AHFES

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

D5.3 Matching consumer demands, market opportunities and SMEs competencies and needs

This project has been co-funded by the European Regional Development Fund (ERDF) through the Atlantic Area Programme, under the subsidy contract EAPA_1071_/2018 AHFES.

Project acronym: AHFES

Project title: A quadruple helix Atlantic Area healthy food Ecosystem for growth of SMEs

Project code: EAPA_1071/2018

Deliverable number and name: D5.3 Matching consumer demands, market opportunities and SMEs competencies and needs

Work Package: WP5 – Building intelligence for SMEs innovation and growth in healthy food and lifestyles

Author: NUIG and BIC

Document history:

Version	Date of issue	Content and changes	Edited by
0.1	18.12.2020	Completed first version of report	NUIG and BIC
0.2	20.01.2021	Edited with conclusion and table of content	NUIG
0.3	11.02.2021	Edited with feedback provided re SWOT	Clusaga
1.0	18.03.2021	Final Report	NUIG

The AHFES project is implemented by the following partners:

Content

Figures

Tables

1 Introduction

The current report, "***D5.3* Matching consumer demands, market opportunities and SMEs competencies and needs**", aims to provide a summary overview of consumer demands and market trends with regard to healthy food, coupled with an understanding of SMEs competencies, needs and current challenges, which can be used by food companies to increase their knowledge about healthy food innovation opportunities globally and in the Atlantic Area (AA) countries while also highlighting matched training and service opportunities that will be provided by AHFES partners. It also summarises the information presented through the development of a SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis.

This report is part of ***WP5 - Building intelligence for SMEs innovation and growth in healthy food and lifestyles***, of the project "***AHFES - A quadruple helix Atlantic Area healthy food ecosystem for growth of SMEs***". The purpose of AHFES is to improve the overall competitiveness and growth of SMEs in the value chain of healthy food & lifestyles by contributing to enhancing a transnational innovation ecosystem that helps SMEs access knowledge, partners and markets and align their products and services to consumer needs and expectations. AHFES will achieve the following objectives: i) Strengthening cooperation in the fields of food, health and ICT, through mechanisms that facilitate networking and knowledge exchange; ii) Fostering SME competitiveness through advanced support services to facilitate innovation; and iii) Increasing consumer awareness about the relevance of innovation, achieving higher trust and promoting healthier lifestyles.

The AHFES project is providing opportunities for training and the provision of innovation services that facilitate healthy food SMEs ability to respond to the consumers' needs and the market as has been analysed in D5.1 "Consumer analysis" and D5.2 "Market Analysis". The current deliverable provides a synthesis of key insights from the consumer and market analyses along with the results of a survey to investigate the training and service needs and preferences of SMEs in the healthy food and drink sector, based on 152 SME responses from across the 6 AHFES regions. The aim of the survey was to ensure that the planned provision of training and services by the AHFES project would be targeted to deliver the maximum possible support for SMEs in each region as they seek to develop and bring new or reformulated healthy food and drink products to market.

The AHFES team have previously noted[1] that healthy food innovation is a cooperative effort that involves the entire value chain, and healthy food innovations need to focus on maximizing citizen health and well-being while also future-proofing food systems by making them more sustainable, resilient, responsible, diverse, competitive, and inclusive, thus contributing to the FOOD 2030 priorities: nutrition for sustainable and healthy diets; climate smart and environmentally sustainable food systems; circularity and resource efficiency of food systems; innovation and empowerment of communities[2].

Successful innovation implies partners and stakeholders working together, co-creating processes across team members and organisations to create novel and beneficial products and services

[1] Hogan, M. J., Harney, O. M., Hanlon, M., Pilch, M., Walsh, J., Gilbride, S., Felgueiras, A., Dosil, N., Hamilton, H., Devenney., Fortin, B., Gentil, A., Rodríguez, L., Caoi, I., Pinto, N., Pio, S., Barata, N., Grant, L., Roberts, R., Monaf, H., & Caio, S. (2019). Analysis of current trends and best practices on H4 cooperation for innovation and growth in the AA (137 pp). *Interreg Atlantic Area European Regional Development Fund,* Brussels*.*

[2] FOOD 2030: *Future-Proofing our Food systems through Research and Innovation*. EUROPEAN COMMISSION. Directorate-General for Research and Innovation.

that are quickly adopted. European regions are striving to improve regional industry competitiveness and the INTERREG Atlantic Area programme offers a unique pan-European opportunity for cooperation, knowledge exchange, and learning how to better innovate. This is particularly important in the healthy food sector given the dynamic nature of the food ecosystem and the current challenges faced by all those seeking to innovate and grow their business.

Quadruple helix (4H) innovation involving collaboration of citizens, government, academia, and industry has been severely challenged over the past year in the context of the COVID-19 pandemic, and this is reflected also in the challenges faced by AHFES partners as they continue to engage with SMEs to support their work. At the same time, food systems and SMEs have proved resilient and it is evident that collaboration and cooperation across stakeholder groups will continue to drive innovations. In this context, AHFES remains focused on supporting individual SMEs and the broader resilience, sustainability and innovation capacity of the healthy food ecosystem. A focus on the broader innovation system[3] highlights the interactions between various actors and the workings of the system as a whole, and the design of training opportunities and services bolstering the individual and relational capabilities of actors in an innovation system will allow for greater cooperative potential and regional competitiveness. Regional innovation systems involve 4H partner cooperation across a variety of specific functions that are important for the sustained success of innovation systems (see Figure 1).

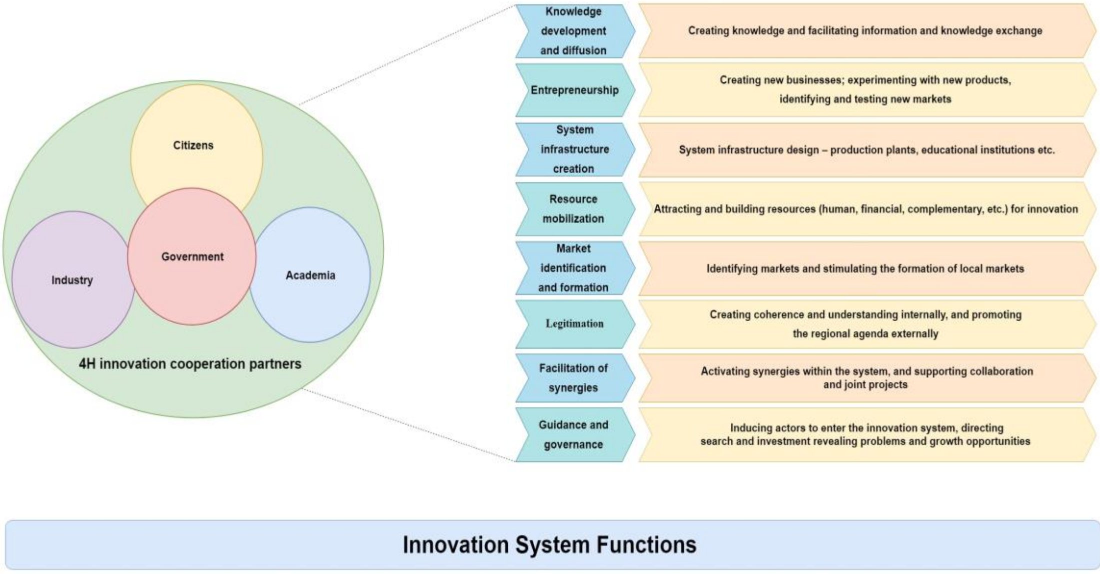

Figure 1. 4H innovation cooperation and the key functions of innovation systems

While a variety of generic functional and structural challenges can negatively impact on the successful functioning of innovation clusters, including a lack of resources and low demand-orientation of partners where actors do not focus on the assets that are needed most, the iterative design and development of quality innovation training opportunities and services can be instrumental in counteracting these challenges. Also, as noted by Heydebreck, Gabrielsson, and Dahlöf (2014), while lack of resources is often voiced as a critical problem by innovation partners, fragmentation of the innovation system is often more critical, including actors who do not know how to cooperate and lack of coordination between different activities in the innovation system.

