



FAHRE

FOOD and HEALTH RESEARCH in EUROPE

FAHRE project Final Strategy Proposals Report

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FAHRE aims to investigate how to improve the coordination of food and health research in Europe. The project runs from January 2010 to December 2011. It involves seven partners and is coordinated by Sociedade Portuguesa de Inovação (SPI). More information on the project can be found at <http://www.spi.pt/fahre> or by contacting the project manager Rachel Newton (rachelnewton@spi.pt).

Project partners include:

- Euroquality SARL, France
- University College London, UK
- Skalbes, Latvia
- Universiti Degli Studi Di Milano, Italy
- DIALOGIK gemeinnützige Gesellschaft für Kommunikations- und Kooperationsforschung mbH, Germany
- SIK – Institutet for Livsmedel och Bioteknik AB, Sweden

Preamble: suggestions for further reading

This report aims to highlight the FAHRE proposals for the overall coordination and future thematic direction of food and health research in Europe as well as the other resources produced during the FAHRE project; to show how the activities conducted lead to the results demonstrated. In this way, it is hoped that the maximum benefit may be obtained from all the project resources.

In considering FAHRE's proposals and possible next steps, it is important to understand how they were developed and the reason that certain aspects are addressed. This report addresses through an **introduction** that relates FAHRE's objectives, activities and eventual scope including the definition of food and health research used by the project as well as further describing the report objectives, structure and its target audience.

FAHRE was supported by the European Community's Seventh Framework Programme to investigate food and health research across Europe and develop proposals for strengthening it as a European Research Area. To achieve its objectives, during its 28 month operating period, FAHRE's multidisciplinary partnership, was supported by sets of experts gathering information in 32 countries and across 9 different themes. Also, dialogue wide ranging initiatives and individuals including policy-makers, funding bodies, industry representatives from large companies to SMEs, civil society organizations, as well as researchers themselves (both experienced academics and early-stage researchers) combined to provide an innovative approach to the challenge of exploring ways to improve the food and health ERA and help ensure it addresses the key social challenges associated with promoting a healthy diet in Europe.

The main proposals presented in **chapter 4: "FAHRE position paper"** were selected for their more general nature, applying to the entire European Research Area in food and health. However, FAHRE has gathered a wealth of information and provided analysis that may benefit those with more specific interests, for example regarding a particular thematic area of food and health research, the situation in a certain country, or the perspective of a particular group of individuals involved in research such as large companies, early-stage researchers or SMEs. The majority of this information may be found in the chapter entitled "**Main project resources**".

For example, FAHRE has mapped food and health research and innovation across 32 European countries, and described the strengths and weaknesses in individual country reports (<http://www2.spi.pt/fahre/projectresults.asp>) and together in the synthesis report entitled "Mapping food and health research programmes in Europe: synthesis of the 32 country reports" (http://www2.spi.pt/fahre/reports/FAHRE_Mapping_Synthesis.pdf).

Also, thematic experts in nine fields (food processing, food safety, policy, consumers, regulation, population, diseases, nutrition, and research structures) have used the country reports and secondary sources to identify research needs, gaps and overlaps in each field (<http://www2.spi.pt/fahre/projectresults.asp>), and as a collective report ("Food and health research needs in Europe: synthesis of thematic expert reports") (http://www2.spi.pt/fahre/reports/research_needs_synthesis.pdf).

Furthermore, FAHRE has combined the information collected on food and health research and innovation funding programmes in an online database which can be accessed on the project website at <http://www2.spi.pt/fahre/login.asp>. This can provide information on the kinds of topics that are being funded, the types of activities funded and for which types of beneficiary.

In the second phase, FAHRE has conducted a number of different activities to consult with the main players identified in the mapping to develop this strategy for food and health research policy and funding. The results of these activities are summarised in the chapter entitled "**Different Stakeholder Perspectives**".

Participants at a workshop "Food and Health Research in Europe: Towards a Vision for Europe", held in Berlin from 3rd – 4th February 2011, discussed the first phase results (http://www2.spi.pt/fahre/workshop_berlin/FAHRE_Proceedings_final.pdf) and proposed areas of focus and important issues to investigate further. The proceedings were used as input for a two-week online discussion by food and health research funders, researchers and industry representatives, using a web-based tool: FAHRE Risk Cartography (see for results: <http://p116655.typo3server.info/ws20/index.php>). Thereafter, the strategy has also drawn on work by 'facilitators' addressing particular groups of stakeholders, conducted e-mail consultation on its proposals as well as attending events, at which it could gather information to feed into the development of its proposals, disseminate the current project results and dialogue with relevant actors. The results of these activities are summarised in a Consultation report (<http://www2.spi.pt/fahre/reports/consultationreport.pdf>).

It is important to mention that in all these activities FAHRE considers food and health not only from the perspective of the wide ranging and interconnected research themes that comprise this area, but also the related structures and processes associated with food and health research and innovation governance or regulation, research funding, implementation and application of research. In particular, it considers the channels of communication/dialogue between the different actors in the diverse activities in which they are involved since these are especially important for achieving greater coordination of efforts, which can help avoid duplication, increase transparency and maximise the sharing of knowledge. Thus, while the range is European, proposals are equally important for member states within the European Research Area.

It is also important to mention that FAHRE's analysis considered not only the EU and national level food and health research and innovation context, but also the overall policy context, in particular that relating to the concept of the European Research Area. This includes the Green Paper on the European Research Area (ERA) and the 2020 ERA vision that followed through to the current public consultation whose initial results were

summarised in the document "Areas of untapped potential for the development of the European Research Area", which was presented and discussed at the 'ERA Conference: Fostering Efficiency, Excellence and Growth' (30th January 2012) and that will be used to formulate a proposal for an enhanced ERA Framework that will be published before the end of 2012. Many of the opinions expressed in the summary on the public consultation regarding challenges and potential areas for improved functioning of the ERA are valid for food and health (they compare well to FAHRE's analyses of different stakeholder perspectives). With its proposals FAHRE has selected specific aspects that it believes are major areas for action with potential for greatest impact.

