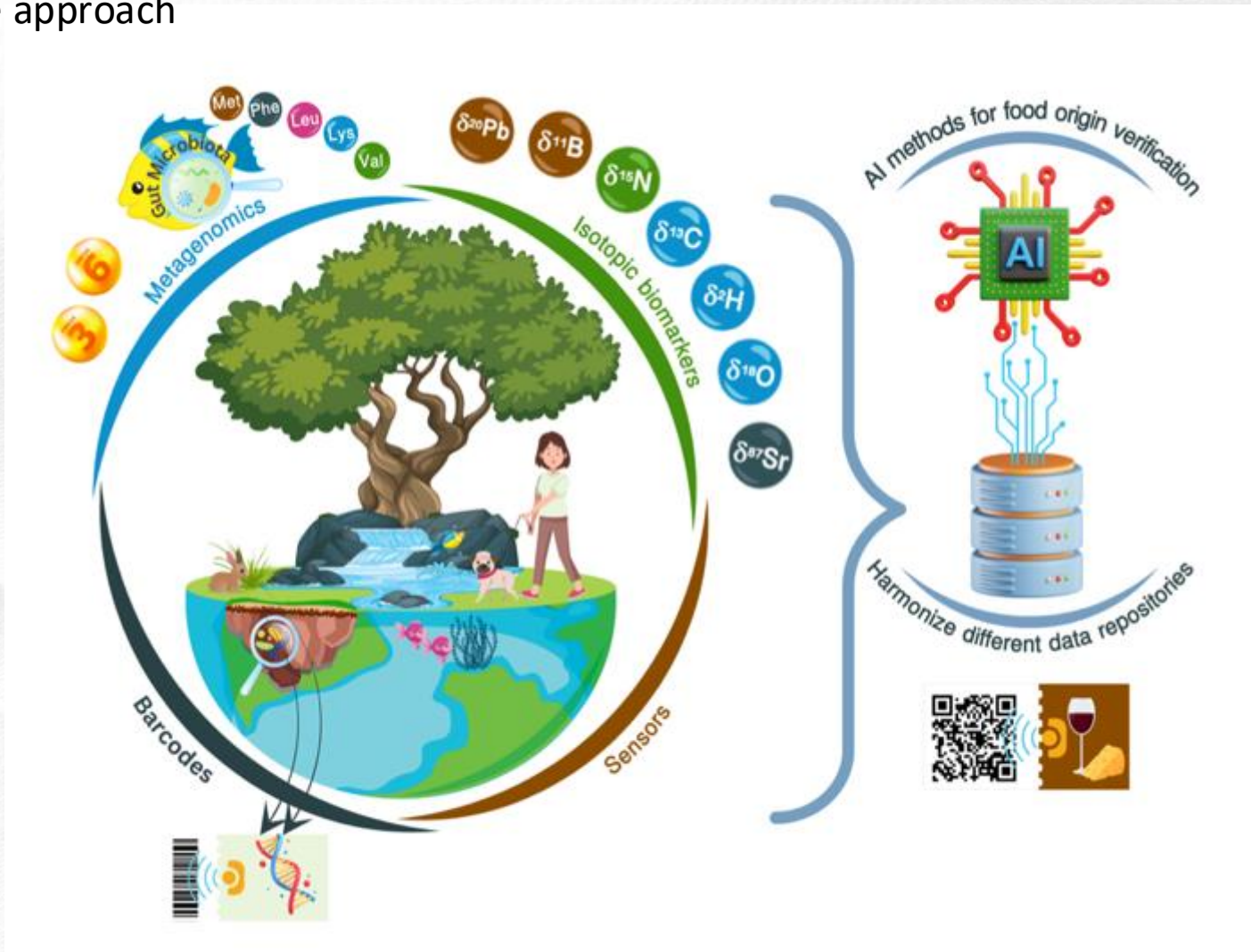


Support to Agrifood System Digitalisation

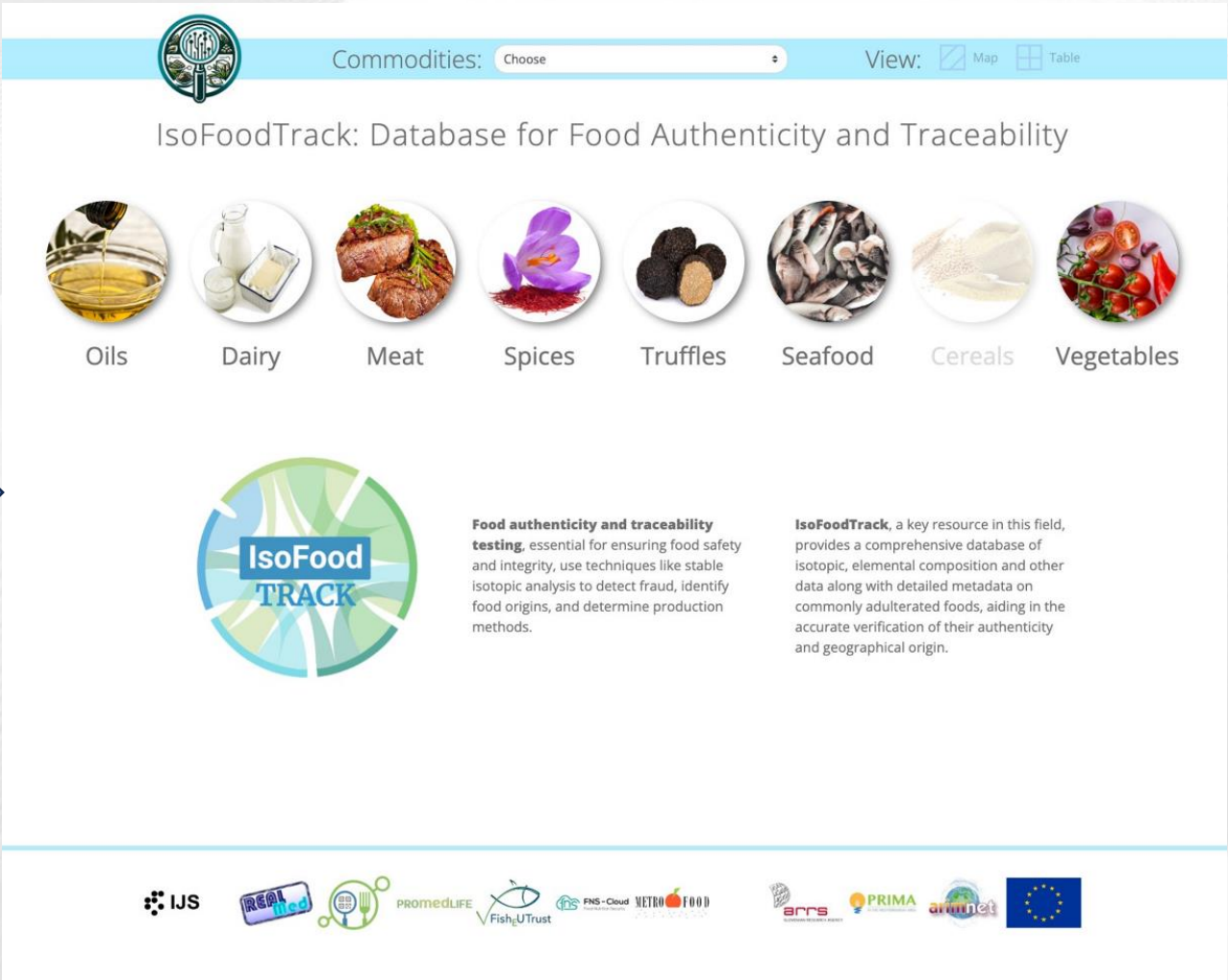
Physical testing

Verify the authenticity and safety of food products:

- Microbiological and DNA testing
- Stable isotope approach



Database: IsoFoodTrack



Food authenticity and traceability

CONTRIBUTION TO THE ERA

- **Open Science:** The METROFOOD-RI e-platform fosters collaborative research and ensures the accessibility of high-quality data, supporting transparency and innovation.
- **Digital and Green Transitions:** METROFOOD-RI's focus on digital tools and sustainable practices contribute directly to eco-friendly food production aligned with the European Green Deal.
- **Research Excellence:** By providing interdisciplinary resources and innovative methodologies, METROFOOD-RI elevates scientific research in Europe, enabling critical challenges to be addressed with rigor and practical solutions.
- **Innovation and Market Applications:** METROFOOD-RI drives advancements in food metrology, traceability, and sustainability, empowering researchers and food businesses to develop innovative methodologies and products. Its Living Labs and collaborative environments foster co-creation, accelerating the adoption of innovations to real-world challenges. By bridging research and market applications, METROFOOD-RI enables SMEs and industries to adopt transformative practices that boost competitiveness and sustainability. As a hub of innovation, METROFOOD-RI strengthens the European Research Area's position as a global leader in agrifood innovation.