[3] Heydebreck, P. Gabrielsson, N., & Dahlöf, C.A. (2014). Innovation Systems. INTERREG IVC Analysis report, INNO.

This can be compounded by maladaptive norms that inhibit cooperation, partnership and synergy, and institutional rules, legislation, and regulations that are not suitable for all partners. Across the range of training opportunities and services offered as part of innovation system enhancement, the AHFES partners recognise that it is important to develop shared values, norms and practices that facilitate adaptation in a context where challenges and threats and ever-present, but where opportunities are leveraged and strengths are maximised in an effort to overcome challenges and inertia and push for innovation and adaptive success in an environment that may be slow to change. In this context, building upon D5.1 and D5.2, and responding proactively in the context of the pandemic, the AHFES team proposed a set of training opportunities and services for SMEs to consider and offer feedback on in terms of specific preferences and additional needs. This process of working with SMEs supports better matching of consumer demands, market opportunities and SMEs competencies and needs in the context of a collective effort to enhance innovation and adaptive success of actors in the innovation system.

1.1 Methodology used

The current deliverable (D5.3) adopts an integrative analysis of consumer needs and market trends as reported in D5.1 and D5.2 coupled with a survey study method to examine SME challenges, needs, and training and service opportunity preferences based on the initial training and service offering framework developed by the AHFES team.

In relation to the survey study method, SMEs were provided with a version of the following survey prompt:

> ***Would you welcome free training and support to grow your food and drink business?***
>
> Providing consumers with healthy food and drink options, to support them in living healthier lifestyles, has never been more important than in these difficult times.
>
> Our experienced, enthusiastic team is here to help you.
>
> The European Union wants to support SME's (small and medium sized businesses) working in this important area and so is funding AHFES - the Atlantic Area Healthy Food Eco-Systems project, with partners involved from Wales, Northern Ireland, Spain, Portugal, France and Ireland.
>
> Together we are creating a training and services delivery programme to run from January 2021 until August 2022.
>
> Training and Services will be available FREE OF CHARGE, if you are a small or medium sized business and working to grow your business in the area of Healthy Food and Lifestyles.
>
> We want our offer to be as helpful and supportive to your business as possible, so we would love to hear what you think about our plans via this survey.
>
> **TRAINING** - You would have access to training divided into 4 themed programmes, as shown below.

<table>
<tr><td colspan="3">Consumer Insight & Market Understanding</td></tr>
<tr><td rowspan="2">Product Lifecycle Management</td><td>Market Development</td><td rowspan="2">Product Development Critical Path Management</td></tr>
<tr><td>International Market Development</td></tr>
</table>

The 4 programmes will be subdivided into individual modules, with each module focusing in more depth on a specific topic.

This means you can select those topics which are of most of interest to you and build your knowledge and skills in a way that best suits you and your business.

SERVICES - The AHFES partners can also offer supportive innovation services in the 4 areas shown below:

Integration in Innovation Networks	**Innovation Services**
Support in Business Development	**Support in Market Building and Internationalisation**

Each of these 4 areas will comprise several specific services, allowing you to select the support that will most benefit your company.

We would like to find out more about the challenges you face and what training opportunities and Innovation services would be most effective and attractive to you.

Please could you help us achieve this by completing this survey which should take you approximately 8 minutes to complete?

Many thanks from AHFES team for helping shape the training and services to be provided, allowing us to ensure they are as useful as possible to your business.

More information about the AHFES project is available on our website by using this link AHFES PROJECT and follow us on LinkedIn or Twitter.

The full set of questions on the survey is provided below in the reporting of the results (see Chapter 3).

1.2 Relationship between D5.3 and other deliverables

Deliverable 5.3 relates to other deliverables in the following ways:

D5.3 builds upon D5.1 and D5.2 and contributes to the overall aims of WP5, which seeks to support the building of intelligence for innovation and growth in healthy food and lifestyles, in particular by providing insights in relation to consumer needs and market opportunities and some of the key strengths, weaknesses, and threats identified by SMEs in the AA.

D5.3 links directly to WP2, as key details in relation to innovation training and service offerings will be communicated and disseminated to SMEs and other key players in 4H innovation in the AA. Importantly, WP2 actions will raise awareness of the benefits of cross-sector and cross-regional cooperation to facilitate innovation in healthy food and lifestyles; inform on the ongoing development of innovation support services, and address relevant target groups in the field of innovation in healthy food and lifestyles.

D5.3 aligns with D3.2 and D4.1, which provide an analysis of current strategies and policies for innovation growth in healthy food & lifestyles, focusing on both the broader policy domain area, and specific cooperation policies and practices. It also complements D4.2, which provides a mapping of the innovation ecosystem for healthy food & lifestyles.

Finally, D5.3 helps to inform the design and implementation work central to WP6, which is focused on delivering support services for innovation and growth in healthy food and lifestyles.

2 Overview of consumer and market analysis

This chapter provides an overview of consumer and market trends in the healthy food marketplace. Healthy eating and healthy living are increasingly salient and important for large sections of the population. This is reflected in the embrace of different types of food trends, for example using food in relation to health conditions, fitness regimes, ethical lifestyle or an adventurous attitude. SMEs continue to innovate in efforts to respond to consumer needs and emerging market trends, and they face new challenges in this context. Understanding SMEs competencies, needs and current challenges is important for the design of AHFES training and services (WP6), and this ongoing cycle of ecosystem analysis, training and service delivery, knowledge growth and innovation is critical for the adaptive success of SMEs in the healthy food sector as they seek to increase their knowledge and skill and innovation potential and capitalise on opportunities globally and in the AA countries.

It is useful in this context to highlight the following definitions which are presented in D5.2 and which are central to the consumer market and innovation scope of the AHFES project:

*A **healthy lifestyle** is a way of living that favours optimal health and well-being, lowering the risk of being seriously ill or dying earlier.*

*A **healthy diet** (eating healthy) helps to maintain good health through optimal nutrition and is critical to achieve a healthy lifestyle. It should be varied and there are recommendations on the proportions/balance between the different types of foods.*

*Foods make up diets and eating healthy foods contribute to achieving a healthier diet. **Healthy foods are safe and of nutritional value**. However, a product is not to be considered healthy on its own, as it depends on the way it is produced and consumed and the overall diet of the individuals. Nevertheless, there are a series of recommendations that can be taken into consideration.*

Thus, when thinking about healthy food innovation, the food industry should consider the nutritional value of the product, the preferences of consumers, and product feasibility. This implies a focus on:

- Food safety and quality
- Health & nutritional value
- Consumer acceptance (taste, texture, price, sustainability concerns)
- Feasibility (production costs, sustainability of supply chain)
- Handling and processability

In approaching the consumer and market analysis in WP5, research was conducted analysing relevant information from Mintel, Euromonitor, and IGD ShopperVista, the Innova Market database and other sources, in addition to data gathered from an SME survey on companies' perceptions of both consumer needs and market trends. This analysis provides a basis for D5.3 and is summarised below.

2.1 Consumption trends and consumers expectations

It is widely acknowledged that understanding of the **consumer is central** to the success of businesses across all commercial industries and markets. In recent years, the food industry has been directly affected by important **changes in the eating behaviour** of consumers. The success of a company that produces and sells food products is largely dependent on the consumers' market decision. Therefore, it is increasingly necessary to analyse the market with a **consumer-centred approach** in order to fully understand the market[4].

Consumer healthy food choices are **influenced by a broad range of factors** including physiological or nutritional needs, age group, educational status, social and cultural circumstances, and economic (e.g. cost of food products) and psychological (e.g. stress) determinants[5].

