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Deliverable D3.2

D3.2 Report from the RICHFIELDS final event

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1. Executive Summary

RICHFIELDS aimed to publish the design for a consumer data platform that will collect and/ or connect information about food behaviours from a variety of sources (e.g. consumers, business and research).

The project sought to determine which facilities, resources and services would support research around what we choose to eat (purchase, preparation and consumption), and how and why we make these choices. Phase 1 of the project created an inventory management system for assessment of online tools (e.g., mobile phone applications), which produce consumer and research-generated food and/ or beverage purchase, preparation or consumption data, comprised of a typology categorising the purpose of tools and metadata enabling assessment of data quality. Phase 2 took a more detailed approach, investigating technical components, interfaces and services necessary for data to be linked to create a functioning RICHFIELDS platform, using a range of case studies whilst Phase 3 developed the architecture and governance structure for the platform, including business models that outline potential services.

An on-going aspect of the design was user- and provider-needs, which were characterised to ensure the platform design was fit-for-purpose. Scope and needs were explored through a range of different activities across several work packages. It was apparent from the WP3 workshops that the vision for RICHFIELDS, specifically what would be offered in terms of tools and services, was difficult to visualise, particularly within the broader landscape of food, nutrition and health research. Thus, the objectives of this final event were two-fold, namely to present and invite feedback on outcomes of the project (RICHFIELDS), and the design for the consumer data platform to stakeholders, particularly with respect to understanding determinants (drivers in purchase, preparation and consumption of foods) within a DISH model (i.e. determinants, intake, status and health) and to elaborate on plans for the food, nutrition and health RI.

These aims were achieved through a key note presentation describing existing RIs, three presentations about RICHFIELDS, focussing on Phases 1 and 2 and the willing of consumers to share personal data, two talks exploring the science case for the FNH-RI and the processes necessary to realise this, and two panel sessions addressing questions submitted by the audience. The format and organisations were highly successful and the key points coming from this final event for future activities were:

- Need for and scope of a consumer data platform as well as users and applications are well-established
- Positioning of the consumer data platform within the food, nutrition and health landscape and the necessity for an FNH-RI to address fragmentation of resources across these research areas are growing
- As previously, needs and scope are broader than consumer data platform alone (D), suggesting stakeholders' requirements are more in line with the DISH model (i.e. FNH-RI)
- Similarly, activities extended beyond simply access to data into support for (a) selection of appropriate data, (b) interrogating data correctly, and (c) generating publication-ready reports
- There were significant concerns about harmonisation and standardisation of datasets and access to data from commercial source as well as governance, especially privacy and security

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2. RICHFIELDS Background

2.1 RICHFIELDS's objectives

RICHFIELDS aimed to design a consumer-data platform to connect and share information about food behaviours, specifically purchase, preparation and consumption, which would allow such data to be compared and interrogated, revolutionising research about food choices.

2.2 RICHFIELDS project structure

16 organisations from 12 countries have brought together competences including nutrition, sociology, information management, ICT, business, consumer science, and food processing.

The project was organised in three phases: Phases 1 (WP5-7) and 2 (WP8-10) delivered knowledge about consumer data (e.g. type and quality) and Phase 3 (WP11-13) identified requirement for platform design including potential business models, technologies, and governance.

2.3 European food, nutrition and health research infrastructure (FNH-RI)

Many of the challenges undermining food (including nutrition) and health are inherently inter-disciplinary and multi-sector. The European Union (EU) has a strong track record of coordination amongst Member State (MS), and an important role in delivering research and demonstrating international leadership in innovation for economic and societal benefits through sustainable economic growth and employment, and enhanced health and well-being.

The EU has launched several programmes to encourage joint agenda setting, including development of research infrastructures (RIs) and EU-wide collaboration, but there has been growing concern over the lack of such support for the study of food systems (including nutrition and health) and the ability to command critical mass (users and providers) since the European Research Infrastructure Landscape (MERIL - http://bit.ly/228cEfs) was first mapped in 2010-2012. FAHRE (FP7 Project ID 245278, Food and health research in Europe) mapped European research systems, describing existing structures, and identified gaps and needs for future food and health research (http://bit.ly/1QR9dmg; McCarthy et al. 2013 10.1016/j.foodpol.2012.12.005), and concluded that better research collaboration and innovation across Europe are essential to improve the efficiency of mainly public research resources and leverage competitive advantage globally.

EuroDISH (FP7, Project ID 311788) identified the need for RIs in the food and health domain that could advance research within and across the so-called DISH domains, specifically determinants of dietary behaviour (D), intake of foods and components (I), status and function in the body (S), and health and disease risk (H). EuroDISH also described unresolved needs and gaps in a conceptual design as well as a roadmap for implementation (Snoek et al., 2016 DOI: 10.1016/j.tifs.2017.12.015) but also, most notably, the highly variable nature of existing DISH resources, demonstrating both a practical and strategic need for RIs engaging stakeholders along the food chain.

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Stressing the need for world-class RIs, EU Horizon 2020 has provided financial support for RICHFIELDS (1st October 2015, three years, LEI Wageningen UR, NL). Drivers for the RICHFIELDS consumer-generated data platform covering purchase, preparation and consumption, included:

Science:

- More accurate and reliable insights in food intake
- Standardisation of measurements of determinants of food intake
- Integration of food intake with determinants needed: personal characteristics and context
- Personalisation of diet/ nutrition advice

Governance

- Data stewardship: open access, data procurement
- Data sustainability: FAIR (findable, accessible, interoperable and reusable) data[1]
- Privacy and security: new regulations
- Integrated resources: from different consumer-generated sources but also data from research, business and healthcare
- Standardisation and harmonisation: tools and methods to collect data, enabling comparisons across countries and studies

2.4 Findings to date

2.4.1 Phase 1

The RICHFIELDS inventory management system (RIMS) was created for storage and assessment of an online inventory of tools (e.g., mobile phone applications) that contain consumer-generated food and/ or beverage purchase, preparation or consumption data. It is comprised of two parts: (1) a typology categorising the purpose of tools and (2) metadata to enable assessment of data quality, either related to a scientific case (e.g. are the data sufficient to answer a what/ who/ why/ how/ where research question) or whether the data are findable, accessible, inter-operable or re-useable (FAIR) (e.g. legal, governance or technical data management constraints). Information about these is fundamental to developing the architecture and governance structure of the RICHFIELDS platform.

2.4.2 Phase 2

Case studies in Work Packages 8-10 allowed a more detailed approach to investigate the technical components, interfaces and services necessary for data to be linked to create a functioning platform. These case studies included:

- WP8: Three case studies addressing business generated data on purchase and procurement: (i) Coop (DK), (ii) Statistics (DK), (iii) Göteborgs Stad (SE)

[1] https://www.nature.com/articles/sdata201618

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- WP9: Four case studies exploring the potential for delivering data and content to the platform from existing or future resources: (i) food composition and food attributes (EuroFIR, FoodExplorer, ePlantlibra, Brandbank, FoodWiz); (ii) Standardised food intake from population-based surveys (Globodiet); (iii) clinical interventions; and (iv) consumer diet, health and lifestyle (PRECIOUS, Quisper).

- WP10: Three case studies investigating laboratories and facilities that undertake consumer research on food choice, purchase and consumption: (i) Fake Food Buffet at ETH Zurich (CH) (food choice); (ii) FoodScape Lab at Aalborg University (DK) (food choice, consumption); (iii) Restaurant of the Future at Wageningen University (NL) (food choice, purchase and consumption).

2.4.3 Phase 3

WP11-13 have designed an open-access, distributed research data platform to empower state-of-the-art exploration and exploitation of consumer generated data. Whereas Phase 1 mapped the data at consumer level and Phase 2 investigated the interaction with existing RIs, business datasets, and experimental labs, Phase 3 focussed on governance, intellectual property rights (IPR), and ethical aspects of the platform:

- WP11: Data combination & management has focused on the physical infrastructure, software, and potential data access and exchange, which has meant concepts, such as open and big data, and standards to link data from different sources are being addressed.

- WP12: Has explored sustainable business model(s) that would allow the data platform to be self-sustaining, ensuring value for all stakeholders as well as defining the services that would be provided, the supply chain, and the revenue model.

- WP13: Has considered the needs of users and data providers as well IPR and ethical constraints, as core elements of the governance framework, which must consider privacy, ownership, inter/national regulations, standardisation, and quality management.

2.5 User requirements analysis

An on-going driver for the design has been user and provider requirements. A series of activities have characterised RICHFIELDS stakeholders including end-users (research) and their needs to ensure the platform is fit-for-purpose. Outputs from these activities, including three stakeholder workshops, have been integrated in the on-going research and final design for the platform.

2.6 Information architecture

To support the design, RICHFIELDS has developed a 'Core Offering' summarising the content of the platform (Figures 1) and mapped development of platform to maturity (Figure 2).

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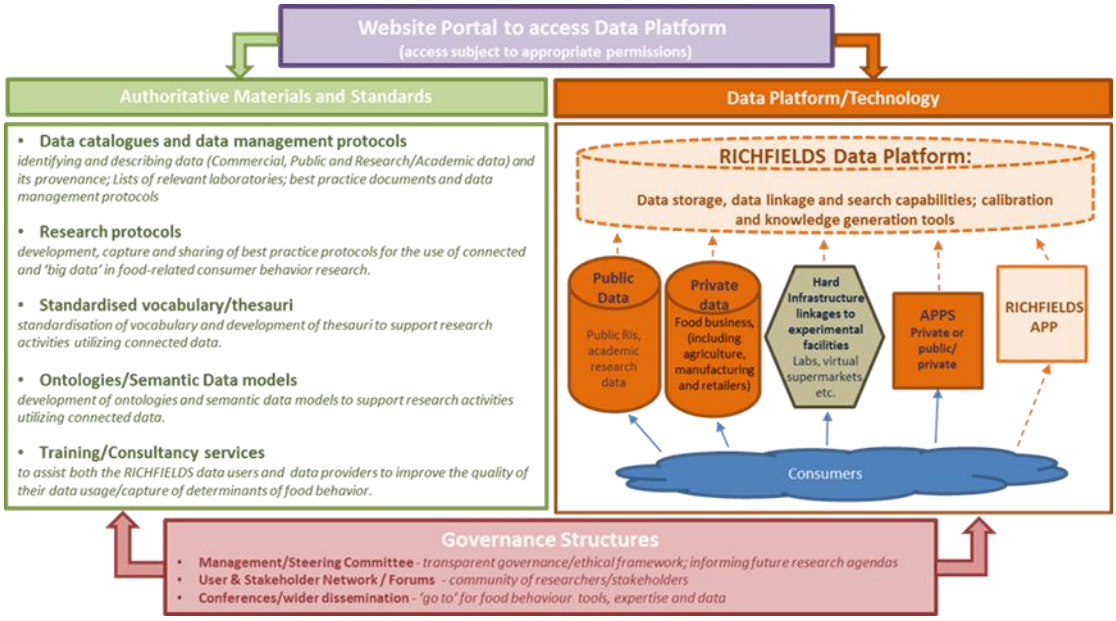

Figure 1. Core offering proposal (at MVP level) (December 2017)

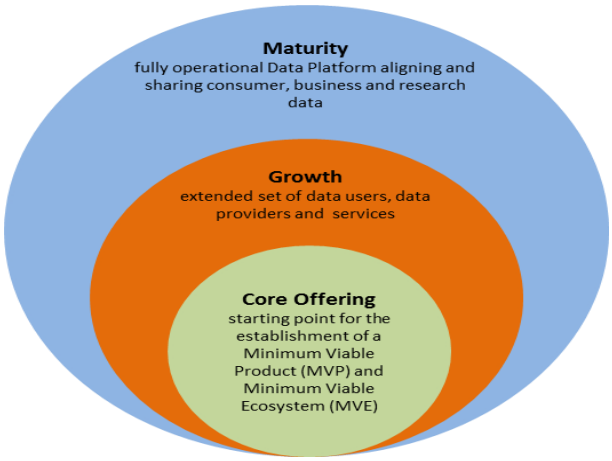

Figure 2: Phases of platform development

2.7 RICHFIELDS platform: Final design

Phase 3 has used the knowledge generated in Phases 1-2 as well as other activities to generate three elements of the final platform design:

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- **Semantic model** - necessary to encode data and information to enable sharing (re-use) of data with end-users or information systems (software agents). RICHFIELDS has also generated an ontology and set of classes to aid re-use and integration of data, information, and knowledge.
- **Business model(s)** – potential business models, depending on the value proposition (service offered), supply chain configuration (means to deliver services to users) and revenue system (remuneration mechanism for the platform), have been explored for future implementation.
- **Governance model** – includes issues related to FAIR data, such as data ownership, privacy, IPR, and ethics, all of which have been considered in the design.

2.8 Food, Nutrition and Health Research Infrastructure

The food, nutrition and health research infrastructure (FNH-RI) is a joint initiative of leading research organisations from 10 EU Members States (MS) working across the food and health domain. These organisations also share a vision that scientific and societal challenges in this area need research breakthroughs and communal innovations that can only be achieved when the wider community joins forces to overcome interdisciplinary and -sectoral and stakeholder fragmentation.

FNH-RI builds on the roadmap developed by EuroDISH (EU FP7 Project ID 311788; 2012-15) and the recommendations of the European Strategy Forum on Research Infrastructures for a food and health research infrastructure (ESFRI; http://bit.ly/2rOyuKG). The proposed RI will bring together emerging food- and health-related resources (e.g. RICHFIELDS platform) at different stages of development and maturity including those originating from previous (e.g. EuroFIR, NuGO, GloboDiet, ISEKI-Food, Food4me, Quisper), and on-going EU-funded projects (e.g. iFAAM, REFRESH, SUSFANS) as well as JPI-funded projects, such as A Healthy Diet for a Healthy Life (JPI-HDHL with Knowledge Hubs DEDIPAC & ENPADASI) and JPI Agriculture, Food Security and Climate Change (JPI-FACCE).

By bringing together the research communities, data, tools and services from these scientific communities and emerging resources, the FNH-RI will support scientific understanding and analysis of food behaviours, i.e. food choice and dietary habits. With consumer diets central to FNH-RI, the scope includes nutritional health and well-being as well as the determinants of dietary choice and issues associated with the wider food supply chain (e.g. sustainability). Thus, FNH-RI envisions a consumer-centred food systems approach, stretching from a sustainable food supply chain through food innovation, food behaviours and determinants to consumption (Intake – I) and composition (i.e. nutrients and bioactive compounds), linking with nutritional status (S – Status), and health (H), and how relationships amongst these are influenced by the wider environment (e.g. policy, industry).

The objectives of FNH-RI are to:

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- Enable research breakthroughs and innovations that promote personal, public and planetary health in innovative and inclusive communities
- Serve the pan-European research community to overcome fragmentation, collating, connecting and sharing innovative and existing data, knowledge, tools, services and facilities.

FNH-RI state-of-the-art is:

- To be a foundation by the end of 2018, enabling memorandum of understandings to be established with other related RIs (e.g. ELIXER, BBMRI, ECRIN), networks and knowledge hubs.
- Four EU MS are involved (DK, UK, IT and NL); two are on national roadmaps for research infrastructures (DK and NL); Italy will apply for this status in 2018 and the UK in 2019.
- New nodes expected during 2018 are Sweden, Spain and Slovakia; Associate partners include France, Germany and Belgium; preparatory actions are on-going.
- Food industry and facilitating industries will co-create a business platform within the FNH-RI.
- FNH-RI scientific case will be launched during 2018.
- Full application for the ESFRI roadmap is expected in 2019-2020

FNH-RI impacts are anticipated to be:

- ***European and global research on food, nutrition and health***: FNH-RI focuses on food and nutrition security as well as health and would govern data, knowledge, tools and services to facilitate research along the food chain including food behaviours, consumption, composition, nutrition and health using FAIR data and ensuring ethical, IPR and governance requirements are met across a trans-disciplinary and trans-national basis to fosters cooperation with other RIs and stimulate participation of third countries (e.g. Australia, Kenya and Ghana).
- ***Addressing user needs***: FNH-RI will enable users to address key research challenges, encompassing the wider the food and health challenges under framework research programmes, such as FOOD 2030, as well as contributing to KICs that support EU training and entrepreneurship.
- ***Paradigm shift in food research***: FNH-RI will facilitate new data collection tools (e.g. sensors, wearable tech) to stimulate data collection by citizens and science participation using e-science. The European citizens will be the main providers and, potentially, the major user whilst enabling researchers to generate new insights from their data.

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3. Objectives of this final event

3.1 Aims of the final event

The primary aim of this RICHFIELDS final event was to present and invite feedback on outcomes of the project, and the design for the consumer data platform to stakeholders, particularly with respect to the scope and need for consumer-, research- and business-generated data in understanding determinants (drivers in purchase, preparation and consumption of foods) by consumers within a DISH model (i.e. determinants, intake, status and health). A secondary aim was to elaborate on plans for the food, nutrition and health research infrastructure, specifically objectives and state-of-the-art.

3.2 Outputs of the workshop

The outputs will be summarised to inform future FNH-RI activities and development of the consumer data platform design, governance and business model(s) beyond the lifetime of RICHFIELDS.

In addition to a programme (Annex 2, A2.1 Agenda) of presentations and short videos (Annex 2, A2.2 Presentations), FNH-RI posters (Annex 2, A2.3 FNH-RI Posters) and fact sheet (Annex 2, A2.4 FNH-RI Fact sheet) and discussions (Annex 3 Feedback from delegates: Online and during the event), delegates were asked to respond to a pre- (Annex 3, A3.1 Pre-event responses) and post-event (Annex 3, A3.2 Post-event responses) surveys exploring their needs from both the consumer data platform and FNH-RI and encouraged to use Sli.do during the event to submit questions as well as respond directly to polls (Annex 3, A3.3 Sli.do polls and questions). This enabled exploration of their attitudes to RICHFIELDS (project), the consumer data platform (design) and FHR-RI (future work) before, during and after the event.

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4. Event methodology

4.1 Invitees

Potential participants were selected from those invited to the RICHFIELDS stakeholder platform (2nd June 2016, Brussels BE) or RICHFIELDS stakeholder workshops (Workshop 1: 27th September 2016, Schiphol NL, Workshop 2: 4th April 2017, Brussels BE or Workshop 3: 11-12th December 2017, Brussels BE), regardless of whether they could attend. This list was refined further by a small team comprising representatives from the Project Management Team (PMT), WP3 and WP4, and focussed on those from research and industry as data providers and users, and consumer representatives. Ultimately, 258 invitations were sent and 37 external participants and 32 RICHFIELDS beneficiaries attended (see Table 1. Delegates who attended the RICHFIELDS final event; also see Annex 1 Invited Participants, A1.1 FNH-RI Panellists, A1.2 External speaker and A1.3 RICHFIELDS: Beneficiaries for further details).

4.2 Process and materials

Prior to the event (Tuesday 11th September 2018), delegates were sent pre-event paperwork that included Sections 2. RICHFIELDS Background and 3. Objectives of this final event as well as the programme (Annex 2, A2.1), A4 copies of the FNH-RI posters (Annex 2, A2.3), the FNH-RI Fact sheet (Annex 2, A2.4), and a link to the pre-event survey (Annex 3, A3.1 Pre-event responses).

Following the welcome and key note presentation from Peter M. Abuja (Medical University of Graz, AT) *Coordinated Research Infrastructures Building Enduring Life-science Services* (Coordinated Research Infrastructures, www.corbel-project.eu, see A2.2 Presentations), representing CORBEL, there were three presentations about RICHFIELDS activities, *Introduction to RICHFIELDS*, (Lada Timotijevic, University of Surrey, UK) covering Phase 1, *Potential of using consumer-, research- & business-generated data* (Bent Egberg Mikkelsen, Aalborg University, DK) covering Phase 2) and a third *RICHFIELDS: Data sharing survey in eight EU Member States* (Monique Raats, University of Surrey, UK) considering not only the willingness of consumers to share the data but looking at difference amongst citizens from different European Member States. Delegates were encouraged to submit questions via Sli.do during the talks and respond to polls, focussed on the issues being discussed.

The RICHFIELDS panel session was moderated by Krijn Poppe (WEcR, NL) and was comprised of Marc-Jeroen Bogaardt (WEcR, NL), Barbara Korousic Seljak (JSI, SI), Javier de la Cueva (Consultant, ES), Bent Egberg Mikkelsen, Giacomo Copani (ITIA CNR, IT), Monique Raats and Lada Timotijevic. Those who had not given a talk were asked to summarise (2-3 minutes) their areas of responsibility within RICHFIELDS, i.e. Marc-Jeroen Bogaardt – design of the RICHFIELDS platform to support research, Barbara Korousic Seljak – technology to deliver the RICHFIELDS platform, Javier de la Cueva – governance including ethical, legal and societal issues in to delivering the RICHFIELDS platform, and Giacomo Copani – business models for the RICHFIELDS platform. Questions submitted via Sli.do were used to shape the discussion in parallel with those from the audience (A3.4 Panel Sessions, A3.4.1 Panel Session: Q & A RICHFIELDS).

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Table 1. Delegates who attended the RICHFIELDS final event

Prefix	Name	Surname	Ticket Type	Gender	Job Title	Company
Dr	Peter	Abuja	External	Male	Senior Scientist	CORBEL / Medical University of Graz
Mrs	Nolwenn	Bertrand	External	Female	Public programme manager	Edenred
Prof.	Marco	Candela	External	Male	Associate Professor	Alma Mater Studiorum - Università di Bologna
Mr	Tobia	Capuzzo	External	Male	Project officer	COPA COGECA
Dr	Jean	Dallongeville	External	Male	Head Human Nutrition Division	INRA
Ms	Anja	De Meerleer	External	Female	Teacher	Government
Mr	Stefaan	De Muynck	External	Male	Business Analyst	Infrabel
Dr	Jan	de Vries	External	Male	Consultant	De Vries Nutrition Solutions
Dr	Biotza	Gutierrez	External	Female	Project coordinator	EURECAT
Mr	Simon	Haafs	External	Male	Director	i3B
Mr	Wim	Haentjens	External	Male	Policy officer	European Commission
Prof.	Anette	Hjartåker	External	Female	Professor	University of Oslo
Mrs	Katarzyna	Kurek	External	Female	I Secretary	Permanent Representation of Poland to the EU
Mr	Jonas	Lazaro Mojica	External	Male	European projects manager	FoodDrinkEurope
Mr	Cedric	Malfroid	External	Male	Distribution Manager	PSS
Prof.	Christophe	Matthys	External	Male	Associate Professor	UZ Leuven/KU Leuven
Mrs	Nathalie	Michels	External	Female	postdoc	Ghent University
Dr	Marga	Ocke	External	Female	senior nutritionist	RIVM
Dr	HUONG	PHAN THI	External	Female	DR	ULB
Dr	Karl	Presser	External	Male	Managing Partner	Premotec GmbH/ETH Zurich
Dr	Pierre	Quertenmont	External	Male	Policy Officer	European Commission
Mr	Tom	Redd	External	Male	Scientific Advisor	JPI Oceans
Dr	Gorkem	Simsek Senel	External	Female	Researcher - Food Informatics	Wageningen University and Research
Ms	Shenaj	Skenderoska	External	Female	laboratory analytic	IPH
Mr	Shenol	Skenderoski	External	Male	medical student	iph
Dr	Nadia	Slimani	External	Female	Consultant	Consultant

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Prefix	Name	Surname	Ticket Type	Gender	Job Title	Company
Mr	Dominik	Sobczak	External	Male	ESFRI Executive Secretary	European Commission
Dr	Wouter	Spek	External	Male	Directot	TIB DEVELOPMENT
Mr	Stefano	Spinaci	External	Male	Administrator	European Parliament
Dr	Andrew	Spink	External	Male	Senior Consultant	Noldus Information Technology BV
Mr	Johan	Steinmetz	External	Male	Administrator	Fereal authority
Ms	Gabriela	Tatian	External	Female	business development assistant	Eurideas
Dr	Marynka	Ulaszewska	External	Female	Dr	Fondazione Edmund Mach
Dr	Wilke	van Ansem	External	Female	programme manager	JPI HDHL
Mr	Jean-Luc	Volatier	External	Male	Deputy director for risk assessment	Anses
Miss	Maud	Alligier	RICHFIELDS	Female	Project Manager	CRNH-RA
Dr	Sian	Astley	RICHFIELDS	Female	Senior Researcher & Communications Manager	EuroFIR AISBL
Dr	Barbara	Korousic Seljak	RICHFIELDS	Female	Assistant Professor	Jožef Stefan Institute
Mrs	Rachel	Berry	RICHFIELDS	Female	Research Scientist	Quadram Institute Bioscience
Dr	Marc-Jeroen	Bogaardt	RICHFIELDS	Male	Senior Researcher	Wageningen Economic Research
Dr	Tamara	Bucher	RICHFIELDS	Female	Senior Research Fellow	The University of Newcastle
Dr	Javier	de la Cueva	RICHFIELDS	Male	Lawyer	Javier de la Cueva Abogados
Ms	Frankie	Douglas	RICHFIELDS	Female	Scientific & Regulatory Affairs	Nutritics
Prof.	Bent	Egberg Mikkelsen	RICHFIELDS	Male	Nutrition and Public Food Systems	Aalborg University
Mr	Paul	Finglas	RICHFIELDS	Male	Head Food Databanks	Quadram Institute Bioscience
Dr	Charo	Hodgkins	RICHFIELDS	Female	Research fellow	University of Surrey, UK
Dr	Peter	Holl	RICHFIELDS	Male	Senior Manager EU Programmes	DIL German Institute of Food Technologies
Mr	Haris	Hondo	RICHFIELDS	Male	Food Technology Specialist	RISE Research Institutes of Sweden
Mr	James	Lay	RICHFIELDS	Male	MD	foodwiz
Mrs	Angelika	Mantur-Vierendeel	RICHFIELDS	Female	Research & Business Development Specialist	EuroFIR
Mrs	Jessica	Mariani	RICHFIELDS	Female	EU Projects Manager	EUFIC
Miss	Khadija	Nairi	RICHFIELDS	Female	Project Manager	WUR

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Prefix	Name	Surname	Ticket Type	Gender	Job Title	Company
Miss	Sidonie	Pauchet	RICHFIELDS	Female	EC Projects & Support	EuroFIR
Dr	Krijn	Poppe	RICHFIELDS	Male	Chief Policy Analyst	Wageningen Economic Research
Dr	Golboo	Pourabdollahian	RICHFIELDS	Female	Researcher	CNR-STIIMA
Prof.	Monique	Raats	RICHFIELDS	Female	Director of FCBH	University of Surrey
Ms	Madhura	Rao	RICHFIELDS	Female	Intern	EUFIC
Miss	Christina	Sadler	RICHFIELDS	Female	Senior Manager, Nutrition & Health	European Food Information Council (EUFIC)
Mr	Trond	Selnes	RICHFIELDS	Male	researcher	Wageningen Economic Research
Dr	Igor	Spiroski	RICHFIELDS	Male	Head of Department of Nutrition	Institute of Public Health of the Republic of Macedonia
Dr	Lada	Timotijevic	RICHFIELDS	Female	Principal Research Fellow	University of Surrey
Dr	Kwabena	Titi Ofei	RICHFIELDS	Male	Post Doc fellow	Aalborg University, Denmark
Mr	Martin	Valach	RICHFIELDS	Male	project manager	Slovak University of Agriculture in Nitra
Ms	Hennie	van der Veen	RICHFIELDS	Female	Project manager	WEcR
Prof.	Pieter	van't Veer	RICHFIELDS	Male	Professor	Wageningen University
Dr	Vladimir	Vietoris	RICHFIELDS	Male	Assoc. Prof.	SUA Nitra, Facaulty of Biotechnology and Food Science
Dr	Karin	Zimmermann	RICHFIELDS	Female	Senior Researcher	Wageningen Economic Research

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Subsequent to the talk by Pieter van't Veer (Wageningen University, NL), *Expanding the science case for FNH-RI: Moving on from RICHFIELDS*, there was a second panel session, also moderated by Krijn Poppe.