However, while FAHRE has aimed at a broad based analysis, the need to select areas for proposed action means that inevitably there are aspects that are less explored than others. These are conditioned by the information gathered using the methodology employed as well as the resources, particularly in terms of limited time available, but also an awareness that future efforts may take up different areas of the work covered by the topic of FAHRE. For example, the project partnership is linked to new efforts at European level to establish dialogue and mutual learning between research actors and society with the food and health area¹ and to potential study of joint research infrastructures in this area², among others. These efforts can benefit from and build on FAHRE's resources.

Thus, the chapter entitled "**Different Stakeholder Perspectives**" also summarises the results of FAHRE's interactions with three particular stakeholder groups. They were pinpointed in the initial stages of the development of FAHRE's proposals for improving the food and health ERA as having particular issues for which proposals for action could be formulated. The main findings may be summarised as follows:

- ✓ Early-stage researchers from 9 EU countries recommended enhancing the status of early-stage researchers as professionals, improving transparency of recruitment (including language barriers), and providing online information on food and health research organizations and available positions.
- ✓ A survey of major food companies showed their interest in research for product development and competitiveness, concerns for barriers to research (including finance), and support for effective coordination of research.
- ✓ A survey of SMEs indicated the need for improved communication channels with the researchers and policy-makers including tailored information regarding research results, increased opportunities for networking and participation in partnerships. Access to skilled labour and the ability to allocate sufficient time to research and innovation continue to be barriers to participation.

¹ <http://www.inprofood.eu/>

² FP7 call KBBE.2012.2.2-02- Study on the need for food and health research infrastructures

Contents

1	Introduction	7
1.1	Project Overview	7
1.2	Scope	8
1.3	Main objectives of the report	9
1.4	Target audience	9
1.5	Report structure	10
2	Main Project Resources	11
2.1	Mapping of food and health research and innovation	11
2.2	Mapping food and health	14
2.3	FAHRE database of funding programmes.....	16
3	Different stakeholder perspectives	17
3.1	Large companies	18
3.2	SMEs.....	19
3.3	Early-stage researchers	20
4	FAHRE position paper	22

1 Introduction

In this chapter we present an overview of the project that relates FAHRE's objectives, to its activities. It also describes the aims and scope of this report as well as further describing the report objectives, structure and target audience.

1.1 Project Overview

FAHRE is a project supported by the European Community's Seventh Framework Programme to investigate food and health research across Europe and develop proposals for strengthening it as a European Research Area. Cooperation in research and innovation through the European Research Area is a cornerstone of EU economic and social objectives. Research provides the underlying evidence for innovation in policy and practice.

To achieve its objectives, FAHRE has mapped food and health research and innovation across 32 European countries, and described the strengths and weaknesses in individual country reports (<http://www2.spi.pt/fahre/projectresults.asp>) and together in the synthesis report entitled "Mapping food and health research programmes in Europe: synthesis of the 32 country reports" (http://www2.spi.pt/fahre/reports/FAHRE_Mapping_Synthesis.pdf).

Also, thematic experts in nine fields (food processing, food safety, policy, consumers, regulation, population, diseases, nutrition, and research structures) have used the country reports and secondary sources to identify research needs, gaps and overlaps in each field (<http://www2.spi.pt/fahre/projectresults.asp>), and as a collective report ("Food and health research needs in Europe: synthesis of thematic expert reports") (http://www2.spi.pt/fahre/reports/research_needs_synthesis.pdf).

In the second phase, FAHRE has consulted the main players identified in the mapping to develop this strategy for food and health research policy and funding. Participants at a workshop "Food and Health Research in Europe: Towards a Vision for Europe", 3 - 4 February 2011 in Berlin, discussed the first phase results (see http://www2.spi.pt/fahre/workshop_berlin/FAHRE_Proceedings_final.pdf) and proposed areas of focus and important issues to investigate further. The proceedings were used as input for a two-week online discussion by food and health research funders, researchers and industry representatives, using a web-based tool: FAHRE Risk Cartography (see for results: <http://p116655.typo3server.info/ws20/index.php>). Thereafter, the strategy has also drawn on work by 'facilitators' addressing particular groups of stakeholders, conducted e-mail consultation on its proposals as well as attending events, at which it could gather information to feed into the development of its proposals, disseminate the current project results and dialogue with relevant actors. The results of these activities are summarised in a Consultation report (<http://www2.spi.pt/fahre/reports/consultationreport.pdf>).

1.2 Scope

FAHRE addresses food and health research and innovation at European and country level (in 32 European countries). It considers food and health not only from the perspective of the wide ranging and interconnected research themes that comprise this area, but also the related structures and processes associated with food and health research and innovation governance or regulation, research funding, implementation and application of research. In particular, it considers the channels of communication/dialogue between the different actors in the diverse activities in which they are involved since these are especially important for achieving greater coordination of efforts, which can help avoid duplication, increase transparency and maximise the sharing of knowledge. Thus, while the range is European, proposals are equally important for member states within the European Research Area.

It is also important to mention that FAHRE's analysis considered not only the EU and national level food and health research and innovation context, but also the overall policy context, in particular that relating to the concept of the European Research Area. This includes the Green Paper on the European Research Area (ERA)³ and the 2020 ERA vision⁴ that followed through to the current public consultation whose initial results were summarised in the document "Areas of untapped potential for the development of the European Research Area"⁵, which was presented and discussed at the 'ERA Conference: Fostering Efficiency, Excellence and Growth' (30th January 2012) and that will be used to formulate a proposal for an enhanced ERA Framework that will be published before the end of 2012. Many of the opinions expressed in the summary on the public consultation regarding challenges and potential areas for improved functioning of the ERA are valid for food and health (they compare well to FAHRE's analyses of different stakeholder perspectives from early stage researchers to large companies). With its proposals FAHRE has selected specific aspects that it believes are major areas for action with potential for greatest impact.