Understanding consumer behaviour is complex, because the **impact of these food choice factors** varies between individuals and population groups. Thus, within the food industry there is a necessity to **embrace and drive the change through innovation** by integrating the latest technology, digitalization, trends and sustainability with present and future consumer needs and purchasing trends. Therefore, building on the D5.1 and D5.2 reports, the D5.3 report will increase the knowledge base of the food industry on the strengths, weaknesses, opportunities and threats which can be used to inform the **development of sufficient support services** and to **create and update Atlantic Area (AA) strategies** for innovation in healthy foods – ultimately contributing to a stronger innovation ecosystem.

As outlined in the D5.1 report, four primary anticipated future **consumer trends in healthy food products** have been identified within the research literature: **(1) health and wellness, (2) convenience, (3) sustainability, and (4) organic production and natural foods.**

Health and wellness: The prevalence of an unbalanced diet and a significant rise in noncommunicable diseases have been the global consequences of the rapid growth of urbanization combined with the increased pace of life. Moreover, consumers are becoming increasingly aware that **food has an impact on their health status**, with higher consumer concerns and awareness of the relationship between diet, food intake and health[6]. Furthermore, with the proportion of the *global population aged over sixty* on the rise, there is a higher demand for products beneficial to health as it is well established that the likelihood of health problems increases in this age group.

Convenience: The rapid growth of urbanization combined with the increased pace of life and the ageing global population are also major factors in the developing consumer trend of convenience. *Our increasingly busy lifestyles* have **created a consumer demand** for convenient food products which reduce the food production chain at home, that is, planning what to eat, buying the ingredients and preparing and eating the meal. Whilst the ageing global population is **driving a consumer need** for convenient food products that facilitate reduction of effort in terms of saving time and physical energy due to ease of preparation and cleaning.

Sustainability: Health is the primary influence on consumers' decision to adopt a sustainable lifestyle (see Figure 2). Additionally, consumers are concerned with the food they eat, how it is produced and the **impact that food production and consumption have on the environment**

---

[4] Horvat, A., Granato, G., Fogliano, V., & Luning, P. A. (2019). Understanding consumer data use in new product development and the product life cycle in European food firms: An empirical study. *Food Quality and Preference, 76,* 20–32. doi:10.1016/j.foodqual.2019.03.008

[5] EUFIC (2006). The factors that influence our food choices.

[6] Horvat, A., Granato, G., Fogliano, V., & Luning, P. A. (2019). Understanding consumer data use in new product development and the product life cycle in European food firms: An empirical study. *Food Quality and Preference, 76,* 20–32.

and society in terms of the sustainability of the planet for future generations[7]. Despite this, research indicates that the number of plant-based consumers (vegetarian, vegan and flexitarian) remains very low.

Organic production and natural foods: In recent decades organic agriculture has been the fastest growing sector in Europe, with **the increase in demand for organic food products** related to **nutritional value, food security and environmental issues**. Concurrently, strong consumer demand has also developed for natural foods. However, there is an apparent confusion among consumers about the distinction between organic and natural products.

Figure 2. Sustainability functions[8]

As part of our consumer needs analysis reported in D5.1, we asked SMEs via survey to highlight their perceptions on healthy food consumer trends. A summary of key perceptions of SMEs can be seen in Table 1, highlighting that SMEs are aware of key needs and trends identified in the literature.

Table 1. SME perceptions on healthy food consumer trends

Healthy Food Consumer Trends	SME Perceptions of the Consumer Trends
Levels of consumer concern about healthy eating	• Medium level of consumer concern about healthy eating in the majority of countries.
Key reasons for consumer healthy food purchases	• Primary reason: health benefits. • Additional reasons: enjoyment, healthy food is quality food, disease prevention, medical recommendation.
Consumer diet segmentation	• Extensive heterogeneity in the market segment regarding the diet of each consumer. • Preference identified in some countries for flexitarian diets and in some countries for lactose-free diets.
Important and unimportant attributes for consumer selection of a food product	• Important attributes: flavour, appearance, origin, naturalness, safety. • Unimportant attributes: traditional production methods, age-targeted, functional foods.
Consumer and label information	• Calories and sugars: were classified by consumers as very important. • Consumers wish to reduce calories and sugars in their diet.

[7] Lappo, A., Bjorndal, T., Fernandez-Polanco, J. M., & Lem, A. (2014). Consumer trends and preferences in the demand for food. *SNF Working Paper, 51,* 13, 1–28. Retrieved from: file:///O:/Mis documentos/documentos/separatas/8173.PDF

[8] Figure retrieved from: Tastewise, (2019).

Overall, the AHFES survey results demonstrate that SMEs recognise the consumer demand for healthy food products. However, currently, the **successful launch of a healthy food product is hampered by increasingly heterogeneous market segmentation**.

2.2 Innovation trends and market opportunities

The D5.2 report provides information on *market innovation trends* with regard to healthy food. Six major trends are documented (see Figure 3), which can be used by food companies to increase their knowledge about healthy food innovation opportunities globally and in the AA countries specifically.

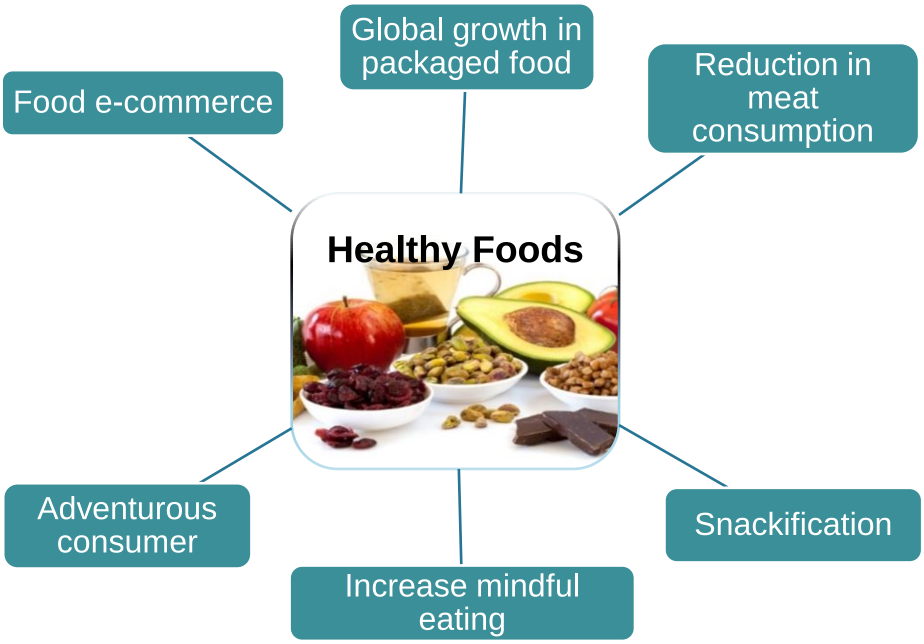

Figure 3. Primary market trends in healthy food products identified in the AHFES market analysis[9]

The main market trends in healthy food products identified in the AHFES market analysis include:

Global growth in packaged food: In the five-year period, 2013 to 2018, *packaged food value sales grew* at a compound annual growth rate (CAGR) of 1.6%, with global packaged food sales forecast to grow by a quarter by 2024.

Reduction in meat consumption: The growing trend of the flexitarian diet and plant-based eating is the result of people taking a more **environmentally sustainable approach** to what they eat by reducing their meat consumption in exchange for alternative protein sources. Market analysis demonstrates that the reduced rate of meat and animal products consumption in Europe and North America is juxtaposed with increased consumption among growing middle classes in emerging and developing countries. The lab-based/cultured meat market was valued at 206

[9] Healthy Foods image. Retrieved on 12 November 2020 from: https://mamaslegacycookbooks.com/wp-content/uploads/2013/07/Healthy-food.jpg

million USD in 2019[10]. Furthermore, between 2019 and 2023 the global plant-based protein products market size is projected to grow by USD 5.67 billion[11].

Snackification: Our increasingly busy and mobile lifestyles and diverse family arrangements has prompted the trend of 'snackification'. Consequently, there is a **growing consumer demand for the development of healthy snack food products** which focus on portability and ease of consumption.