The FNH-RI panels was comprised of Pieter van't Veer, Karin Zimmermann, Paul Finglas – QIB (UK), Anette Hjartåker - University of Oslo (NO), Marga C Ocké – RIVM (NL), Igor Spiroski - Institute of Public Health (Republic of Macedonia) and Vladimír Vietoris - Slovak University of Agriculture in Nitra (SK). Apart from of Pieter van't Veer who had already given a talk and Karin Zimmermann who gave a talk after the panel session, panellists were asked to summarise (2-3 minutes) why their organisation believes the FNH-RI is important nationally and across the European Union. Again, questions submitted via Sli.do were used to shape the discussion in parallel with those from the audience (A3.4 Panel Sessions, A3.4.2 Panel Session: Panel Session FNH-RI).

The programme ended with the presentation by Karin Zimmermann (WEcR, NL and representative of the Coordinator of RICHFIELDS), *Realising the FNH-RI: Road map, exploring the state-of-the-art and how interested organisations might get involved via their national roadmaps and ESFRI*.

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5. Results from the final event

5.1 Final event content and delivery

Mindful of feedback from the RICHFIELDS stakeholder platform (2nd June 2016, Brussels BE) or RICHFIELDS stakeholder workshops (Workshop 1: 27th September 2016, Schiphol NL, Workshop 2: 4th April 2017, Brussels BE or Workshop 3: 11-12th December 2017, Brussels BE), this final event sought to present the outcomes of RICHFIELDS and look to the future of food, nutrition and health research with the concept for a research infrastructure (RI) that would address the need for support across the DISH domains, specifically determinants of dietary behaviour (D) (RICHFIELDS), intake of foods and components (I), status and function in the body (S), and health and disease risk (H). Thus, the programme (presentations and panel sessions) were tailored to ensure that delegates had sufficient information about RICHFIELDS project results, design of a consumer data platform, and FNH-RI concept and progress within the ESFRI landscape to facilitate understanding and participation in an open and dynamic environment for exchange of ideas.

Overall, the approach was highly successful, although we received only a few responses to the pre-event survey (Annex 3, A3.1 Pre-event responses), the delegates were much more forthcoming using the post-event survey (Annex 3, A3.2 Post-event responses), Sli.do (Annex 3, A3.3 Sli.do polls and questions) and face-to-face (Annex 3, A3.4 Panel Sessions). Sli.do was particularly useful in obtaining clear-cut responses to concepts via polls and in shaping discussion for the panel sessions, based on the questions submitted. The delegates also provided valuable feedback on the event organisation via a follow-up questionnaire.

5.2 Feedback from the delegates

5.2.1 Pre-event responses

The majority of respondents (10%, 7 of 67 delegates) were external (70%) and had not previously attended a RICHFIELDS's event. None of the respondents commented on why RICHFIELDS or FNH-RI might be important to them in the future. No useful data or conclusions can be drawn from this survey.

See Annex 3, A3.1 Pre-event responses for further details

5.2.2 Post-event responses

The majority of respondents (27%, 18 of 67 delegates) were external (55%) and had not previously attended a RICHFIELDS's event (55%). 14 offered comments on why a consumer-generated data platform (RICHFIELDS) important to them, ranging from the complex (e.g. understanding into consumer behaviour that could benefit food business operators) to research-based questions (e.g. explore more comprehensive datasets) to the simpler opportunities for collaboration. Similarly, 11 respondents offer some insight into why FNH-RI might be important to them, namely access to comprehensive datasets, opportunities for collaboration, and integrated foods systems that can impact health and sustainability. However, here and elsewhere, there remained some uncertainty and lack of vision for the consumer data platform and FNH-RI (e.g. "*not very important for me*", "*no idea what the world will look like*").

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See Annex 3, A3.2 Post-event responses for further details

5.2.3 Sli.do polls and questions

There were 37 active users of Sli.do (ca. 55% of delegates present). A word-cloud for questions indicated that the most frequently used words were data, food, open and RICHFIELDS, which suggests - at the most basic level - that the audience was focussing on the correct concepts and not being distracted by difficulties in achieving the goals being discussed (e.g. ethics of accessing consumer data, technology).

Sli.do respondents came from a wide range of professional expertise, representing six different stakeholder groups (e.g. law and governance, research [food, technology, economics & health], non-profit associations [consumer information], data providers, food industry, funding bodies), from seven European Union Member States (ES, DE, BE, NL, SI, UK, SE), one candidate country (Republic of Macedonia) and Switzerland. Nearly three-quarters of these users (73%) thought we should be creating new resources (like the RICHFIELDS consumer data platform) or adding datasets to existing RIs; the remainder were uncertain (13% do not know, 13% may be). It would have been interesting to ask the respondents whether they had a preference between creating new resources or adding to existing RIs, as this might offer some guidance in terms of where the effort and funding should be directed to meet stakeholders' expectations.

Delegates were asked what might be done to encourage consumers to share their data proactively. There were seven responses that highlighted the need to understand motivations better (e.g. *quid pro quo* expectation versus or altruistic aspiration) and ensure the wider legislative/ regulatory environment promotes trust and transparency as well as ensuring consumers understand the value and fate of data.

We asked if it is realistic to expect commercial organisations (e.g. food business operators) to share their customer data; the majority of delegates were unsure (44%) with the remainder evenly split (28% yes, 28% no). Barriers to sharing commercial data were identified as what industry will allow (proprietary information) and to what extent they might control use or gain from sharing, consumers' right (e.g. consent, privacy, GDPR restrictions), cost to research, potential for misuse, and trust.

With respect to the data sharing survey in eight EU MS, two-third of delegates were unsurprised by the results; the remaining third were largely unsure (17% may be, 11% don't know) whilst only 11% were surprised. When asked about how they felt regarding sharing personal data, delegates were very reticent, using words such as *cautious* and *conflicted*, and expressed the need for reassurance with respect to use (i.e. for public good not financial gain) and control (e.g. types of data and with whom, right to withdraw, targeted advertising, anonymisation). Delegates also expressed a desire for reward, and there was some indication that sharing for research would be better or preferable to sharing for commercial purposes. However, with respect to use of consumer-generated data, 56% identified as power-users and 11% as infrequent users; 33% could see why researchers would want these data. No one said they would not use these data, which suggests there is a mismatch between sharing data as individuals whilst recognising a need for these data for diet and health research, which might also be true for the wider population, which if true means the greater effort should be directed towards governance, regulation and consumer trust.

Two-third of those present were convinced by the science case for FNH-RI (67%); the remainder were unsure (8% don't know, 17% may be) whilst only 8% were unconvinced. When asked if they would join the FNH-RI, only five individuals responded but these were all positive and come from Belgium,

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Switzerland, the Netherlands and the United Kingdom. There is, therefore, perhaps more work to be done in terms of the how organisations work together nationally to be added to EU MS ESFRI roadmaps.

6. Conclusions

Overall, the format of the RICHFIELDS event was a success, both in terms of the programme, and the organisation and location. Comments were positive, and any negative remarks minor and/ or incorrect.

The primary aim was to present and invite feedback on outcomes of the project, the design for the consumer data platform and to elaborate on plans for the food, nutrition and health research infrastructure, specifically objectives and state-of-the-art, which was achieved. Furthermore, delegates offered feedback on the outcomes of the project (RICHFIELDS) and the design for the consumer data platform, particularly with respect to need and scope as well as potential users and applications. Most could envisage a future with such a consumer data platform and how it might be used.

Compared with the RICHFIELDS workshop, delegates appear to have had a better understanding of position of the consumer data platform within the wider food, nutrition and health landscape and the need for a RI to address fragmentation of resources across these research areas. There were still concerns about harmonisation and standardisation of datasets and access to data from commercial source as well as governance, especially privacy. As previously, not only was the scope broader than consumer data platform, suggesting stakeholders' requirements are more in line with the FNH-RI, but also activities extended beyond simply access to data into support for (a) selection of appropriate data, (b) interrogating data correctly, and (c) generating publication-ready reports. This is more comparable with the trans-national and trans-disciplinary and training activities undertaken by existing European RIs.

Delegates identified with the FNH-RI as a concept that would address their need for up-to-date/ real-time, high-quality, well-described food systems and health data, knowledge, tools and services. However, for the first time, a clear mismatch between the delegates' willingness to share their personal data and desire to exploit that of others for research purposes was revealed, suggesting there is still work to be done in the areas of governance and regulation to convince researchers – never mind the general public – about the security of data and the behaviour of those organisations using personal data for either altruistic or commercial reasons, which must be achieved alongside the technical competence.

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Annex 1 Invited Participants

A1.1 FNH-RI Panellists

Anette Hjartåker
University of Oslo (NO)

Professor Anette Hjartåker has a Master of Science degree in nutrition from the University of Oslo, Norway and a PhD in nutritional epidemiology from the University of Tromsø, Norway. She was a postdoc fellow/researcher from 2001to 2005 at the Faculty of Medicine, University of Oslo and a researcher at the Cancer Registry of Norway 2006-11, focusing mainly on nutritional and cancer epidemiology. Since 2011, Hjartåker has been professor in nutritional epidemiology at Department of Nutrition, University of Oslo. She has been engaged in the Norwegian Women and Cancer Study (NOWAC) and the European Perspective Investigation into Cancer and Nutrition (EPIC) for more than 20 years. She has broad experience in dietary assessment methods, food composition databases and in studying measurement errors in dietary data. Professor Hjartåker has authored/co-authored a number of peer-reviewed international papers, as well as textbooks.

Marga C Ocké
National Institute for Public Health and the Environment (RIVM, NL)

Marga studied Human Nutrition at Wageningen University, the Netherlands, where she also received her PhD degree. She works at the National Institute for Public Health and the Environment (Bilthoven) and is seconded at Wageningen University for one day a week. Her drive it to support public health and a healthy environment by conducting research and providing advice in the areas of food, nutrition and public health. As a senior scientist she coordinates the Dutch national food consumption surveys, and projects focusing on nutrition and health, and integral evaluations of the diet. Marga has 20 years of experience as project leader and work package leader of various national and international projects. Her scientific interests are: public health nutrition, healthy and sustainable diets, dietary assessment methodology, dietary monitoring, evaluation of dietary intake and dietary pattern analysis, and dietary validation studies. Marga is co-author of more than 40 policy advice reports and 160 papers in peer-reviewed international journals.

Igor Spiroski
Institute of Public Health (Republic of Macedonia)

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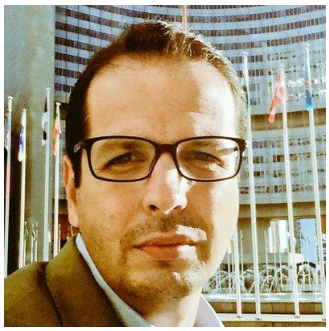

Igor Spiroski is a medical doctor and holds PhD degree in public health. He is heading the Department of Physiology and Monitoring of Nutrition at the Institute of Public Health of the Republic of Macedonia. His complementary work includes teaching and research at the Faculty of Medicine of the Ss. Cyril and Methodius University in Skopje, where he is employed as Assistant Professor. Igor's main professional fields of interest are health risk assessment related to nutrition, obesity, particularly childhood obesity, public health aspect of consumer behaviours and food marketing to children. He has authored and co-authored books, book chapters, papers, conference proceedings and brochures. Igor is WHO's National Nutrition and Non-communicable diseases focal point.

Vladimír Vietoris
Slovak University of Agriculture in Nitra (SK)

Assoc. prof. Vladimir Vietoris PhD is a well-respected sensory analyst in Central and Eastern Europe. During the last 15 years, he has been the developer of many modified sensory methodologies. In 2009, he participated in the creation of the first database of Slovak blaufrankisch wines measured using an electronic tongue. After a stay in Brazil (UFLA, Lavras), Vladimir co-created the open source sensory software SensoMaker. He is working as a lecturer/ researcher at the Slovak University of Agriculture in Nitra and an assessor of Slovak National Accreditation Service (SNAS) for personal certification bodies according to ISO 17024. He is the manager for international relations at the Scopus journal Potravinárstvo and has been Chair of the Slovak Food Science Society since 2017.

A1.2 External speaker

Coordinated Research Infrastructures Building Enduring Life-science Services
Peter M. Abuja, Medical University of Graz (AT)

Peter M. Abuja studied Biochemistry and Physical Chemistry in Graz. He worked for several years on the structure of biological macromolecules in solution (X-ray scattering) and, subsequently, the effects of antimicrobial peptides on conformation and stability of biological membranes. Before joining the biobanking community, a considerable proportion of his scientific work was done on oxidative stress and antioxidant activities, including modelling and simulation of lipid peroxidation reactions in human low-density lipoprotein. He joined the Institute of Pathology at the Medical University of Graz (AT) in 2005 and has been involved since then on various projects in biobanking, metabolic disease and quality management in biomedicine. His present work focuses on investigations of the stress response and mitochondrial function in mouse models for metabolic liver disease and, on the other hand, quality assessment in pre-analytical processing of tissue, serum and plasma with emphasis on metabolites and nucleic acids. Besides a large proficiency testing study in serum and plasma, he was also involved in an extensive study on the stability of the metabolome in cryopreserved liver tissue and another that assessed the influence of residual water in fixed tissue on the quality of nucleic acids.

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A1.3 RICHFIELDS: Beneficiaries

Siân Astley (Organiser)
European Food Information Resource (EuroFIR AISBL, BE)

Siân has worked extensively with individuals and organisations throughout Europe from a variety of disciplines including research, food and biotech industries, and the media. She is author of more than 300 popular science articles for magazines and trade publications as well as 27 peer-reviewed papers, and she was awarded her Diploma in Science Communication in 2009 (Birkbeck University of London). After 14 years as a bench-scientist, Siân became Communications Manager for NuGO, one of the first FP6 Networks of Excellence, and was the European Communications Manager for the Institute of Food Research (UK) until April 2012. Currently, she is a senior researcher and the training and communications manager for the European Food Information Resource (EuroFIR AISBL), supporting research as well as training and communications activities within EU-funded research projects and networks. She is also an independent science communicator and an editor for Food Chemistry.

Marc-Jeroen Bogaardt[*2]
Wageningen Economic Research (NL)

Marc-Jeroen is working at Wageningen Research as a senior researcher with a degree in political sciences as well in engineering. He focuses on the interaction between technology, agri-food and governance. Most of his research projects are commissioned by the Dutch Ministry of Economic Affairs, agribusiness enterprises, farmers' cooperatives, and the European Commission. These projects deal with big data and smart farming, cybersecurity in the agri-food chain, data platforms as inter-organisational collaborations. He particularly examines the legal and institutional issues of technology applications like the Internet of Things, Cloud Computing, and Big Data technologies: shifts of power relations, new governance and decision-making structures, data protection, ownership of data, privacy and security.

Javier de la Cueva[*]
Independent Consultant (ES)

Javier de la Cueva holds a Licentiate degree in Law and is a PhD from the Complutense University of Madrid (ES) where he is also an Associate Professor. He works as a practicing lawyer and as a university lecturer. As a lawyer, he has defended free intellectual property licenses and diverse technological platforms. Javier is also engaged in programming technological projects, giving lectures and writing about his specialisation. He is a GNU/Linux user since 1998 and a systems administrator for this operating system since 2003. He writes scripts in Python and enjoys n3 notation when modelling semantic web ontologies. Finally, he is a patron of Fundación Ciudadana Civio.

[2] * Panellist for 11.25 Panel Session: Q & A RICHFIELDS

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Paul Finglas[†3]
Quadram Institute Biosciences (UK)

Paul Finglas joined the Quadram Institute Biosciences (Previously Institute of Food Research) in 1981 and is, currently, Head of the Food Databanks National Capability (www.ifr.ac.uk/fooddatabanks), and research leader in Food and Health. He has, for most of his science career, been involved in food nutrition, and health including food composition and analysis (nutrients & bioactive compounds), traditional and ethnic foods, food description and data quality, dietary intake assessment, nutritional labelling & health claims, reformulation and impact on food intake and health, personalised nutrition, and research infrastructures. Paul has considerable experience in both participating in EU projects in food, nutrition, and health as well as leading projects. Paul has a broad range of experience in science publishing and is editor for the journals Food Chemistry, and Trends in Food Science and Technology. Paul has a degree in Chemistry from Aston University in Birmingham and has published over 150 publications on a wide range of topics in food science and nutrition. He is also the President for EuroFIR AISBL, a non-profit organisation based in Brussels (BE).

Barbara Korousic Seljak[*]
Institut Jozef Stefan (SI)

Barbara earned her PhD at the University of Ljubljana in Computer Science and Informatics, and works for the Computer Systems Department, Jožef Stefan Institute, in Ljubljana (Slovenia). Currently, she is the Assistant Professor at the Jožef Stefan International Postgraduate School. She is a member of the Executive Board of the Slovenian Society for Clinical Nutrition and Metabolism and was on the EuroFIR Executive Board from 2012 to 2018. In the project RICHFIELDS, she is the leader of WP11, where a RI platform will be designed considering state-of-the-art ICTs for collecting big and open data created by consumers and researchers or generated by machines, such as sensors gathering information, digital pictures and videos, purchase transaction records, GPS signals, etc.

Bent Egberg Mikkelsen[*]
Aalborg University (DK)

Bent holds a MSc. of Food Science from the Royal Agricultural University, Copenhagen and a PhD in Social Science from Roskilde University. He is author of many publications on public health nutrition and sustainable public food systems. Bent has been as the principal investigator on several research projects and his work include several assignments on nutrition at schools and hospitals for the Council of Europe, food and nutrition at work for the Nordic Council of Ministers, healthy eating at school for the European WHO regional office and the EU platform for Health, Diet and Physical activity. He is a Professor of Nutrition and Public Food Systems at Aalborg University. He is the past president of an EU expert committee for the school fruit scheme (SFS). He is also a member of the advisory boards for ProMeal, Glamur and VeggieEat and FoodLinks EU-funded projects. Bent is a member of scientific panel in the Sapere Taste Education network and the Management committee of COST action IS1210. He is the principal investigator on the SoL Multi-Level Multi-Component community intervention on healthier eating.

[3] Panellist for 14:30 Panel Session: FNH-RI

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 654280.

Krijn Poppe[4]
Wageningen Economic Research (WUR, NL)

Krijn J. Poppe (1955) is a business economist working in the research management of Wageningen Economic Research, located in The Hague, the Netherlands. As Chief policy Analyst he helps decision makers in policy and business to understand and act upon trends in agri & food, based in science. He is involved in several large, multidisciplinary research projects for the EU. He chaired a group of experts for DG RTD to design missions for the FP9 Horizon Europe research program on food and agri. Current research interest focus on agricultural and food policy issues, ICT, research infrastructures and the agricultural knowledge and innovation system. He is much in demand as a speaker on the future of farming and food. In addition, Krijn works one day a week as member of the Council for the Environment and Infrastructure, a strategic advisory body to the Dutch government. From 2009 – 2011 he worked part-time as Chief Science Officer at the Dutch Ministry of Economic Affairs, Agriculture and Innovation. Krijn J. Poppe is a Fellow of the European Association of Agricultural Economists and was for 12 years (1999-2011) their Secretary-General. He is honorary secretary-treasurer of the EAAEP Foundation (that publishes the ERAE) and chairs the Steering Group of the journal EuroChoices. He is a board member of the organic control authority SKAL and advises the Provinces of South-Holland and Flevoland.

Golboo Pourabdollahian*
Institute of Industrial Technologies and Automation (ITIA, IT)

Golboo received her PhD from politecnico di Milano in Management, Economics and Industrial Engineering. Her research activities and interests are business models, personalisation and mass customisation, product-service systems, manufacturing sustainability, and technology road-mapping. She is engaged in different projects at European and national levels and has authored several scientific publications.

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Dr. Eng. Giacomo Copani head of "Manufacturing Business Models" research at the Institute of Industrial Technologies and Automation (ITIA) of the Italian National Research Council (CNR). His research activity is on manufacturing business models, industrial services, manufacturing sustainability and technology road-mapping. He is engaged in European and National research projects as project coordinator and researcher, and he supports policy making processes by cooperating with National and Regional Manufacturing Clusters and by having responsibilities in European policy initiatives such as the Vanguard Initiative and the European Smart Specialisation Platform.

[4] Moderator for 11:25 Panel Session: Q & A RICHFIELDS & 14:30 Panel Session: FNH-RI

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 654280.

Monique M. Raats*
Consumer Behaviour and Health Research Centre, University of Surrey (UK)

Monique is Director of the University of Surrey's Food, Consumer Behaviour and Health Research Centre. Her portfolio of research is wide ranging in terms of topics being addressed (e.g. food choice, food preparation, policy development, food labelling), and methodologies used (e.g. qualitative, quantitative, stakeholder consultation). She has published over 110 peer-reviewed papers, 19 book chapters, and co-edited two books (The Psychology of Food Choice; Food for the Ageing Population). She is a founding member of the International Society of Behavioral Nutrition and Physical Activity. In 2011 Monique joined the UK's Scientific Advisory Committee on Nutrition and is a member of its Subgroup on Maternal and Child Nutrition. Currently, she is a beneficiary in the Horizon 2020 RICHFIELDS project that aims to design a consumer-data platform to collect and connect, compare and share information about our food behaviours, to revolutionise research on every-day choices made across Europe and PROSO project that is providing guidance on how to encourage engagement of citizens and third sector organizations, like non-governmental organizations (NGOs) and civil society organizations (CSOs), in Europe's research and innovation processes. She also coordinates REDICLAIM, which investigates how EU legislation impacts on the substantiation and use of "reduction of disease risk" claims on food and drinks.

Lada Timotijevic*
Food, Consumer Behaviour and Health Research Centre, University of Surrey (UK)

Having completed her PhD in 2000 (University of Surrey) in the area of identity processes in the context of social and cross-cultural mobility, Lada has subsequently worked within the advertising industry (J. Walter Thompson). Lada joined the Food, Consumer Behaviour and Health Research Centre (FCBH) at the University of Surrey (Department of Psychology) in 2002, a multidisciplinary research centre that brings together skills and expertise from across the University in order to address research questions on food related policy, consumer behaviour, and public health. Since her arrival, she has played an instrumental role in the success of the Research Centre, working on research projects of substantive theoretical and applied relevance. Lada work is within the critical public health framework and her empirically-oriented work has focused on understanding the role and nature of public and stakeholder engagement and dialogue in policy and science, risk perception and governance, and science-policy interaction. Policy relevance is a key theme across her research projects, and her work is aimed at both understanding the processes of policy making and contributing evidence on which to base policies. Lada is particularly interested in public health nutrition, sustainable diets, and illness prevention.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 654280.