During its 28 month operating period, FAHRE's multidisciplinary partnership, supported by sets of experts gathering information in 32 countries and across 9 different themes as well as dialogue with a wide ranging initiatives, including policy-makers, funding bodies, industry representatives from large companies to SMEs, civil society organizations, as well as researchers themselves (both experienced academics and early-stage researchers) combined to provide an innovative approach to the challenge of exploring ways to increase coordination of European food and health research and help ensure it addresses the key social challenges associated with promoting a healthy diet in Europe. However, while FAHRE has aimed at a broad based analysis, need to select areas for proposed action means that inevitably there are aspects that are less

³ COM(2007) 161 final GREEN PAPER. The European Research Area: New Perspectives (Text with EEA relevance) http://ec.europa.eu/research/era/pdf/era_gp_final_en.pdf

⁴ European Research Area Vision 2020 http://ec.europa.eu/research/era/pdf/era_vision_2020_en.pdf

⁵ Areas of untapped potential for the development of the European Research Area Preliminary summary and analysis of the response to the ERA Framework Public Consultation, January 2012 http://ec.europa.eu/research/era/pdf/era-summary-report-2012_en.pdf

explored than others. These are conditioned by the information gathered using the methodology employed as well as the resources, particularly in terms of limited time available. For example, during the initial stages of the development of FAHRE's proposals for improving the food and health ERA, certain stakeholder groups were pinpointed as having particular issues for which proposals for action could be formulated. Thus, in addition to the overall proposals outlined in the executive summary of this report, initial proposals for large companies, SMEs and early-stage researchers have been formulated (see chapter 3 of this report). This selection was also made with an awareness that future efforts may take up different areas of the work covered by the topic of FAHRE. For example, the project partnership is linked to new efforts at European level to establish dialogue and mutual learning between research actors and society with the food and health area⁶ and to potential study of joint research infrastructures in this area⁷, among others. These efforts can benefit from and build on FAHRE's resources.

Finally it is important to highlight the definition of food and health research and innovation used within the FAHRE project.

Food and health research for this report refers to research about the production, marketing, choice, regulation and policy for food as it affects health, and the mechanisms and control of diet-related diseases, nutrition and obesity. It covers positive and negative impacts of food on health as well as issues related to under and over consumption of food (under-nutrition and obesity). It draws on a wide range of disciplines including psychological, social, management and political sciences, laboratory sciences, clinical medicine, environment and epidemiology, and it is undertaken by public, independent and industry organisations.

1.3 Main objectives of the report

This report is presented as a showcase of FAHRE's work during its 28 month operating period. The aim was to present FAHRE's main proposals regarding overall coordination and strengthening of the European Research Area in food and health as well as summarising the other project resources, proposals for action regarding the involvement of particular groups of stakeholders and demonstrate the process and basis from which the main proposals were formulated in order that the maximum benefit might be obtained.

1.4 Target audience

Although this report makes proposals that can affect all organisations in the research and innovation system, it is directed principally at those concerned with the commissioning and management of research – European, national and regional research policy-makers, research councils and funders, program designers and managers. These actors are able to bring about changes through policy instruments, regulations and funding.

⁶ <http://www.inprofood.eu/>

⁷ FP7 call KBBE.2012.2.2-02- Study on the need for food and health research infrastructures

1.5 Report structure

The chapters are as follows:

The **Introduction** describes the main objectives and activities of the project and shows how these relate to its scope. In particular, it helps the reader to understand better how the challenge of strengthening the ERA in food and health was addressed, why certain issues were focused on and the reason for conducting the different activities. It also describes the aim, structure of the rest of the report and its target audience.

The chapter entitled “**Main Project Resources**” provides a summary of the main resources produced in the project and how to access them. They include: reports on food and health research in 32 countries mostly published in the latter half of 2010 as well as an accompanying synthesis report; reports on 9 themes related to food and health with an accompanying synthesis report; and a database of funding programmes with the possibility to fund food and health research.

The chapter entitled “**Different Stakeholder Perspectives**” provides a summary of the activities of consultation undertaken during the project to dialogue with those that need to be involved with European food and health research and innovation and its related policy-making. It also summarises the results of FAHRE’s interactions with three particular stakeholder groups (large companies, early-stage researchers and SMEs). They were pinpointed in the initial stages of the development of FAHRE’s proposals for improving the food and health ERA as having particular issues for which proposals for action could be formulated.

The chapter entitled “**Position Paper**” provides a summary of FAHRE’s main proposals for strengthening the European Research Area in food and health research.

2 Main Project Resources

This chapter provides a summary of the main resources produced in the project and how to access them. They include: reports on food and health research in 32 countries mostly published in the latter half of 2010 as well as an accompanying synthesis report; reports on 9 themes related to food and health with an accompanying synthesis report; database of funding programmes with the possibility to fund food and health research; Consultation report describing the different activities undertaken during the project to dialogue with those that need to be involved with European food and health research and innovation and its related policy-making, including perspectives from different groups such as large companies, early-stage researchers and SMEs.

2.1 Mapping of food and health research and innovation

FAHRE has conducted a mapping exercise on national activities in food and health research. For this it appointed Country Experts to prepare reports for mapping food and health research funding and policy structures and processes in 32 European countries. The geographical coverage was the EU-27 plus Croatia, Iceland, Norway, Switzerland and Turkey (countries associated to the Framework Programme, FP). These country reports are based on a synthesis of available literature, studies and databases, complemented by interviews of experts and followed a pre-defined template.

The country reports include an overview of the most important national policies / programmes / initiatives related to food, nutrition, diet and health at national level and those responsible. They outline the main public and private organizations implementing food and health research and current trends. The reports also describe the process of food and health research commissioning including the actors involved and their relationship. An overview of the main food and health research programmes is provided and experts were asked to identify any participation in joint programming, joint research infrastructures, comment on international cooperation in this area, the uses of food and health research as well as any foresight, evaluation and monitoring being conducted at national level. Furthermore, the analysis includes a discussion of potential strengths and weaknesses of the food and health research system as well as suggestions for improvement. The experts preparing these reports were instructed to work in the context of the definition of food and health research specified in the introduction to this report. The country reports can be consulted at <http://www2.spi.pt/fahre/projectresults.asp>.