Increased mindful eating: Similar to the consumer analysis, the market analysis identified a growing trend of **increased consumers knowledge and expectations of greater choice**, recognising that consumers will now evaluate and compare before making a purchase. Food beliefs which continue to evolve and shape eating habits include green appeal, sustainability, high fibre category, nutritional information, and natural, minimally processed and clean labelling.

Adventurous consumer: There is a growing **consumer demand for new and adventurous flavours**. Healthy food companies are now competing in a market where being "healthy" is not sufficient as the consumer is placing greater emphasis on product texture, how it feels in your mouth, the flavour fusions, exotic tastes and new takes on traditional cuisines and ingredients.

Food e-commerce: Recent trends, world events, technology advances, and shopper sentiment indicate that the food and beverage e-commerce category is poised for rapid growth. Thus, there is now a two-way route into the market. For healthy food companies this means **a bigger market to sell into, and a bigger market in which they must compete.**

2.3 Overall trends in launches of healthy food products

In the past five years, healthy food products have maintained **a largely consistent presence in new food launches in the European Union (EU) and United Kingdom (UK)** as shown in Figure 4. However, in 2019 a slight decrease was observed in the proportion of new products launched which carried a healthy attribute. There may be a further decrease in healthy food launches in 2020 and 2021 due to the global COVID 19 pandemic.

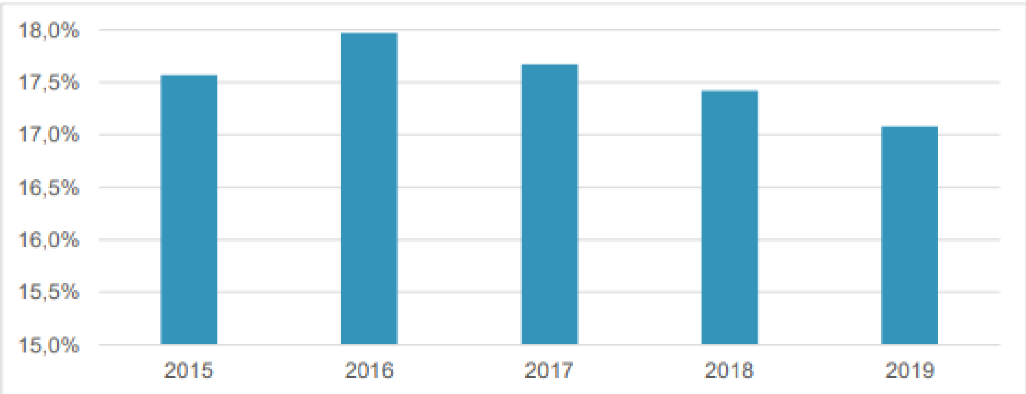

Figure 4. Healthy food launches in EU and UK as percentage of total annual new products

[10] Statistic retrieved from: https://www.marketdataforecast.com/market-reports/cultured-meat-market

[11] Global Plant Based Protein Products Market 2019-2023. Retrieved from: www.technavio.com/report/globalplant-based-protein-products-market-industry-analysis

As illustrated in Figure 5, between 2015 and 2019, the *food categories which dominated* healthy food launches in the AA countries were **baby and toddler**, **sports nutrition**, and **cereals** and to a lesser extent **soft drinks and juices**, **soup** and **dairy**.

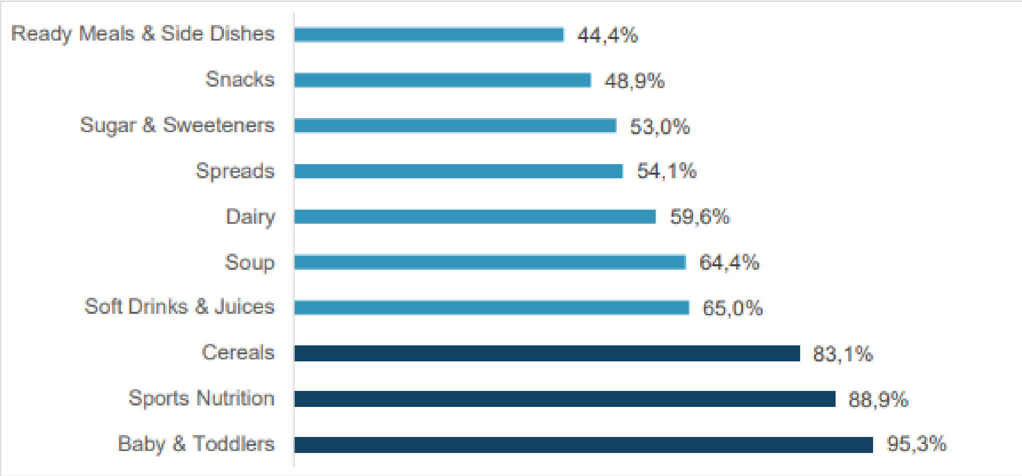

Figure 5. Percentage of healthy food product launches in AA countries for top 10 product categories

Regarding **healthy food product launches based on product health claims,** it was observed that between 2015 and 2019 the **"sports and recovery"** category more than doubled in size. Other significant growth categories include ***"no sugar added"*** and ***"high/source of protein"***. Conversely, prominent categories including *"digestive/gut health"* and *"low fat"* significantly decreased in prevalence amongst new product launches during this time (see Figure 6).

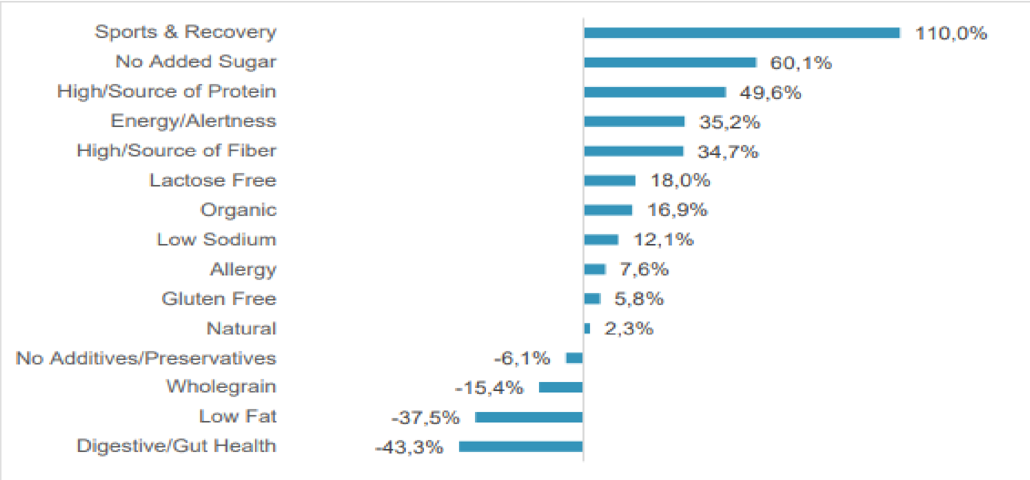

Figure 6. Growth of top 15 healthy claims in healthy food products, EU and UK, 2015 to 2019.