Pieter van't Veer[†]

Division of Human Nutrition and health, Wageningen University (NL)

Pieter studied Human Nutrition (Wageningen, 1982) and Epidemiology (Harvard School Public Health, 1982). He obtained his PhD in Nutritional Epidemiology (Maastricht, 1990) and was employed by The Netherlands Cancer Foundation (1982), TNO Nutrition Institute (1984) and Wageningen University (1993). He chaired the Nutrition and Epidemiology group, Division of Human Nutrition (2002 onwards). His scientific career initially focused on diet and carcinogenesis and gradually shifted to NCDs, biomarkers, exposure assessment, dietary habits and prevention, and finally environmental sustainability and food systems. He supervised projects on diet and breast cancer, GI-tract cancers and cardiovascular disease (EURAMIC study), standardisation of dietary assessment for pan-EU surveillance (EFCOVAL), harmonising dietary requirements (EURRECA) and public health (community health centres). More recently, his work extended to the environmental aspects of the diet in, e.g., the SUSFANS project. To facilitate interdisciplinary and intersectoral consumer-centred nutrition research within a food systems context, he is scientific leader for the development of a pan-European food, nutrition and health research infrastructure. In 2015, Wageningen University endowed him with a special chair in Nutrition, Public Health and Sustainability.

Karin Zimmermann[†]

Wageningen Economic Research (NL)

Karin is a senior researcher in Strategic Marketing. She is engaged in various EU-funded projects, as a senior researcher and project manager, undertaking research on consumer behaviour, consumer driven, and responsive food chain (ISAFRUIT, Focus Balkans, PEGASUS, DG CLIMA), communication (CONNECT4ACTION, SUSFANS), and (conceptual) design of a European research infrastructure for food, nutrition, and health (EuroDISH, RICHFIELDS). Since 2015, Karin has been a member of the Executive Management Board of the European Food, Nutrition, and Health Infrastructure (FNH-RI). Currently, she is also a programme manager for research infrastructures.

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Annex 2. Final event programme

A2.1 Agenda

09:30-09:40 **Welcome and introductions**
Paul Finglas (Quadram Bioscience Institute [QIB], UK)
Christina Sadler (EUFIC, BE) – using Sli.do

09:40-10:10 **Coordinated Research Infrastructures Building Enduring Life-science Services**
Peter M. Abuja, Medical University of Graz (AT)

========== RICHFIELDS: DESIGNING A PLATFORM ==========

10:10-10:40 **Introduction to RICHFIELDS**
Lada Timotijevic (University of Surrey, UK)

10:40-11:00 **Potential of using consumer-, research- & business-generated data**
Bent Egberg Mikkelsen (Aalborg University, DK)

11:00-11:20 **RICHFIELDS: Data sharing survey in eight EU Member States**
Monique Raats (University of Surrey, UK)

11:20-11:25 **RICHFIELDS video**

11:25-12:25 **Panel Session: Q & A RICHFIELDS**
Moderator: Krijn Poppe (Wageningen Economic Research [WUR], NL)

12:25-12:30 **Introduction to the posters at lunchtime (5 minutes)**
Siân Astley (EuroFIR, BE)

========== NETWORKING SESSION ==========

12:30-14:00 **LUNCH WITH FNH-RI & Posters**

========== SCIENCE NEEDS & COMMUNITY BUILDING ==========

14:00-14:30 **Expanding the science case for FNH-RI: Moving on from RICHFIELDS**
Pieter vant Veer (Wageningen University, NL)

14:30-15:30 **Panel Session: FNH-RI**
Moderator: Krijn Poppe (Wageningen Economic Research [WUR], NL)

15:30-16:00 **Realising the FNH-RI: Road map**
Karin Zimmermann (Wageningen Economic Research [WUR], NL)

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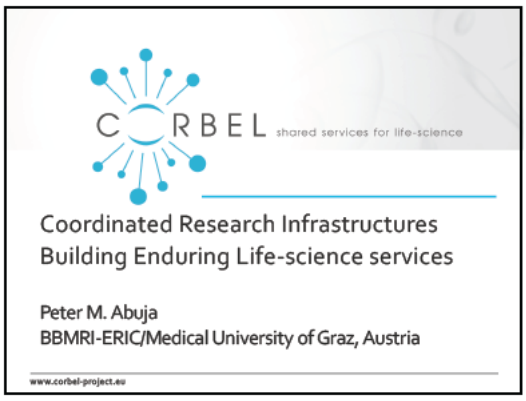
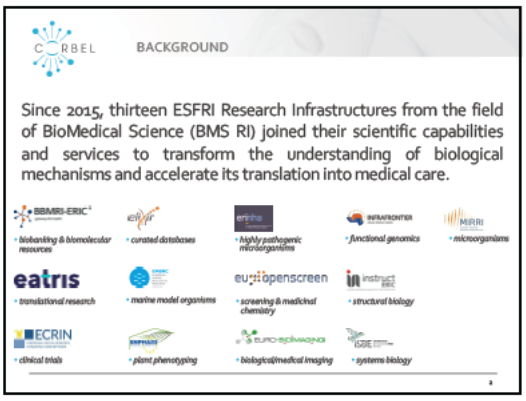
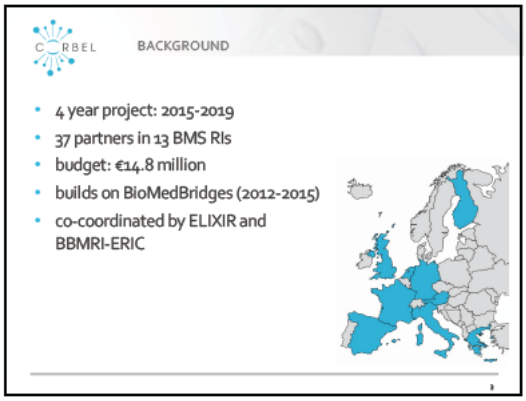
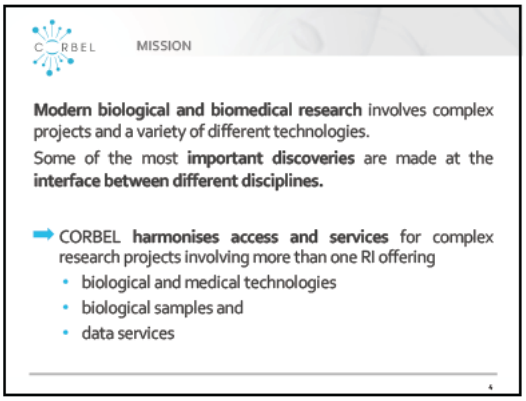
A2.2 Presentations

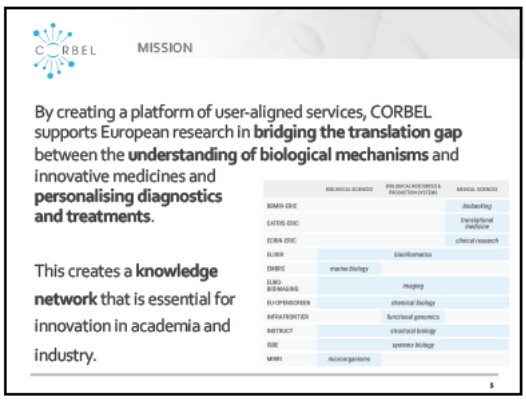
09:40-10:10 **Coordinated Research Infrastructures Building Enduring Life-science Services**
Peter M. Abuja, Medical University of Graz (AT)

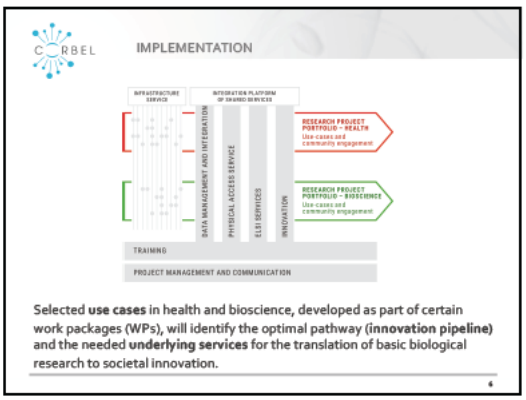












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ACCESS – OPENING AND INTERFACING RIS

- Medical Infrastructure/Users Forum (MIUF)
  - To support health and medical research by RIs
- ‚common services':
  - Harmonising animal model phenotypes and clinical outcomes
  - Access to patient-level clinical trial data
  - Data integration and management services for biomarker studies
  - Integration of population cohorts for prognostic biomarkers
- Development of a **common access framework** that facilitates user access to services and resources across all eleven RIs
  - access in more than 25 countries
  - access via more than 120 national nodes

7

ACCESS – PROVIDING RESOURCES IN A UNIFIED WAY

- Access to resources, data and services
  - Providing a common access framework based on identified commonalities
  - Collating regulatory policies, potential for standardization
  - Data management standards and infrastructure
  - Secure access to sensitive data
- Access calls (resources of multiple RIs) – only RI work is funded
  - Genotype-to-phenotype analysis
  - Predictive systems pharmacology for safer drugs and chemical products
  - Structure-function analysis of large protein complexes
  - Marine metazoan developmental models
  - Complex multimodal biomarker profiling

8

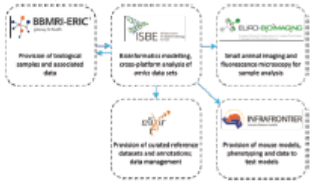
ACCESS FOR INDUSTRY → INNOVATION

- Specific industry-targeted access models
  - open access pre-competitive → commercial (IP management, use rights, etc.)

9

INNOVATION PIPELINE

example for an Innovation Pipeline:



- **Individually**, the services offered by the BMS RIs are critical to their own user communities.
- **Collectively**, through CORBEL, they will be transformative across the range of life-science disciplines: from generation of knowledge at the bench to patient treatment at the bedside.

10

INNOVATION → TARGETED AT INDUSTRY

- Innovation Office
  - Innovation Helpdesk
  - Real-time advice for RIs, free of charge;
  - Template documents for frequently occurring technology transfer situations (MTA, CDA, etc.)
  - Yearly joint industry/RI workshops on innovation, knowledge sharing etc.
  - Guidelines and assistance with cross-infrastructure, industry/academia collaboration and knowledge sharing;
  - Access to specialist knowledge in relation to business development and legal, regulatory or ethical aspects;
  - On a case-by-case basis, hands on involvement by Innovation Office staff with real collaboration and negotiation cases.

11

INNOVATION – SAMPLE AND DATA BOTTLENECK

- Need: (human) biological resources (samples, data) for industrial research
- Problem: most of these resources have been created using public funds (research grants, healthcare financing, etc.) and cannot be transferred to the private sector (industry)
  - No distribution of human samples (confidentiality)
  - no paymen,t not even on cost-recovery basis
- Solution: data are generated/provided by trusted partner
  - Used exclusively by industry for a grace period and are then transferred to the public domain

12

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 654280.

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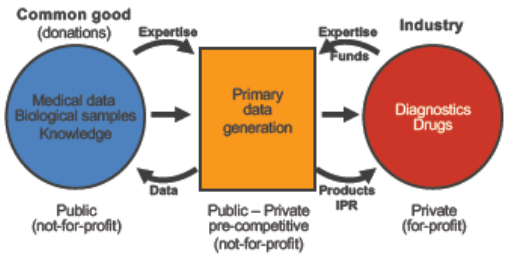
INNOVATION - EXPERT CENTRES



CORBEL

INNOVATION – MERGING FIELDS

- An excellent example of boosting innovation is given by Nestlé:
  - Nestlé which is rooted in the food industry responded to the increasing interest in health-promoting properties of food by extending its research and development into the pharmaceutical sector. Today, Nestlé Health Sciences not only offers Food for Special Medical Purposes and Nutritional Therapies but performs research in its Institute of Health Sciences under a Policy on Public–Private Science & Research Partnerships. It hosts an Open Innovation Platform (HENRi@Nestlé; https://henri.nestle.com) that posts regular challenges regarding a broad variety of nutrition and health-related projects.
    - P. M. Abuja & K. Zatloukal ‚Concept Paper on new business models related to Open Innovation' – presented as D8.2 in CORBEL (2018)

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ELSI - ETHICAL, LEGAL AND SOCIETAL ISSUES

- A sustainable **common service** for all BMS RIs dealing with samples and/or data with ethical, legal and social implications
  - development/improvement of patient information and consent templates
  - integration of the common service into the BBMRI-ERIC tool ***Common Service ELSI***

footer

CORBEL

EDUCATION AND TRAINING

- RI Staff can acquire complementary skills offered by other RIs through a ‚staff exchange' programme
  - Course format
    - Ethics and Legal Framework @ ECRIN-ERIC
      - Legal and ethical framework for collecting sensitive human data
    - Ethics and Legal Framework @ BBMRI-ERIC
      - GDPR (basic principles) from a biobanking viewpoint, consent issues
    - User Relationship Management @ CCMAR [EMBRC]
      - Experiences and operational best practices in User Access and Service Provision

CORBEL

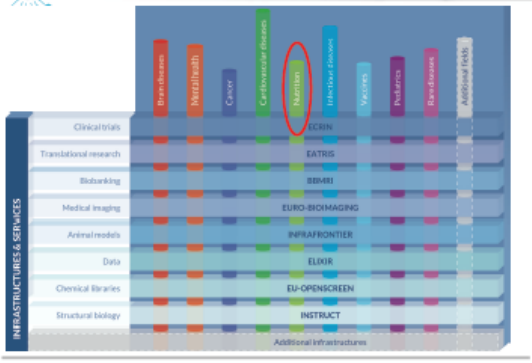
FUTURE DEVELOPMENTS

The network of ESFRI BMS Research infrastructures is not a closed structures and will expand in the future

- BBMRI-ERIC – biobanking & biomolecular resources
- elixir – curated databases
- emerge – highly pathogenic microorganisms
- INFRAFRONTIER – functional genomics
- MIRRI – microorganisms
- eatris – translational research
- marine model organisms
- eu-openscreen – screening & medicinal chemistry
- instruct – structural biology
- ECRIN – clinical trials
- EMPHASIS – plant phenotyping
- EURO-BIOIMAGING – biological/medical imaging
- ISBE – systems biology

CORBEL

MATRIX OF MEDICAL RESEARCH PRIORITIES



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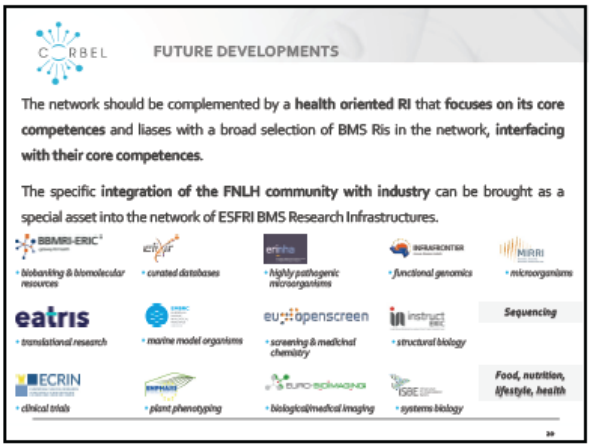

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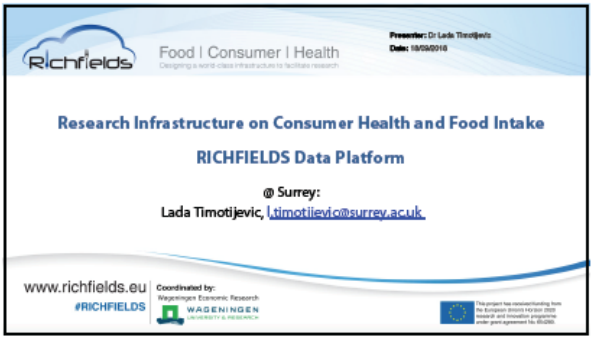
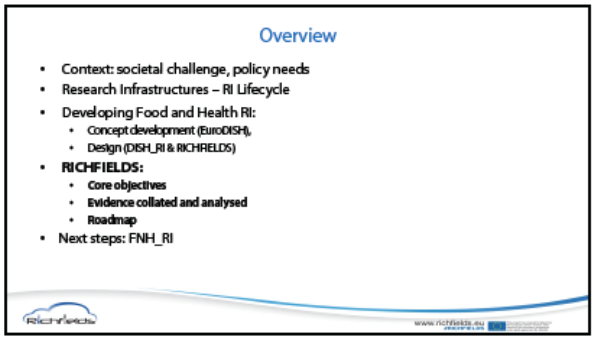
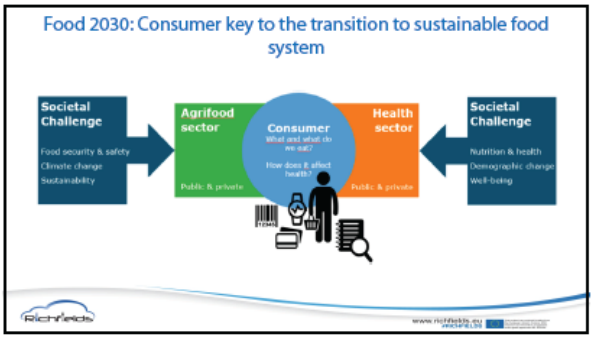
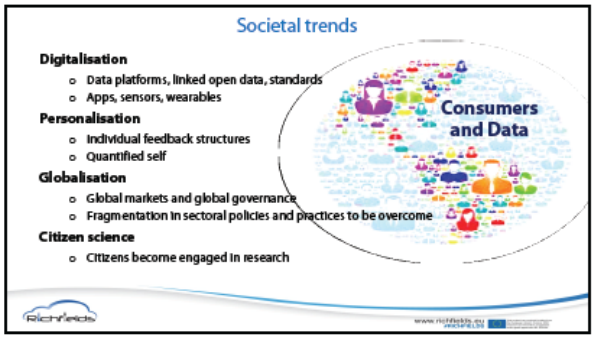
10:10-10:40 Introduction to RICHFIELDS

Lada Timotijevic (University of Surrey, UK)









This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 654280.

Research & innovation developments

Open Data
- Big data; data science; "Smart" FNS via ICT;

Open Innovation
- Private partnering; responsible research and innovation; civil society engagement

Open Science
- Open access and data sharing; trans/inter-discliplinarity

Open to the World
- Globally connected science; international research infrastructures

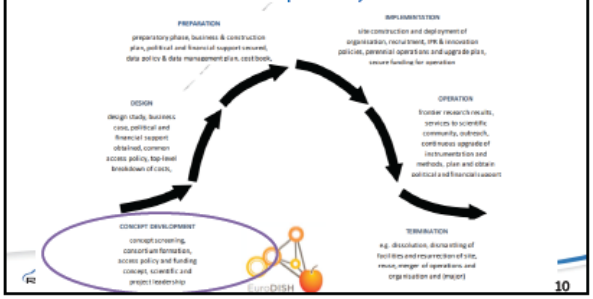
Why do we need RIs?

- Help to create international and **interdisciplinary research communities** around a societal challenge
- Standardise, harmonise, ensure **good quality data**
- **Build skills**, capacities, capabilities
- Open up unique advanced research **facilities, expertise and services**

EFSRI 2016 Roadmap: RI lifecycle

9

EFSRI 2016 Roadmap: RI lifecycle



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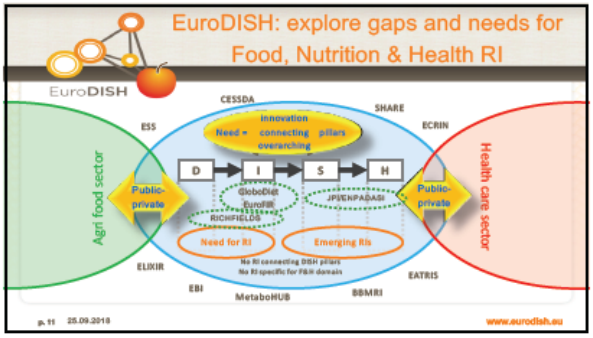
EuroDISH: explore gaps and needs for Food, Nutrition & Health RI



p. 11 25.09.2018 www.eurodish.eu

EuroDISH Concept Development

EuroDISH

I. Through mapping of existing RIs in the domain of DISH, identified the gap in the market (D-I)

II. Through a series of case studies, identified the possible linkages with other RIs

III. Through lit review, desk research and key stakeholder interviews, identified governance models

IV. Through a series of technical case studies, mapped out the technological requirements

p. 12 25.09.2018 www.eurodish.eu

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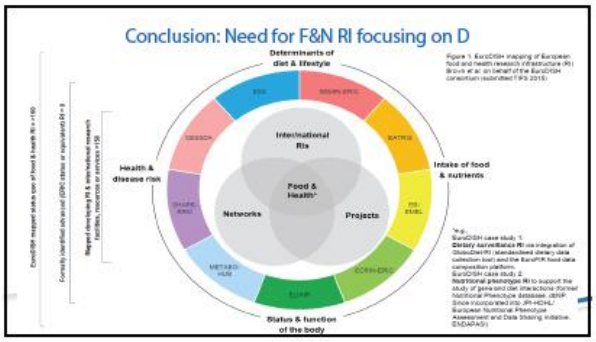

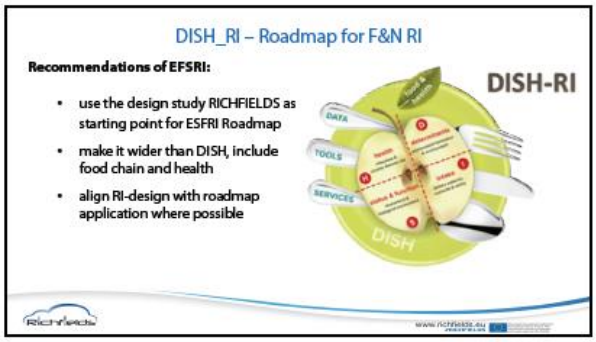

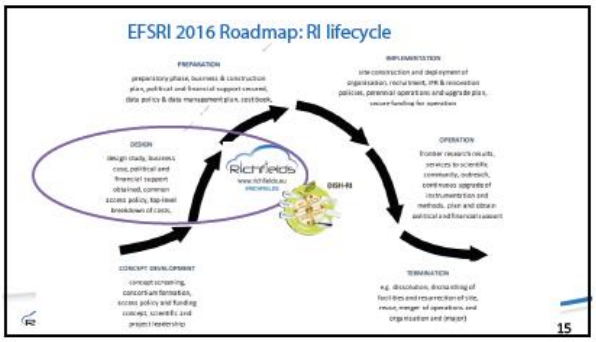

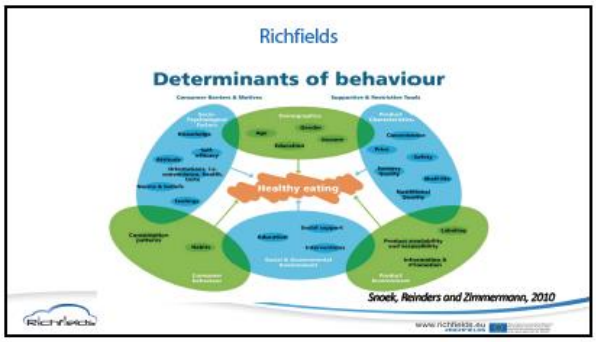

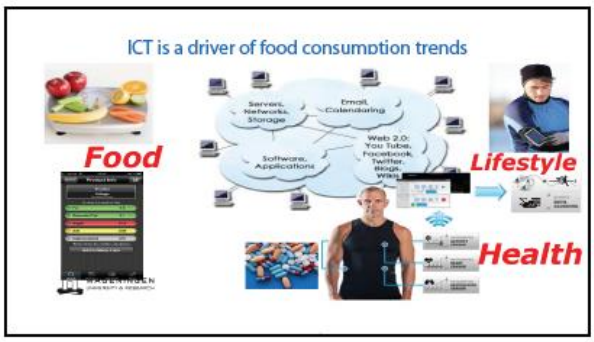

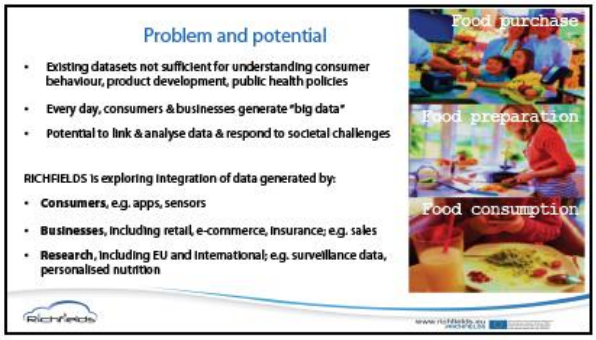

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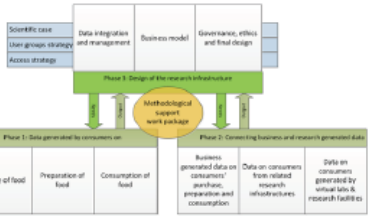
RICHFIELDS Core objectives

(I) Will assess and propose a Consumer Data Platform

(II) RICHFIELDS Data Platform will ensure connectivity of various data dealing with determinants and intake

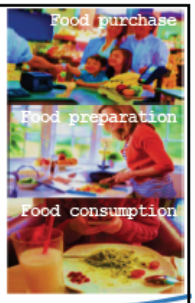


Evidence gathered in Phase1 and Phase 2

Descriptive Criteria *What exists?*	Scientific Criteria *Is it useful?*	Technical Criteria *Can we access it?*	Legal/Ethical Criteria *Can we use it?*
• Data Being Collected • Best practices for data collection • Type of data	• How standardised? • Potential to infer about: purchase, preparation, consumption • How validated	• How is data organised? • Data Formats • Ontologies • Authentication • Harmonisation	• Willingness to share data • Terms of use • Privacy Policy • Data ownership

Phase 1: Evaluation of consumer-generated data

- Identify, characterise and evaluate consumer-generated data
  - Food Purchase
  - Food Preparation
  - Food Consumption
- Understand the potential to use such data for scientific purpose – data sharing study



Conclusions

Descriptive Criteria *What is it?*	Scientific Criteria *Is it useful?*	Technical Criteria *Can we access it?*	Legal/Ethical Criteria *Can we use it?*
Categories are: • Knowledge & understanding • Planning and organisation • Making a purchase • Meal preparation/ cooking • Food diaries	Purchase/preparation: • describe an intention, not the actual behavior • Can't be linked to an individual. Consumption: • APPS do collect data at the individual level, • Reliability/validity • Interpretion	No apps explicitly stating "no" data accessibility, but most apps did not provide any information on this Majority of apps that allowed data access did not provide information on the issue	Lack of documentation related to the implemented terms of use and privacy policies. Where a "terms of use" document existed, the majority of apps had no information on data ownership

Conclusions for food purchase apps:

- Linking food purchase/prep/consumption data to strengthen its scientific value
- Need to carefully develop the protocols for performing such linkages
- Potential for RICHFIELDS to link with the existing AGGREGATORS established in the public domain

Phase 1: *Data sharing study*

Objective to understand:

- the extent to which consumers are **willing to share** their food and health related data with publicly funded researchers, governments and industry,
- **differences in willingness to share** by country, age, gender, education or socio-economic status,
- the relevant **predictors** to willingness to share their data.