Strengthening Food Safety, Sustainability, and Innovation in the Agrifood Sector through METROFOOD-RI and the One Health Approach

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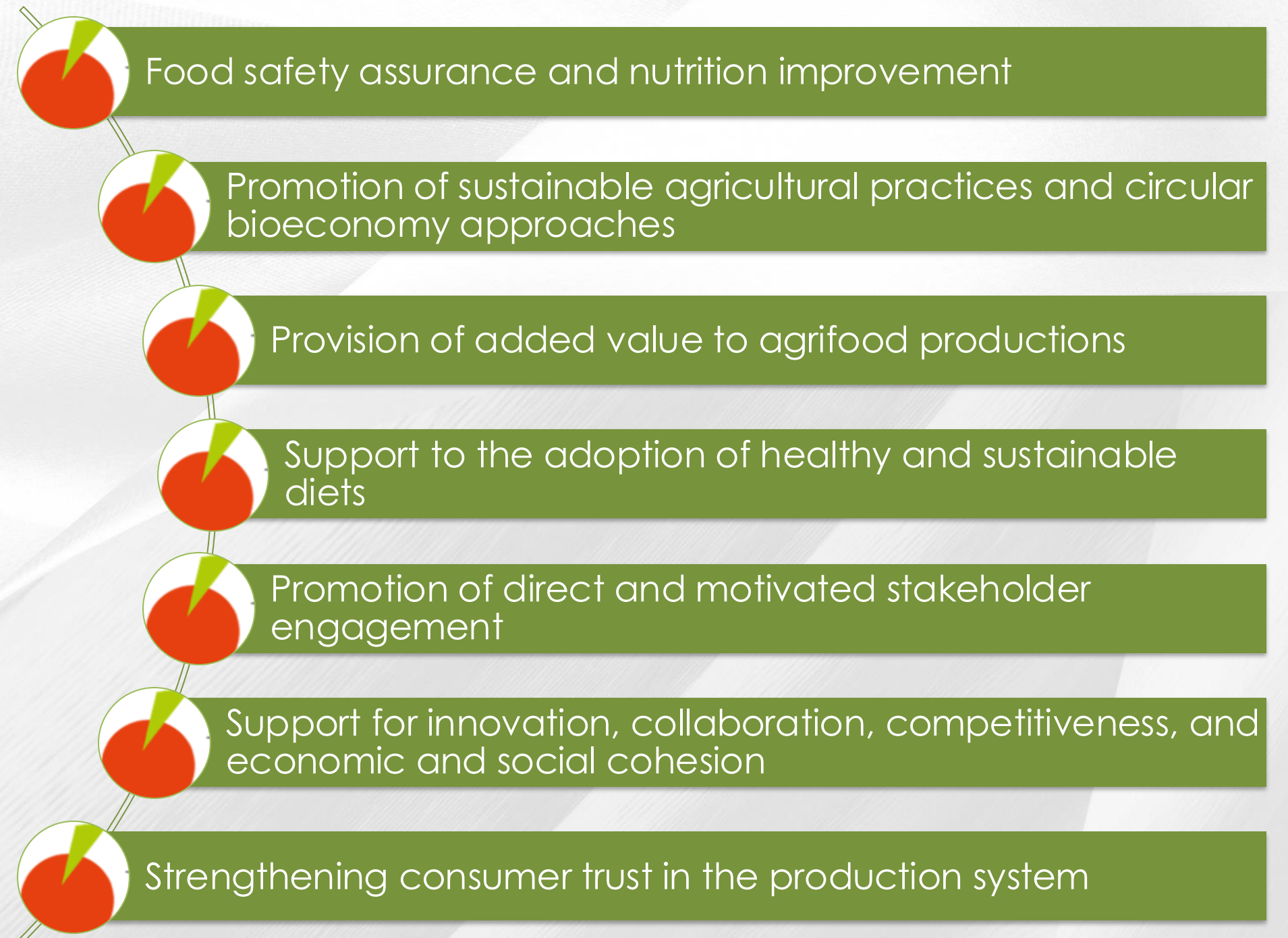
Purpose: This brief underscores METROFOOD-RI's strategic role in enabling evidence-based policies to advance food safety, sustainability, and innovation in the agrifood sector.
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Core Focus: The One Health approach, digitalisation, and agroecological transition are vital to develop resilient and sustainable food systems that align with global sustainability goals.
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Policy Recommendations: Prioritise target investment in Research Infrastructures (RIs), adopt One Health principles across food policy frameworks, and promote digital tools and circular economy models to future-proof the agrifood sector.



Booster of knowledge and skills to support the agrifood

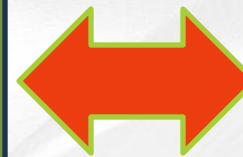


METROFOOD & GRACE

A synergistic approach for safer and more nutritious crops



- Nutritional & safety profiling
- Food contaminant monitoring & Risk assessment
- Traceability & authentication of plant-based foods
- Harmonisation of food safety standards & policies



- Ensuring quality & conservation of genetic resources
- Characterization & pre-breeding services
- Pest & disease management
- Legal & phytosanitary support

Plant-Derived Food Safety

Thank you for your attention!



www.metrofood.eu