The report "Mapping food and health research programmes in Europe" synthesises the findings of 32 country reports prepared in mostly in the latter half of 2010 within FAHRE. Its objectives are (i) to describe existing national programmes dedicated to food and health research, (ii) to identify strengths and weaknesses of the

national food and health research systems and (iii) to identify practices that could effectively contribute to improve the coordination of food and health research in Europe. This report is designed to be used together with other reports prepared in FAHRE project, in particular the report "Analysis of gaps and overlaps for existing food and health research needs in Europe" (see section 2.2. of this report) which provides an assessment of food and health research needs. These two reports were one of the main sources of information used in the development of FAHRE strategic proposals on the improvement of food and health research in Europe.

A brief summary of some of the main findings follows. The full report can be accessed from the project website under project results at http://www2.spi.pt/fahre/reports/FAHRE_Mapping_Synthesis.pdf.

Summary of findings

In terms of research capacity, it is estimated that 70 to 90.000 researchers are involved in food and health research in the 32 countries covered by the study⁸. More than 470 research organizations have been identified. Research is mostly undertaken at universities and public research institutes and the number of private actors involved in food and health research is rather limited⁹.

In terms of research programming, the 32 country reports identified 363 research programmes at national and regional levels¹⁰. Among these 363 programmes, 155 are general research programmes that can support food and health research, 114 cover food and health research among other research priorities and 94 are specifically targeted at food and health research. The characteristics of the identified programmes are as follows:

- Researchers are the primary beneficiaries of the programmes, followed by industry (around 50% of the programmes) including SMEs.
- The programmes include support to investigator-led basic research, subsidies, support to public-private partnerships or support to programme coordination. A small number of programmes include support to private investment, to loan financing or tax incentives.

⁸ This figure largely depends on the definition of "researcher" assumed by those responding to requests for or collecting data. For example, certain figures may exclude early-stage researchers that are candidates for PhDs.

⁹ Note: it is inherently more difficult to identify amounts of private research, since it is often not in the public domain and thus, there almost certainly exists more than was identified in the country reports on which this synthesis is based.

¹⁰ Again this figure depends on the definition of "research programme" used and whether the expert collecting data chose to restrict the programmes in any way to those most related to food and health (as opposed to also including more general programmes that contain /or could contain a certain proportion of food and health research. In some countries more programmes may have been identified since both research programmes and "research initiatives" were included.

- A wide range of activities is financed through these programmes including research and development, human resource development, demonstration activities and investment in research infrastructures.
- Regarding topics, the programmes concern in majority a focus on the “biomedical” field (73%), the “population” field (50%) followed by “production” (40%) and “policy” (26%) fields.
- Around two thirds of the programmes are financed through public funds only, one third are financed from public and private funds.
- Three groups of countries have been identified according to the importance of food and health research programmes. The first group (more than 5 programmes dedicated to food and health research) includes France, Germany, Ireland, The Netherlands, Norway and the UK. The second group (between 1 and 5 programmes dedicated to food and health research) includes Sweden, Finland Latvia, Poland, Czech Republic, Austria, Switzerland, Italy, Slovenia, Spain and Croatia. The third group is composed of countries that do not have any specific research programme dedicated to food and health: Portugal, Slovakia, Hungary, Romania, Bulgaria, Greece, Lithuania, Estonia and Turkey.

The diversity of national research systems makes it difficult to identify strengths and weaknesses that apply to all countries covered by the study. Nevertheless, the country reports allowed the identification of strengths and weaknesses at European level.

The main strengths include:

- (1) The importance of food and health in the national research landscape,
- (2) The research excellence for some areas of food and health and
- (3) The trend towards greater cooperation at all levels of the research system (more cooperation between research organisations, more coordination between ministries for research programming, more initiatives for public-private partnerships etc.).

The main weaknesses include

- (1) The fragmentation of the research capacity at national level in many countries,
- (2) The lack of national strategy reflected by a low of coordination for food and health research in many countries,
- (3) The insufficiency of the budget allocated to food and health research and, in some countries, and
- (4) The insufficient resources in terms of both number of scientists and research infrastructures.

The reports also allowed the identification of national initiatives contributing to effectively improve:

- (1) Public and private partnerships (e.g. French Foundation for Food and health, Competence Centres in Estonia, Strategic Centers for Science, Technology and Innovation in Finland),
- (2) The cooperation between public research organisations (e.g. centers in Germany, Alliance in France, Foundation in Greece, international cooperation),
- (3) The sharing of research infrastructures (e.g. competence centers in Estonia, special funds for infrastructure in Denmark, European project from ESFRI and FP6) and
- (4) The coordination for research orientations (examples from Austria and Bulgaria).

2.2 Mapping food and health

FAHRE has conducted an analysis of food and health research needs. For this it contracted 9 experts to examine themes forming a spectrum across food, society and health. These bring together both core disciplines and multidisciplinary approaches and include: food production and processing; food safety; consumer behaviour and what influences it; population surveys, causes and control; health policy for food, nutrition, diet and obesity; diseases related to food (excess, imbalance, sensitivity); nutrition micro-elements, malnutrition, gene interactions; regulation, claims, and food policy for health; research structures. The experts worked to a template developed and agreed during their contracted period and were instructed to use only secondary information, including the FAHRE country reports, the internet and their professional knowledge.

The thematic reports outlined research at European level, providing examples of programmes and project. They list some examples of major research groups, networks, training programmes, publications and conferences. They analyse knowledge needs for the area, significant research questions, and ways of organising research including priorities, developing agendas. They assess the interaction between public research and industry and pinpoint gaps and overlaps for further research.

