



Towards a European Food, Nutrition and Health Research Infrastructure

Science case

BACKGROUND

The present European food system is failing to meet the requirements of personal, public and planetary health. Food consumption needs to shift towards more plant-based foods to reduce non-communicable diseases, including obesity, and micronutrient deficiencies. Food production needs to keep environmental footprints within planetary capacity. To guide EU-citizens and societal stakeholders towards healthy and sustainable diets for the 21st century, a radical food systems transformation is needed, based on scientific breakthroughs and technological innovations.

CHALLENGE

Currently, scientific expertise on diets and the food system is fragmented. This impedes the over 1,000 research institutions in the European Food, Nutrition and Health domain (FNH) from supporting the necessary dietary changes and redesign of the food system. The research community needs a Research Infrastructure (FNH-RI) to help generate interdisciplinary evidence and expertise to substantiate the citizen-centred food systems transition. Positioned at the cutting-edge of fundamental and applied research in the social and life sciences, FNH-RI will reunite the disciplines by enabling data and facility sharing, training and education of future scientists, and reaching out to citizens, public and private stakeholders.

IMPACT

Through FNH-RI, *the scientific community will benefit by easy access to EU-wide data* across three core scientific domains: nutrition (health sciences), environmental sustainability (food sciences) and consumer behaviour (social sciences). This includes consumer preferences and behaviours, access to affordable, healthy and sustainable diets, and design of urban food environments. FNH-RI will stimulate national investments in FNH fields and facilitate EU-wide food science by integrating interdisciplinary data, knowledge and expertise in the social and life sciences, contributing to the transition towards healthy and sustainable diets for EU citizens. Governments and food industries will benefit from dedicated data-services and top-level scientific research that supports co-creation and monitoring of evidence-based agri-food and health policies. For EU-citizens, this will secure the supply of healthy and affordable foods, compatible with a sustainable food system. Moreover, they will benefit from innovative personalized nutrition feedback, tailored to their personal life and food environment.

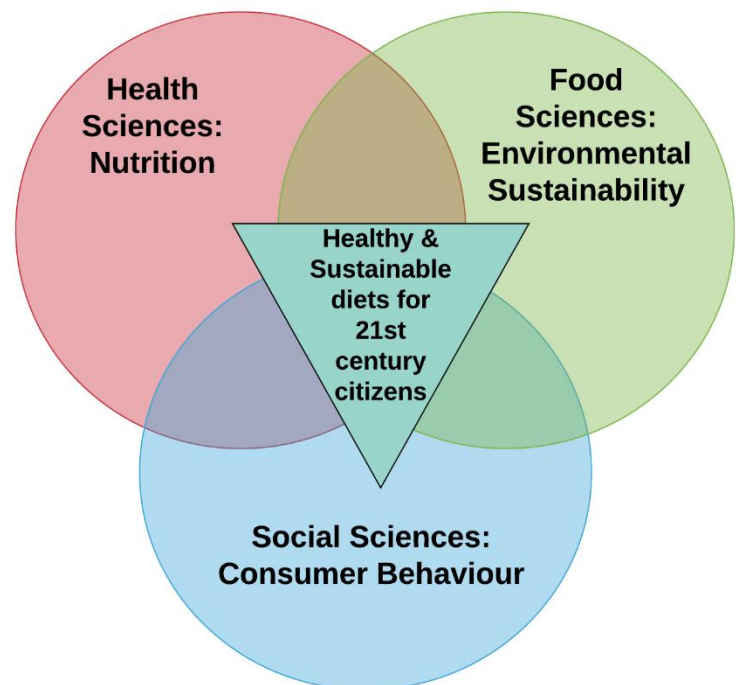


Figure 1. The three scientific domains of the FNH-RI, each contributing to the central goal of providing healthy and sustainable diets for 21st century citizens.