Data sharing context

- ***"Scientists** in universities and publically funded research institutes need data to study the relationship between food and health."*
- ***"Governments** need data to develop and monitor nutrition policies in place to improve food and health."*
- ***"Companies** that produce or sell foods and drinks (e.g. manufacturers, retail chains, restaurants, food delivery services) need data to do research to develop and improve their products."*

N=8 countries, 1000 participants each

Phase 2: Evaluation of business & research-generated data

Business (e.g. retail, ecommerce):

- best practices of collecting data;
- ICT technology used for data collection;
- stakeholder perspectives for sharing of data in data pools.

Existing research infrastructures

- their their approaches to data access, data linking, governance and business models were reviewed
- potential linkages and data sharing opportunities explored

Laboratories

- their structures, purposes and technical specificities, to better understand their needs and wants



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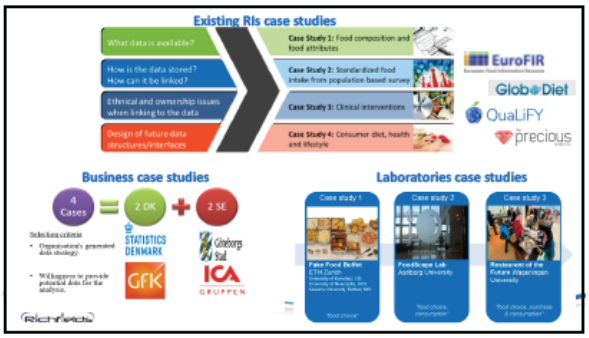

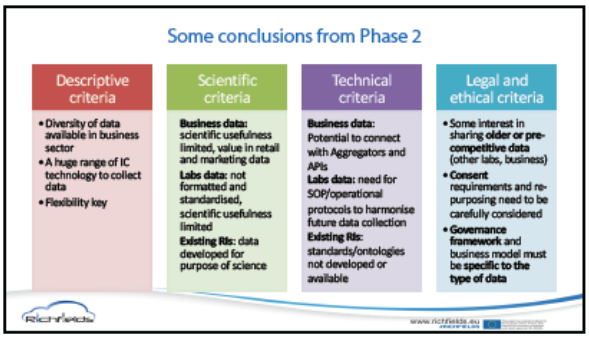

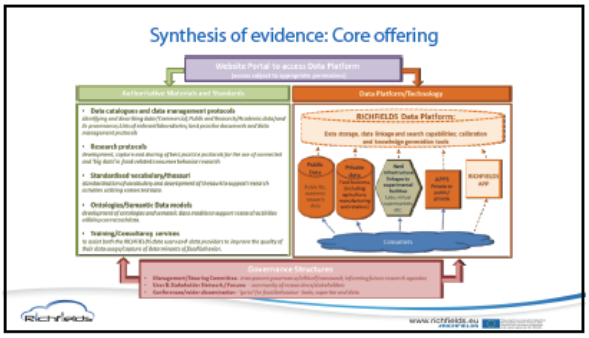

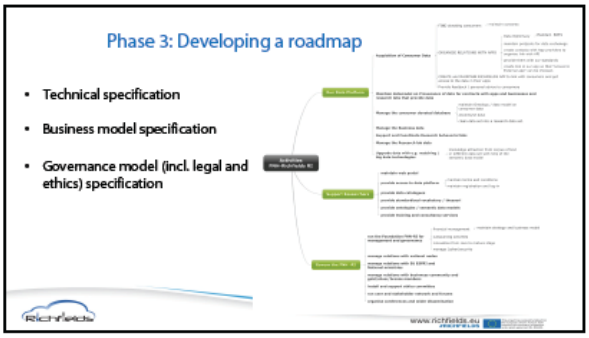

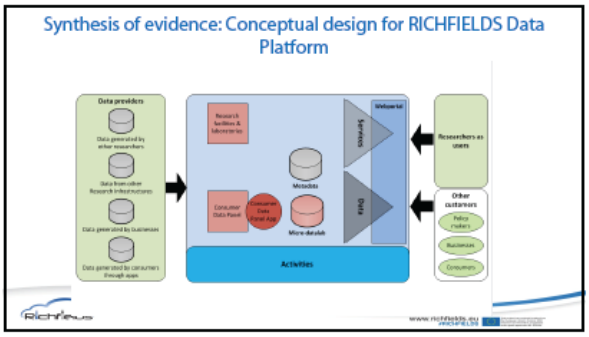

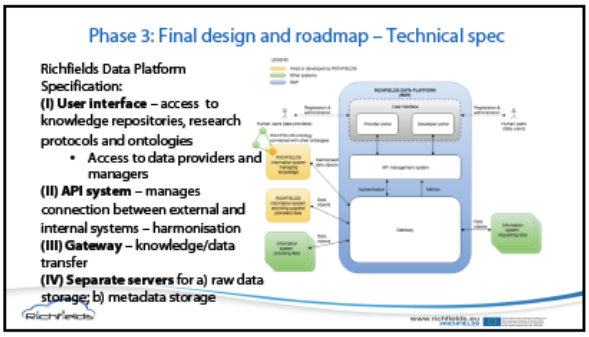

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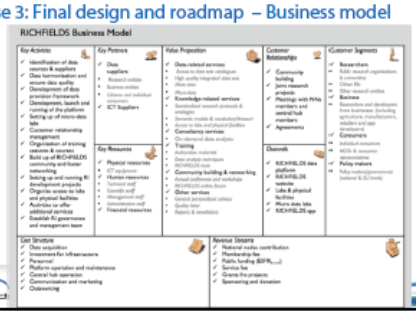
Phase 3: Final design and roadmap – Business model



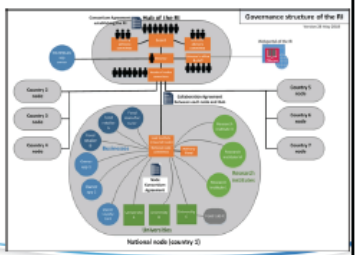
Phase 3: Final design and roadmap – Ethics and governance

Data governance must:

- Enhance trust
- Ensure transparency
- Protect IPR
- Be legally compliant
- Grant access on the case by case basis

Organisational governance must:

- Be flexible & democratic
- Be accountable & transparent distributed and de-centralised facility; a 'hubs & spoke' model.



Summary: Three ongoing tracks to the FNH-RI

EU, Research Infrastructure projects

- EuroDISH: Determinants – Intake – Status - Health
- RICHFIELDS: Focus on gap Determinants – Intake

Food Nutrition Health RI roadmap (ESFRI)

- 2015, based on (premature) application, lessons learned
- Next round 2019/20

EU Member States

- Preparing FNH-RI consortium for ESFRI-roadmap
- Political & fin support ESFRI roadmap applic (Ministries)
- National roadmaps (DK, NL, IT, UK, FR, SL). Coming up new node 2019

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#RICHFIELDS
Coordinated by: Wageningen Economic Research
WAGENINGEN UNIVERSITY & RESEARCH

Partners: WAGENINGEN UNIVERSITY & RESEARCH

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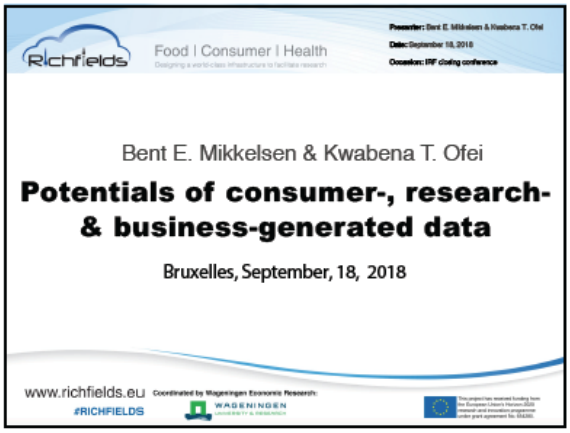
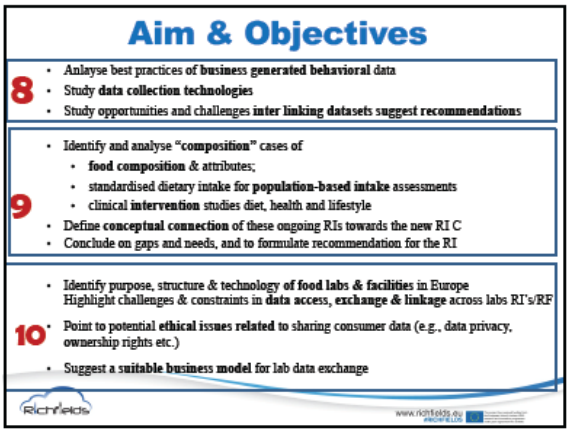
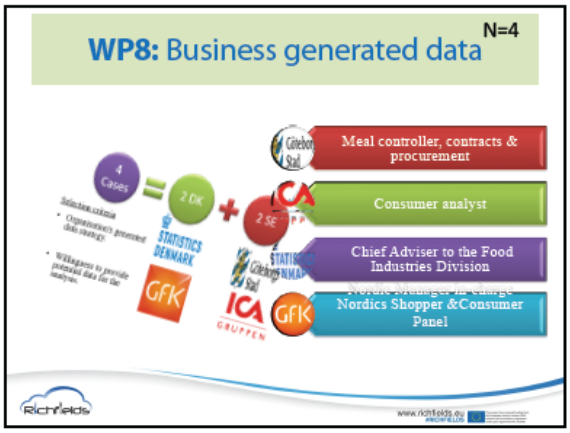
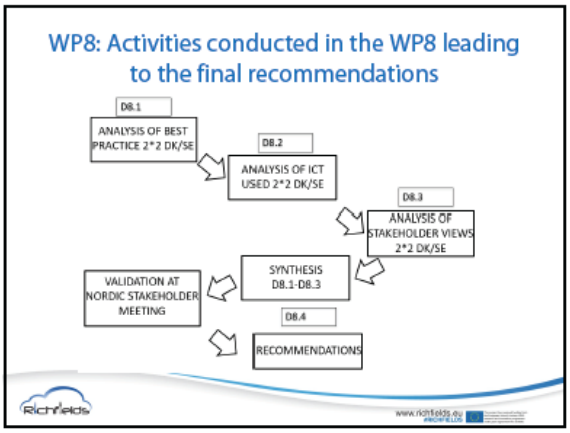
10:40-11:00 **Potential of using consumer-, research- & business-generated data**

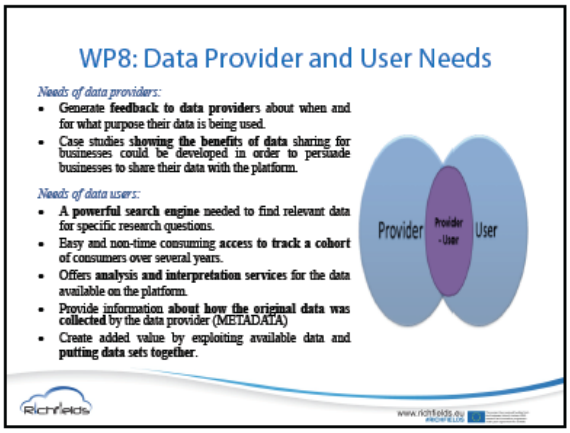
Bent Egberg Mikkelsen (Aalborg University, DK)

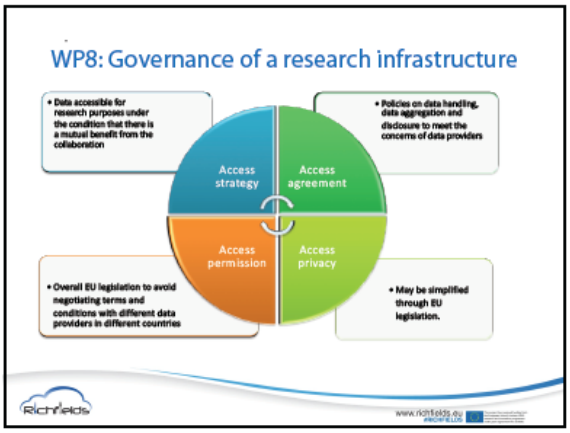












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WP8: Business models for a research infrastructure.

Need to conceive of different business models in these different cases.

Develop strategies that could help exclude entities and businesses organizations likely to have competitive urge over their counterparts

The WP8 bonus study findings
Data Sharing

Most informants do not know if or what kind of data the company collect, but think it is fair that companies collect and use data to brand and improve their business.

Some finds that data collection is fine as long as the customers do not feel that they are being kept under surveillance.

One expressed that if the company would use the data to inform and advice the customers of their diet and chose of purchase, it would be crossing the line.

She also stressed that data sharing should be transparent and easy to opt in and out of for the customer.

One claimed that data sharing about purchases, diets and background knowledge is fine as long as it does not involve collecting bank account informations or not keeping them safe.

"R: I don't really know what kind of data they have on me.
I: No, I'm just thinking about data like 'what you have bought…"
R: Ohh, yes. I think it is fine. It is quite fair that they get to know something and use it as well. Because it helps them to run a better business."
– Johanne, 25 years, lives with friend in rental apartment

The WP8 bonus study findings
Data Sharing

Few informants can relate to the idea of actively use purchase data to feed back advice to consumer about diet or food habits since consumption is limited to specail occasions

None of the informants monitor their intake of food with apps or instruments

Collecting and using data for scientific purposes are deemed more acceptable then for corporate purposes.

"I don't really know whether I'll take advantage of it. It is a bit like McDonalds; 'with this meal you get that amount of calories, carbohydrates…" I is an overkill. I don't know, it might be over the top."
Anne, 35 years, lives with partner and two children in private household

Training services important

- Extension services/practitioners industry
- Doctoral level for research purposes
- Graduate level at consumer and food studies
- Mix of lecturing, exercises, excursions, student assignment
- Could be co-arranged by more universities

WP9: Science delivered data

N=4

Exploring how to deliver data and content to the RI Consumer Data Platform

WP10: Connecting laboratories and facilities

D	Deliverable
10.1	Laboratories and research facilities in the field of food and health consumer behaviour and lifestyle
10.2	Facility to collect purchase behaviour data: Restaurant of the Future (RoF)
10.3	Facilities to collect food choice and consumption data (FoodScapeLab & Fake Food)

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 654280.

WP10: Connecting laboratories and facilities

1) What do the **purpose, structure, technology/devices used** and **data storage** of various laboratories and facilities in Europe look like?
2) Are there ways (and interest) to offer **data access, exchange and linkage** to external research infrastructures, like RICHFIELDS?
   - What would be the challenges and constraints?
3) What are potential **ethical issues** related to sharing consumer data (e.g., data privacy, ownership rights etc.)?
4) Is there a suitable **business model** to manage data exchange (e.g., user and access rights, fees, governance of data usage for different purposes)?

WP10: Connecting laboratories and facilities

Step 1
- Case studies on three facilities (Fake Food Buffet, FoodScape Lab, Restaurant of the Future)
- Food choice, purchase and consumption

Step 2
- Mapping additional facilities across Europe (private and public)
- Expert interviews in selected facilities (commercial and public-private institutions)

Step 3
- Stakeholder workshops to discuss these insights
- Synthesis of findings and recommendations

WP10: Connecting laboratories and facilities

Case study 1

Fake Food Buffet
ETH Zurich
University of Konstanz, DE
University of Newcastle, AUS
Queens University, Belfast, NIR
"food choice"

Case study 2

FoodScape Lab
Aarlborg University
"food choice, consumption"

Case study 3

Restaurant of the Future Wageningen University
"food choice, purchase & consumption"

WP10: Connecting laboratories and facilities

Some challenges
- Validation
- Business models
- Calibration
- Maintenance
- Updatings

Some advantages
- Smart specialisation
- Easy one stop shopping access
- Common experimental protocols
- Increase exchange & mobility
- Facilitate innovation and market solutions

To conclude

interest & potentials

- On the overall and general level:
- Business are interested and can see the potentials
- Universities are interested and can see the potentials
- Government agencies are interested and can see the potentials

- But
- Quality issues are crucial
- Regular Updating as well
- Agreed standards for exchanging data too
- A distinction is important
- A RI is dual in nature: Both hard and soft
- Hard: Labs are key to "devices" ("tangibles")
- Soft: just a "wireless" connection to data ("intangibles")
- Interest is related to the fact that non academic actors dont go round thinking about RI – but they are kept awake by the potentials of studying consumer behaviour the digital way

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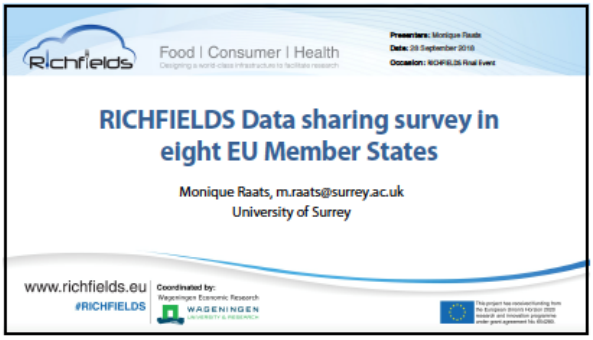
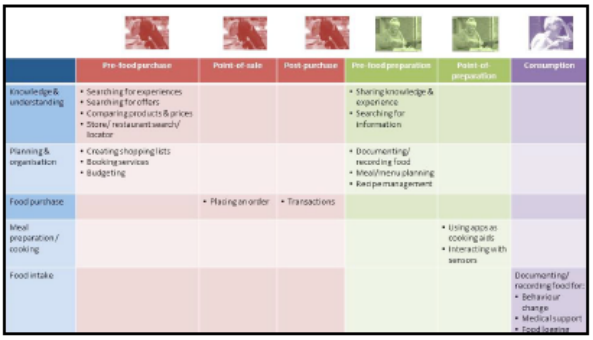
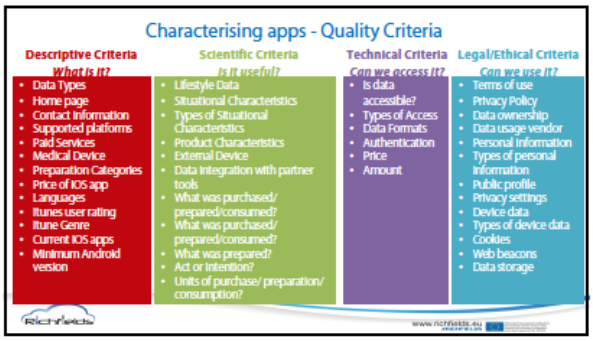
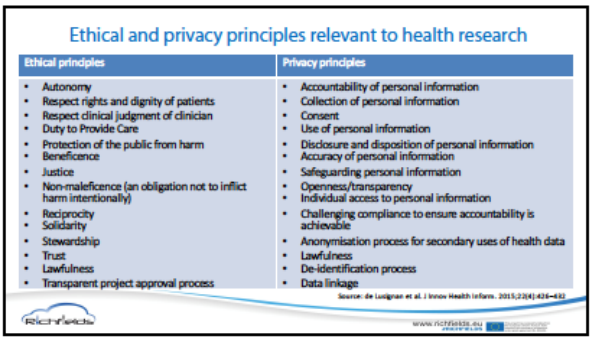
11:00-11:20 RICHFIELDS: Data sharing survey in eight EU Member States

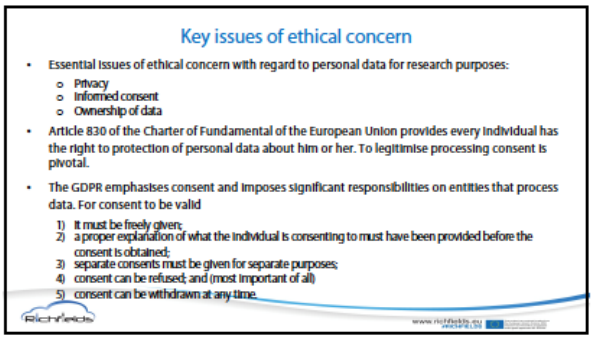
Monique Raats (University of Surrey, UK)

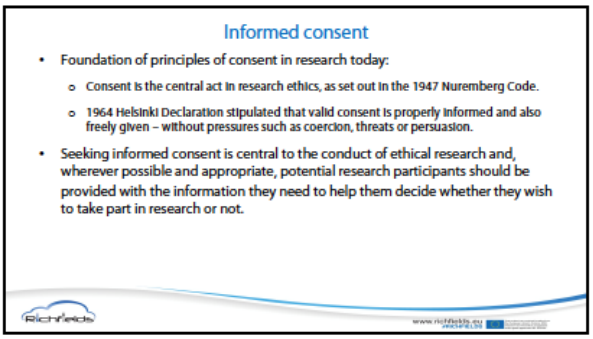












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Consent processes in app mediated research

- The methods and procedures used to seek informed consent and the level of information provided should be proportionate to the:
  - nature and the complexity of the research;
  - risks, burdens and potential benefits (to the participants and/or society);
  - ethical issues at stake.
- Unique risks:
  - Risk to privacy through opportunity to gather more and different types of data through than would be possible in traditional studies - participants are potentially more easily identifiable because of diversity and volume of data being collected
  - Because of its highly structured, electronic nature, data collected through app-mediated research can be easily redistributed to third parties.