A brief summary of some of the main findings follows. You can access the synthesis report on the project website under project results at http://www2.spi.pt/fahre/reports/research_needs_synthesis.pdf

Summary of findings

FAHRE Thematic Experts have reviewed research across the European Union, and assessed needs, gaps and overlaps for research and research structures. There is a pressing need for multidisciplinary research on 'healthy eating' to achieve appropriate intake and reduce risks.

While food is needed for life, our diets at present cause up to one third of chronic disease – including heart disease, diabetes and some cancers, as well as obesity – as a result of nutritional imbalance and intake. To address the relevant research, a typology of eight thematic fields, and one on structures, was developed with the experts.

The European Commission's Research Directorate has programmes covering both health, and biotechnologies, agriculture and food. There has been strong programme support for food safety, nutritional supplements and epidemiological research, and the Commission's Health Directorate has supported demonstration projects on food safety and nutritional surveillance.

National research is mainly sited within universities and research institutes: there is relatively little contribution from industry. Countries usually commission research on food and on health separately, and few countries have combined strategies or programmes. Postgraduate training and research outputs are strong for some disciplines.

National food policies, based on epidemiological evidence and endorsed by the World Health Organisation, recommend major changes in food intake. While food processing research relevant to health has focused on improving nutritional content, including supplementation, research should now address how macro-diets, rather than micro-nutritional content, can improve health.

Protection against contamination and infection is important in food processing. Food safety and consumer protection research now needs to make an 'epidemiological transition' from acute to chronic diseases, and promote multidisciplinary research involving industry, regulators and civil society together.

National surveys of diet and health status are crucial to inform and complement policy, supported by research on the effects of market changes and interventions. Biomedical research on 'nutrio-genomics', possible 'individualised' diets and pharmaceutical interventions, is likely to yield less return on public investment than research on population-level interventions to change diets.

Research strategies and policy should be developed together between the ministries of health, food and science, with the national research councils. Joint programming can be supported by the European Commission. Research should review the impact of existing European and national research programmes, and ensure that investment for innovation has health impacts as well as economic returns.

2.3 FAHRE database of funding programmes

The FAHRE database, which can be accessed on the project website at <http://www2.spi.pt/fahre/login.asp> is designed to describe food and health research programmes, including research within related broader programmes or smaller activities within universities departments. For some countries, specific research projects are reported. Activities that support research e.g. training of human resources, networking or research infrastructures may also be included. It gathers data from national funding programmes in 32 countries across Europe (the same countries considered in the country reports described in section 2.1). It can provide information on what kinds of topics are being funded, for what types of activities and targeting which types of beneficiary¹¹. Due to the diversity of the types of funding, and the fact that it was not possible to separate the food and health component of a number of funding programmes, it is not possible for policy makers to know the total funding allocated to this area with any degree of certainty.

An explanation of the information contained the main fields present in this database can be accessed at http://www2.spi.pt/fahre/docsdb/database_guide.pdf. It should also be mentioned that the information in the database was gathered by the Country Experts and for the most part it was these experts that filled the database. The database has the option to be accessed by two kinds of user: programme managers who may be permitted to introduce and update data and other users. The data can be searched by the programme name, type of beneficiary, type of support, type of activity, or country. The search results are displayed for the user in a list.

¹¹ Note that the FAHRE project does not provide resources for updating this information, which by its decreases in usefulness as it becomes out of data. However, FAHRE is happy for programme managers to continue to update the database and would see it as an important step if the collection of such information were to continue whether in the format of the FAHRE database or other format.

3 Different stakeholder perspectives

Consultation and dialogue with different actors that need to be involved in European food and health research and innovation and its associated policy-making is an important part of FAHRE's strategy proposal development methodology. A considerable effort was made to consult with policy-makers, programme managers, researchers from academia and industry at different stages of their career, SMEs and civil society organizations in their individual capacities or as those responsible for EU and national initiatives in this area. This strategy allowed us to capture different perspectives and make proposals that support the different roles and contributions that each can make to improving European food and health research.

An iterative process was followed. Participants at a workshop "Food and Health Research in Europe: Towards a Vision for Europe", 3 - 4 February 2011 in Berlin, discussed the first phase results (see http://www2.spi.pt/fahre/workshop_berlin/FAHRE_Proceedings_final.pdf) and proposed areas of focus and important issues to investigate further. The proceedings were used as input for a two-week online discussion by food and health research funders, researchers and industry representatives, using a web-based tool: FAHRE Risk Cartography (see for results: <http://p116655.typo3server.info/ws20/index.php>). Thereafter, the strategy has also drawn on work by 'facilitators' addressing particular groups of stakeholders (see chapter 3 of this report), conducted e-mail consultation on its proposals as well as attending events, at which it could gather information to feed into the development of its proposals, disseminate the current project results and dialogue with relevant actors.

A "Consultation report", which can be accessed at <http://www2.spi.pt/fahre/reports/consultationreport.pdf> describes this set of activities in detail, relating the results of the online discussion, the email consultation, the events attended and their particular purpose within the strategy development process, as well as the activities conducted with particular stakeholder groups.

Regarding the email consultation, it should be mentioned that a draft document was circulated for consultation in 2011, following which a summary of the responses received was prepared and sent to those who provided feedback (<http://www2.spi.pt/fahre/reports/econsultationresponses.pdf>). Consideration of these comments, together with further dialogue with different stakeholders (at EU and national level) led to the production of the position paper that forms the first part of the executive summary of this report.

Since a significant response was received from food and health research and innovation governance and research funding actors to the email consultation, other activities were addressed at different specific groups, for which previous evidence had shown the potential to formulate proposals that would contribute to improving the food and health ERA. These groups include: Large companies, SMEs, and early-stage researchers. The results of the activities with these three stakeholder groups are summarised as follows.

3.1 Large companies

To facilitate its work with Large companies, FAHRE contracted the organization C3 Collaborating for Health (www.c3health.net/) – a charity that believes that only by working together can we make it easier to be healthy and works with many different people and organisations to promote 3 behaviour changes: stopping smoking, eating a better diet (including avoiding the harmful use of alcohol) and increasing physical activity, and which demonstrated strong links with large companies in the food and health sector at the previously mentioned workshop in Berlin.

