ENEA REL PROM MetroFood 10/2019

Partnership and Endorsements

- IT
- BE
- CH
- CZ
- DE
- ES
- FI
- FR
- GR
- HU
- MD
- MK
- NL
- NO
- PT
- RO
- SI
- TR

Endorsements from International Organisations

JRC EUROPEAN COMMISSION – European Commission, JRC, Directorate F- Health, Consumers and Reference Materials
IMEKO
EURAMET
efsa – European Food Safety Authority
Eurachem – A Focus for Analytical Chemistry in Europe
ICAR
EMPHASIS
FNH-RI
EuroFIR – European Food Information Resource
MoniQA Association
the safe consortium
Oleum
NMKL
SPES GEIE

Global level

Brazil	INMETRO	
Argentina	LATINFOODS	CONICET
South Africa	nmisa	
Australia	The University Of Queensland AUSTRALIA	UNSW SYDNEY
China	NIM	

Cooperating with: www.foodauthenticity.uk FoodAuthenticity – A Virtual Network for Food Authenticity Analysis

METROFOOD-RI Coordination Office

Claudia Zoani *(Coordinator)* - claudia.zoani@metrofood.eu
info@metrofood.eu - Phone: +39 06 3048 6202

ENEA – Casaccia Research Centre - Via Anguillarese 301 - 00123 Rome (Italy)

www.esfri.eu www.metrofood.eu

Update: April 2019

METRO FOOD

ESFRI – European Strategy Forum on Research Infrastructures

METRO FOOD

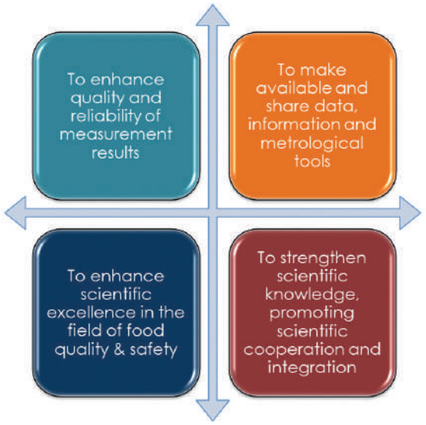
INFRASTRUCTURE FOR PROMOTING METROLOGY IN FOOD AND NUTRITION

European Commission

ESFRI Roadmap 2018 • Domain "Health and Food"

High-level metrology services in food and nutrition for the enhancement of food quality and safety

METROFOOD-RI is a distributed Research Infrastructure of Global Interest aimed to promote scientific excellence in the field of food quality and safety, by means of which it is possible to carry out different activities supporting data collection and measurement reliability, as well as basic and frontier research in food and nutrition. It provides high-quality metrology services in food and nutrition, comprising an important cross-section of highly interdisciplinary and interconnected fields throughout the food value chain.

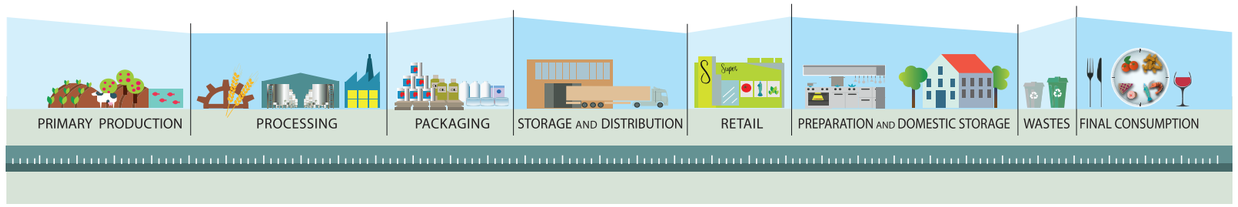


METROFOOD-RI is aimed to strengthen scientific knowledge, promoting scientific cooperation and encouraging the interaction between the various stakeholders, as well as the creation of a common and shared base of data, information and knowledge.

