

AHFES

A QUADRUPLE HELIX ATLANTIC AREA HEALTHY FOOD ECOSYSTEM FOR GROWTH OF SMES

D4.3 Mapping of the Innovation Ecosystem

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Abbreviations and Acronyms

4H	Four helices: Private companies, Academia, Civil Society
SME	Small and Medium size Enterprise
AA	Atlantic Area

Introduction

The aim of this work is to analyse the different regional ecosystems dedicated to Healthy Food and Lifestyles within the European Atlantic Area, and more precisely in the following areas: Northern Ireland, Ireland, Wales, Western France, Centro and Lisbon (Portugal), Galicia and Pais Vasco (Spain).

First of all, **it consists in realizing the inventory of the 4H actors** particularly implicated in Healthy Food across the 4 helices of Industry, Government, Academia and Citizens.

The following support indications of “Healthy food and lifestyles actors” were given to help the partners to identify the actors particularly implicated in Healthy Food and Lifestyles initiatives. Structures belonging to one of the 4 helices and who:

work/have worked on product modifications to make them healthier

work with healthy products by nature (vegetables)

work to develop sustainable products

contribute to promote a healthier diet and lifestyle, including physical activity

make research on healthy food and diets focused on the nutritional needs and the impact of food on physiological and physical functions

work on methods of food processing, preparation and cooking that influence the nutritional value of foods

provide consumers with access to safe, healthy, high quality and affordable food

provide recommendations for policy makers

make policies to have a role in providing incentives for the food industry and the individuals/consumers and their families to achieving a healthier diet

contribute to strengthen the communication and networking between the different actors from a quadruple helix perspective to promote collaborative, open innovation in the sector of healthy food and lifestyles

provide support services, including business intelligence and training to SMEs (for new or improved ways of production and commercialisation of healthy foods, including development of new products, reformulations, packaging and labelling, new markets)

This inventory will demonstrate the Atlantic Area competences and will also highlight the lacks and needs observed. These data will be integrated to a directory on the project website and will put edible and useful the collected data in one place, so as to increase transparency and to strengthen transnational cooperation among the Atlantic Area regions. It will include the following elements: 4H category, type of structure, company size, main activity sector, detailed activity sector (for industries), resources and capabilities, country, region, website link.

Secondly, **it reviews how these 4 helices are represented in the European Atlantic Area** on the theme of Healthy Food & Lifestyles, and the relative dominance of each of the helices. The connections between the helices are also explored and illustrated with examples of cooperation across the studied regions. As it was already observed by the partners through the study of the different existing types of collaboration in their respective European regions (D.4.1_RCS), the traditional 3 helices concept is still predominating with Industry, Government and Academia

interacting, engaging and collaborating on well-established models of relationships, funding and project outcomes. However, good practices of collaboration involving consumers are emerging, highlighting the positive impact of engaging consumers in the innovation process.

The development costs to bring healthy food products to market are considerable. That's why a strong understanding of consumer needs and demands are key to ensuring that finite funds for healthy product development are being well spent. Examples of innovation case studies will illustrate how this cooperation can be built.

1 Representation of the 4 helixes in the Atlantic Area regions

1.1 Representation of the 4 helixes in the AA regions on the theme of healthy food

The Healthy food and Lifestyles ecosystem mapping in the European Atlantic Area identified a total of 1125 actors, belonging to the 4 different helices. The inventory is not exhaustive but provides a global overview of the main actors engaged to make the food and lifestyles healthier in the European Atlantic Area.

The 4 helices, that is to say Institutions, Private companies, Academia and Civil society are all present in the innovation ecosystem dedicated to healthy food and lifestyles within this area, showing a real dynamism and will of the different types of actors to improve nutritional quality and meet the new market needs.