Legal/ethical criteria - Can we use it? - *Data sharing study*

- Range of data types being shared
- Data sharing context
  - Scientists in universities and publically funded research institutes need data to study the relationship between food and health.
  - Governments need data to develop and monitor nutrition policies in place to improve food and health.
  - Companies that produce or sell foods and drinks (e.g. manufacturers, retail chains, restaurants, food delivery services) need data to do research to develop and improve their products.
- Predictors of willingness to share data
  - Trust and confidence in organization handling data
  - Privacy concerns
  - Reasons for sharing
  - Values (how you see the world), dimensions:
    - Self-conservation (tradition, acceptance)
    - Self-transcendence (success, adventure)
  - Attitudes to science
  - Attitudes to food and health
  - Cooking/shopping practices
  - Perceived health

Questionnaire development procedure

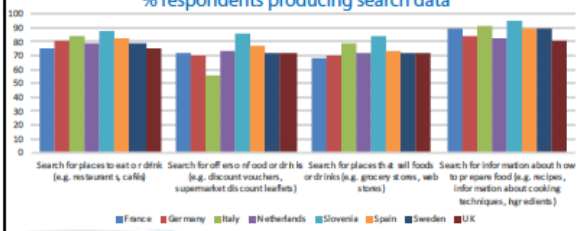
- Questionnaire developed by Surrey with input from WP4-7
- Quota sample – gender: 50% women, 50% men; age: 20% 18-29, 20% 30 to 39,20% 40 to 49, 20% 50 to 59, 20% 60+
- Questionnaire translated by RICHFIELDS partners & Surrey's networks

Rationale for country selection

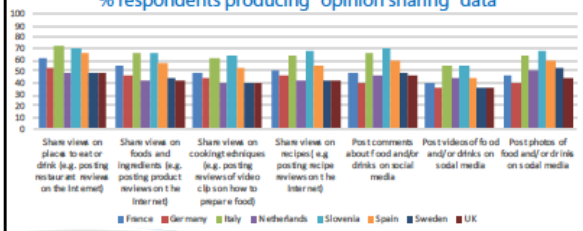
Country	% high health privacy concern responses*	entered the EU	Time in EU	Region	Cuisine	Health care system type**	Role in FNH-RI in preparation
France	40-60%	1952	EU-15	Western Europe	Western	Type 4	2017 Focus Countries with a national node
Germany	20-40%	1952	EU-15	Western Europe	Central	Type 4	2018 Focus Countries with possibilities for a national node
Italy	20-40%	1952	EU-15	Southern Europe	Southern-Mediterranean	Type 1	Core country and initiative taker
Netherlands	20-40%	1952	EU-15	Western Europe	Western	Type 1	Core country and initiative taker
Slovenia	0-20%	2004	"new"	Southeast Europe	Central-Southern	Type 1	2017 Focus Countries with a national node
Spain	40-60%	1986	EU-15	Southern Europe	Southern-Mediterranean	Type 2	2017 Focus Countries with a national node
Sweden	0-20%	1995	EU-15	Nordic Countries	Northern	Type 2	2017 Focus Countries with a national node
United Kingdom	40-60%	1973	EU-15	Western Europe	Northern	Type 1	Core country and initiative taker

*Hall S, et al. (2016) Public preferences for electronic health data storage, access, and sharing – evidence from a pan-European survey. J Am Med Inform Assoc. 2016;01-11. doi:10.1093/jamia/ocw012
**type according to Wendt (2014) Changing Healthcare System Types. Social Policy & Administration, 48: 864-882. doi: 10.1111/spol.12061

Type of data generated: % respondents producing search data



Type of data generated: % respondents producing "opinion sharing" data



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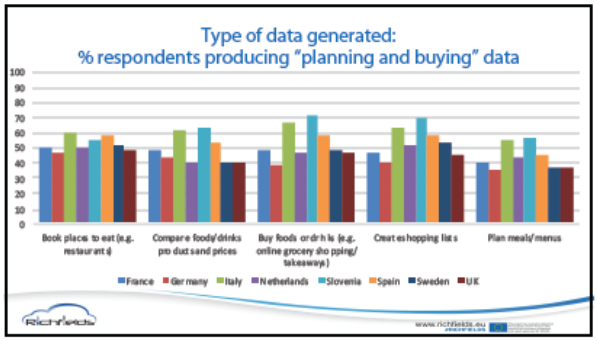
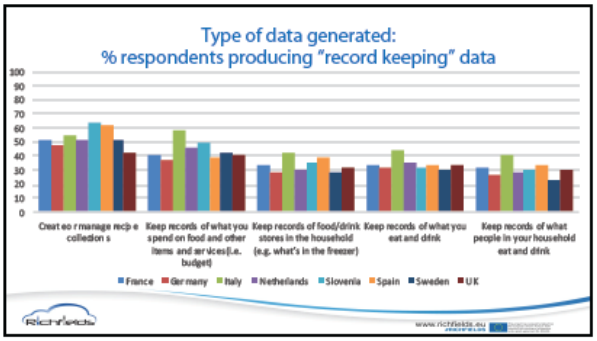
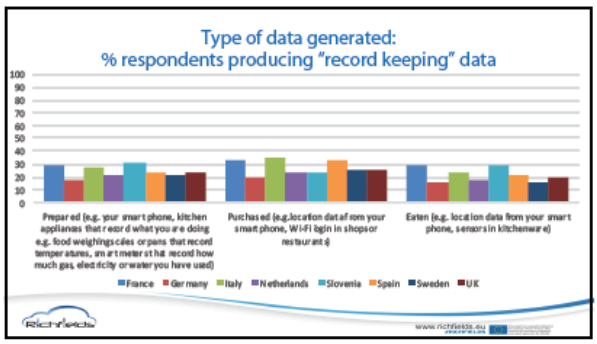
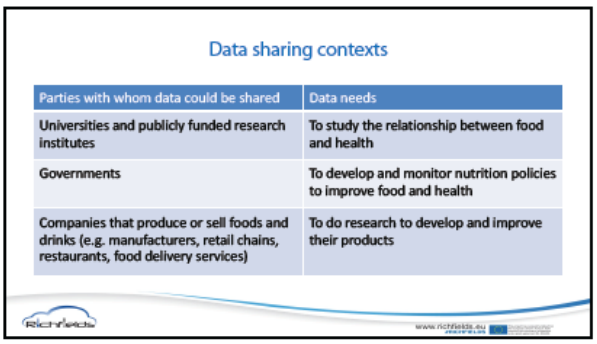


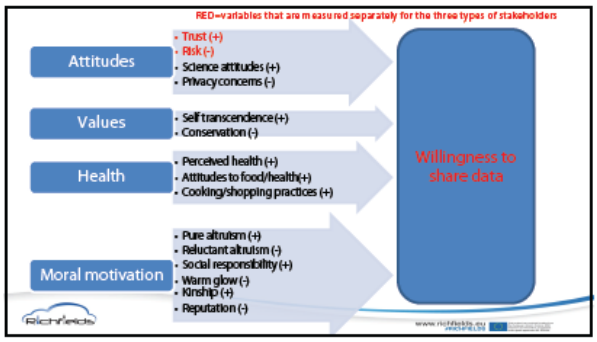


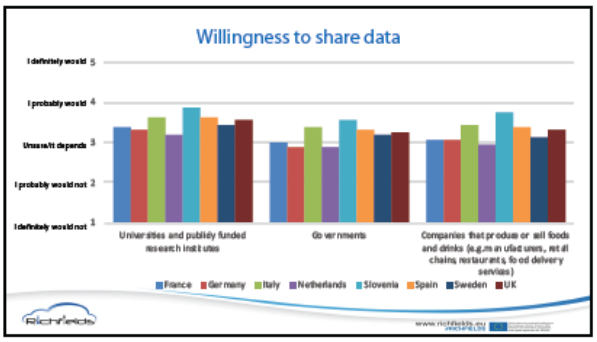




Data sharing contexts

Parties with whom data could be shared	Data needs
Universities and publicly funded research institutes	To study the relationship between food and health
Governments	To develop and monitor nutrition policies to improve food and health
Companies that produce or sell foods and drinks (e.g. manufacturers, retail chains, restaurants, food delivery services)	To do research to develop and improve their products





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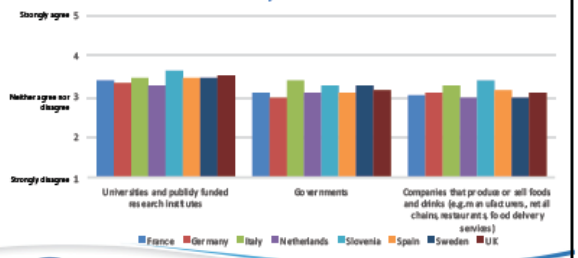
Willingness to share data

- Willingness to share differed both by country, $F(7, 7716) = 61.155$, $p < .001$, $\eta^2 = .053$, and by stakeholder, $F(2, 7716) = 577.249$, $p < .001$, $\eta^2 = .070$
- The interaction was significant but very weak, $F(14, 7716) = 6.414$, $p < .001$, $\eta^2 = .006$
- Planned contrasts showed that participants were more willing to share with universities than with governments and companies, $F(1, 7716) = 584.073$, $p < .001$, $\eta^2 = .127$
- Participants were also more willing to share with companies than governments, but this effect was very weak, $F(1, 7716) = 47.530$, $p < .001$, $\eta^2 = .008$.

Trust questions

- … have the skills and expertise to handle the public's personal data in a way that protects their privacy.
- … have access to the information and skills to handle the public's personal data securely.
- The way … make the decisions to handle the public's personal data is transparent.
- The way … make the decisions on how handle the public's personal data is fair.
- … are fair in their use of the public's personal data.
- … are fair in their user policies regarding the use of the public's personal data.
- … are open and receptive to the public's' concerns about private data handling.
- … keep the public's best interest in mind when handling their data.
- … have the same opinions as me about handling the public's data.

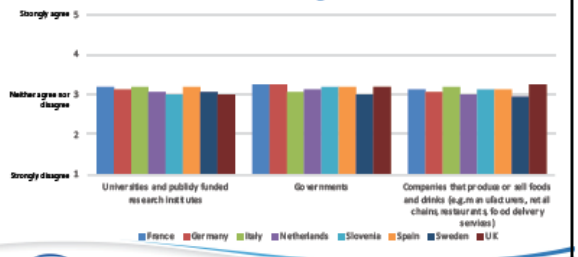
Trust in ability to handle data



Perceived risk questions

- In general, it would be risky to give my data to …
- There would be too much uncertainty associated with giving my data to …
- … with my data would involve many unexpected problems.
- I would feel safe giving my data to …

Perceived risk in sharing data with …



Moral motives for sharing food-related data

PURE ALTRUISM	I think that by sharing food-related data I could save someone's life By sharing food-related data I could help others By sharing food-related data I would be doing the right thing
WARM GLOW	After sharing food-related data I would feel proud by helping Sharing food-related data would make me feel physically good The world would be a better place if everyone who could would share food-related data After sharing food-related data I would feel good about myself
RELUCTANT ALTRUISM	Someone has to share food-related data I would have to share food-related data because other people can't I cannot trust others to share food-related data
SOCIAL RESPONSIBILITY	By sharing food-related data I would be responsible for helping others By sharing food-related data I would be having a personally rewarding experience By sharing food-related data, I would be fulfilling my duty to society By sharing food-related data, I would be giving back to the community
REPUTATION	If I shared food-related data, I would show people that I am a good, kind person By sharing food-related data, I would let my friends know that I am a good, kind person By sharing food-related data, I would let potential romantic partners know I am a good, kind person
KINSHIP	If I shared food-related data, there is more of a chance of my family benefitting from it If I shared food-related data, there is more of a chance of my close relatives benefitting from it If I shared food-related data, there is more of a chance of my friends benefitting from it

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Modelling

- Three models, predicting willingness to share with universities, governments and companies, respectively
- Enter all variables; backward elimination
- Produces a very parsimonious model that explains over 40% of the variance for all three outcomes
- **Predicting willingness to share data (βs and R^2s)**

		Universities	Governments	Companies
β of the final model	Trust	.499	.433	.405
	Risk	-.118	-.100	-.030
	Moral motivation	.210	.255	.279
Final model vs null	χ^2 (3)	3391.4, $p < .001$	3844.9, $p < .001$	3184.0, $p < .001$
Explained variance: final model (full model)	R^2	.42	.46	.41

All *ps* < .001

Maximizing the public's willingness to share food-related data

- Richfields will to identify appropriate means of:
  - maintaining and if possible growing trust
  - maintaining and if possible growing moral motives
  - maintaining and if possible lessening perceived risk

Recommendations from the framework for the design of the ethical and legal aspects of RICHFIELDS

(1) use of pseudonymisation with appropriate safeguards for unauthorised reversal of pseudonymisation
(2) use of appropriate technical and organisational measures to ensure GDPR compliance
(3) systems for dealing with queries and requests from data subjects
(4) appointment of a Data Protection Officer
(5) mechanisms for handling freedom of information (FOI) requests
(6) use of suitable data protection clauses for trans-border data transfer
(7) obtaining insurance to cover liability in the event of data breaches
(8) the establishment of an independent ethics committee with remit to monitor the activities of RICHFIELDS, its protocols on matters relating to security, transfer of data to third countries, assessing genuineness of requests from data users and procedures for dealing with ethically suspect requests, and procedures for handling requests from data subjects.

Source: Carr I (2018) Deliverable 11.2. Ethical Design at the Interface of Ethics for Big Data and the European Union's General Data Protection Regulation

Particular thank you to:

- Questionnaire development team:
  - ***RISE:*** Anne Norman
  - ***Wageningen University & Research:*** Anouk Geelen, Marcus Maringer, Muriel Verain
  - ***University of Surrey:*** Lada Timotijevic, Charo Hodgkins
- Questionnaire/data managers: Momo Touray, Matthew Peacock (University of Surrey)
- All those involved in translation process

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Partners:

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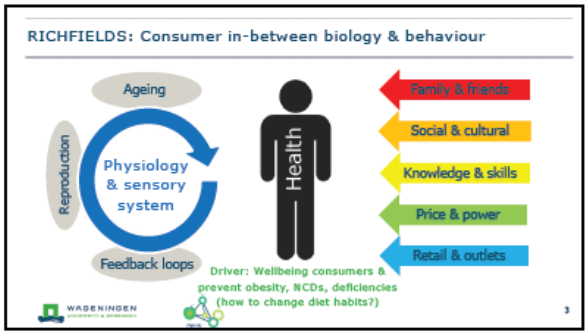
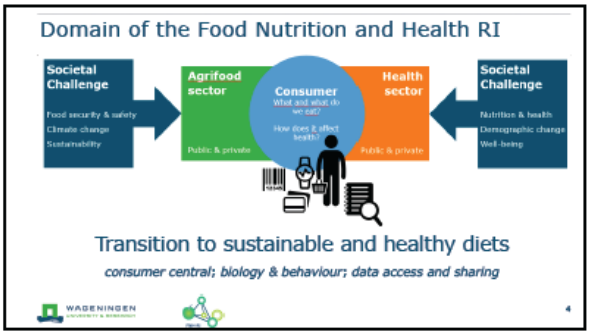
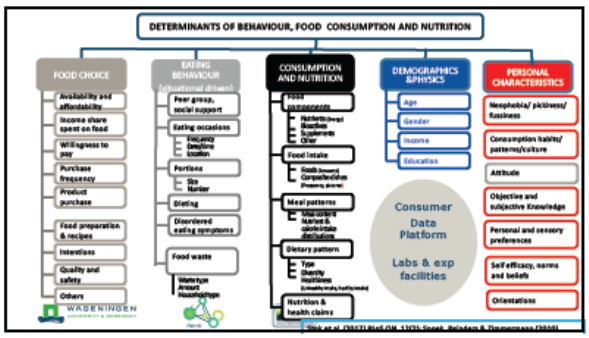
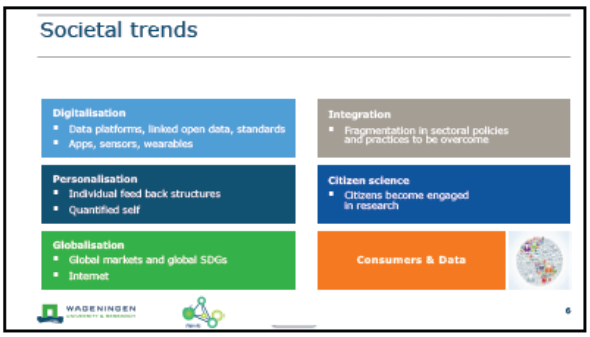
14:00-14:30 **Expanding the science case for FNH-RI: Moving on from RICHFIELDS**

Pieter vant Veer (Wageningen University, NL)









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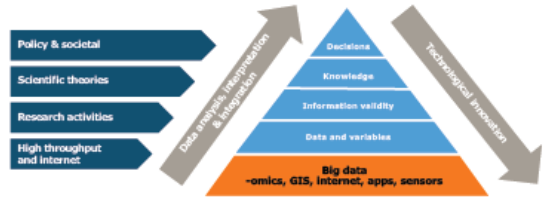
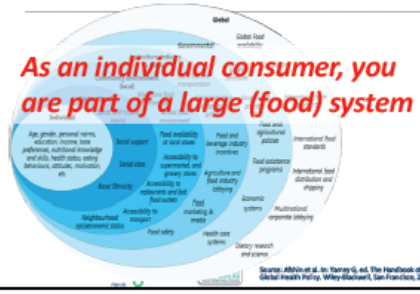
Scientific trends: BIG data & data integration

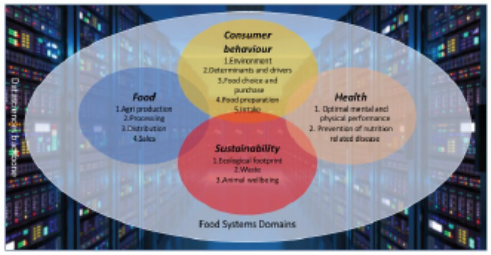


FNH-RI: CONSUMER IN FOOD SYSTEM

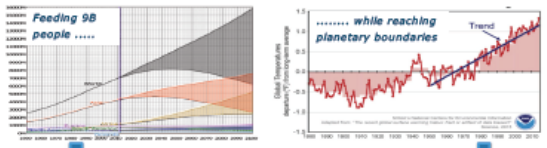
What drives food consumption?



The FNH-RI Domain



Increasing pressure on food system and citizens



Increasing pressure on the food system

Visible locally, e.g., ageing, urbanisation, malnutrition, NCDs, health disparities, carbon footprint, land use, eutrophication, crop failures, zoönoses, ...

The Challenge

The dietary behaviours of 9 billion people in 2050 determines not only their physical health, mental and social well-being, but also the sustainability of the food system that produces these diets within planetary boundaries.

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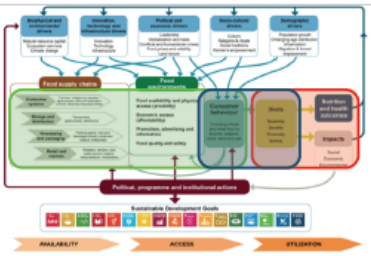
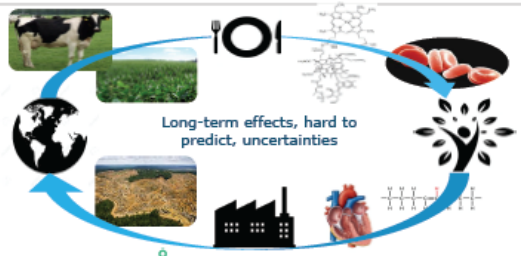
Conceptual framework of food systems for diets and nutrition



Scientific challenge: Healthy & sustainable supply networks



Consumer nexus to agrifood & prevention (examples)

Agrifood supply system

- Food enrichment (salt, saturated fat, sugar), breeding 'better' varieties
- Food safety and circular production system
- Environmental sustainability, animal welfare, zoönoses
- Economic sustainability of SMEs, food companies, livelihood farmers, fair-trade

Driver: Planetary boundaries for food production & the ecosystem (meat?)

Preventive Health Care

- Health - physical, social, mental; as ability to adapt, fitness, well-being
- Functional markers & health status: Macro & micronutrients, bioactives
- Physiology and rewards of consumption, food matrix, digestion, energy balance
- Metabolism of nutrients, genetic make-up and disease pathways
- Nutrient adequacy & prevention NCDs

Driver: Socio-economic disparities in diet and health (fair price, tax/subs?)

SCIENTIFIC TRENDS & CHALLENGES

Scientific challenges (Food 2030)

- Hunger, malnutrition, food safety & diet-related diseases
- Climate resilience primary production
- Sustainability and circularity in food systems
- Boosting innovation and empowering communities

Scientific challenges (Food 2030)

Open Innovation	Investment; Regional; Private partnering
Open Science	Open access and data sharing; engagement, education, skills
Research Breakthroughs	"Smart" FNS via ICT; Food system science and trans disciplinarity
Open to the World	Global collaboration; MS policy alignment and support

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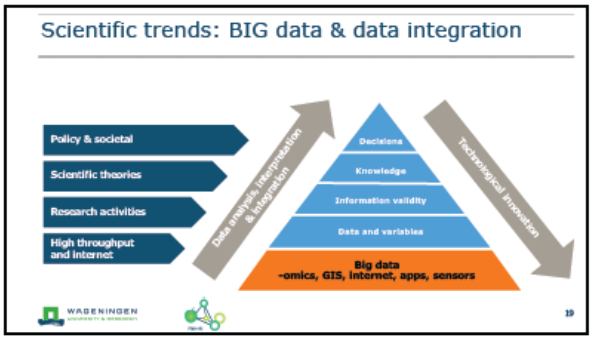
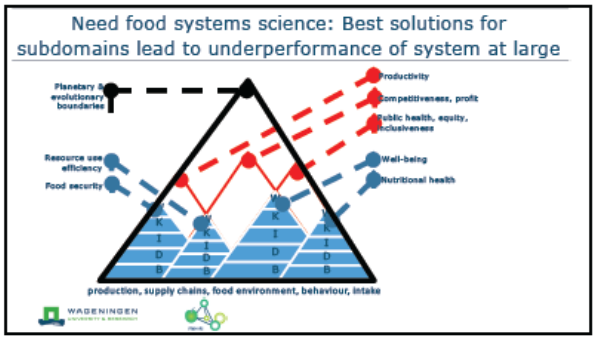
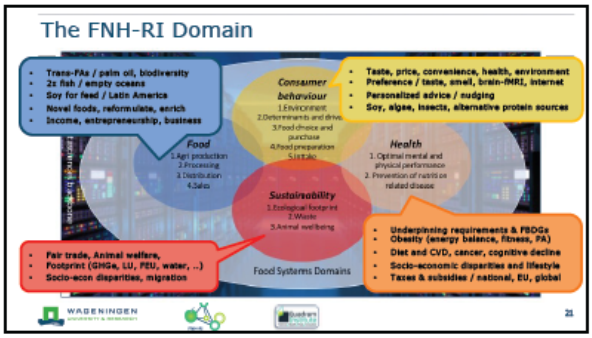
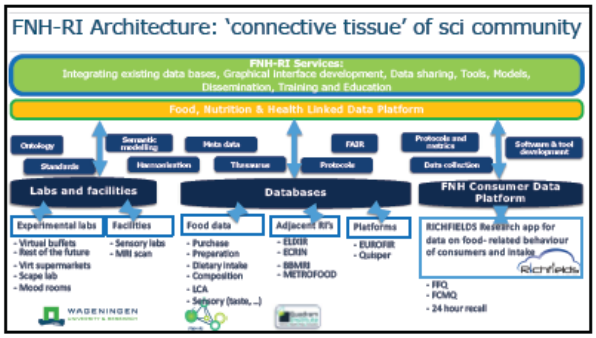




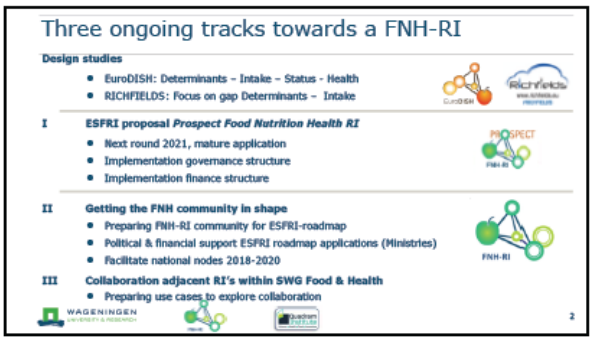


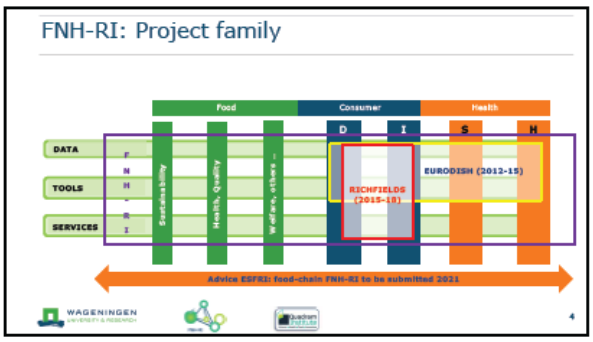


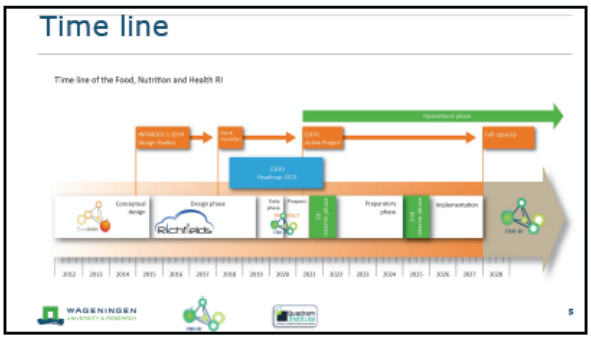
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 654280.

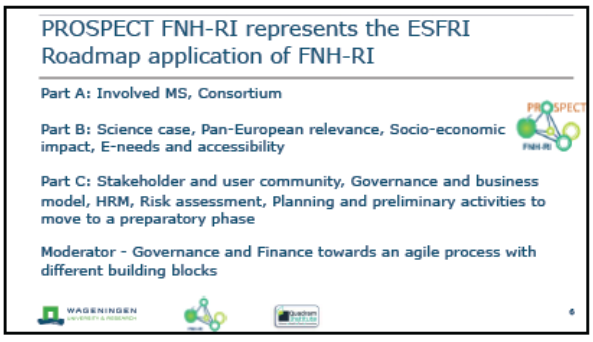
15:30-16:00 **Realising the FNH-RI: Road map**

Karin Zimmermann (Wageningen Economic Research [WUR], NL)



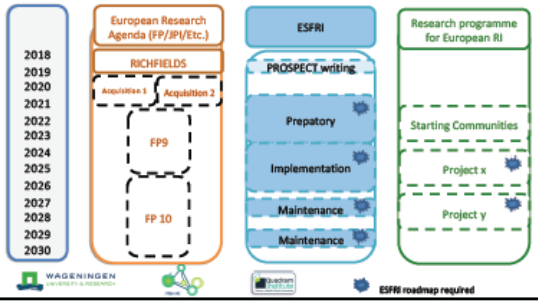




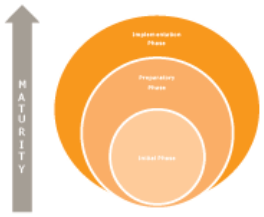


This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 654280.