Given the importance to the private sector of research into food and health – for the health of consumers of food products, and for the health of the bottom line of the companies themselves – FAHRE has been keen to incorporate the views of major food companies into the consultation it is holding on its strategy proposals on strengthening European food and health research.

C3 Collaborating for Health, on behalf of FAHRE, sent a survey to major food companies in Europe to ascertain their views on food and health research, particularly around partnership and coordination. After some direct follow-up including telephone interviews, a report was prepared that examines the role of the private sector, partnership approaches, comments on food and health research by European companies, the barriers encountered to great participation in and the incentives that would be needed to improve this situation. It outlines the advantages and disadvantages that companies perceive to a more coordinated approach in Europe and the kind of structure that it could have.

The report may be accessed at <http://www2.spi.pt/fahre/reports/c3report.pdf> and the main conclusions of the survey may be summarised as follows:

- The companies regard themselves as having an important role to play in food and health research in Europe, engaging in a range of research activities including reducing levels of fat, sugar and salt, as well as drivers of consumer behaviour.
- The companies see cooperation as essential for effective research in this area, and are already actively collaborating with a range of stakeholders.
- There are a number of barriers to further research – regulatory restrictions, the risk of low returns from high investment, and intellectual property issues – and incentives could help to overcome these barriers and encourage higher levels of research.
- A more coordinated approach to research in Europe in this area would have advantages – including helping set priorities, avoid duplication, and share best practice – as well as disadvantages – including the difficulty posed by differences between countries.
- Suggestions made for the structure of further coordination fell into three categories: a virtual structure, a small steering/strategy group, or a cross-industry forum led by the private sector.

3.2 SMEs

To facilitate its work with SMEs, FAHRE contracted Robert Sanders of the European BIC Network (EBN). EBN is now the leading non-governmental pan-European network bringing together 200+ Business & Innovation Centres (BICs), and similar organisations such as incubators, innovation and entrepreneurship centres across the enlarged Europe. Robert Sanders is Head of International Projects at EBN and has over 10 years retail experience with SMEs in the Food & Agri-Business sector, including the launch of innovative food products.

To better understand the vision of European SMEs within the food and health sector, incorporating views on coordination, communication, regulation and innovation with regard to food and health research. A survey was developed that asked SMEs about their current level of involvement in research and about barriers, opportunities and requirements necessary to gain access to funding and/or to become more involved in food and health research. The SME expert also conducted a number of telephone interviews with SMEs. The issues raised by this activity were then detailed in a report, which can be accessed at <http://www2.spi.pt/fahre/reports/smesurveyresults.pdf> and whose main conclusions may be summarised as follows:

- SMEs recognised that food and health research and innovation are key to business growth and the success of the sector, but acknowledged that involvement in research programmes is not generally given priority within their businesses.
- The potential benefits of engaging in research programmes need to be more effectively communicated to SMEs to encourage participation. There is a clear need for better communication channels across the European Member States to enable SMEs to find out about current research, access published results and reach potential research partners. These channels would help to prevent duplication of research and should lead to more funding opportunities. Some SMEs have started to see public research as a strategic resource, but others need a simple route to access this information.
- Communication of food and health research results and opportunities must be tailored to suit SMEs specific needs and delivered in a clear and understandable format. Some scientific communicators are believed by SMEs to be 'too scientific'. Respondents praised the efforts that have been made to improve the communication of results in FP7 projects; this success should be built upon.
- SMEs have embraced networking within their field and community and emphasise the benefits of collaboration and coordination. Networking opportunities within food and health research are limited and should be developed. New partnerships and networks aimed at bringing universities, research institutes and the business community closer together would be supported by SMEs.

- More opportunities need to be created for SMEs to work more collaboratively with research organisations related to food for health and play a more prominent role in research agenda setting. More than 50% of the SMEs surveyed believe that they should be much more involved in multidisciplinary research projects that include scientific and social scientific partners.
- Innovation and research priorities for SMEs in the food and health sector can help to deliver the goals to provide safe, healthy sustainable food that meets consumer demand, complies with regulations and lessens the impact on the environment. Food security and initiatives to progress the healthy food agenda to healthy eating are also priorities. Projects working on one or more of these needs are more likely to attract the participation of SMEs.
- Research programmes for SMEs should develop technologies that suit their specific needs and have a strong focus on application and implementation within their businesses. Collaborative research projects should deliver clear benefits to the SMEs that participate in them.
- SMEs reported that financial barriers, particularly lack of skilled resources and time, lack of in-house funds and difficulty in assessing return on investment prevent them from committing to collaborative research. Additional financial support is needed for SMEs to drive food and health research and innovation as a primary element of their business development strategy.
- Access to funds from private investors, venture capital or funding from global food and health businesses are likely to encourage greater SME participation in collaborative research.

3.3 Early-stage researchers

The work with early-stage researchers was undertaken by the coordinators of FAHRE, SPI using the networks available among the project partnership such as the Young Gasteiner's Network and also its own wide ranging network connected to research and innovation (including, for example, Eurodoc, ISEKI food association, national organizations representing researchers, and the European Network for Gastrointestinal Health Research).

The current public consultation on the ERA, has already highlighted potential for improvement regarding issues facing early-stage researchers and researchers in general. In March 2012, SPI organized a meeting addressing early-stage researchers in food and health. This meeting provided participants with opportunity to learn about FAHRE's results and exchange views on the FAHRE proposals and to discuss issues relevant researchers' careers in food and health research, particularly from the perspective of those at an early-stage in their career. Participants from 9 European countries were present, many representing or connected to European wide initiatives /organizations of relevance to early-stage researchers and/or food and health research and innovation. Their expertise ranged from direct research experience to research policy-making

and included different areas of food and health research. Examples of such organizations include: the Young Gasteiner's network, Eurodoc, and the European Network for Gastrointestinal Health Research.