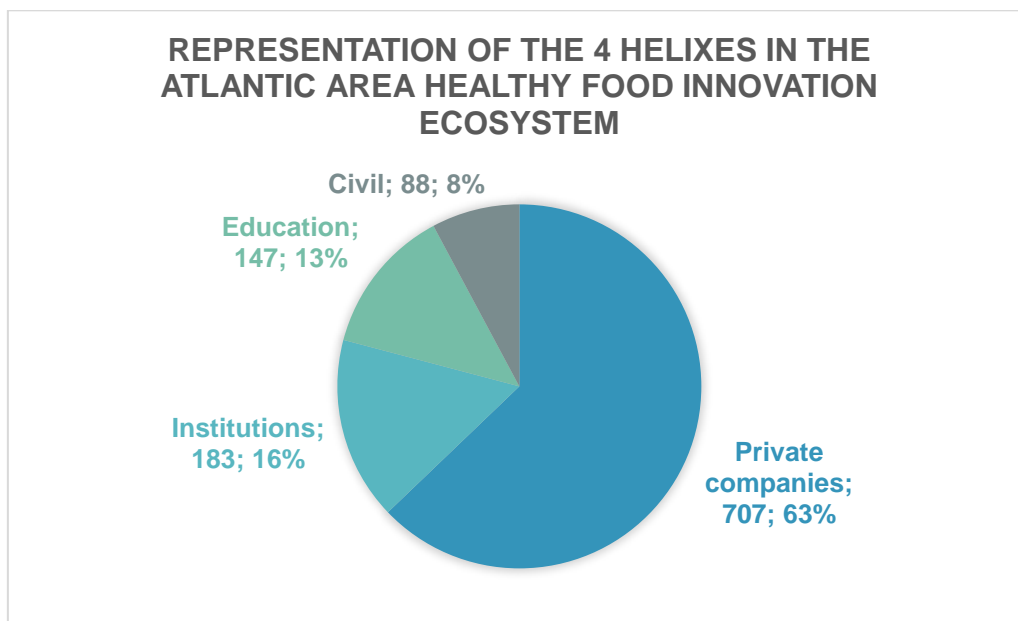


Figure 1: 4 Helixes in the Atlantic Area healthy food innovation ecosystem

Private companies' initiatives largely dominate efforts to address healthy food. They represent 63% (or 707 private companies) of the total identified actors. This predominance of the private companies' helix is the same in every studied European region. They will be analysed more in detail in part 1-2.

The second more important helix in number, even if it is very far from the private companies' helix, is the Institutions' one with 16% of the identified actors (or 183 structures).

Local authorities (61) is the most important category of active structures identified through the Atlantic Area. In Grand Lisbonne (Portugal) for example, the Portuguese Association of European Sports Cities (ACES) was created to support and promote the demands of Portuguese municipalities for recognition by ACES EUROPE as European sports cities or capitals; the different local ACES entities are particularly active to promote locally an adequate nutrition and physical exercise. In France, the Regional Councils can bring an effective support in financing

regional innovation projects and facilitating innovation structures such as competitiveness clusters. State/European institutions (46) are the second most important institutional types of structures: Wales is particularly well provided in State structures; for example, Welsh Government Food Division is the Food & Drink focused arm of Welsh Government who defines & implements policy, funds initiatives & delivery programmes to grow the sector in Wales. In addition, Healthy Eating in Schools Wales is a regulatory body who sets and monitors standards for meals provided in schools in Wales. The Atlantic area is also well equipped in clusters (24) to sustain innovation actions from the private sector and facilitate networking and collaboration between the different types of actors. Professional Unions (23) also play a specific role to gather healthy food related professions to share the progress of their studies and create cooperation with different entities to promote healthy eating (for example, the Portuguese Association of Nutritionists, Grand Lisbonne, Portugal).

Then appears the Education and Research helix with 13% of the identified actors (or 147 structures). Research units (43) and universities (45) are the two major categories of academic actors identified in the Atlantic Area. In Rennes (Brittany, France), the INSERM NUMECAN (Nutrition, Metabolism, Cancer) research unit is dedicated to study how dietary, behavioural, environmental and metabolic determinants have an impact on the health and chronic diseases. Research groups in the University of Santiago de Compostela (Galicia, Spain), are working on the development of nutritional assessment programmes and on new food products and ingredients' developments. Fourteen Technical centres have also been identified to provide R&D support and conduct research in the development of new ingredients adapted to specific nutritional needs.

The least present helix is the Civil society's one with only 8% of the identified actors (or 88 structures). Civil society is the least represented helix for every partner of the project. This scarce number may be due to the fact that clusters and academic partners of this project rarely collaborate with Civil society actors, and as a consequence, lack knowledge of part of them. Part 1.c is an analyse of these actors.

1.2 Predominance of the private companies in the Healthy Food ecosystem

As seen before, the private companies' helix is definitely the most represented in the studied area. The predominance of private companies within the Healthy food actors is the sign of the interest and engagement of the private sector and also the proof that they find a financial interest to get involved in this entrenched trend of healthy eating.

Among the 707 identified structures, 544 belong to the SME's category; indeed, the partners were asked to identify in priority regional SMEs in order to identify clearly those who would be involved in the course of the project, and more precisely those who will be invited to the trainings that are to be implemented in the scope of the project.

If we look more in detail the types of companies among this private companies' helix, mainly industries (566) have been mentioned in the list, but also retailers (71), and industry suppliers (39).