ESFRI ROADMAP2021 and FNH-RI development



FNH-RI Roadmap to governance maturity



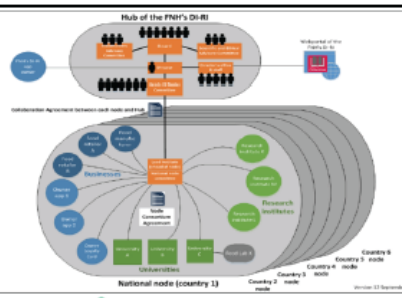
Mature governance structure based on sustainable governance structure (legal organisation, independed from time) build on business model

"Simple" foundation linked to consortium agreement including new partners and new national nodes, Scientific and Industry Forums, depending on project durance

"Simple" foundation structure of the 5 core partners to facilitate collaboration in MoUs and projects, developing an FNH Industry Forum

FNH-RI Foundation 2018 first legal step to solid governance

- Realise and sustain an European research infrastructure enabling MoUs and national nodes development
- Facilitate quality, cost effectiveness, and availability of resources in the research system
- Bring together expertise across disciplines, across public and private sectors



II Getting the FNH community in shape

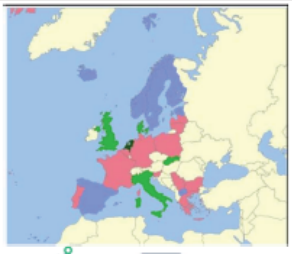
FNH Community – national nodes

Countries	National Node
LEAD	DISH-NL
Prospective Countries	National Node
United Kingdom	(in progress)
Denmark	Foodhay
Italy	(in progress)
Slovakia	AgriBioFood
Macedonia	FNH-RI Node Macedonia
Prospective Countries in the making	National Node
Spain	(in progress)
Finland	(in progress)
Norway	Sustain Health
Sweden	Food Science Sweden
Iceland	(in progress)

Participants Europe	
France	(in progress)
Germany	(in progress)
Greece	(in progress)
Latvia	(in progress)
Lithuania	(in progress)
Bulgaria	(in progress)
Estonia	(in progress)
Portugal	(in progress)
Belgium	(in progress
Serbia	(in progress)
Poland	(in progress)
Ireland	(in progress)
Participants Global	
Canada	no
Australia	no

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 654280.

State of play FNH-RI Community across Europe



Development of a FNH National Node
Step by Step – Establish a platform

Step 1: Find a lead institute/university

Step 2: Introduction workshop with broad invitations in the domain of food systems, consumer research, nutrition, preventive health (system)

Step 3: Find a joint interest in research and elaborate on it in terms of platform science case and RI

Step 4: Get acknowledgement by the relevant Ministry form perspective of the FNH-RI Science Case.

Development of a FNH National Node
Step by Step – National ESFRI ROADMAP

Step 5: Get acquainted with your national ESFRI representative.

Step 6: Apply to the National ESFRI Roadmap

If on the next National Roadmap:

Step 7: Apply for funding for your national proposal to align FNH-RI and FNH National Node initiatives

Step 8: Transfer the budget into a workplan for the platform members

Development of a FNH National Node
Step by Step – European FNH-RI

Step 9: The FNH National Node is representaed in the FNH-RI Board

Step 10: FNH-RI Board will apply for the ESFRI ROADMAP 2021 and start writing in May 2018 as a consortium PROSPECT FNH-RI.

Step 11: On behalf of FNH community and FNH Board The Netherlands will submit the proposal to ESFRI in April/May 2020

Step 12: January 2021: Hearing. Decision about the ESFRI ROADMAP 2021 and FNH-RI. October 2021: ESFRI 2021 Roadmap will be launched.

III Collaboration adjacent RIs – within ESFRI SWG Food & Health Landscape

Adjacent RIs within SWG F&H to FNH-RI

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 654280.

FNH-RI and ELIXIR

- databases & tools catalogue (help desk)
- recommendations for data storage/transfer/access (FAIR)
- training and services

Project use cases 2018 approved by the ELIXIR board and FNH-RI Board, aiming to develop white paper (2019) about collaboration to be the basic strategy on collaboration for signing MoU

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FNH-RI and METROFOOD

- member of stakeholder forum of METROFOOD
- standards on food safety, food quality and food data

When METROFOOD becomes a ERIC (2021) collaboration based on added value will be described in MoU. FNH-RI board will sign letter of cooperation in December 2018.

20

FNH-RI and ECRIN

- centres for nutrition in EU
- ontologies and standards for data
- training services

ECRIN was partner in EuroDISH and RICHFIELDS; already well defined collaboration strategy are in place. FNH Board can start preparation of a MoU. A use case (2019) will be developed on nutrition data base and ontologies

21

FNH-RI and BBMRI

- implementing GDPR – informed consent
- guidance on ethical, legal, and social issues when exchanging data

Invitation by BBMR to prepare use cases; FNH-RI Board need to assign this to researchers and experts of FNH-Community. Based on next steps the possibilities to develop a MoU will be explored.

22

Finally – Why join FNH-RI? Take home message:

- We need to have breakthroughs for food related societal challenges in the next 30 year - *FNH-RI is the fundament to build excellence science to get the FNH science community in shape;*
- We need to build on enriched data to fosters European and national food and health strategies by jointly work on excellent science knowledge translated to high impact solutions and innovations - *FNH-RI – as a tool- unites countries and enables collaboration across Europe and beyond;*
- We need to foster excellent science bridging national capacity and sharing survey's and facilities to strengthen transnational collaboration - *FNH-RI supports open science to foster comparison and enrichment of data, tools and services beyond national borders;*

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Finally – Why join FNH-RI? Take home message:

- We need to answer complex Euopean research and societal questions by multi-disciplinary collaboration of consumer science, food technology science, nutrition science and biomedical science to find holistic answers, beyond discipline's silos - *FNH-RI is the moderator for this as multi-disciplinary approach is the key stone of this RI;*
- We need to underpin the design of the diet of the future – *FNH-RI foster an unique European community and possible beyond to collect and connect data about the determinants of consumer food behaviour and dietary intake, not only as research data, but also individual data near time and on the spot.*

24

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 654280.

11:20-11:25 RICHFIELDS video

https://www.youtube.com/watch?v=RC_glH2TcQY

RICHFIELDS - Getting people to eat more healthy diets

152 views

5 0 SHARE

European Food Information Council
Published on 6 Aug 2018

SUBSCRIBE 780

Richfields explores big data for understanding consumer food habits and health and aims to design a consumer-data platform to collect and connect, compare and share information about our food behaviours, to revolutionise research on every-day choices made across Europe. This project has

SHOW MORE

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 654280.

12:25-12:30 **Introduction to the posters at lunchtime (5 minutes)** (including FNH-RI video)
Siân Astley (EuroFIR, BE)

https://www.youtube.com/watch?v=FcM8nLvXMkE&t=8s

RICHFIELDS project - The Movie

115 views

5 0 SHARE

European Food Information Council
Published on 27 Aug 2018

SUBSCRIBE 780

The Food, Nutrition and Health Research Infrastructure (FNH-RI) involves 10 EU Members States who work closely together in the food and health domain to collect and assemble data, tools and services. The EU project RICHFIELDS is one of the building blocks of FNH-RI and aims to build a

SHOW MORE

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 654280.

A2.3 FNH-RI posters

The UK Food

Nutrition and Health Research Infrastructure

Maximise positive impacts of food on health to extend healthy lifespan and reduce the burden on healthcare

FNH-RI UK will use its knowledge to develop evidence-based strategies to maximise the positive impacts of food on health, to extend healthy lifespan and reduce the burden of care upon health systems worldwide.

The UK FNH-RI is platform the aiming to become the UK national node of the Food Nutrition and Health Research Infrastructure Europe.

Push from the UK research funding community
The Medical Research Council, in partnership with the National Institute for Health Research set out a vision for UK nutrition research, formulating an ambitious and broad programme for the UK-wide major centres of excellence. It envisages revitalisation, capitalising on the immense potential, expertise and resources (both public and private) in the UK maximising the translation of research to improve human health and wellbeing, both nationally and globally. The UK-wide major centres of excellence will be targets for inclusion in the FNH-RI UK Node.
Of particular significance for the development of the FNH-RI UK Node is the recognized need for:

- The extension of big data approaches to nutrition and diet, food systems and the environment.
- Improved/wider access to databases among researchers – this is not always the case, even for publicly-funded resources. One solution would be to encourage a greater use of a virtual federated data analysis approach where the constituent autonomous databases remain at separate locations. Through data abstraction, federated database systems allow the user to store and retrieve data from multiple non-contiguous databases with a single query – even if the constituent databases are heterogeneous.
- National dietary surveys need to be fully utilised by the research community, embedded in stable and strong research environments and ensured that they are 'fit for the future' and using the most appropriate cutting edge methodology.

Push from industry - The Food and Drink Sector Council (FDSC)
Nutrition is one of the of the FDSC's seven priorities with a vision to set a coherent nutrition agenda which advances balanced diets, tackles obesity and provides for the poorly nourished while giving wide choice to consumers and ready and clear information about their food and drink. The objective is to deliver safe, high-quality food and drink options for the UK's consumers and shoppers, with targeted innovation, education and marketing to enable consumers to make informed purchasing decisions and enjoy balanced diets.

Next step towards the UK National Node

- Identify user needs
- Define the scope of the FNHRI UK node
- Identify the actors to invite and the strategy with government
- Define the key outcomes of the FNHRI UK node

State of development of national node
Initial development of the FNH-RI UK is being coordinated by the Quadram Institute and the University of Surrey. A key body, still to be formed, will be the UK Human Nutrition Research Partnership comprised of experts from academia, health research and industry to develop and realise an implementation plan with regard to UK nutrition research.

UNIVERSITY OF SURREY

Quadram Institute
Science • Health • Food • Innovation

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 654280.

ALI-MENTAS

The Spanish food, nutrition and health research infrastructure

Ali-mentas is the Spanish Node of the Food, Nutrition and Health Research Infrastructure (FNH-RI) which brings together key stakeholders to understand, research and connect consumer physical, mental and social health and wellbeing with sustainable food systems.

Ali-mentas is coordinated by the technology centre Eurecat (EUT) and is supported by University of the Balearic Islands (UIB), Institut de Recerca i Tecnologia Agroalimentàries (IRTA), University of Lleida (UdL); Consejo Superior de Investigaciones Científicas (CSIC); University of the Basque Country (UPV/EHU); University of Granada (UGR) and University of Almería (UAL).

Scientific focus areas

1. Future personalized nutrition: from "farm to clinic to supply chain to society," and from "genome to proteome to metabolome".
2. Digitising the agri-food system to enhance consumer knowledge and transparency about healthy and nutritious food and sustainable food systems.
3. Cross-sectorial fertilisation: food value chain innovation to ensure safe, high quality and nutritious food through efficient, sustainable and accessible food chains.
4. Consumers' preferences and effective social / policy initiatives to encourage a shift to affordable healthy diets and food choices.

Specific scientific breakthrough

a. Innovative, healthy, precision foods to address the specific personalised consumer needs and preferences.
b. High-throughput methodologies in search of biomarkers to cover the interface between: food intake / exposure / biomarkers 'effect / physiological health effects.
c. Data mining and data security technologies to increase the productivity and sustainability in the agri-food sector and to preserve consumer privacy.
d. Development of green processes to obtain bioactive compounds for the food, nutraceutic and cosmetic industry from natural sources such as algae, microalgae, plants and food by-products, among others.

eurecat · Universitat de les Illes Balears · IRTA · Universitat de Lleida · CSIC · Universidad del País Vasco Euskal Herriko Unibertsitatea · Universidad de Granada · Universidad de Almería

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 654280.

National Platform AgroBioFood Nitra

The main goal is to achieve the biological and technological integrity of the "agricultural product – food system"

National platform AgroBioFood Nitra was set up in 2016 by the Memorandum of Cooperation concluded between Slovak University of Agriculture in Nitra, National Agricultural and Food Centre and Bioeconomy Cluster.

The platform was supported by the Ministry of Education, Science, Research and Sport of the Slovak Republic recognizing it as an expert partner for R&D in the field of foodstuffs and biotechnology.

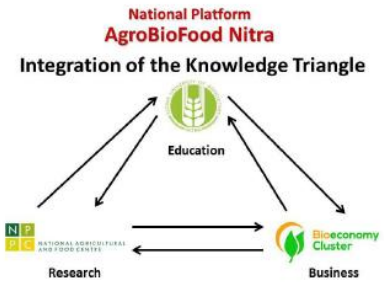
The Platform acts as national node and official representative of the Slovak Republic in relation to European and international initiatives and programmes.

www.uniag.sk/en/national-platform-agrobiofood/

National platform is aimed to mutually connect education, research and business, contribute to fostering of development, innovation and knowledge transfer.
Key scientific focus areas are food design and innovation; personalized nutrition and health; food quality and safety; food chemistry; food microbiology; food analysis; DNA techniques; food technology and engineering. The aim is to find a comprehensive solution to the issue of healthy nutrition and food quality in European area as these are one of the basic factors of the health of the population.

The priority is a comprehensive systemic approach to nutrition as an important factor in human health and the definition of nutritional requirements for foodstuffs through objective control methods as well as progressive processes for the production of food and its ingredients. The research is further aimed at definition of nutritional doses; calculation models for personalized nutrition; development of novel foods with higher added value; waste reduction throughout the food chain.

Since its establishment in 2016, the Platform promotes international cooperation within consortia focused on research, innovation a transfer of knowledge into practice. Platform representatives meet regularly once a month to get information about calls, conferences, initiatives, projects, consortia (BioEast, Elixir, EuroDish, FoodForce, FNHRI). Members of the platform are regularly attending national and international conferences, workshops and project meetings in order to promote networking and further cooperation.



NATIONAL AGRICULTURAL AND FOOD CENTRE

Bioeconomy Cluster

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 654280.

Food Nutrition and Health Research Infrastructure Norway

SUSTAINHEALTH
Sustainability related to food supply chain, consumer behaviour and health

Goals
The main questions at this early state of development were:
- Initially sustainability related to food supply chain, consumer behaviour and health seems a good option for alignment.
- How can we develop a FNH community and benefit from working together in the Nordics & Baltics?
- How can we create an infrastructure attractive to research and at the same time offer added value for consumers, government agencies, retail and industry?

On the 4th of May 2018 a first meeting was organised by the department of Nutrition of the University of Oslo with participants from wide range of (possible) partners to introduce the Norwegian initiative and FNH-RI.

Participants
The Norwegian FNH-RI is coordinated by the University of Oslo.

Other (forseen) partners for the National Node of Norway are: Norwegian University of Life Sciences (NMBU), University of Agder, Oslo Metropolitan University, Arctic University of Norway (UiT), Norway Institute of Public Health (Folkehelseinstituttet), Institute of Marine Research, Nofima (applied research in the fields of fisheries, aquaculture and food), University of Bergen, SIFO (public consumer research organisation).

State of development of national node
The Norwegian FNH-RI is still in a preparatory phase and aims to be recognized as the National Node for Norway.

NIPH together with this consortium has submitted a 6 pager proposal to the Norwegian Roadmap for Infrastructures to establish a Center on food, health and sustainability. Definitive proposal need to be submitted in October 2018.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 654280.

DISH-NL

Determinants Intake Status Health Research Infrastructure NL

The DISH-NL operates at the interface of food and health research, and is on the NWO Roadmap for large Research Infrastructures in the BBMRI cluster

The DISH-NL operates at the interface of food and health research, and is on the NWO Roadmap for large Research Infrastructures in the BBMRI cluster.

DISH-NL is coordinated by the University Medical Centre Groningen and the National Institute for Public Health and the Environment.

Other partners are TNO, University of Maastricht, University of Groningen, University Medical Centre Maastricht, Erasmus MC and Wageningen University and Research.

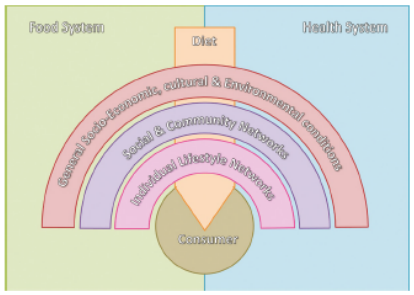
DISH-NL is the Dutch national node of the Food Nutrition and Health Research Infrastructure Europe (FNH-RI).

DISH.nl

The Determinants Intake Status Health Research Infrastructure NL (DISH.nl) aims at creating an e-infrastructure to study consumer behavior and the personal needs for maintenance of health over a life course perspective with regard to food, nutrition and health. DISH-NL focuses on Determinants of food choice, Intake of food and nutrients, Status and functioning of the human body and mind, and Health (DISH). Health is here considered as the positive health concept, i.e. the dynamic ability to adapt and to manage one's own well-being.

Harmonizing this data will enable answering broad, multi-faceted research questions specific for the food and nutrition domain related to health. This will deliver more evidence based dietary guidelines and insight how to change consumer behaviour and the food environment to encourage active and healthy ageing.

The consortium started collaboration in 2015 and was extended in the next years. Data, tools and services, the core of DISH.nl, are identified. Plans are being developed for cataloguing, harmonization and standardization of the available facilities, and for innovation with new ICT-technologies (apps, wearable tech).



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 654280.

FNH-RI Node MKD

National Node Macedonia

The Macedonian node (FNH-RI Node MKD) operates in the frames of larger European Food Nutrition and Health Research Infrastructure and aims to coordinate and integrate food and nutrition research in the Republic of Macedonia.

The Macedonian node (FNH-RI Node MKD) operates in the frames of larger European Food Nutrition and Health Research Infrastructure and aims to coordinate and integrate food and nutrition research in the Republic of Macedonia.

The node is coordinated by the Institute of Public Health of the Republic of Macedonia. Partner is the Faculty of Technology and Metallurgy from the Ss. Cyril and Methodius University in Skopje.

Scientific focus areas:

- Public health food and nutrition research for evidence-based policy making
- Engagement with policy-makers for improving food and nutrition environment
- Obesity, particularly childhood obesity surveillance
- Innovations in the food production technology
- Development of novel bio-product
- Research of the consumers' habits

State of the development of the National node:

- National node is established by integrating food and nutrition research resources of the Institute of Public Health and Faculty of Technology and Metallurgy from the Ss. Cyril and Methodius University in Skopje. The node will be led by the Institute of Public Health.
- Ministry of Education and Science, where the Research Infrastructure roadmap should be created, have been informed that the Node is established and verbal support has been provided. Ministry of Health has been also informed and verbal support has been provided. Written support may be obtained from both ministries
- The process of building the application will be used to explore the need of additional contributions to the national node

Expected scientific breakthrough:

- Exploring and integrating food and nutrition-related scientific evidence for better health outcomes
- Advancing food technology and developing future innovation strategies in order to follow the needs and demands for new dietary trends
- Interdisciplinary approach in finding solutions, information and data obtained from the research to be combined, harmonized, validated, compared and linked
- Experts from different fields to be connected in the search for new answers

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 654280.

The Italian Food

Nutrition and Health Research Infrastructure

Bringing together national nutrition & health research infrastructures

The Italian FNH-RI will bring together databases and national infrastructures based on nutrition-health related studies. The participating institutes will join forces and will form a Joint Research UNIT (JRU) to operate as the Italian National Node.

Other partners are: University of Bari, University of Trento, University of Florence, University of Naples, University of Bologna, Catholic University of Sacro Cuore, Institute of Biomembranes, Bioenergetics and Molecular Biotechnology, National Research Council, Institute of Food Science, Institute of Agricultural Biology and Biotechnology, Institute of Clinical Physiology, FEM – Edmund Mach Foundation – Unit for Food & Nutrition quality, CREA – Food & Nutrition Research Institute (CREA Alimenti e Nutrizione), ISS - National Institute of Health (Istituto Superiore di Sanita'), IRCCS Burlo Garofalo-Trieste, Bruno Kessler Foundation.

Expected scientific breakthrough: Contributing databases and national infrastructures based on nutrition-health related studies.

State of development of national node: The NN is at an early stage, but several Institutions have agreed to join forces as Italian National Node of the FNH-RI proposal. The Italian Institutions will form a Joint Research Unit (JRU) to join the proposal as a recognized national legal entity. Support for the FNH-RI proposal will be requested to the relevant ministries (Research, Agriculture and Health). Further networking is still ongoing to recruit other Institutions with interest in the proposal as well as to identify a common theme within the FNH domains.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 654280.

OpenFoodData
FNHRI - Denmark

Danish National Node for Smart use of data & labs in Food, Nutrition & Health

Danish node brings together food research, industry and research policy

The Danish National Node for smart use of data & open innovation laboratories in Food Nutrition & Health builds on the Foodhay and the Richfields design study. It is a cooperation between the five food universities of Denmark; Aarhus University, Aalborg University, University of Copenhagen, Danish Technical University and University of Southern Denmark.

Based on the FoodHay cooperation an Advisory Board for the future directions of the Danish National Node has been created. Members are Bent Egberg Mikkelsen, Professor Aalborg University, Head of Department Michelle Williams, Aarhus University, chief consultant Peder Fode Leif Nielsen, Confederation of Danish Food Industries, Morten Andersen Linnet, Director of Research Policy, Danish Agriculture and Food Council. Niels Gøtke, Head of Division, Agency for Science and Higher Education. Members from DTU and KU will be invited.

The scientific focus areas of the Danish National Node builds on the FoodHay and are;

- Compound profiling, authenticity, and/or biomarker-detection related to product, quality or safety;
- Food stability vs deterioration improving ability to
- reduce food waste
- Technologies to reduce the inclusion of undesirable preservatives and ingredients in food;
- Detection of novel and differentiated compounds and complexes;
- Bioactivity and food effects on nutritional value and human health;
- Food structure through anatomical profiling to view in-
- situ properties

The future work on the national node will in addition include a focus on

- ICT assisted monitoring of food behaviour and sensory
- response
- Smart analysis of big consumer created consumption
- Data

Contact:
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AARHUS UNIVERSITY

AALBORG UNIVERSITET

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 654280.

A2.4 FNH-RI Fact Sheet

Supporting research on the diet of the future

Food, Nutrition and Health Research Infrastructure

We are facing a significant challenge when it comes to promoting health and reducing lifestyle and nutrition-related illnesses such as obesity. Research into the relationship between behaviour, consumption, value chains and lifestyle is vital to find solutions to these challenges. An unambiguous research infrastructure is needed for the optimal conduct of this research: the Research Infrastructure for Food, Nutrition and Health (FNH-RI).

For healthy and sustainable diets

FNH-RI designs a new, distributed Research Infrastructure that serves the pan-European research community to enable top-level research, breakthroughs and innovations on the diets of the future and related consumer behaviour and life style. Diets that are related to personal, public and planetary health, developed in innovative and inclusive communities with a focus on the well-being of European citizens throughout their life cycle. Such diets will be based in healthy dietary habits with food from a sustainable supply chain.

Linking European researchers to achieve societal goals

FNH-RI will unite Europe's leading life science research organisations in developing a top-level, distributed research infrastructure that enables scientists to link and exploit public-, private- and citizen-generated research data, labs and facilities. This way it is possible to gain new scientific insights across disciplines and geographical borders to achieve key societal goals.

The scientific domain focuses on the consumers' dietary behaviour related to nutrition and (public) health, as well as environmental sustainability. It connects the plate with the planet and public health. Dietary choices are linked to their origin in agriculture and fisheries through the food supply chain, consumer behaviour and to health outcomes via preventive public health. The FNH-RI domain can be broken down in four subdomains that are of direct relevance to environmental sustainability and public health aspects of food consumption:

Building blocks

FNH-RI will be established as a unique infrastructure providing services to scientists for data-generation and data-sharing. The emphasis will be on standardised collection and integration of data, experimental labs and facilities, information, knowledge and expertise from consumers, public and private stakeholders.

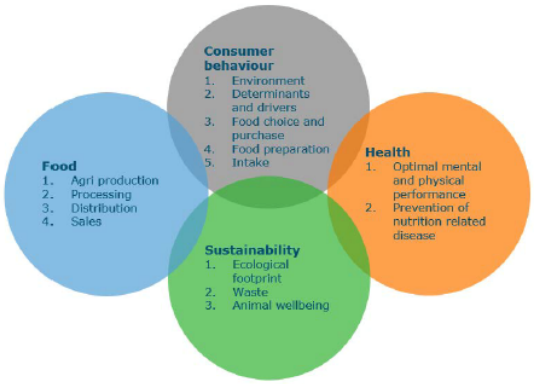
In addition to data, the research community will be served with access to research protocols, ontologies, semantic data models, data catalogues and vocabulary/thesauri. Training of young researchers will also be provided. Access to and collaboration between labs and other physical facilities will be realised.

These services improve efficiency of the scientific process, also by making results between countries comparable and replication of studies as well as meta-analysis easier.

FNH-RI

www.wur.eu/fnhri

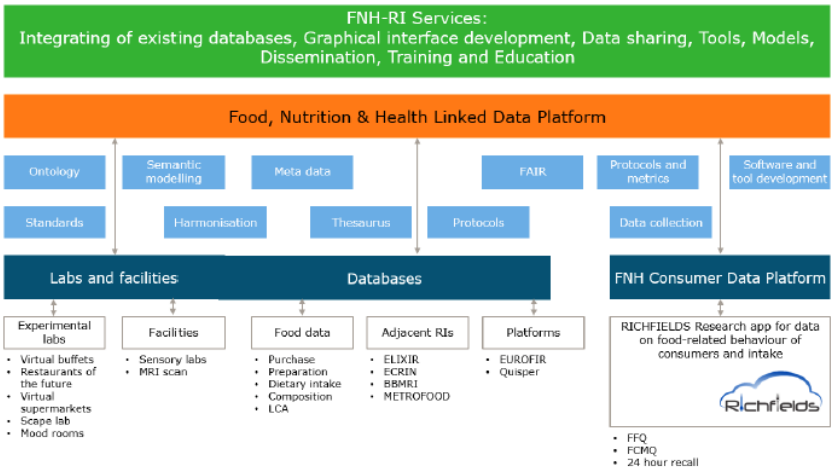
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 654280.