2.4 Survey findings of SME perceptions on healthy food market trends, innovation competencies, opportunities, and difficulties

The D5.2 survey findings highlighted the following key results:

- Nearly **three quarters of companies surveyed were already producing healthy food products**, with the remaining **one quarter interested** in producing new or improved healthy food products.
- **Two thirds** of the companies had **already implemented changes in products to make them healthier,** and the remaining **one third intended** to implement changes in the future.
- Companies identified all market trends as important, but **some trends were more strongly endorsed as opportunities,** specifically, *"transparency on ingredients used", "natural/ organic ingredients", and "transparency on provenance information".*
- Overall, the identified **healthy food trends were not perceived as risks** by the companies. The market trend perceived as the **highest risk was "natural/organic ingredients".**

In relation to fundamental innovation competencies and strengths, it is notable that companies across regions reported moderate levels of strength across five major domain areas:

- Market research and insights about market trends
- Research, development and innovation capacity
- Partnerships with universities/technology centres
- Marketing & distribution/sales channels
- Financial resources to invest in new product development

With the strongest key competence area reported in the area of research, development and innovation capacity. Companies also reported that the most helpful 4H partnerships are partnerships with university research groups and technology centres. At the same time, financial issues and concerns about issues were consistently rated as problematic (see Table 2)

Table 2. AHFES survey findings on SME perceptions of difficulties, key competence areas of development and partnerships during the process of developing healthy food products

Survey Topics	SME Perceptions and Ratings
Difficulties during new healthy food product development process	• <u>Most likely:</u> **financial issues** to develop and market new products, **concerns about legal issues**. • <u>Less likely:</u> lack of knowledge about the healthy food market trends. • Companies consider all identified difficulties likely to occur.
Strength in **key competence areas** for new healthy food product development	• Companies report <u>moderate strength</u> in all key competence areas: ➢ Market research and insights about market trends ➢ Research, development and innovation capacity ➢ Partnerships with universities/technology centres ➢ Marketing & distribution/sales channels ➢ Financial resources to invest in new product development • Strongest key competence area: **research, development and innovation capacity**.
Innovation partnerships helpful to new healthy food product development	• <u>Most helpful:</u> partnerships with university research groups and partnerships with technology centres.

The analysis also highlighted a number of high-level challenges and opportunities for SMEs. In summary, challenges for SMEs include:

- The **evolving attitudes** of the consumer to food and drinks products such as the **desire for clean-label products** and **traceability**.
- The **cost of new product development and establishing export markets** restricts the ability of SMEs from fully exploiting the opportunities that arise from the market changes.
- **Connecting with the buying public**. SMEs need to compete in this multimedia age to promote its products and engage with potential consumers via **social media**.

At the same time, opportunities for SMEs include:

- The growing trends of market **segmentation**, **snackification**, the **adventurous consumer** who perceives food as a sensory experience, **mindful eating**, and **sustainability**.
- The market for **"indulgent and reward" products** also provides healthy food SMEs with the opportunity to promote premium indulgent products (e.g. chocolate) as a reward.

Conclusion

The continuous changes in consumer behaviour increasingly influence the directions taken by SMEs in new healthy food product development. The AHFES project consumer analysis highlights the necessity for the healthy food industry to promote the interaction of consumers and the industry when a new product launch occurs, explain the value added to the product, collaborate more with the scientific and technological community, improve and harmonize the labelling system, and develop sustainable processes for food processing, preservation, packaging and logistics systems.

One constant in the ever-changing world of markets is that well-established markets continue to diversify and become more segmented. Meanwhile, new market opportunities are developing around the globe. The AHFES project market analysis demonstrates that the companies surveyed are aware of the prominent factors influencing the market, including drivers, opportunities, trends, and industry-specific challenges. The AHFES findings of gaps in capacity or knowledge indicate that some assistance will be required to empower and enable the healthy food companies to fully capture the emerging and evolving market opportunities.

3 Training and service needs of SMEs

Building upon the intelligence gathered in D5.1 and D5.2, and aligned with existing training and service provision frameworks, including Innovation Programmes developed in accordance with the ISO 56002 Innovation Management System Guidance Standard (2019)[12], and established frameworks developed by project partners[13], a survey was conducted to aid in the matching of SME preferences with training and service opportunities in the AHFES framework, while also gathering further input on additional needs of SMEs and further clarifying SME challenges.

As noted, the training AHFES framework is divided into four themed programmes, as shown below. As illustrated in the results below, the content of each specific training offering was defined for SMEs in the survey, allowing SMEs to state their preferences in a way that is matched to their needs. SMEs were made aware that the training programme delivery across the four themes will be subdivided into individual modules, with each module focusing in more depth on a specific topic. This allows SMEs to select those topics which are of most of interest to them to build knowledge and skills in a way that best suits the needs of their business.

Consumer Insight & Market Understanding		
Product Lifecycle Management	Market Development International Market Development	Product Development Critical Path Management

Similarly, the survey noted that AHFES partners will also offer supportive innovation services in four domain areas shown below, again allowing SMEs an opportunity to state their preferences across specific service offerings and highlight any additional needs and challenges.

Integration in Innovation Networks	Innovation Services
Support in Business Development	Support in Market Building and Internationalisation

For three weeks in November 2020, the AHFES partners ran a series of surveys across regions using the Survey Monkey platform to explore the needs and preferences of SMEs.

The aim of the survey was to ensure that the planned provision of training and services by the AHFES project would be targeted to deliver the maximum possible support for SMEs in each region as they seek to develop and bring new or reformulated healthy food and drink products to market.

The survey was translated by the AHFES Partners and was run simultaneously in four languages in order to reach SMEs in the Atlantic Regions participating in the AHFES Project in their own language.

[12] See e.g., https://stemfoundation.org.uk/product/certified_innovation_programme_accreditation

[13] See e.g., https://www.eitfood.eu/projects/professional-development-framework, and https://www.foodskills.cymru/

The survey was disseminated by the AHFES partners to their network of SME contacts in each of the regions through means of direct emails, newsletters, personal contacts and promotion on social media. The results reported below in Figure 7 show the outcomes of the surveys in Spanish, French, Portuguese and English – the latter covering Wales, Northern Ireland and the Republic of Ireland. In total we received 152 responses across the 6 AHFES regions.

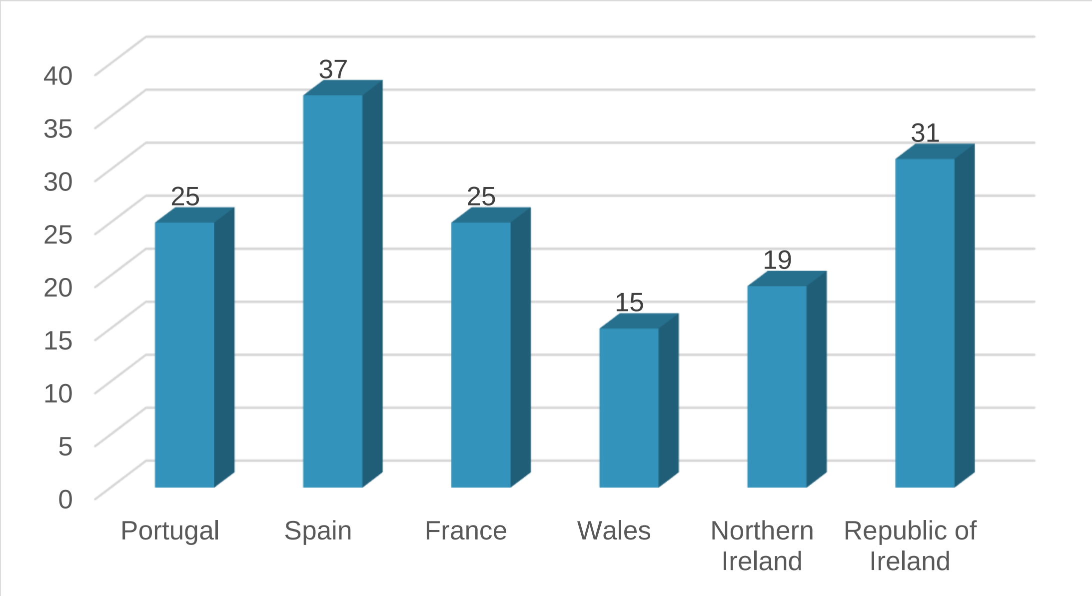

Figure 7. SME responses to AHFES training & services survey by region

As can be seen from Figure 8, the views of businesses from across a wide range of market sectors are well represented. It is notable that some SMEs indicated multiple market sectors, and thus the total numbers in Figure 8 are greater than the number of SMEs who responded. Also important to note is that "Other" categories included innovation centres, training providers and machinery and packaging companies.