Industries:

A large variety of activity sectors are represented in the European Atlantic Area: fruits and vegetables (80), dairy products (64), ingredients (59), seafood products (39), prepared meal and catering (35), bakery and pastry (30), and animal feed (29) are the most numerous quoted activity sectors.

Portugal shows to have the most numerous fruits and vegetables companies that work on healthier products: fresh fruits such as blackberry, dehydrated fruits, fruits juices, organic production, or olive oil.

Seafood production is a particular competency of coastal regions such as Western Spain, Western France and Ireland: canned seafood products, biomarine ingredients, smoked fish, unprocessed seafood or frozen seafood are competencies covered by these regions.

Northern Ireland has a specific competency in animal feed: Agri -Research was for example established more than 20 years ago, specialising in healthy animal nutrition. The unique range of products were developed with consultation across the local major meat processors to deliver proven health benefits to animals.

Another specific competency in France, Spain and Portugal is organic production: the trend is much more deep-rooted in France, where sales of food organic products have grown by 16% in 2018 (9,7 Billion€). The French market is gradually being structured from the fork to the plate to respond to consumers demand; nearly 70% of the organic products consumed are produced in France: eggs, dairy products, meat, bakery and pastry, vegetables, catering and frozen food are mainly produced in France.¹

Retailers:

Retailers also play a role in providing healthy food products in this area: In United Kingdom, many healthy food and drink products are brought to market at the instigation of the major retailers who seek to boost sales and create competitive advantage by being ahead of the innovation curve for products designed to support more healthy consumption (Less salt) and products that meet specific dietary needs in order to maintain good health (gluten free, free from). Premcrest is for example a Leading UK wholesale distributor of Vegan, Natural, Healthy, Free-from, Organic, Eco-friendly and Fairtrade products.

Industry suppliers:

39 industry suppliers are identified as providers of packaging solutions, advisors who impulse innovation and nutritional improvement of products, laboratories specialised in microbiological testing of food, and even equipment suppliers.

1.3 Obvious lack of civil society actors in the ecosystem

Civil society is considered to be the less well represented in each participating Atlantic Area region. The triple helix approach is still the preferred way to innovate but the 4H approach is emerging. The rare observed collaboration between all the 4 helixes leads to a poorer knowledge of this helix in comparison with the three others in the Atlantic Area. However, the consortium research on the issue reveals the extraordinary potential of collaboration between the civil society helix and the other ones to contribute to a healthier way of eating in the area.

Among the 88 identified actors are charity or charitable organisation (26), producer's networks (18), support and awareness-raising organisation (13) and consumers associations (10).

¹ https://www.agencebio.org/wp-content/uploads/2019/06/DP-AGENCE_BIO-4JUIN2019.pdf

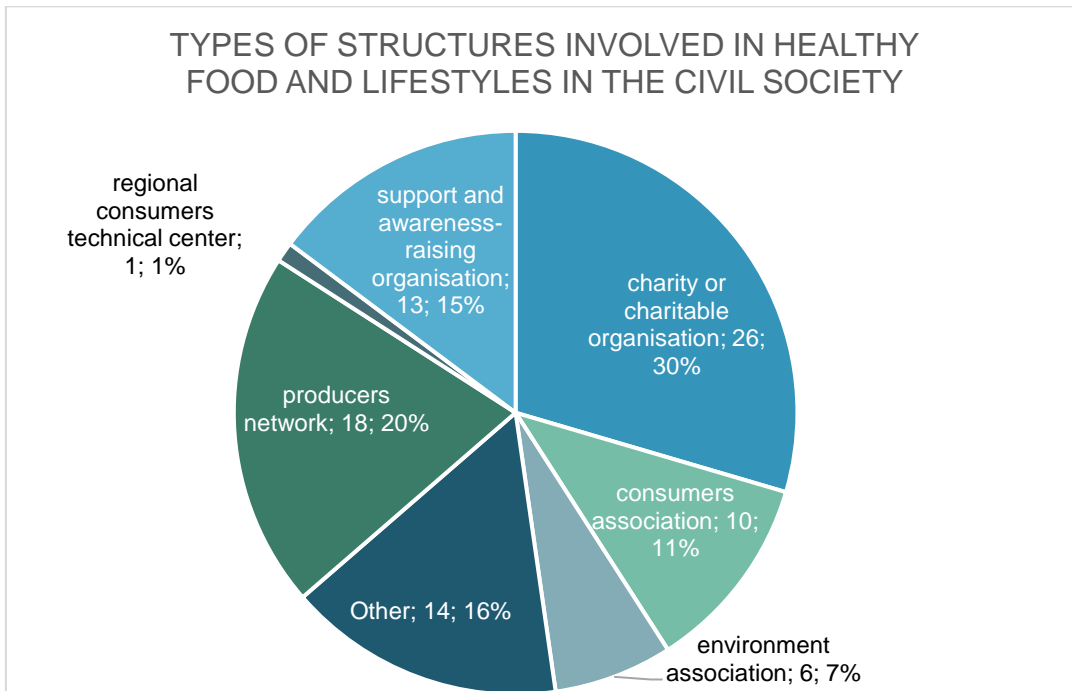


Figure 2: Types of structures involved in healthy food and lifestyles in the civil society