METROFOOD-RI is characterized by a broad multidisciplinary approach with different application fields: agrifood; sustainable development; food quality, safety, traceability and authenticity; environmental safety; consumer sciences; human health.

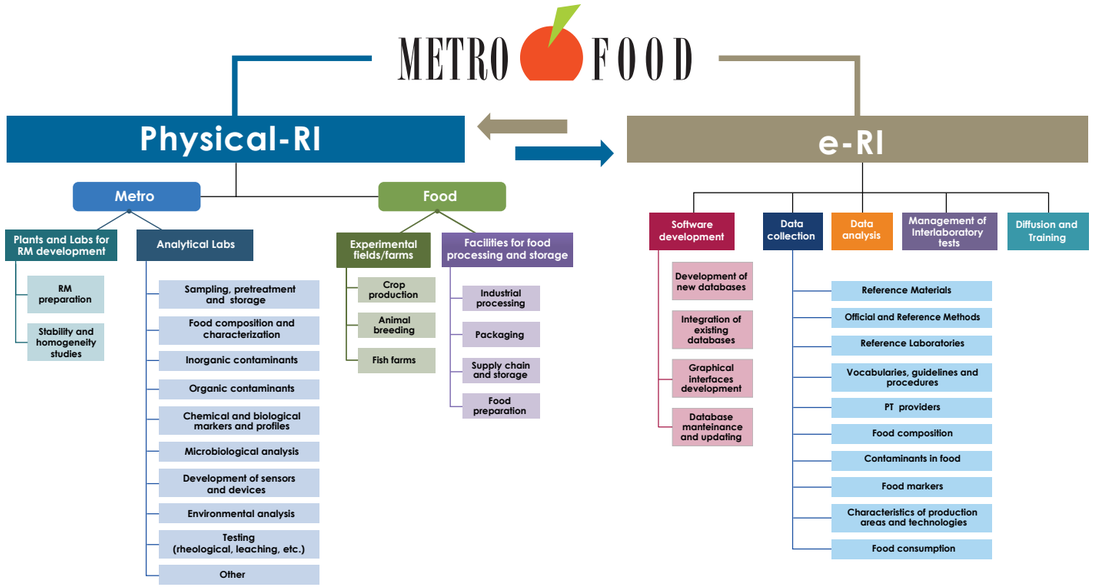
The general objective is to enhance scientific excellence and scientific cooperation in the field of food quality & safety by promoting metrology in food and nutrition, allowing coordination on a European and increasingly on a Global scale.

Research activities cover the whole food chain and related services, from agrifood primary production up to final consumption, in order to support sustainability of food production and consumption, improve food quality and safety, achieve food traceability and authenticity demonstration, and optimise all the steps *from farm to fork* with a holistic approach.



METRO FOOD

Physical - RI & electronic-RI

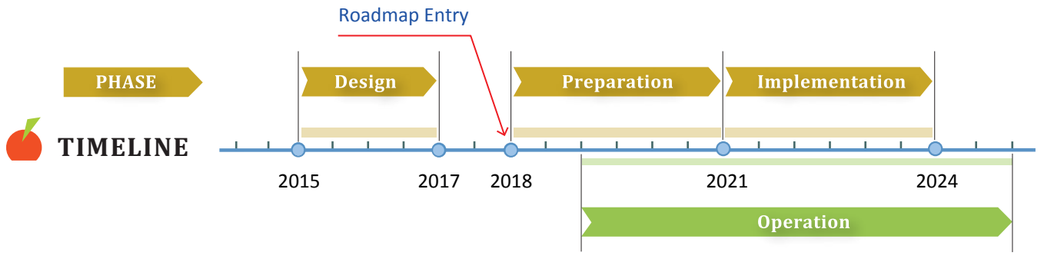


METROFOOD-RI includes numerous facilities distributed in 18 European Countries that can provide scientific services in an integrated and collaborative way on the territory. It consists of a physical infrastructure (P-RI) and an electronic infrastructure (e-RI) to coordinate and integrate existing networks of plants and laboratories.