SERVICES

FNH-RI will be a European knowledge-hub, providing three key services to the scientific community: DATA, FACT (FACilities & Tools) and TED-services (Training, Education & Dissemination). **DATA-services** will include a platform for sharing existing (meta)data from disciplinary research, facilitating meta- and pooled analyses, modelling of scenarios, and monitoring of dietary behaviours. This culminates in evidence-based transition pathways towards the future food system. **FACT-services** cross-fertilize the life and social sciences beyond existing data. Core feature will be the new pan-European panel of more than 20,000 EU citizens who supply continuously real-life data on determinants, food choice, and intake via apps, sensors, and wearables. This allows exploitation of big data by emerging data science technologies (e.g. AI). Moreover, FACT-services will facilitate access to psychology and virtual labs for experimental research on e.g. cognition and emotion, food choice and dietary patterns. This also includes bio-physiological labs, e.g. sensory sciences and neurophysiology, nutritional requirements, and X-omics. Finally, **TED-services** will inspire the research community to advance methodology and knowledge by providing training in emerging research fields. This will create transdisciplinary expertise through exchanges between young and established researchers, and facilitate widespread use of its services to societal stakeholders.

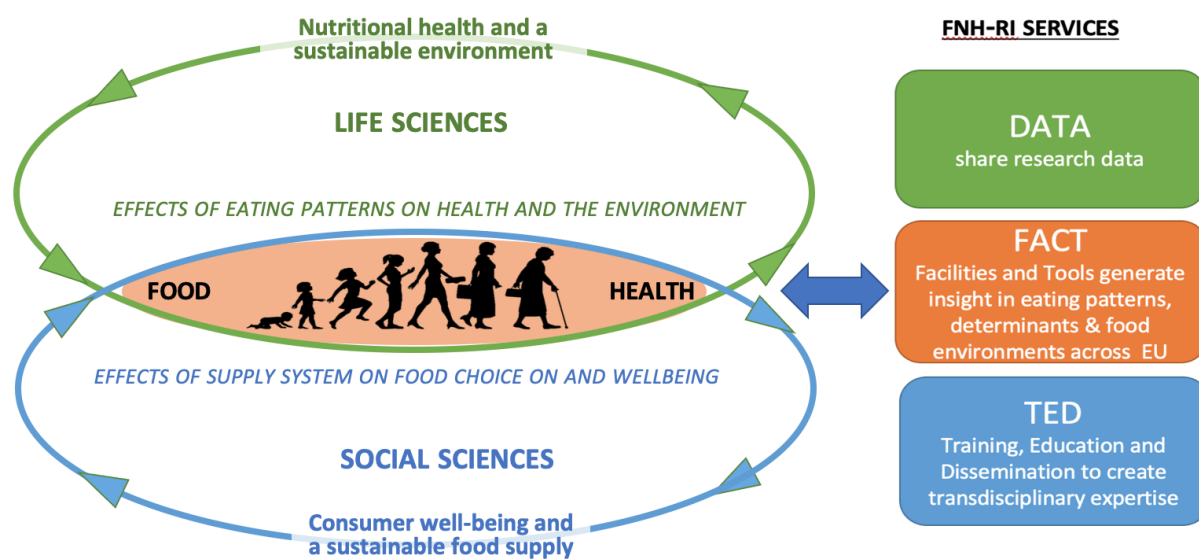


Figure 2. The citizen-driven transition towards healthy and sustainable diets is supported by services of the FNH-RI knowledge hub to the scientific community. The transition takes place at the intersection of the social and life sciences, each mediated by their own feedback loops (ellipses), outcomes and interventions. FNH-RI services drive the research needed for the food system transformation.

ORGANISATION

Academic and public research organisations will be organised under ‘National Nodes’, which connect with the FNH-RI-Hub and, together, govern and deliver DATA-, TED- and FACT-services. The Hub will be supported by an external advisory body and will be accountable to the General Assembly, made up of the funding Members States. Funding will originate from the EU (2021-2029), and member states (2025-onwards), with increasing project-based contributions from public and private research-consortia. As of June 2020, a total of ten member states have already committed political and/or financial support towards the FNH-RI and its national nodes.