Northern Ireland Chest Heart is an example of local charity organisation: it has been working to prevent chest, heart and stroke illnesses in Northern Ireland. Offering practical and emotional support to individuals and families including dietary advice. Encouraging people to use healthy options in their diet with the objective of replacing food products for the “healthy option”.

In Ireland, the Cork Food Policy Council (CFPC), a support and awareness-raising organisation, is committed to working towards building a healthier, more sustainable, more equitable food system for the people of Cork Ireland.

In Western France, the number of civil society actors implicated in healthy food has been growing progressively during the last decade because of the consumers raising awareness on healthy food, with among others the development of food local direct purchasing networks (AMAP, La Ruche qui dit oui), organic producers associations (GAB), and consumers associations helping citizens to adopt healthier lifestyles and eating habits (La Bonne Assiette, La Clé des champs). This helix is however very dependent on French public subventions and calls for proposals, which are a new source of incomes, and its business model is fragile in a context of steadily declining state aids.

In Galicia, despite a number of consumer cooperatives, formed by citizens worried about healthy feed and environmental aspects, civil society movements are scarce, and this is also reflected in the healthy food innovation ecosystem. This cultural aspect may be a barrier for the implementation of user co-creation and living lab methodologies, as consumers may be reluctant to take an active role in innovation processes.

The media are one sector of civic society that enable the voice of consumers to be heard in the UK. Indeed, there is a specialist food and drink media sector, in the form of printed magazines and online websites, blogs, videos and other social media presence. These cover more general

publications such as Olive², Delicious³ and BBC Good Food⁴ as well as those specifically focussing on healthy lifestyles and eating such as Healthy Food Guide⁵, Healthy Diet⁶, and specialist diet titles including Gluten Free Heaven⁷ and Vegan Life⁸.

² Olive

³ Delicious

⁴ BBC Good Food

⁵ Healthy Food Guide

⁶ Healthy Diet

⁷ Gluten Free Heaven

⁸ Vegan Life

2 Connection between the 4H in the ecosystem

2.1 Stronger interactions between some of the helices in the healthy food ecosystem

The Connections have been observed between each of the four helices within the Atlantic Area, but interplays are stronger between some of them in terms of Healthy food issues. The triple helix approach is more or less accepted as the best way to innovation but the 4H, that integrates consumers, is just emerging. We will see in part 2-b that extensive examples of cooperation involving different elements of the 4H model exist, but only a few truly represent the 4H cooperation.

We have noticed through the partners work that there were five main drivers that motivate the 4H to collaborate together:

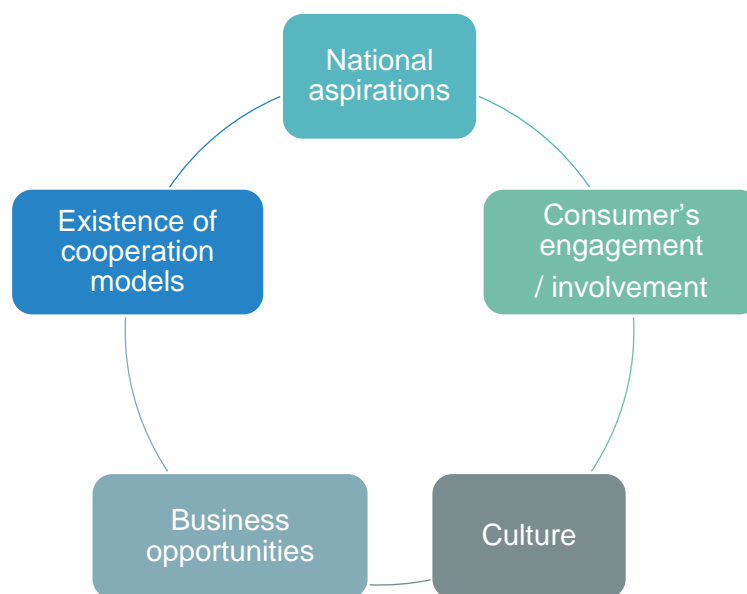


Figure 3: The five main drivers that motivate the 4H to collaborate together

- National aspirations:

On behalf of national aspirations, programmes in favour of healthy food can be created, helping to foster cooperation between 4H actors.