The ***Physical-RI*** enables to carry out different research activities supporting data collection and measurement reliability, quality & safety and traceability of food production, as well as basic and frontier research in food and nutrition. It is composed on the one side **(METRO)** by analytical labs for the development and validation of new methods and devices and plants for the development, production, characterisation and certification of new Reference Materials and, on the other side **(FOOD)**, by experimental fields/farms for crop production/animal breeding, small-scale plants for food processing and storage, kitchen-labs for food preparation, to study food quality, safety, authenticity and characterise/valorise products and processes all along the food chain, up to final consumption.

The ***electronic-RI*** provides a new access platform to share and integrate knowledge and data on metrological tools for food analysis. It will deal with integration of existing database on food, focusing on emerging needs and collection of data on food composition, nutritional contents, markers and levels of contaminants in foods produced in different geographic regions and/or by applying different technologies.

METROFOOD-RI was cited as emerging project in the ESFRI Roadmap 2016 (domain Health and Food) and on 2017 completed its Early Phase upon the EU-funded project PRO-METROFOOD "Progressing towards the construction of METROFOOD-RI" (H2020 INFRADEV-02-2016, GA n. 739568). It has been included as new Project in the ESFRI Roadmap 2018.



METRO FOOD

Users and Services

Excellence-driven access

Market-driven access

Wide access

METROFOOD-RI scientific offer is addressed to a broad set of users and stakeholders, such as: public and private labs and research groups; policy makers, food inspection and control agencies; Food Business Operators and producer associations; consumers/consumer associations and citizens.

A sustained, high-quality advanced training for academic and professionals, at different education levels and with training programmes developed in agreement with the counterparts (e.g. universities) will be provided, together with dissemination actions for promoting educational activities addressed to a wide public (consumers/citizens).

Metrological and Standardisation Services

RM development: Matrix-RMs and primary-RMs preparation on a large scale or customized on a specific customer request.

Development of methods and devices: development of methods for food characterization, traceability and authenticity; validation and comparison of methods and performance evaluation; set-up of new and/or integrated measurement devices; development of smart sensors for in situ/on line monitoring; application of nanotechnology for sensors development.

Harmonization and standardization: provision of Proficiency Testing schemes; Interlaboratory and Round Robin testing; standardization and harmonization of methods and procedures.

Environmental, Food and Food Packaging Analysis

Agro-ecosystem characterization: characterization of environmental matrixes (waters, soils, sediments, air); bioaindicators; bioavailability studies; characterization of aquatic ecosystems; soil microbiota characterization; air pollutant characterization; plant pathogen diagnosis; organic matter in recycled biomasses.

Food analysis: analysis of contaminants, microbiological analyses, nutritional properties, technological parameters, authenticity/fraud detection.

Food packaging testing and characterization: characterization of bulk materials, films and protective coatings, additives, adjuvants, inks, adhesives; nanomaterial testing & nanoparticle analysis; chemical and microbiological analysis of food contact materials; active and smart packaging testing.

Improving Food Production and Consumption

Food production: plant growth in controlled conditions; smart field/farms/fisheries experimental sites; pilot plants for food production optimization; study of the relationships between agroecosystem management and food composition; development of modelling platforms for testing food production (climatic scenarios & management practices); testing and development of mild technologies in food production.

Food packaging, storage and distribution: facilities for development of bio-based food packaging and smart packaging; evaluation of performances, compliance assessment and optimization of food packaging; development of new sensors for monitoring storage and distribution; development of packaging integrated labels; development and implementation of new and integrated traceability and monitoring systems.