The report on this event may be accessed at <http://www2.spi.pt/fahre/reports/earlystageresearchers.pdf> and the main suggestions resulting from the meeting were as follows:

- There should be greater transparency in recruitment of early-stage researchers including removing language barriers in this process;
- There is a need for gathering information on food and health research organizations and their available positions in one widely used, up to date location online;
- There is also a need for enhancing the professional status of early-stage researchers, for example by using the term early-stage researcher (or similar) rather than "student" in order to reinforce the professional position and status of PhD candidates and postdoctoral researchers at the beginning of their careers.

4 FAHRE position paper

Food and health research in the EU: FAHRE strategy to address the challenge of non-communicable diseases

In September 2011¹², the United Nations held a landmark meeting in New York on what is now recognised as a major global challenge: Non Communicable Diseases (NCDs). According to the World Health Organisation, NCDs represented 83% of death in the EU and 63% worldwide in 2008¹³. NCDs include cardiovascular disease, cancer, chronic lung diseases and diabetes, and their associated conditions of heart attacks, stroke, bronchitis and obesity. They share four risk factors: tobacco use, physical inactivity, the harmful use of alcohol and unhealthy diet.

NCDs are a major challenge for the EU. At the UN, John Dalli, European Commissioner for Health and Consumer Policy declared¹⁴: *"The EU welcomes today's Declaration and its commitment to reducing the heavy burden of non-communicable diseases across the world (...) This worrying trend can be reversed through action on the risk factors influencing these diseases - such as smoking, poor diet, insufficient physical activity and harmful alcohol consumption - as well as through addressing underlying social, economic and environmental factors"*.

Eating, non-communicable diseases and food security

- ✓ *Unhealthy eating is recognised as one of the major risk factors of non-communicable diseases (NCDs). Better diets will contribute importantly to reducing obesity and meeting the EU target of lengthening life by two healthy years by 2020.*
- ✓ *Changing diet is also required to address food security: with current trends, feeding the world population of 9 billion people in 2050 will require an increase of up to 90% in production of plant calories, while this increase could be limited to 35% with a change of diet¹⁵.*

There is a knowledge gap on how to influence diets and eating: we need research to better understand behaviours, policies (including regulation) and actions that will effectively change dietary patterns.

FAHRE (Food and Health Research in Europe)¹⁶ was a 28 month project with objectives to identify needs and gaps for food and health research, and to recommend coordinating structures to meet future challenges. In surveys across 32 countries, FAHRE identified 470 organisations involved in food and health research, 363

¹² <http://www.un.org/en/ga/president/65/issues/ncdiseases.shtml>

¹³ http://www.who.int/chp/ncd_global_status_report/en/index.html

¹⁴ http://www.eu-un.europa.eu/articles/fr/article_11389_fr.htm

¹⁵ http://www foresight-platform.eu/wp-content/uploads/2011/10/EFP-Brief-No.-196_Agrimonde.pdf

¹⁶ <http://www2.spi.pt/fahre/>

programmes that may finance research in the area and provided a review of research activities across 8 broad research areas.

In the EU, new initiatives have been launched including:

- ✓ The Joint Programming Initiative (JPI) "*A healthy diet for a healthy life*" which is developing a research strategy and a research agenda in 20 countries. The initiative is led by Member States.¹⁷
- ✓ In the new EU framework research programme Horizon 2020¹⁸, food and health research will be supported within the programme "Sustainable and competitive agri-food sector for a safe and healthy diet". Sub-areas include (1) informed consumer choice, and (2) healthy and safe foods and diet for all. On the Health side, the programme "Health, demographic change and well-being" will include activities of understanding causes of diseases, and health promotion.
- ✓ In 2014, a Knowledge and Innovation Communities (KIC) "Sustainable food supply chain from farm to fork" will be launched. The KIC is managed by the European Institute of Technology.
- ✓ DG SANCO established the first European Innovation Partnership (EIP) on Active and Healthy Ageing¹⁹, and DG Agriculture an EIP on Agricultural Productivity and Sustainability²⁰. These are overarching coordination initiative led by the EC.

FAHRE considers that there are significant risks of weak coordination between all these European-level initiatives, and that they do not necessarily feed into understanding research needs and agendas. Moreover, as the greater share of all European research funds is national, it is important to coordinate EU and national research agendas, and vice versa, and to promote exchange of information and cooperation between all the 27 member states.

FAHRE proposals

Proposal 1: establish a research strategy

FAHRE supports the recommendations from the expert group on food and health research set up by DG Research and Innovation²¹ to establish a research strategy for food and health research. As the biggest challenge is to reduce NCDs, FAHRE proposes updating the "*EU Strategy on nutrition, overweight and obesity-related health issues*" established in 2007²². The research strategy for the EU should address health challenges, and coordinate national food and health strategies, including collaborative work through the JPI.

Proposal 2: address the research gap on changing diets

¹⁷ <https://www.healthydietforhealthylife.eu/>

¹⁸ <http://ec.europa.eu/research/horizon2020>

¹⁹ http://ec.europa.eu/research/innovation-union/index_en.cfm?section=active-healthy-ageing

²⁰ <http://ec.europa.eu/agriculture/eip/>

²¹ Report "*Current practices and experiences in the area of food and health research in Europe 2008-2011*" published on the 17 January 2012

In order to change food consumption patterns by influencing consumer's behaviour, more social and consumer sciences are needed as well as policy and intervention research on food and health. Modifying diet will contribute to tackle the public health issues linked to NCDs and the challenge of feeding the world with a reasonable production increase. FAHRE's second proposal emphasizes the need for more social and consumer research within national and EU food and health programming.

Proposal 3: implement an overarching coordination between European initiatives

There is a need to implement an overarching coordination between the different European initiatives, in particular for the coordination of the research programmes financed through the JPI and Horizon 2020.