At a national level, in Ireland for instance, Healthy Ireland is a government-led initiative aimed at improving the health and wellbeing of everyone living in Ireland (GOV.ie, 2020). The Eatwell initiative is rolled out as part of Healthy Ireland programme. In France, specific national programmes (PNA and PNNS) and more recently the Egalim Act signed in 2018, also contribute to install a supportive environment for initiatives in relation with Healthy Food.

- The existence of cooperation models:

Depending on European regions, cooperation models are more or less structured and developed. Models of cooperation suggested by policymakers in response to national or regional strategic plans can encourage the helices to work together. Indeed, it was observed that the 4H stakeholders are often beginning to interact and collaborate in the application of the policies, for

example among the science, industry and government. That is why it is crucial to integrate the 4th helix in this area.

In Wales, there has been a history of the 3 helices of Government, Industry and Academia interacting to collaborate on innovation, and this has included in the area of healthy food, drink and lifestyles. There is a well-established infrastructure in place to facilitate collaboration in innovation, and funding mechanisms are in place from both devolved Welsh and national UK government to enable these initiatives to progress.

The perception in Galicia is that cooperation between companies and academia is easier than establishing cooperation involving consumers and policymakers. This is also very related with the fact that innovation policies are very focused on fostering collaboration between the industry and the academia, and most innovation public funding programmes include this as a requirement.

One of the major lessons learnt since the beginning of this project is that there is often no link between the various bodies working within the area of healthy food: new mechanisms should be created to structure collaboration between them and maintain it.

- Business opportunities:

For the Northern Irish business sector, there are two main drivers for healthy food new product developments that can motivate consumers and industries to work together:

1/ Increased profit by increasing the selling price point or replacing ingredients with cheaper options.

2/ Increasing sales by addressing public concerns or perceptions. I.e. increase market size

In today's market, Healthy food products are a growing sector in response to the consumers desires and one that enjoys a high selling price.

- Culture:

Civil society movements in Galicia are scarce, and this is also reflected in the healthy food innovation ecosystem. This cultural aspect may be a barrier for the implementation of user co-creation and living lab methodologies, as consumers may be reluctant to take an active role in innovation processes.

There are regions, on the contrary, where cultural aspects are more favourable to cooperation with consumers.

- Consumer's engagement/involvement:

In Western France, where civil society seems to be more active as regarding healthy food issues, we can observe cases of cooperation between institutions and consumers and increasing relationships between consumers and producers (who could consequently constitute a 5th helix in the French ecosystem). However, respective cultural objectives and expectations are a real barrier between industries and consumers to cooperate and ways of cooperation interesting both types of actors are to be found.

2.2 Regional examples of good practices observed locally that encourage interactions between at least 2 helixes

Lots of initiatives mixing two or three helixes have been quoted in the Atlantic Area, and even some of them involve the society helix. Here are presented some of them:

- Institution/Private companies:

In Ireland, Safe Food Ireland (SFI), body set up under the British-Irish Agreement with a general remit to promote awareness and knowledge of food safety and nutrition issues on the island of Ireland, is committed to working in partnership across all actors in the area of food production, nutrition and education. SFI have developed initiatives like the all Island obesity action forum.

- Institution/Academia:

In Wales, funding is directed to deliver outcomes which reflect Government policies. As academic research requires significant funding, the research must demonstrate relevance to the topics in which the government has an interest in order to attract government funding either directly or sponsored through public bodies and institutions, such as Innovate UK. This creates interaction and collaboration between these two helices – and often may bring in the 3rd helix of industry.

- Institution/consumers:

In France, the number of civil society actors implicated in healthy food has been progressively growing during the last decade (part 1.3) but this helix is however very dependent on public subventions and calls for proposals, which are a new source of incomes, and its business model is fragile in a context of steadily declining state aids.

- Private companies/academia:

Private companies and academia are particularly linked in Spain, Northern Ireland and France. As an illustration, in Northern Ireland, ABP is a large meat processing company based on two sites across Northern Ireland. They constantly work alongside Loughry College, in the areas of Skills training, product development, animal welfare and career development. The College's primary objectives are to develop learners' skills and competitiveness through education, training, business and technology programmes to meet the needs of the food industry.