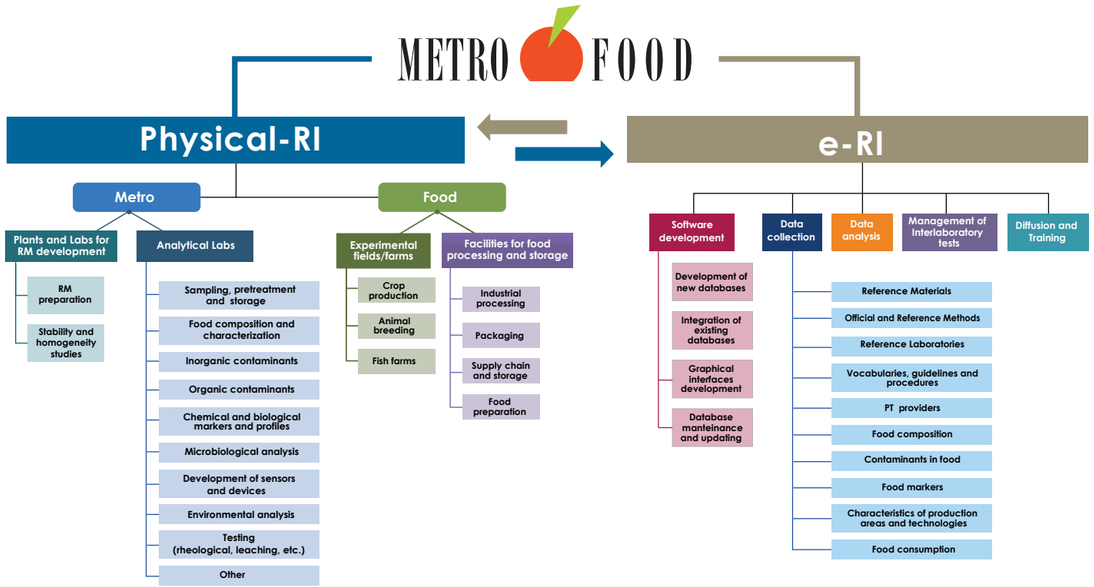
Food preparation and use: development of best practices to preserve food quality and safety; improvement of durability and reducing waste in retail and post-retail.

e-services

Tools for measurement standardisation and harmonisation; access to food data (composition, contaminants, markers, profiling), data related to food production & processing, data on environmental and health impact; tools for food production and processing (modelling, best practices); tools for food traceability and authenticity; data-link (origin, process technologies, food composition and property values; food consumption, nutrition, risk and benefit analysis); e-platform for data collection, sharing, interoperability, analysis and display; e-learning.

METRO FOOD

Physical - RI & electronic-RI

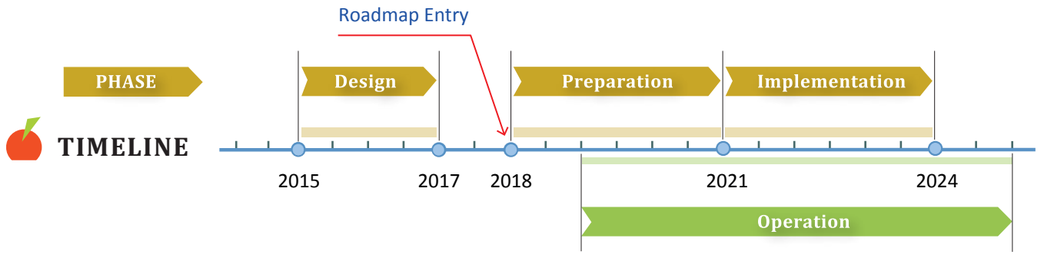


METROFOOD-RI includes numerous facilities distributed in 18 European Countries that can provide scientific services in an integrated and collaborative way on the territory. It consists of a physical infrastructure (P-RI) and an electronic infrastructure (e-RI) to coordinate and integrate existing networks of plants and laboratories.