FAHRE proposes the creation of an "EC inter service group" on food and health issues. This inter-service group will gather programme owners from DG Research and Innovation, DG Agriculture, DG SANCO, possibly other DGs and will establish close relationships with the Management Board of the JPI "A healthy diet for a healthy life".

Proposal 4: coordinate research programme at national level

Agriculture and medical research are already major receivers of national funds: for example, the annual budgets of French National Institute for Agricultural Research and of the UK Medical Research Council are each in the range of €800 million. Yet the World Economic Forum²³ has estimated the cost of diabetes in 2010 to be \$500 billion, and for cardiovascular disease \$863 billion. By contrast, to meet this challenge, the current allocation from the Fp7 research programme "Food, health and well-being." in the range of €80-100 million annually, and no funding is directly identifiable within the health research programme. FAHRE proposes a more ambitious approach to effectively integrate the research programmes in all EU countries. This approach is described in the strategic proposal, which follows.

How to meet the challenge: FAHRE strategic proposals

What is needed?

To effectively address the challenge of non-communicable diseases, a strategy for European research is needed. This strategy should be based on simple and clear objectives and on a mechanism to monitor progress in the implementation of the actions towards the objectives.

In a context of limited resources, FAHRE recommends focusing on the most important research need: how to influence eating. National specificities need to be taken into account, as consumer behaviours and research capacities vary from country to country.

Reaching the objectives does not necessarily require further research programmes: FAHRE identified 470 organisations involved in food and health research and 363 research programmes. The challenge is to improve

²² http://ec.europa.eu/health/nutrition_physical_activity/policy/strategy_en.htm

²³ <http://www.weforum.org/news/non-communicable-diseases-cost-47-trillion-2030-new-study-released-today>

coordination between existing initiatives – the national research programmes, and Horizon 2020, JPI, KIC, EIP etc..

Currently, there is no monitoring of food and health research²⁴ and weak mechanisms for communication between initiatives at both EU and national level. The need is to establish simple mechanisms that will allow programme owners to be informed of proposals, progress and achievements in other programmes. FAHRE proposes that each programme (Horizon 2020, JPI, KICs and also key national programmes) exchange annual (or bi-annual) reports on activities relevant to food and health research. A summary of progress towards shared objectives, with recommendations for future programming, should also be provided.

How to make it happen?

In the short term, three main tasks need to be implemented:

- 1) Prepare strategic orientations for food and health research in Europe
- 2) Collect annual reports from existing programmes
- 3) Provide feedback to the programmes

Who should be in charge?

The draft “FAHRE Strategic Proposals report” published for consultation in October 2011 proposed the creation on the EU-level of a Coordinating Research Agency, with budget and representation from the three EU directorates Agriculture, Health and Research, the member states, and non-governmental stakeholders including and civil society and industry. Corresponding ‘food and health research agencies’ in the member states, bringing together national policy-makers and stakeholders, were also proposed. Around 60 stakeholders from 24 countries provided feedback on the report. This consultation²⁵ revealed little support for creating new entities, and recommended building on existing structures.

Three options are considered:

Option 1: European forum on food and health research

The option proposes a forum gathering representatives of the EC services (DG Research and Innovation, DG Agriculture, DG SANCO) of the European Institute of technology (EIT in charge of the KIC), of the JPI and of national research agencies and ministries. The secretariat could be provided by the EC (as it is the case for the SCAR for example) and a rolling presidency could be in charge of organising the annual conferences. The first conference will focus on the preparation of the strategy. Further conferences will provide reviews of annual activities of the different initiatives and feedback for programme owners.

Option 2: Food safety authorities

This option relies on existing agencies and authorities in charge of food safety. The European Food Safety Authority (EFSA), together with the 27 national authorities, set the strategy for food and health research and

²⁴ Monitoring of research programmes is part of the JPI "A healthy diet for a healthy life" activities

²⁵ McCarthy M. Summary report on responses to FAHRE's Draft Strategy Proposals. FAHRE, February 2010.
<http://www2.spi.pt/fahre/reports/econsultationresponses.pdf>

implement the monitoring. This option would build on a network of cooperating structures at both EU and Member States (EFSA for the EU, ANSES in France, AESAN in Spain, AGES in Austria, etc.²⁶) which have successfully addressed the challenge of food safety. The food safety authorities are independent of the public entities in charge of research, health or agriculture, and the interests of the food industry. Considering the current attention on food and health matters, it now seems relevant to extend the scope of food safety authorities from safety to health issues in addressing the public health challenge of NCDs.

Option 3: Research agencies

In this option, the European Commission's Directorate for Research and Innovation, in cooperation with national research agencies and ministries, take charge of preparing the strategy and implementing monitoring system. The commitment of the involved parties would be high, with better coordination of existing programmes and with the possibility of raising more funds for food and health research. Implementation of this option would depend on political factors external to the food and health research: it mainly relies upon the progress towards achieving the ERA, for which the EC is expected to publish a Communication in June 2012²⁷.

Conclusion: from EFSA to EFHA

A strategy is needed to tackle the knowledge gap on healthy eating and to monitor progress in addressing the challenge of chronic diseases and food security. FAHRE considers that food safety authorities at both EU and national level represent the best option to effectively implement such strategy: a transition from the European Food Safety Authority (EFSA) to a European Food and Health Authority (EFHA) will accompany the evolution of the societal challenges from food safety to food and health issues.

This position paper was prepared in April 2012 by Olivier Chartier (olivier.chartier@euroquality.fr) and Elodie Cluzel (elodie.cluzel@euroquality.fr) from EUROQUALITY with contributions from Mark McCarthy from UCL and Rachel Newton from SPI. FAHRE was coordinated by Sociedade Portuguesa de Inovação (SPI) and involved six partners (Euroquality, University College London, Skalbes, Universiti degli Studi Di Milano, DIALOGIK, and SIK).

²⁶ <http://www.efsa.europa.eu/en/fp/fpmembers.htm>

²⁷ http://ec.europa.eu/research/era/index_en.htm