- Private companies/consumers:

Private companies and consumers are working together, but often at the late stage of innovation process, in Portugal. In the REINOVA project, where InovCluster helped 8 SMEs to develop new food products and launched them into foreign markets, groups of consumers of the foreign markets chosen were involved to taste the products and evaluate their marketing strategy and packaging design, in order to better understand the products acceptance.

In Lisbonne region, Cerealis is an agro-food industry that is so close to consumers that it developed several brands depending on their age group. In addition to market studies that allow them to obtain feedback and valuable "insights" regarding the launch of new products or improvement of existing products, Cerealis also invests in consumer participation. They are creating a closer relationship with consumers through an active posture of the Group and its employees. In addition to be involved in local support projects, they have also been actively participating in several projects in line with its nutritional awareness policy. These social projects allow the Group to be closer to consumers while developing a view of the current market status and gathering information regarding the consumption trends of each age group. Cerealis considers that the open innovation paradigm has to occur, there must be more and more involvement and participation of external entities, namely the involvement and feedback of consumers all along the product development.

- Academia/consumers:

Despite this observation, there are ways to bring the consumers closer to the innovative process of food industries. Indeed, Agrocampus Ouest, based in Rennes (Brittany), is asked to organize focus groups for dozen of agrofood industries each year: this mission contributes to train students who are to become the future agrofood collaborators. This method proves to be easily duplicated inside agrofood companies and allow them to know the consumers' preferences and opinions about their food products ideas.

In Ireland, the emergence in references to user-centre design methodologies and living labs has to be mentioned. These are capturing more attention and it is expected the application of the 4H model will increase.

- 3H cooperation: Private companies/Institutions/Academia:

In Portugal, the "Selo Pão: Less Salt, Less Taste" collaborative project mixed three kinds of entities: public laboratory (INSA), government (General Directorate of Health) and industry (Associations of bread making). This project aims to reduce salt in bread, with bakery associations producing bread, INSA analyses the salt content and the General Directorate of Health coordinates and is responsible for the connection between the entities.

- 3H cooperation: Institution/Academia/Private companies:

In France, policymakers decided that collaborative projects gathering private companies and academia actors can be granted subventions if they target the convenient call for proposal. Once the project built between academia and industry actors, national and regional institution representatives review it to decide whether the project will get subventions and which institution should allocate the aids. In this kind of project, however, the consumer helix is rarely involved.

- 4H altogether, but consumers at a late stage:

In Spain, the GALIAT 6+7 reflects quite well this situation. In this project, companies and research centres collaborated to develop new or improved food products with health properties. In a later stage, an intervention study in a Galician municipality was designed by researchers in collaboration with the Public Health Service. Families were provided with products, recipes, and instructions to keep a healthy lifestyle. During the process the evolution of the citizens was monitored and provided feedback on the products consumed. Therefore, although a significant number of consumers was involved in the project, they did not have an active role in product development process.

The regional case studies previously identified by every partner, in the Regional Case Studies deliverable (D.4.1_RCS) of this project, also mainly showed examples of innovation projects implicating consumers at the last stage of the project, in order to validate the product acceptance before the launching.

3 Involvement of the consumers in the ecosystem

3.1 Insufficient involvement of the consumer helix in their innovation processes

The AHFES partners unanimously agree that the consumers should be strengthened in the innovation process. Indeed, the innovation projects gathering the 4 helices, and more precisely the consumer helix, are not the most common types of projects.

According to the Western French agrofood Barometer of Innovation realised by Valorial and KPMG in 2017-2018: “Agrofood industries exactly know which kind of products they are able to sell, but they don’t know to whom they sell these products.” Indeed, a big part of the private companies’ helix recognize they should invest more in actions willing to better know the consumers.

<https://www.pole-valorial.fr/article-decouvrez-le-barometre-valorial/>

Many reasons are unfavourable to involving more consumers in the healthy food innovation process:

- Lack of knowledge of the actors among themselves
- Not enough competencies and human resources in agrofood industries to tackle this issue of consumers
- Not used to work together because of the Triple helix tradition
- Inexistent mechanisms of collaboration and funds promoting collaboration between the 4H
- Many pressing issues for small food business operators, not least the question of climate change, biodiversity, sustainability and more currently food packaging waste.
- Consumers are difficult to understand and depending on the technical used, there are bias to understanding (focus group)
- Gap between what consumers say about their consumption, and what they really buy, which favours the industry reluctance to collaborate with them
- Cultural and expectations gaps between the different helices

However, this general finding conceals really interesting examples of good practices, that should be more experienced and widespread within the Atlantic Area.

3.2 Regional good practices where the consumer helix is asked by another helix to contribute to a healthy food innovation project

As seen before, despite the good functioning of current methods of collaboration, we found that few of them succeed in gathering all the 4 helices. Here are some examples of innovation case studies that illustrate how the consumer is asked by another helix to contribute to a healthy food innovation project.