The scientific challenge is to create scientific breakthroughs and innovations that facilitate and enable the transition to a truly sustainable food system that delivers personal well-being, public health, environmental equilibrium, social justice and economic prosperity. To create scientific breakthroughs and innovations, top level research is needed at the intersection of dietary behaviour: its Determinants, the Intake of food, Status of the human body and Health outcomes (DISH-concept).

Making the research infrastructure work

FNH-RI collaborates with numerous labs and facilities distributed in 22 European countries that provide scientific services. Our protocols for cross-national research in labs and facilities will enhance integration, collaboration across domains and disciplines. This promotes replication of research, faster dissemination and efficiency. See www.wur.eu/fnhri for our labs and facilities.



FNH-RI operates as an ICT backbone that provides researchers a linked data platform for storing, linking and sharing data, besides sharing of information on tools, protocols, models and metrics. Data are obtained from experiments in labs and facilities, existing databases in the public domain and (anonymous) databases from industry. Data can be linked by using ontologies, also with data from adjacent RIs. The platform also provides access to a unique micro-data set from the consumer data platform.

FNH Consumer Data Platform is operated as a method of citizen science in which consumers can share their data on food, lifestyle and health with the European research community. Consumers

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can share data from their apps and loyalty cards and participate in research through a central app that also manages their consents in a GDPR-proof way. Researchers can access these individual data through a strict micro-lab protocol. This way we create personalised feedback structures. New ICT developments have made it much easier to monitor individual behaviour with apps, wearables and sensors. It is our goal that a large group of European citizens will use the platform.

Basic services in scientific data management

- Research protocols: development, capture and sharing of best practice protocols for the use of connected and 'big data' in food-related consumer behaviour research and that set and support best practices for your research.
- Standardised vocabulary and thesauri: standardisation of vocabulary and development of thesauri to support research activities utilising connected data and to describe your structured or unstructured data.
- Ontologies and Semantic Data models: development of ontologies and semantic data models to support research activities utilising connected data and to describe and link your data by establishing concepts and their relationships.
- Training and consultancy services to get first-hand knowledge on data use.

Services in access to data

- Data catalogues: identifying and describing data (Commercial, Public and Research/Academic data) and its provenance - food consumption data, consumer behaviour data, sensory data, LCA on food provenance, etc.
- Access to data sets from catalogue via API and Linking via ontologies or in big data mode.
- Micro-lab with Consumer Micro Data Panel, collected by the RICHFIELDS Research app
- Public data sources: easy access, to link and increase interoperability.
- To use the RICHFIELDS Research app, based on validate questionnaires and flexible for additional research modules
- To test new apps and tools linked to exciting questionnaires and apps

Services in access to labs and facilities

- Interactive platform with overview and protocol for access.
- Test apps on compliance with standards and scientific insights.
- Services in training and education.
- Training and consultancy services.
- Assist both the consumer data users and data providers to improve the quality of their data usage/capture of determinants of food behaviour.

All will benefit

For researchers it will be possible to create scientific breakthroughs, because of the access to new data. Researchers from universities and public research institutes are the main users of the infrastructure. New high-quality integrated data sets will help them to understand relationships between food, lifestyle and health, as well as consumer behaviour on diets that are healthier and more sustainable. Policy makers and policy researchers will use these services for policy related research, especially in the area of integrated food policy. This will make policies more evidence-based, more targeted, effective and efficient. Business will benefit from the scientific breakthroughs in fundamental research and better policies. It helps food companies (established and start-ups) with innovative product introductions that have a better survival rate than currently. ICT companies will be able to deliver tested apps that support consumers. Health insurers could see decreasing costs and new business models. Insights into the relation between food and health as well as food and recovery from disease will help the health sector. Excellent scientific facilities via FHN-RI will help to attract talented young professionals to the sector. Consumers will benefit from all these innovations by more healthy and sustainable diets, with personalised advice on food, nutrition and health aspects.

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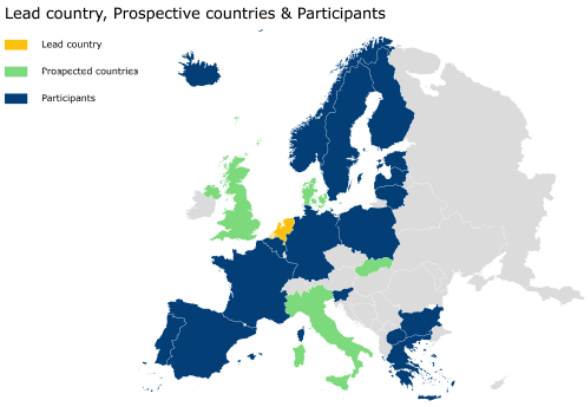
Join the movement

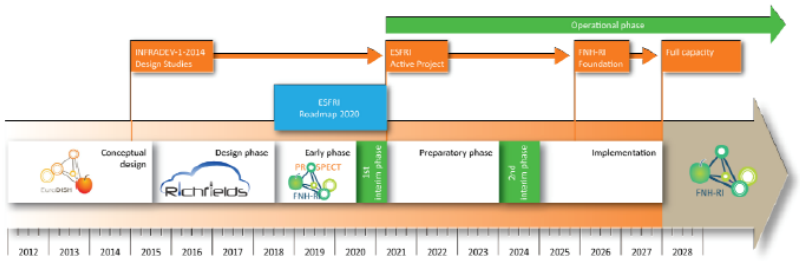
The FNH-RI is organised in a hub-and-spoke model. Each European country can act as a node, which organises its national research infrastructure and links it to the rest of Europe. The heads of nodes appoint the board members of Foundation FNH-RI that coordinates at the European level. Board members of the Foundation FNH-RI are:

- Prof. Dr. Ir. Pieter van 't Veer (NL, Chair)
- Dr. Sabatu Dáuria (IT, Vice-Chair)
- Karin Zimmermann, BSc. (NL, Secretary)
- Dr. Paul Finglas (UK, Treasurer)



Where are we now?

In various European countries national nodes are organised or under investigation. You can see the actual status on www.wur.eu/fnhri.



Time line of the Food, Nutrition and Health Research Infrastructure.

FNH-RI was created in the project FP7-KBBE.2012.2.2-02 Study on the need for food and health research infrastructures - EURODISH (Grant agreement no: 311788, 2012-2015; www.eurodish.eu) and designed partly in H2020 - INFRADEV-1-2014 Design Studies – RICHFIELDS (Grant agreement no: 654280, 2015-2018, www.richfields.eu) focusing on the Research Infrastructure for Determinants and Intake taking into account the design for the Consumer Data Platform. To this end, Wageningen University & Research, is forming the European PROSPECT consortium that prepares the submission of FNH-RI to the 2020 ESFRI roadmap for Food and Health.

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A2.5 Sign-in sheets (available on request only under GDPR)

Available on request only under GDPR

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Annex 3 Feedback from delegates: Online and during the event

A3.1 Pre-event responses

Q1. Are you from a RICHFIELDS partner organisation?
i.e. LEI, DIL, EuroFIR, JSI, WU, USurrey, SP, AAU, De la Cueva, ETHZ, QIB, CNR, AALTO

Only seven delegates responded to the pre-event survey, two of which were RICHFIELDS beneficiaries (ca. 29%).

Q2. Have you attended a previous RICHFIELDS's platform or workshop?
RICHFIELDS Stakeholders' Platform (June 2016, Brussels BE)
RICHFIELDS Stakeholders' Workshop 1 (September 2016, Schiphol NL)
RICHFIELDS Stakeholders' Workshop 2 (April 2017, Brussels BE)
RICHFIELDS Stakeholders' Workshop 3 (December 2017, Brussels BE)

Two (of the seven respondents) had attended a previous RICHFIELDS event (ca. 29%).

Q3. It is 2025 ... why is a consumer-generated data platform (RICHFIELDS) important to you?

All seven respondents indicated “don’t know”

Q4. It is 2030 ... why is the new food, nutrition and health research infrastructure important to you?

All seven respondents indicated “don’t know”

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A3.2 Post-event responses

Q1. Are you from a RICHFIELDS partner organisation?
i.e. LEI, DIL, EuroFIR, JSI, WU, USurrey, SP, AAU, De la Cueva, ETHZ, QIB, CNR, AALTO

18 delegates responded to the post-event survey, 8 of which were RICHFIELDS beneficiaries (ca. 44%).

Q2. Have you attended a previous RICHFIELDS's platform or workshop?
RICHFIELDS Stakeholders' Platform (June 2016, Brussels BE)
RICHFIELDS Stakeholders' Workshop 1 (September 2016, Schiphol NL)
RICHFIELDS Stakeholders' Workshop 2 (April 2017, Brussels BE)
RICHFIELDS Stakeholders' Workshop 3 (December 2017, Brussels BE)

Eight (of 18 respondents) had attended a previous RICHFIELDS event (ca. 44%).

Q3. It is 2025 ... why is a consumer-generated data platform (RICHFIELDS) important to you?

14 respondents offered comments. Four replied “don’t know”.

1. As a representative from Food Industry, I truly think that data obtained are of much interest to food industry producers. Consumers are at the top interest of enterprises, large or SMEs, and the information that RICHFIELD or FNH-RI could provide is of great relevance.
2. As researcher - to do research on interesting datasets. As consumer - to donate data that I generate for a good purpose.
3. By then we expect technologies to be developed that can automatically measure what people are eating; we would like to integrate the platform with those (and other) technologies.
4. Collaboration
5. Data needs to shared and available in a uniform manner
6. Finally, we have a data platform that enables in-depth study
7. Fundamental to facilitate my future academic research
8. Help understanding how nutrition behaviour changes in the long term
9. I can approach the platform in order to try to answer my research questions
10. It is important as a feasibility study to see if such platforms can replace national consumption survey and provide more data; quality and reliability are key to trust data.
11. It is not very important for me personally, but I can see the value for other researchers
12. Opportunity to standardise and harmonise data, and enable valuable datasets to be utilised further
13. To me personally it is probably not important, but it is important because it provides in depth information on consumer behaviour and the motivation for this behaviour.
14. We need to drive data from across the world to the RICHFIELD to enable us all to carry out research that can be compared across Nations for the good of all.

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Q4. It is 2030 ... why is the new food, nutrition and health research infrastructure important to you?

11 respondents offered comments. Seven replied “don’t know”.

1. Aggregate expertise in Europe
2. Collaboration
3. FNH-RI will create knowledge and impact; e.g. create a healthier food environment with healthy, convenient and tasty choices.
4. FNH-RI will facilitate cross-sectional research and data linkage between business and health provision
5. FNH-RI will hopefully be the ‘go to’ place for everyday research needs (methodology, data, analysis), and will also inform the design of studies and data collection.
6. Food part of the infrastructure will be particularly important for my work. I hope that the FNH-RI will play an important role in the digitisation of the food chain.
7. Food System is continuously moving and changing, consumer behaviour will change as well. FNH-RI will allow us to monitor this.
8. I can implement software tools based on this kind of data
9. I can share and obtain standardised datasets for my research
10. I have no idea what the world will look like in 2030
11. It is important to have such an infrastructure in order to have the consumer data federated, curated and stored in a robust way with easy access.

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A3.3 Sli.do polls and questions

Sli.do is a technology company that enhances communication and increases interaction at events and meetings. The software enables organisers to crowdsource questions to drive meaningful conversations, engage participants through live polls and capture valuable event data. Sli.do is simple to use via a smart phone app or web-based portal, using a simple code (#RICHFIELDS). Interactions can be anonymous or named, with the user deciding for each question or response.

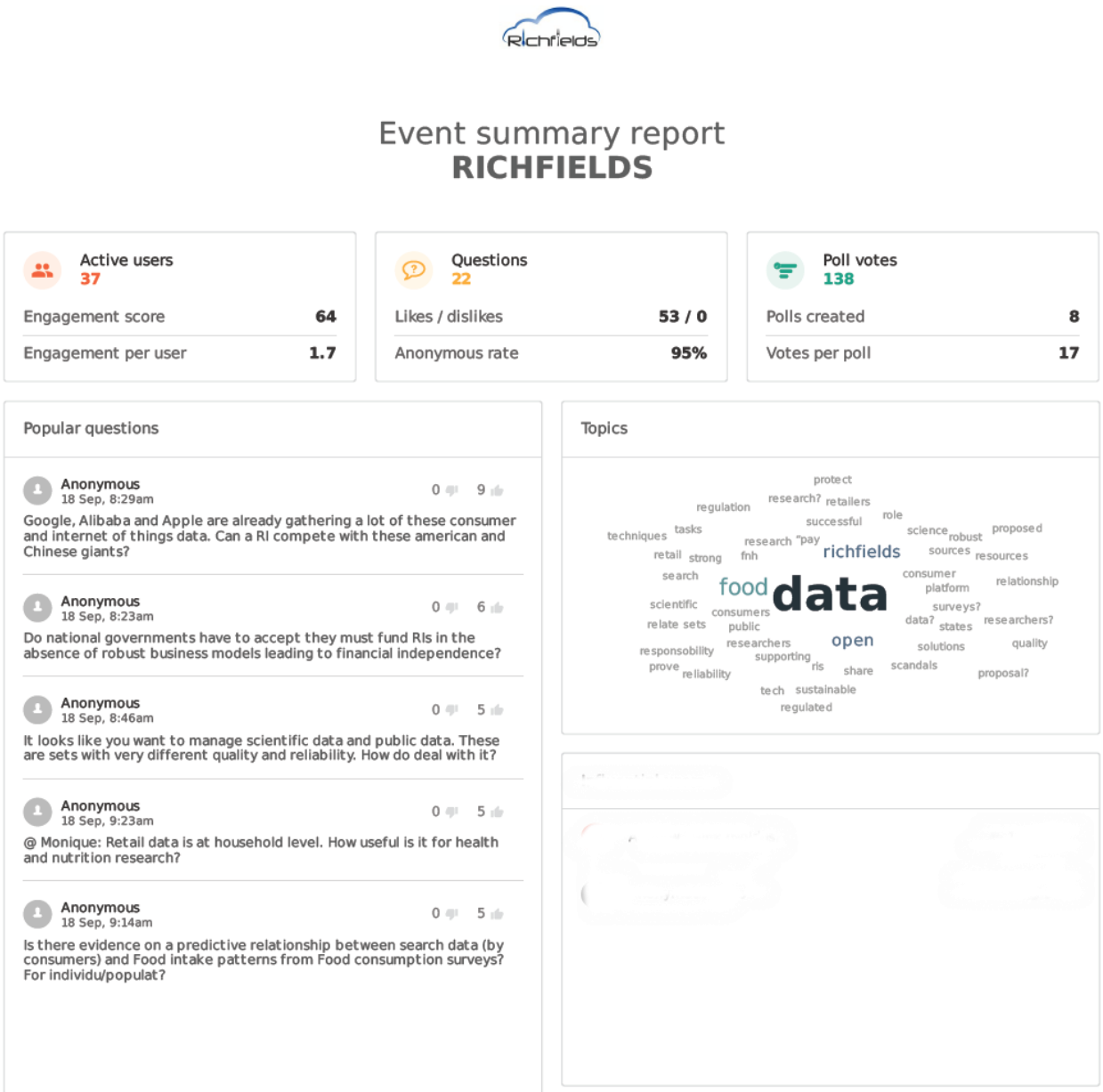

Figure 1. Event summary report (named users' details have been removed, bottom right-hand side)

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Q1 (warm-up) Which organisation are you representing? (23 votes)

- Consultant (ES)
- DIL (DE)
- ETHZ (CH)
- EUFIC (BE)
- EuroFIR (BE)
- European Commission (BE)
- FoodDrinkEurope (BE)
- Institute of Public Health (Republic of Macedonia)
- JPI HDHL (NL)
- JSI (SI)
- KU Leuven (BE)
- Premotec GmbH (CH)
- Quadram Bioscience Institute (UK)
- RISE Research Institutes of Sweden (SE)
- University of Surrey (UK)
- WEcR (NL)
- WUR (NL)

09:40-10:10 Coordinated Research Infrastructures Building Enduring Life-science Services
Peter M. Abuja, Medical University of Graz (AT)

Should we be creating new resources (like RICHFIELDS) or adding to existing infrastructures?

Multiple-choice poll

Should we be creating new resources (like RICHFIELDS) or adding to existing infrastructures? 0 1 5

Yes
73 %

No
0 %

Don't know
13 %

Maybe
13 %

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10:10-10:40 Introduction to RICHFIELDS

Lada Timotijevic (University of Surrey, UK)

What could we do to encourage consumers to share their data proactively?

- Develop specific communication channels involving “consumer networks” to understand their current concerns and expectations and get them actively involved and informed in the whole process.
- Ensure they have trust in the governance of the proposed RI.
- Give them personal feedback
- Identify and exploit incentives
- Making clear why it is important. What you will do with data. And make clear that it is safe.
- Relevance to immediate drivers, sensory, price, convenience; health and sustainability are more distant from the immediate returns of food choices. Apart from that, the relevance of Food choice for health and sustainability must be stressed
- Transparency, ethical committees are very variable in this, especially with the new legislations

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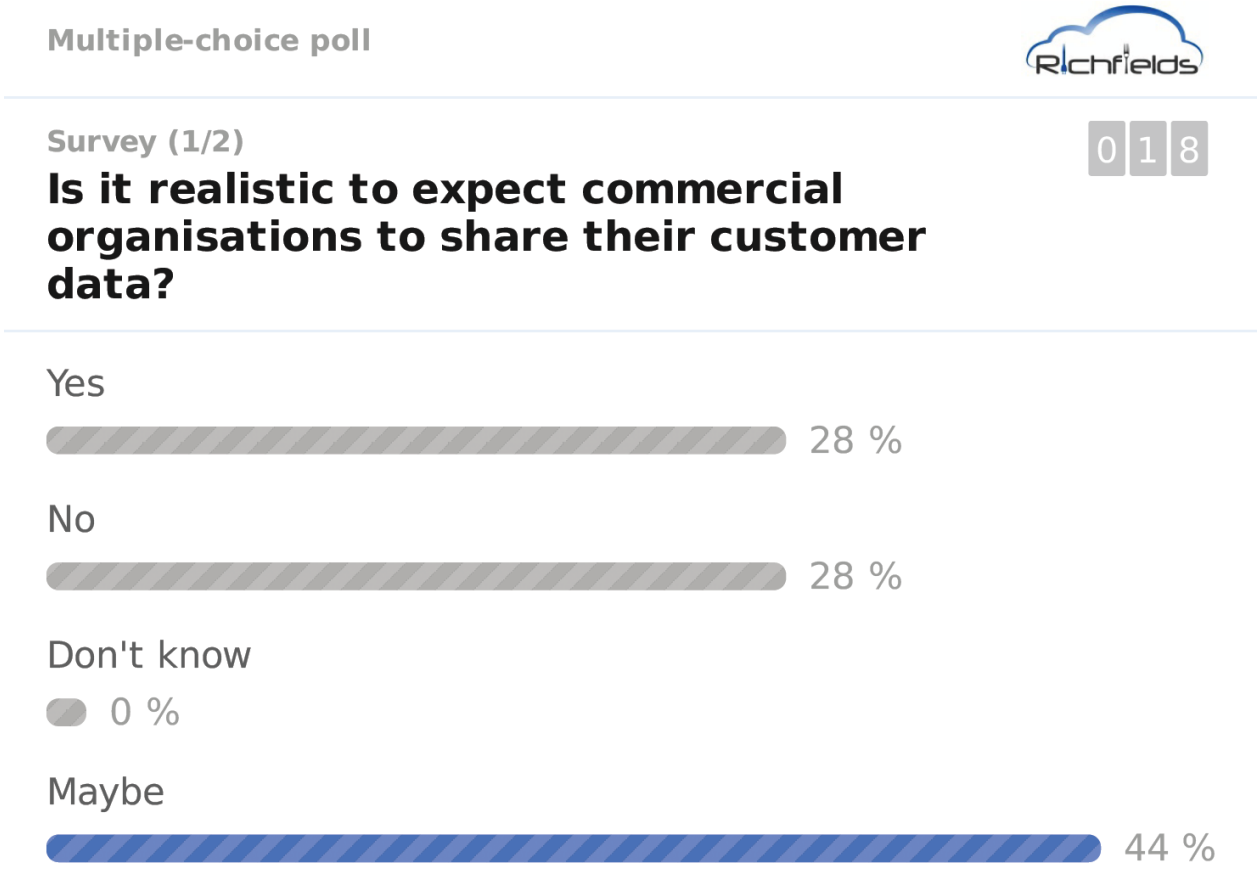
10:40-11:00 **Potential of using consumer-, research- & business-generated data**

Bent Egberg Mikkelsen (Aalborg University, DK)

Is it realistic to expect commercial organisations to share their customer data?



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What are the barriers to sharing commercial data?

- Barrier is where it comes to comparison and use of this data this is what industry will not allow.
- Competitiveness; can they control what data are used for; can businesses be held responsible/ accountable for health/ sustainability issues they contribute to?
- Customer informed consent, competitive advantage, data quality
- Data privacy
- High costs. They might not give the data for free.
- If it is primary data, once competitors can use primary data there is a risk of misuse
- Implications of GDPR on sharing data are still not known. Business are being very careful with data sharing at the moment.
- Perception that these data offer business some edge over their competitors that would be jeopardised by sharing; it's the same mindset as researchers who don't want to share data.
- Trust
- Trust is an important currency in all aspects of Open Innovation, where, in some models, consumer data sharing might be advantageous
- Trust, conflicting/ diverging interests, need strong incentives or laws to enhance data sharing and overcome current barriers
- What is the benefit for the company?

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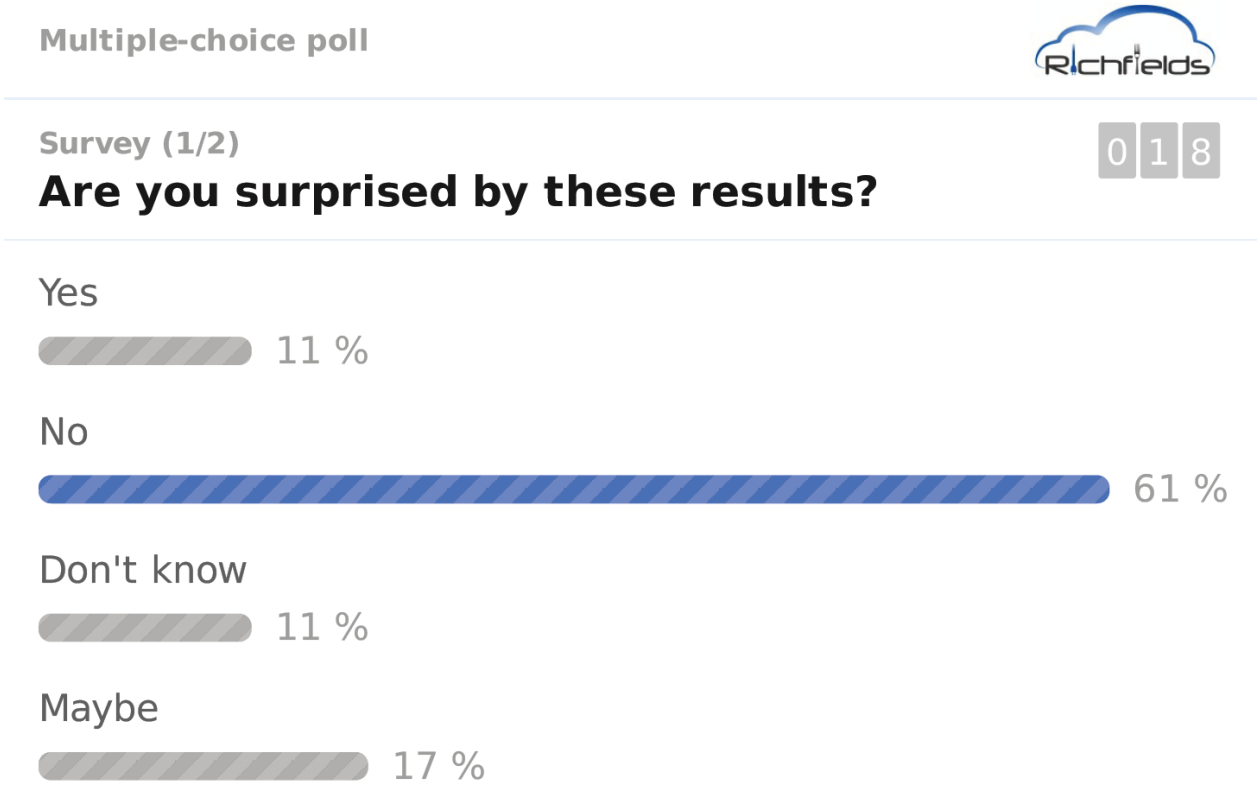
11:00-11:20 **RICHFIELDS: Data sharing survey in eight EU Member States**

Monique Raats (University of Surrey, UK)

Are you surprised by these results?



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How do you feel about sharing your personal data?