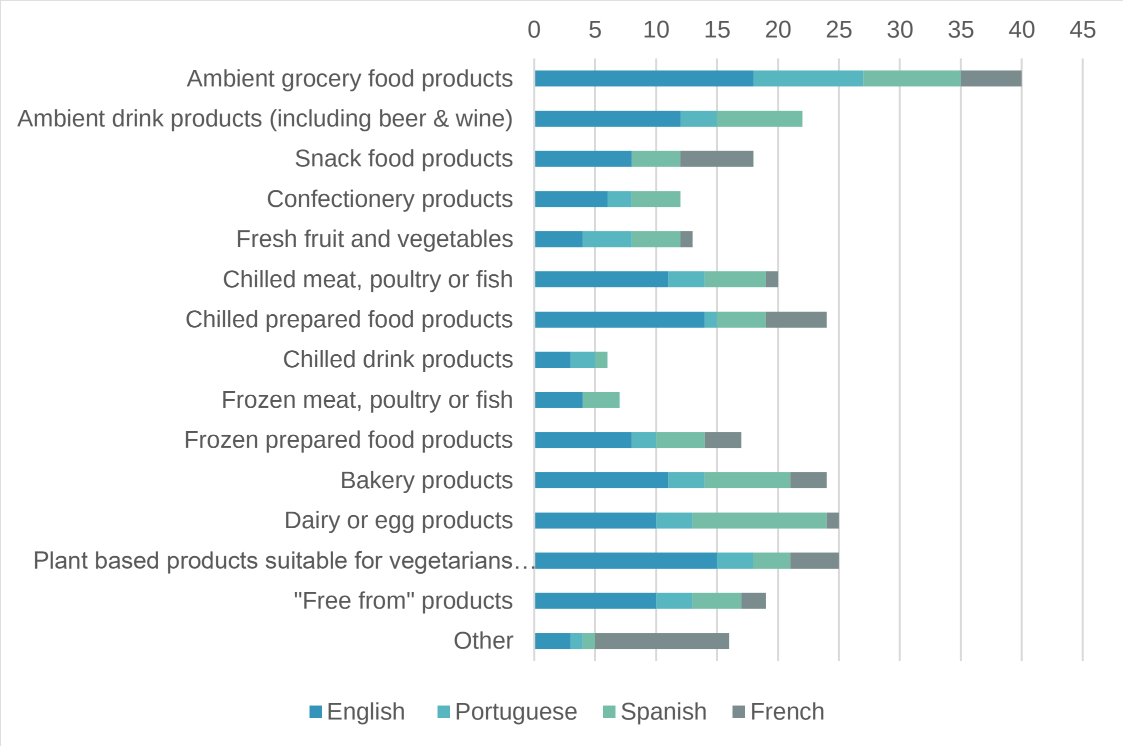

Figure 8. SME responses by market category & language of survey

By asking how many employees each responding company had, we are able to determine the size of businesses who responded across four categories: Micro = 1-10 employees; Small = 11-49 employees; Medium = 50-249 employees; and Large = 250+ employees. Micro businesses were strongly represented in the English & Portuguese language surveys, whilst in Spain more Small and Medium businesses responded. In France Micro, Small & Mediums were all well represented (see Figure 9).

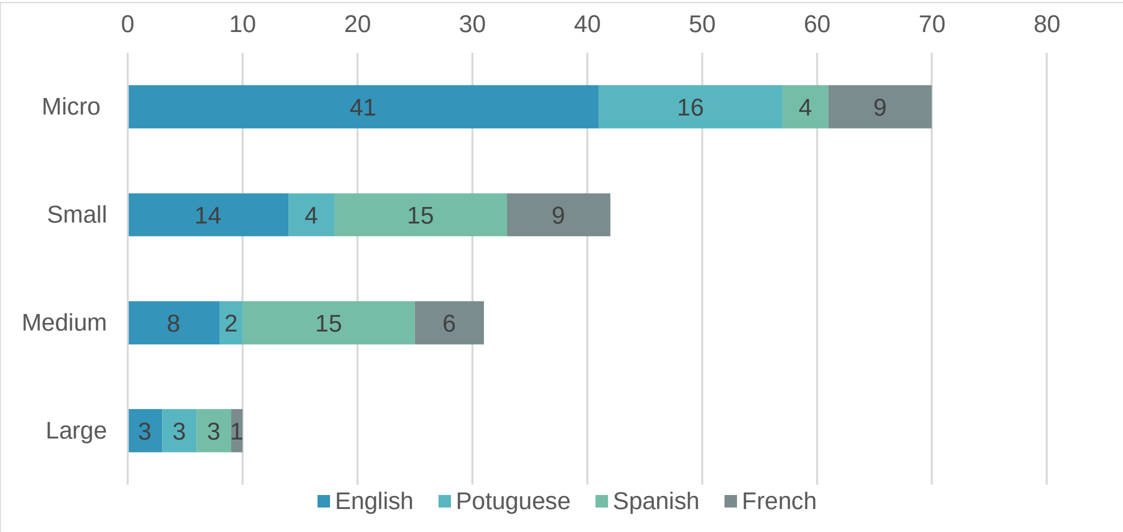

Figure 9. Number of businesses by size who responded to the AHFES surveys

The responses to survey questions asked in all four surveys (English, Portuguese, Spanish and French languages) have been collated and analysed to give the project partners an overall perspective across the regions, as well as data relating to their specific region.

3.1 Challenges and needs

3.1.1 Study findings of SME identified challenges and needs in developing and launching healthy food and drink products

We were interested to understand the most significant challenges SMEs report in bringing healthy food and drink products to market effectively and also what help and support they have identified as being necessary for their businesses to be successful. In relation to challenges, we asked:

What are the 3 main challenges you face in developing and launching healthy food or drink products?

Responses from across all regions were collated and a category field analysis of challenges in developing and launching healthy food and drink products was conducted. This analysis revealed 8 categories as shown in Figure 10 (see Appendix A, Table 4 for the full list of challenges). A summary of the 8 categories is provided below.

- The **economic considerations** category includes the challenges of finding out about *funding sources and securing funding* when fledgling SMEs are considered high risk investments. Further challenges were the *significant costs of NPD* (New Product Development) in terms of research and development, conducting a production trial of a value-added product, upgrading IT systems, marketing, entering the export market, and funding to share the risk of a new product.
- The **establishing effective partnership** category includes the challenges of identifying and engaging with *suitable manufacturing and packaging partners*, *sourcing* the required *raw ingredients and sustainable packaging materials, production capability* and *suitability of partners' equipment* in terms of upscaling the production model.
- The **time management** category challenges included *staff shortages* and the *time demands of paperwork and correspondence* with consumers and partners.
- The **logistics and distribution** category includes the challenges of trust in *the supply chain*, shortening the supply chain, *expanding the distribution network* and moving niche products on to mainstream retailers, *transmitting innovation to the distribution* through the product packaging, and *distributors reducing their product portfolio due to Covid-19* related resource issues.
- The **regulatory compliance** challenges include formulating recipes which meet *nutritional targets*, achieving *regulatory compliance* with quality assurance (QA), gluten-free status and European Food Safety Authority labelling policy, *meeting the criteria* to fortify products with vitamins and minerals, and securing *intellectual property rights protection and scientific validation* of the nutritional qualities of the product.
- The **marketing strategy** challenges include identifying the *best channels to reach target audiences, digital marketing, creating year-round demand* for the product, *linking concepts* of added value, high quality ingredients and healthy eating to the product and *creating public awareness* and educating the consumer without losing competitive advantage. Further challenges were *differentiating the product* from others in a crowded marketplace, acquiring knowledge of *evolving market trends and market segmentation* to facilitate rapid responses to market challenges and *re-educating consumers* on the health benefits of food and drink products previously perceived as unhealthy.