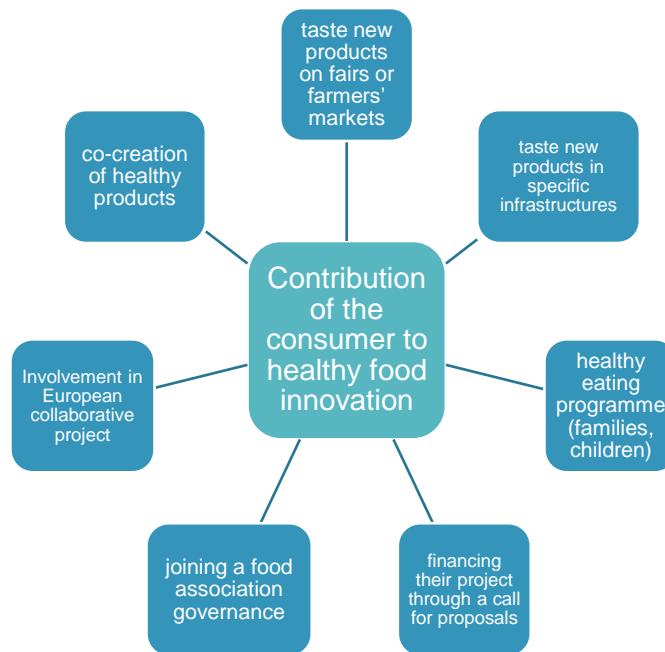


Figure 4: The different ways the consumer contributes to healthy food innovation

- Involving children in a healthy eating programmes:

Bord Bia’s Food Dudes programme, in Ireland, is another government-led healthy eating programme, developed to encourage children to eat more fresh fruit and vegetables. The Food Dude initiatives have been a great success, with over 3,300 primary schools and almost one million pupils having successfully participated in the Food Dudes Healthy Eating Programme since its inception.

- Involving families in a healthy eating programme:

Food Cardiff, in Wales, is part of the Sustainable Food Cities Network, funded through charitable means this initiative seeks to ensure that all citizens in Cardiff can have access to health, nutritious food and provides information and events to inform people in Cardiff about healthy Eating and lifestyles. It offers opportunities for both individuals and families as well as organisations to get involved and represents a collaboration of the public health system with citizen campaign groups and the consumer to promote healthy food and lifestyle.

- Involving consumers to taste new products in specific infrastructures:

CATAA (Centro de Apoio Tecnológico Agroalimentar), where InovCluster is based in Portugal, is a certified sensory analysis room, where it is possible to make consumers tests on food products panels created by industries, with or without CATAA’ intervention.

- Involving consumers to taste new products on fairs or farmers’ markets:

Through the Atlantic Area, SME’s with less resources and smaller development budgets often conduct much more informal tasting sessions, in which they ask existing customers for feedback or offer sampling sessions at face to face selling venues such as food fairs or farmers’ markets.

- Inviting consumers to co-create healthy products:

In Northern Ireland, consumers, nutritionists and a sport nutrition brand ACTI-SNACK developed and launched new healthy Nut and Trail Mixes designed to naturally fuel the body and promote recovery in athlete, sports and health enthusiasts. These products were designed in partnership to address a need in the consumer group: the plant-based products are aimed at meeting the body's need to refuel and recover.

- Inviting consumers to join a food association governance:

An inspiring example of 4 helixes collaboration on Brittany's territory is Bleu-Blanc-Cœur association. It is committed to a recognized approach to improving the nutritional content of our food which integrates nutritional objectives for humans, while respecting the health of animals and our environment. In terms of governance, the Bleu-Blanc-Cœur sector is managed by a collective that brings together all the players in the food chain: private companies (agrofood industries, catering actors, farmers), academia (doctors, scientists), civil society (consumers, etc.) who work every day for greater transparency and quality in industrial food.⁹

- Involving specific consumers in a European collaborative project:

Nutriage project, funded by the Interreg POCTEP (Spain-Portugal) programme, aims at promoting Healthy Ageing through Nutrition and the Atlantic Diet. The project partners include universities, technology centres, clusters (such as Clusaga) and public administration. In addition, companies participate in the project by developing new products with the support of the partner technology centres. These products will be tested in nursing homes and feedback from users will be received.

- Involving consumers in healthy food through financing their project:

In France, regional calls for proposal invite civil society representatives to apply if they respond to the given objective.