- Cautious. Need to be confident it will be used appropriately and for public good. Not just for financial gain commercially.
- Conflicted. Mostly I do not care, provided it is anonymised and for public good. I have concerns about how that data might be exploited commercially.
- Dependent on the type of data to share, but initially I would be reluctant without some value in return. It would have to be well explained.
- Happy as long as I know what it is used for and I can withdraw at any time.
- I don’t like to share data with big data platforms, because It has been shown that data can and will be used for purposes that are not acceptable. So, it is lack of trust. Differently so for sci/res data, but that should be easier.
- I would be willing to share my personal data if the recommendations made on data protection/access are fully implemented
- I would share my personal data for research purposes, but it has to be made easy to share or offer rewards.
- I would support research and government but not companies. But I am also concerned about privacy and misuse.
- I'm not confident with regards to data sharing. Private companies use these data to personalized advertisements that I personally found really disturbing.
- It depends on what kind of data and what is the purpose
- no problem, if anonymous.
- Very cautious since the potential for misuse and combination processing is not predictable

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12:30-14:00 LUNCH WITH FNH-RI & Posters

Would you use consumer-generated data provided by RICHFIELDS?

Multiple-choice poll

Would you use consumer-generated data provided by RICHFIELDS?

0 0 9

Yes, I'd be a power-user

56 %

Yes, but only a little

11 %

I would never use it

0 %

I can see why others would use it

33 %

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14:00-14:30 **Expanding the science case for FNH-RI: Moving on from RICHFIELDS**

Pieter vant Veer (Wageningen University, NL)

Are you convinced by the science case for FNH-RI?

Multiple-choice poll

Are you convinced by the science case for FNH-RI?

0 1 2

Yes

67 %

No

8 %

Don't know

8 %

Maybe

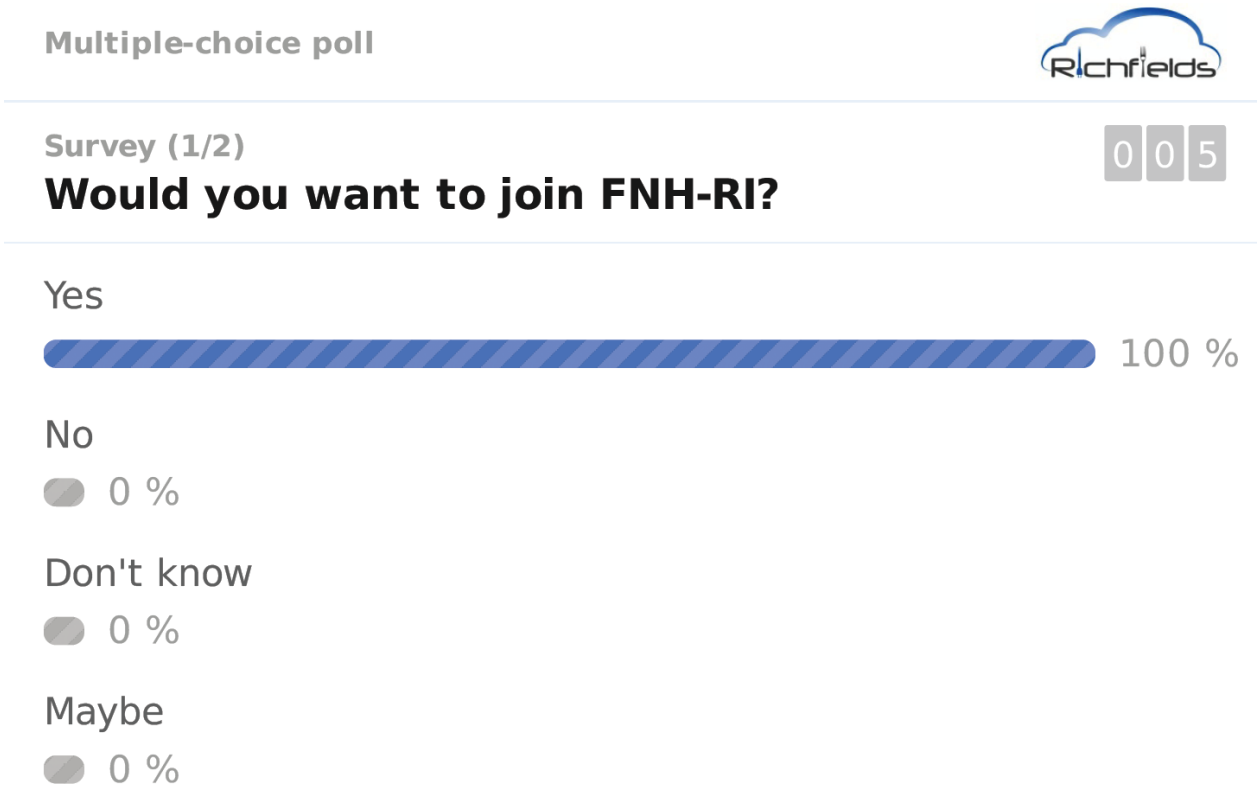
17 %

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 654280.

15:30-16:00 **Realising the FNH-RI: Road map**

Karin Zimmermann (Wageningen Economic Research [WUR], NL)

Would you want to join FNH-RI?



What country are you from?

- BE (2)
- Switzerland
- NL
- UK (2, one with BE)

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A3.4 Panel Sessions

A3.4.1 Panel Session: Q & A RICHFIELDS

- Cambridge Analytics claimed they were researchers. How much do you think that scandals like that undermine willingness of consumers to share data?

[5]Panel concluded that the impact of such events is significant for some consumers but not all and that RICHFIELDS and/ or the FNH-RI needs to demonstrate clearly that data are anonymised or secure and ensure that consumers are more aware of their data, their value and what these data are being used for.

- Consumers use a variety of tech (wearables, apps). How do we tie up these sources and protect individuals' data effectively?

Panel concluded that for the most part this issue is being addressed in the technical design phases of data platforms and RIs.

- Did RICHFIELDS look to the potential of big data techniques like artificial intelligence algorithms or is this for the users of the RI?

Yes, and will continue to do so through FNH-RI activities.

- Did you find FMCG[6] companies that are successful in bypassing retailers for collecting consumer data?

No

- Google, Alibaba and Apple are already gathering a lot of these consumer and internet of things data. Can a RI compete with these American and Chinese giants?

Panel concluded that for neither RICHFIELDS nor FNH-RI can compete with the likes of these companies; instead, we should look to create cooperative relationships with them, as RICHFIELDS and FNH-RI have data that these companies are interested in accessing and they have data that would support research.

- How differentiate tasks and responsibility of data protection officer vs the independent ethics committee?

Panel concluded that these roles are still distinct; the traditional role of ethics committees in research is to promote the rights of volunteers and ensure good clinical and research practice. Data protection officers should monitor internal compliance with data protection standards, inform and advise on data protection obligations, provide advice regarding data protection impact assessments, and be a contact point for individuals and the supervisory authorities, where individuals might include volunteers and supervisory authorities principal investigators or researchers.

- How hard will be for researchers to obtain data from the RICHFIELDS platform? Will they have to "pay back"?

Panel concluded that the primary goal was to minimise the costs for researchers, but the business model remains an area for further development in the next phase, beyond design alone.

[5] *Responses were summarised after the final event by Dr Siân Astley (EuroFIR, BE)*

[6] Fast moving consumer goods

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 654280.

- If I am in charge of a food production enterprise and I want to see these data, how do I proceed and what should be my expectations?

Panel concluded that, like researchers, the goal of RICHFIELDS is to enable access to data for all interested parties, the business model remains an area for further development in the next phase.

- Is there evidence on a predictive relationship between search data (by consumers) and food intake patterns from food consumption surveys? For individual/populations?

Not discussed.

- It looks like you want to manage scientific data and public data. These are sets with very different quality and reliability. How can this be dealt with?

Yes, and again this is something that is being addressed at several levels, i.e. technical, governance, etc.

- Retail data are at household level. How useful is it for health and nutrition research?

Panel concluded that like all data there are limitations in using household data, but these data nevertheless have value in understanding drivers of preparation and consumption.

- RICHFIELDS data platform does not seem to be an eRI but a data collection platform at the moment. How will this be taken forward into FNHRI?

RICHFIELDS is a data platform and it will be part of the FNH-RI, as will many resources in this domain.

- Why can citizens donate their organs for research but not their data. Is regulation needed?

There are strict guidelines controlling organ donation and individuals are much more aware of the value of their organs, both as individuals and in transplant medicine. However, there are individuals who do not want or have not had that conversation with loved ones or decided the fate of their organs. Data are much more challenging when most citizens are unaware of the value or uses of their data. There are regulations but both implementation and oversight are challenging and will continue to be so.

- Would the three labs be willing to open up their facilities to external researchers?

Yes, laboratories are required to open up facilitates for trans-national and trans-disciplinary activities within a RI.

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A3.4.2 Panel Session: FNH-RI

- Do national governments have to accept they must fund RIs in the absence of robust business models leading to financial independence?
- How are we going to go from the fragmented FNH resources to a coherent research infrastructure?
- How easy will it be to balance competing solutions to a problem across the different domains in the proposed FNH-RI. Often, they will be mutually exclusive!
- How strong are member states supporting this RI proposal?
- Is there proof that if a company in Food or ICT would have exclusive access to data would generate additional money to finance the RI
- Medical equipment, medicines and food are heavily regulated before they can enter the market. How about apps that influence behaviour? Is there a role for a RI?
- Open data, open science, how does that relate to the fact that a RI has to be financed and that public authorities in the end want to see it as self-sustainable

[7][8]KP: How do you organise the competing institutions, how do you make them collaborate? What is your experience in bringing together all these actors who usually compete for the same funds? What is the role of the EU? How to overcome competition and what are the best practices?

KZ: We need to get the researchers interested and communicating with each other. We need to make them share ideas. There are research competitive funds. We need to identify sources of funding and maybe apply for them together.

KP: Do you or your organisations have any experience with structural funds?

MV: In Slovakia, the research community is quite small- researchers know each other and communicate with each other. Therefore, they often get together and collaborate. Our institution is preparing an application for structural funds.

KL (DIL): As a Research Infrastructure, what are your main activities on a national and international level? Is your aim to focus on a national or international level?

MO (RIVM): For the moment our activity is low because, as we are waiting for the funds. Both national and international level can be done, we just need to make sure we motivate our researchers.

KP: Do you think it is important to work on the harmonization of food data, and how do you aggregate these data?

PVV: FNH-RI isn't a research organisation, but it can help with setting up the protocols, provide standards and help national research organisations to bring their research to a higher level.

[7] *Responses were summarised at the time of the final event by Angelika Mantur-Vierendeel (EuroFIR, BE)*
[8] *Anette Hjartaker (AH), Charo Hodgkins (CH), Haris Hondo (HN), Igor Spiroski (IS), Karin Zimmerman (KZ), Kerstin Linnerman (KL), Krijn Poppe (KP), Marc Jeroen-Bogaardt (MJB), Marga Ocke (MO), Martin Valach, (MV), Nadia Slimani (NS), Paul Finglas (PMF), Peter Van 't Veer (PVV) & Wim Hanjes (WH)*

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PMF: In the food composition area, we make efforts to harmonise food composition data across the countries. Each country has their struggles, but EuroFIR helps develop strategies and protocols that facilitate delivery of data. There are a lot of new opportunities arising as new technologies are developing quite quickly.

MJB: As data provider, researchers, how many datasets (e.g. disease data, obesity data, food consumption etc.) would your organisation be willing to share with the FNH-RI?

IS: It's hard to tell exactly, s we do struggle with datasets at our organisation, but perhaps 10. One of our aims would be to share our data, so that it can be put to good use.

AH: Whether or not you can share the data though, needs to be addressed from the ethical point of view as well.

CH: If you share your data with us, researchers, we can't simply share it further (publish it) without getting a consent. Because of the data protection regulations, getting a consent is crucial, and that is a problem that needs to be addressed.

WH: It is not easy to make policy makers understand the value of data sharing. On a policy level, you need to make your success stories heard and make policy makers work with researchers. How do you bring these success stories together, and can you do more?

PVV: We are doing this on a project that we are working on. We link the data from different countries and will show our findings to the ministers to see how this can translate into policies. We have developed a process of linking data on international level and standardizing it.

HH: How do we get our representatives to join the roadmap and compete with bigger research institutes? More needs to be done food & nutrition to be recognized as health sciences.

NS: How do you plan to integrate the research infrastructure? In my opinion, you should integrate it at a much higher level (international)- this would give it a better visibility at a political level.

KL: There are many projects that produce datasets for a specific aim, but we could use them all for something else; there is a data economy that is growing.

IS: A big success story is needed so that politicians can use the data from research. The data and knowledge researchers get should be communicated to policy makers. As researchers, we need to communicate our results better, so that decision makers can make good use of our findings.

PVV: Breakthroughs are requested, big innovations are expected. How to create breakthroughs?

KP: You need to do something strange and disruptive!

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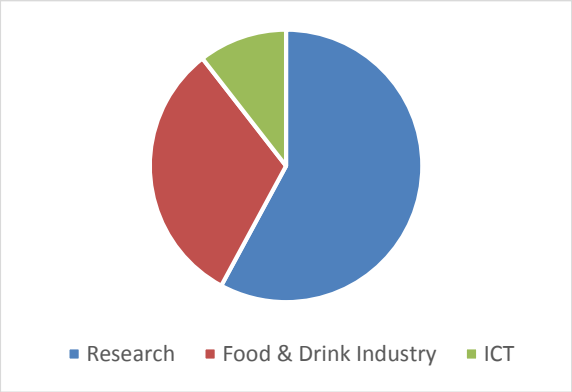
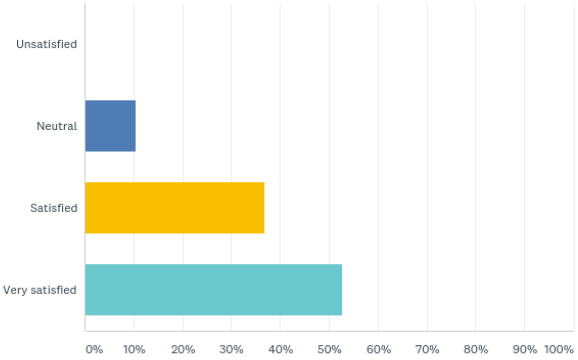
Annex 4 Feedback (event organisation)

Q1. Please indicate the sector of your organisation (19/67):



Q2. How satisfied were you with the venue?



ANSWER CHOICES	RESPONSES	
Unsatisfied	0.00%	0
Neutral	10.53%	2
Satisfied	36.84%	7
Very satisfied	52.63%	10
TOTAL		19

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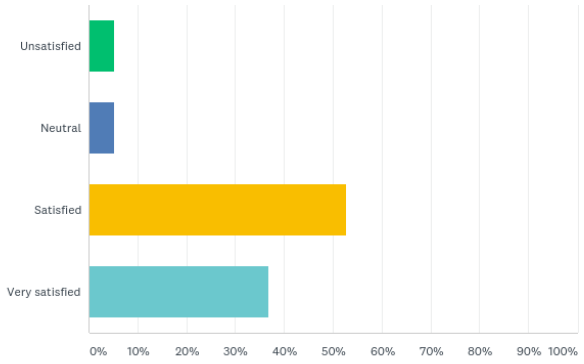
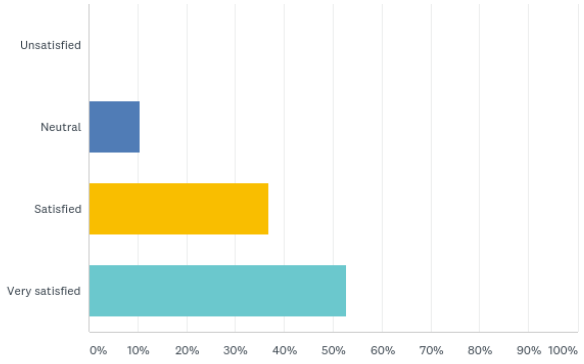
Q3. How satisfied were you with the meeting room?



ANSWER CHOICES	RESPONSES	
Unsatisfied	5.26%	1
Neutral	5.26%	1
Satisfied	52.63%	10
Very satisfied	36.84%	7
TOTAL		19

Q4. How satisfied were you with the lunch room?



ANSWER CHOICES	RESPONSES	
Unsatisfied	0.00%	0
Neutral	10.53%	2
Satisfied	36.84%	7
Very satisfied	52.63%	10
TOTAL		19

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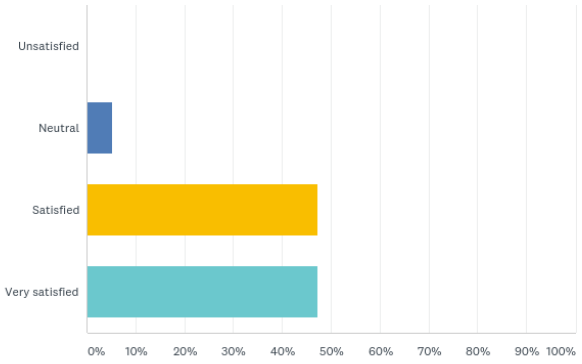
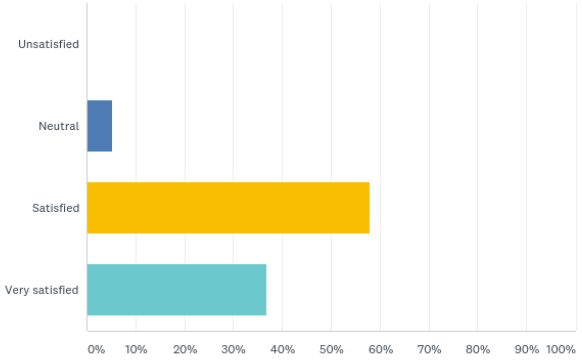
Q5. How satisfied were you with the duration of the event?



ANSWER CHOICES	RESPONSES	
Unsatisfied	0.00%	0
Neutral	5.26%	1
Satisfied	47.37%	9
Very satisfied	47.37%	9
TOTAL		19

Q6. How satisfied were you more generally?



ANSWER CHOICES	RESPONSES	
Unsatisfied	0.00%	0
Neutral	5.26%	1
Satisfied	57.89%	11
Very satisfied	36.84%	7
TOTAL		19

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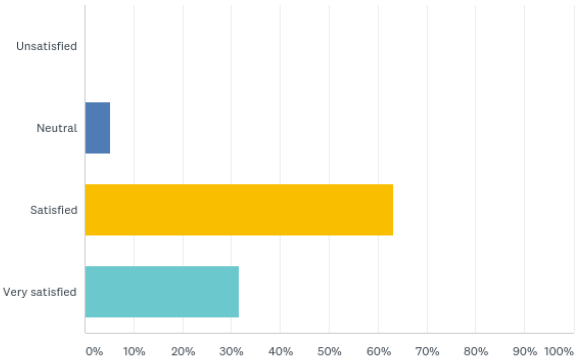
Q7. Comments

- Venue was easy to find, room was bright and temperature ok. Would've been good to have bottled water for inside the meeting room
    - *Organiser's response: Bottled water was available throughout the meeting in the same room as morning coffee and lunch were served.*
- It was a well-run and extremely informative and engaging event. Thank you
- Should we have planned a coffee break in the morning or drinks at the closing??
- It was good to see how it all came together and I'm looking forward to the next steps.
- More time could have been given for more in-depth discussions on the proposed strategies and future plans
- Good location
- About half the screen could not be seen from the back half of the room. That was a serious problem. The venue entrance was not easy to find. A flag or poster by the door would have been helpful.
    - *Organiser's response: Directions were provided in the pre-event paperwork; signage was present through the building in addition to staff on site and a contact number for help.*
- Nice meeting. Lots of information

Q8 How satisfied were you with the applicability of topics?



ANSWER CHOICES	RESPONSES	
Unsatisfied	0.00%	0
Neutral	5.26%	1
Satisfied	63.16%	12
Very satisfied	31.58%	6
TOTAL		19

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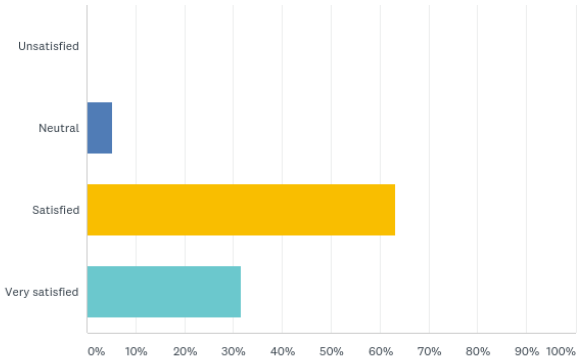
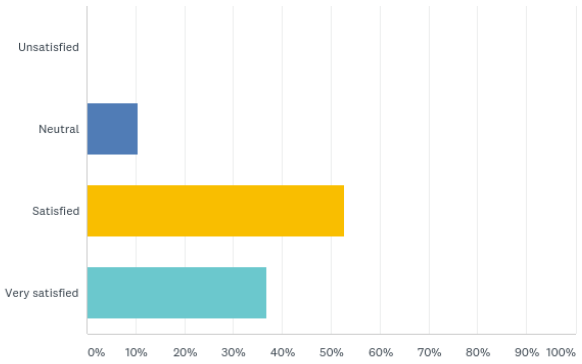
Q9. How satisfied were you with the lecturers?



ANSWER CHOICES	RESPONSES	
Unsatisfied	0.00%	0
Neutral	5.26%	1
Satisfied	63.16%	12
Very satisfied	31.58%	6
TOTAL		19

Q10. How satisfied were you with the depth of coverage?



ANSWER CHOICES	RESPONSES	
Unsatisfied	0.00%	0
Neutral	10.53%	2
Satisfied	52.63%	10
Very satisfied	36.84%	7
TOTAL		19

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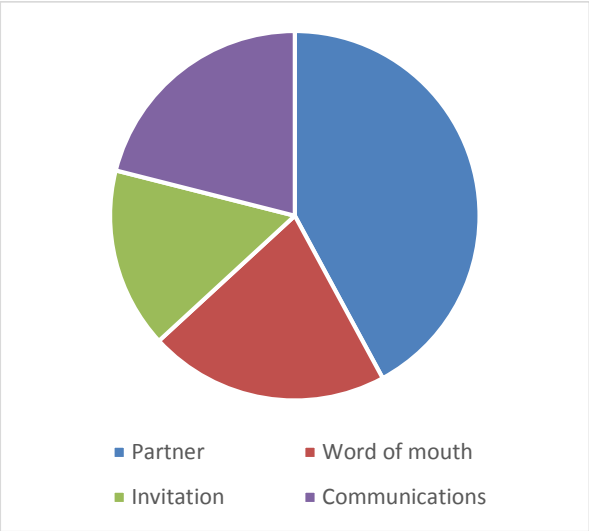
Q11. Comments

- I was hoping for more technology, but that was my problem, not as issue with the organisation
- I would have liked to know more of the specific tools, but they facilitated the links where to search for them. Satisfied.
- Presentation of Pieter van 't Veer and Bent Mikkelsen needed improvement to make the message clearer. The panels were very interesting
- The first presentation by P. Abuja could have been presented together with and/or better integrated with those by Pieter and Karin, to ease discussions on future plans and alternative strategies. The presentation on future plans developed very well the contextual needs, but still lack detailed and more technical insights on the future plans. This was maybe planned to be discussed during the following meeting day(s).
- The structure of the presentations worked well and saving all the questions for a panel session was a good approach that seemed to facilitate discussions and avoid repetition. It also helped keep to time throughout the day. The presentations gave a good overview of the RICHFIELDS story.
- Well presented by knowledgeable scientists

Q12. How did you first find out about RICHFIELDS Final event?



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Q13- How could we have improved this meeting?

- I think the balance of content and length of event was about right to get the RICHFIELDS messages across.
- No improvement needed, the meeting was very lively.
- The meeting was a bit short to get in-depth discussions. Although it was a good idea to gather the questions through the interactive application it probably limited the active participation of the audience.
- More on opportunities to collaborate
- You did your best

- Invite more representatives of industrials developing web applications?
- Perhaps more industry as foreseen user and stakeholder?
- More stakeholders
    - *Organiser's response: We did (256 invitations). They did not respond.*

Q14 – what was the most interesting about the meeting?

- Being informed about the main and important outcomes of the project, the progress made (incl. with the increasing network) and future plans/agenda
- Discussion based on the presentations and roadmap
- Driving towards international clean data
- Finding out about the future FNH-RI plans
- Knowledge related to project outcomes. Panels.
- Lada's and Monique's presentations, panel sessions
- Movie, networking, panel discussion
- Networking
- New challenges regarding using big data
- Overview of the project / questions / future discussions
- Panel sessions were interesting - some challenging questions asked!
- Presentation of the final results of the project allowing to have a global picture of the project and its progress
- Seeing what RICHFIELDS prepared for the FNH-RI
- The morning sessions were the most interesting. The second-round table felt long in time for an outsider.

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Q15- What was the worst about this meeting?

- Lack of understanding on the detailed and more technical plans for developing and implementing this new RI
- Discussions about data sharing. From the point of view of an outsider, it felt like an internal discussion, not relevant
- General presentations
- It is the kind of project without any real 'hard' outcomes, so can be tricky to disseminate!
- No breaks in the morning
- No coffee break and networking :-)
    - *Organiser's response: there was a one-hour break for a buffet lunch with posters; the day started at 09:30 and finished at 16:00, coffee was available throughout.*

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