- **Research and development** challenges include conducting *market research, gap analyses and feasibility studies*, *securing access* to trial kitchens and precise nutritional information, the *product trialling process*, identifying *alternative healthier ingredients* which increase the nutritional value and shelf-life of the product while ensuring it tastes pleasant. Additional challenges include *sustainable packaging design, product labelling* which transmits the *nutritional benefit and innovation* of the product to the consumer and identifying the *correct product price point*.
- Central to the **industry knowledge and expertise** category were the challenges of *accessing one-to-one business mentoring* on NPD issues including networking with suitable partners, product formulation to factory level, routes to market, legal and technical issues and the selection of production site. Figure 10 demonstrates the above outlined diversity of challenges within each of the categories as identified by the category analysis.

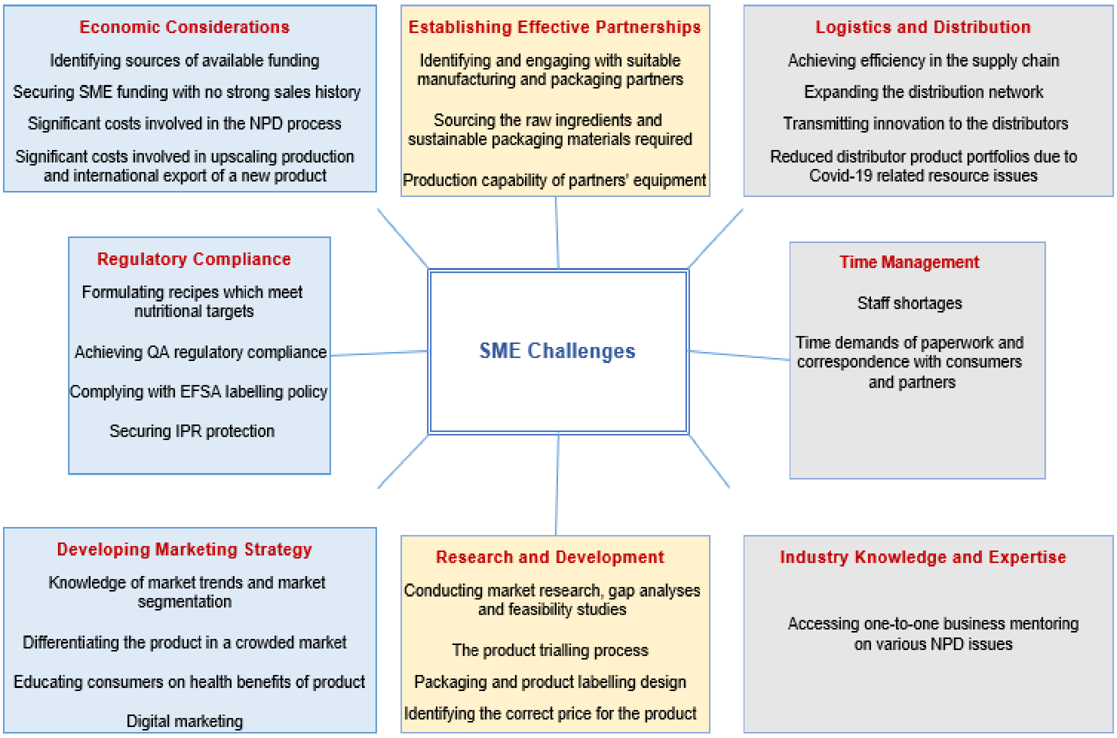

Figure 10. SME identified challenges in developing and launching healthy food and drink products

Abbreviations: New Product Development (NPD), Small Medium Enterprise (SME), European Food Safety Authority (EFSA), Intellectual Property Rights (IPR), Quality Assurance (QA)

3.1.2 Analysis of SMEs needs for successful development and growth

In order to further understand SME needs and shape the design of the AHFES training and service delivery, we asked the following question:

What are the 3 main needs of your business which, if supported, would help your business to grow and thrive?

The category analysis of the identified needs revealed 7 categories as shown in Figure 11 (see Appendix A, Table 5 for the full list of needs). A summary of the 7 categories is provided below.

- The **economic considerations category** included the necessity for knowledge of *funding availability*, the completion of *funding applications* and the securing of *funding to provide an initial salary* for the individual establishing the SME. It also included the need to *achieve economic stability* through securing enough funding for research and development, manufacturing, upscaling, marketing and selling of new products.
- The **new product marketing** category of needs include *creating packaging and branding complementary to the existing product range* and how to *communicate the QA standard* of the product, identifying *routes to market*, establishing the *unique selling point* of the new product and investing manpower and funding in an *online and in store marketing and sales strategy* to launch the product to market.
- Central to the **production and distribution** category were the needs to establish *cooperative partnerships* with innovative supply, production and distribution partners to enable the SME to meet consumer needs, to achieve *technological efficiency* within the SME and to *gain access to international export markets*.
- The **research and development** category highlights needs to *investigate current consumer trends*, conduct a *feasibility study*, *micro bacterial research and shelf-life testing*. This category also included the requirement to meet consumer nutritional targets and market trends through *use of new alternative ingredients* in the product formulation process, to *increase innovation and efficiency in product production and packaging processes* so to improve product quantity and environmental and social sustainability, and review the *product pricing model*.
- The **regulatory compliance** category includes the need to ensure the *product meets regulatory compliance and food safety criteria* and that the *product labelling is legally compliant*, to achieve *QA certification*, and to complete the relevant *regulatory standard* (e.g. British Retail Consortium) of *paperwork required* in the management of *risk assessments*.
- The **SME training** category needs were availing of *staff recruitment, marketing and sales training* and acquiring increased knowledge of *innovative equipment* to improve production, *digital markets and e-commerce* and *consumer trends in target markets*.
- The **SME development mentoring** category included the need for *advice from a new product development coach* on conducting market research, writing a business plan to secure funding, research and development, identifying suitable commercial partners, and management of financial accounts, manufacturing and labelling regulatory compliance and legal affairs. This category also includes the need for *innovation support from academic partners* and *networking opportunities* with non-competing companies to *share learning experiences*.

Figure 11 represents the variety of SME needs within each of the categories as identified by the category analysis.

