From Measurement to Impact: Research Infrastructures for Sustainable and Resilient Food Systems

Zoani Claudia[1]

[1] *Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA) - Department for Sustainability - Sustainable AgriFood Systems Division (SSPT-AGROS); C.R. Casaccia, Via Anguillarese 301, 00123 Roma (Italy) – METROFOOD-RI*

Research on food systems increasingly requires the integration of different disciplines, analytical approaches and data to address interconnected challenges related to food safety, quality, authenticity, sustainability, resilience and health. This calls not only for advanced analytical capabilities, but also for reliable and comparable measurements, interoperable and reusable data, and the capacity to connect knowledge generated across facilities, sectors and geographical boundaries.

Research infrastructures can play a key role in this context by bringing together state-of-the-art analytical facilities, harmonised methods, data resources and multidisciplinary expertise. Their role increasingly goes beyond the provision of individual facilities and services, towards integrated physical and digital environments in which measurements and data can be transformed into reliable and reusable knowledge, supporting research, innovation and evidence-based decision making.

Drawing on the experience of METROFOOD-RI, the European research infrastructure for metrology in food and nutrition, this contribution will discuss how the integration of physical and electronic facilities and the implementation of FAIR data principles can connect scientific capabilities with the needs of industry and other actors across local and regional ecosystems. It will also explore how user-oriented access and cooperation among research infrastructures can bring together complementary expertise, technologies and data, strengthening the capacity to address complex challenges and contribute to more sustainable and resilient food systems within a One Health perspective.

Short bio:

Claudia Zoani is a researcher at ENEA, the Italian National Agency for New Technologies, Energy and Sustainable Economic Development. She holds a PhD in Analytical Chemistry and her research focuses on food quality, safety and

traceability, metrology, reference materials and methods, and the sustainability of agrifood systems. She is the Coordinator of METROFOOD-RI, the European research infrastructure for metrology in food and nutrition included in the ESFRI Roadmap, and coordinates and contributes to several European and national research and innovation initiatives on sustainable food systems, research infrastructures and open data.