For example, the ARS (regional health agency) has created a call for proposal, with 2020 July 3th deadline, "Acting for healthy and sustainable food from production to consumption" in the National Food Programme (PNA3) scope. The applying structures can be granted subventions between 55% and 100% of their expenses if they are elected as the best initiatives.¹⁰

3.3 Original regional good practice where the consumer helix takes action towards another helix to request/ impulse changes towards Healthy Food and lifestyles.

In addition to these consumer contributions to already existing cooperation projects, we have noticed remarkable practices of collaboration that favour Healthy eating at the instigation of the consumers themselves. Here are some inspiring initiatives that could be duplicated through the Atlantic Area to engage more the fourth Helix.

SFI and their collaboration with the Irish TV programme "Operation Transformation", is a remarkable example of regional good practice, where the consumer helix takes action towards another helix to request and motivate changes towards healthy approaches to food consumption. Safe Food Ireland sponsor "Operation Transformation", a successful Irish TV programme set up to follow the life of selected leaders who adhere to a strict diet and exercise regime over the course of two months. Many towns and local communities in Ireland organise their own community led "Operation Transformation" initiatives, with a much wider reach than would

⁹ <https://www.bleu-blanc-coeur.org/>

¹⁰ https://www.bretagne.ars.sante.fr/system/files/2020-05/AAPregio2020_ALIM_CDC_VF_0.pdf

otherwise have been achieved. Operation Transformation transcends across all the main actors in the Helix, from civil society, public bodies, private companies and education. The main private multinational food retailer operators in Ireland, provide consumers with ingredients conveniently flagged as those ingredients pertaining to the food plans from the OT programme. Consumers following the OT food plans can easily purchase the ingredients and cook the meals at home for themselves and their families.

The consumers motivation and raising awareness on healthy food theme can also lead to very interesting collaborative initiatives. Cooperative stores such as Breizhicoop come from a fundamental will to eat healthier, local food, with fair prices for producers, as for consumers. The wish is to regain power over food, with a responsible, engaging project that will generate social links between the inhabitants of our Rennes metropolis. The co-operators own altogether the supermarket, and they contribute monthly to the management of the store. Their personal engagement gives them the right to accede to the products shop, allowing them to better control one's diet. In this situation, it is the consumer helix that takes action towards local producers and industries to impulse changes in the relationships between food providers and consumers, on a win-win basis: the food producers, in exchange of guaranteeing healthy and equitable products to consumers, benefit from higher selling prices than in traditional distribution networks.¹¹

Galician consumers are progressively more conscious about their diet and about the social and environmental impact of their consumption. In this regard, the last years Galicia has shown an increase in the consumption of organic food, both in terms of number of consumers and in their frequency of consumption. These progressive change in consumption patterns has had impacts in the food industry. First, it has fostered food companies to improve their products to make them healthier or more "healthy-appealing", they have shortened ingredient lists and have also considered the geographical proximity as a marketing strategy. Secondly, there has been an increase in the launch of organic products not only by small producers but by large companies. At the same time, this has augmented the number of rural entrepreneurship initiatives that produce organic products and have a more ecological approach to business.

The same observation is made in Centro region of Portugal where the consumer trends and demand are influencing the products that industry is creating, and where even more consumers demand organic and local products with more clean labels (less additives), and the industry is developing products, or adapting their communication politics to satisfy these needs.

¹¹ <https://www.breizhicoop.fr/>

Conclusion and recommendations

The Atlantic Area region is well provided with actors from the four different helixes, with a clear predominance of industries particularly interested in the healthy food and lifestyles trend. The civil society is less represented in this field: it can be less concerned by healthy food, or less used to work with the industry helix. Some regional initiatives show encouraging cases of the consumers involvement and should be encouraged and widespread through the Atlantic area. Facilitating factors have been identified to encourage their involvement.

Lots of cases of 2H and 3H cooperation have been mentioned by partners, but the 4H pattern is still emerging. The case studies identified in the D.4.1_RCS analysis have mostly shown examples of innovation projects implicating consumers at the last stage of the project, in order to validate the product acceptance before the launching.

Few initiatives that consider the user as an active part (co-creator) through the innovation processes have been identified. Citizen participation dynamics are still quite limited in the Atlantic Area region, but encouraging examples show an emergence of consumers involvement in terms of Healthy food and Lifestyles, whether because they want to make their lifestyles healthier, or because they are convinced that changing the relationships between food providers and consumers will help them to eat

and live healthier. Their simple purchase power can be an efficient mean to influence the way food products are made. In the objective of developing the interplays between the 4H at an early stage than it uses to be, cooperation models should be implemented and widespread through the European Atlantic Area.