The ***Physical-RI*** enables to carry out different research activities supporting data collection and measurement reliability, quality & safety and traceability of food production, as well as basic and frontier research in food and nutrition. It is composed on the one side **(METRO)** by analytical labs for the development and validation of new methods and devices and plants for the development, production, characterisation and certification of new Reference Materials and, on the other side **(FOOD)**, by experimental fields/farms for crop production/animal breeding, small-scale plants for food processing and storage, kitchen-labs for food preparation, to study food quality, safety, authenticity and characterise/valorise products and processes all along the food chain, up to final consumption.

The ***electronic-RI*** provides a new access platform to share and integrate knowledge and data on metrological tools for food analysis. It will deal with integration of existing database on food, focusing on emerging needs and collection of data on food composition, nutritional contents, markers and levels of contaminants in foods produced in different geographic regions and/or by applying different technologies.

METROFOOD-RI was cited as emerging project in the ESFRI Roadmap 2016 (domain Health and Food) and on 2017 completed its Early Phase upon the EU-funded project PRO-METROFOOD "Progressing towards the construction of METROFOOD-RI" (H2020 INFRADEV-02-2016, GA n. 739568). It has been included as new Project in the ESFRI Roadmap 2018.



METRO FOOD

Users and Services

Excellence-driven access

Market-driven access

Wide access

METROFOOD-RI scientific offer is addressed to a broad set of users and stakeholders, such as: public and private labs and research groups; policy makers, food inspection and control agencies; Food Business Operators and producer associations; consumers/consumer associations and citizens.

A sustained, high-quality advanced training for academic and professionals, at different education levels and with training programmes developed in agreement with the counterparts (e.g. universities) will be provided, together with dissemination actions for promoting educational activities addressed to a wide public (consumers/citizens).

Metrological and Standardisation Services

RM development: Matrix-RMs and primary-RMs preparation on a large scale or customized on a specific customer request.

Development of methods and devices: development of methods for food characterization, traceability and authenticity; validation and comparison of methods and performance evaluation; set-up of new and/or integrated measurement devices; development of smart sensors for in situ/on line monitoring; application of nanotechnology for sensors development.

Harmonization and standardization: provision of Proficiency Testing schemes; Interlaboratory and Round Robin testing; standardization and harmonization of methods and procedures.

Environmental, Food and Food Packaging Analysis

Agro-ecosystem characterization: characterization of environmental matrixes (waters, soils, sediments, air); bioaindicators; bioavailability studies; characterization of aquatic ecosystems; soil microbiota characterization; air pollutant characterization; plant pathogen diagnosis; organic matter in recycled biomasses.

Food analysis: analysis of contaminants, microbiological analyses, nutritional properties, technological parameters, authenticity/fraud detection.

Food packaging testing and characterization: characterization of bulk materials, films and protective coatings, additives, adjuvants, inks, adhesives; nanomaterial testing & nanoparticle analysis; chemical and microbiological analysis of food contact materials; active and smart packaging testing.

Improving Food Production and Consumption

Food production: plant growth in controlled conditions; smart field/farms/fisheries experimental sites; pilot plants for food production optimization; study of the relationships between agroecosystem management and food composition; development of modelling platforms for testing food production (climatic scenarios & management practices); testing and development of mild technologies in food production.

Food packaging, storage and distribution: facilities for development of bio-based food packaging and smart packaging; evaluation of performances, compliance assessment and optimization of food packaging; development of new sensors for monitoring storage and distribution; development of packaging integrated labels; development and implementation of new and integrated traceability and monitoring systems.

Food preparation and use: development of best practices to preserve food quality and safety; improvement of durability and reducing waste in retail and post-retail.

e-services

Tools for measurement standardisation and harmonisation; access to food data (composition, contaminants, markers, profiling), data related to food production & processing, data on environmental and health impact; tools for food traceability and authenticity; data-link (origin, process technologies, food composition and property values; food consumption, nutrition, risk and benefit analysis); e-platform for data collection, sharing, interoperability, analysis and display; e-learning.

METRO FOOD