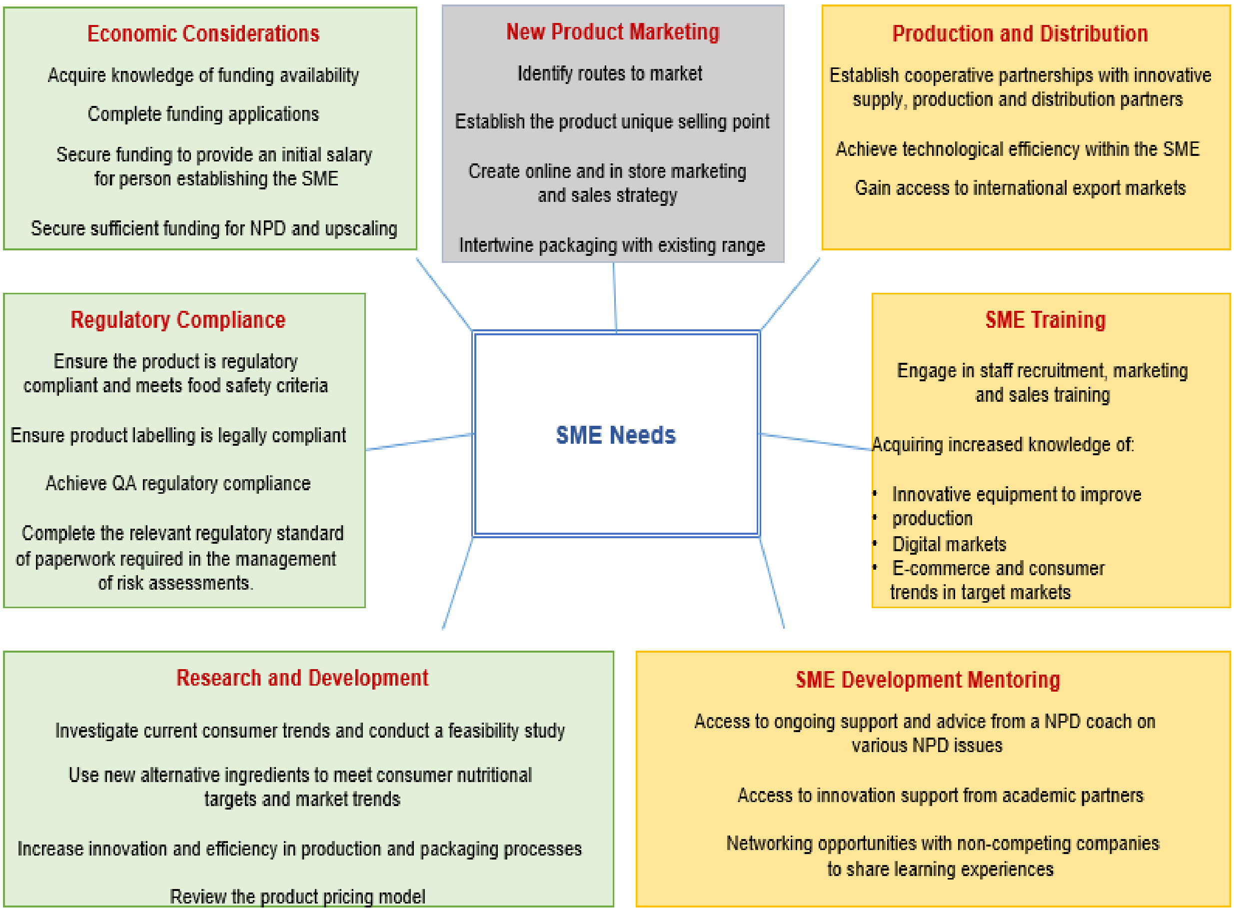

Figure 11. SME identified needs for successful development and growth of healthy food and drink businesses

Abbreviations: New Product Development (NPD), Small Medium Enterprise (SME), Quality Assurance (QA)

3.2 Training opportunities and preferences of SMEs

The responses to questions relating to training asked in all four surveys (English, Portuguese, Spanish and French languages) have been collated and analysed and provide a perspective across regions, as well as data relating to specific regions.

3.2.1 Consumer Insight & Market Intelligence Training Programme

We asked:

How useful would you find training about consumer insight and market intelligence?

Topics will include understanding your consumers and market, generating and prioritising good ideas, defining your brand values and creating legally compliant, well-targeted products. As can be seen in Figure 12, across all the surveys, the majority of responding companies indicated that they would find training into Consumer Insight & Market Intelligence "Very or Quite Useful". This provides good support for initial AHFES plans, in which it is intended to include a focus on Consumer Insight & Market Intelligence in the first training roll out.

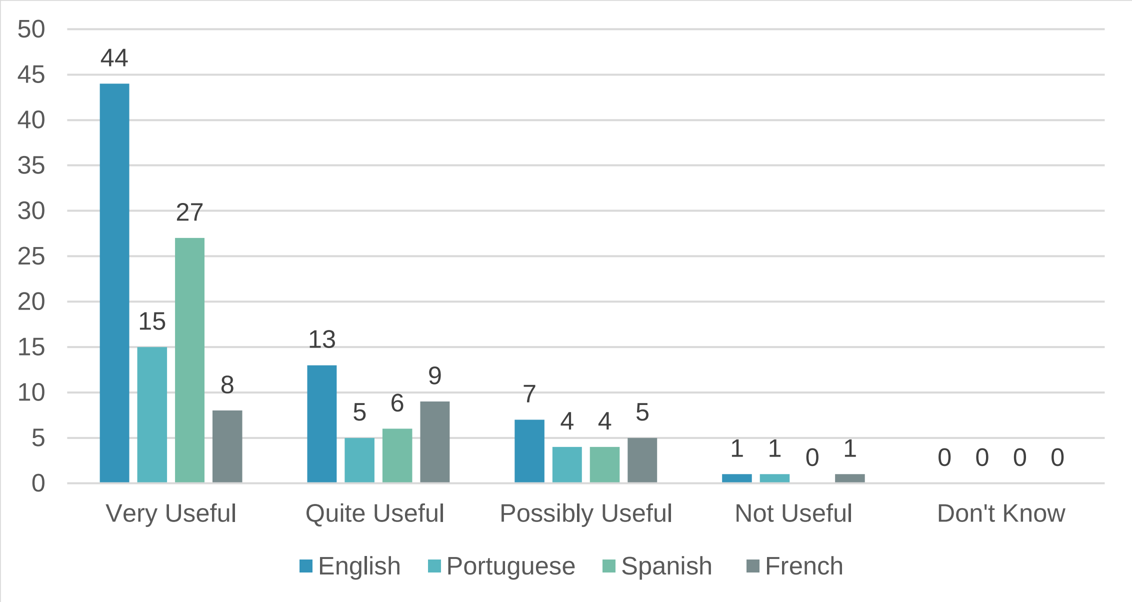

Figure 12. Perceived usefulness of Consumer Insight & Market Intelligence Training Programme

3.2.2 Product Lifecycle Training Module

We asked:

How useful would you find training about Product Lifecycle Management?

Topics will include understanding how product lifecycle management applies to healthy food & drink products including developing your product strategy, seeking finance for development and managing intellectual property.

As can be seen in Figure 13, most respondents indicated they would find the Product Lifecycle training useful to some degree, with responses split across “Very, Quite & Possibly” options. In Portugal most businesses indicated “Very or Quite” useful.

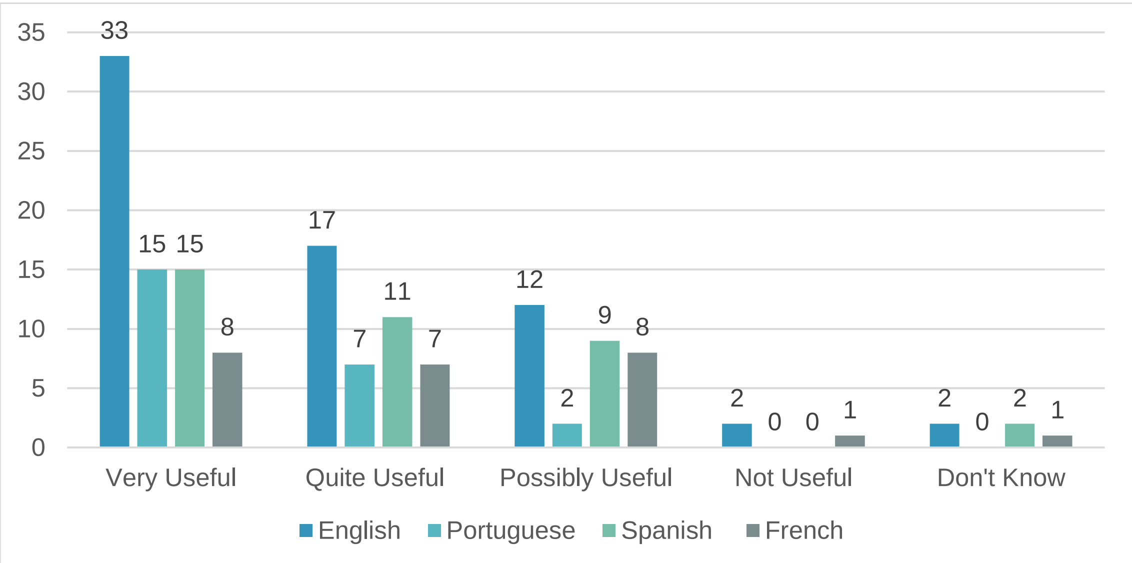

Figure 13. Perceived usefulness of the Product Lifecycle Training Module

3.2.3 Market Development Training Module

We asked:

How useful would you find training about Market Development for healthy food & drink products?

Topics will include gaining an understanding of human nutrition & associated market trends, product reformulation & packaging design and effective management of buyer relationships.

Again, most respondents indicated that training in Market Development would be useful. In the English survey a majority felt it would be "Very" useful, in Spain and Portugal this was more split between "Very" and "Quite" useful, whilst in France they indicated less certainty and more respondents felt it might only "Possibly" be useful.

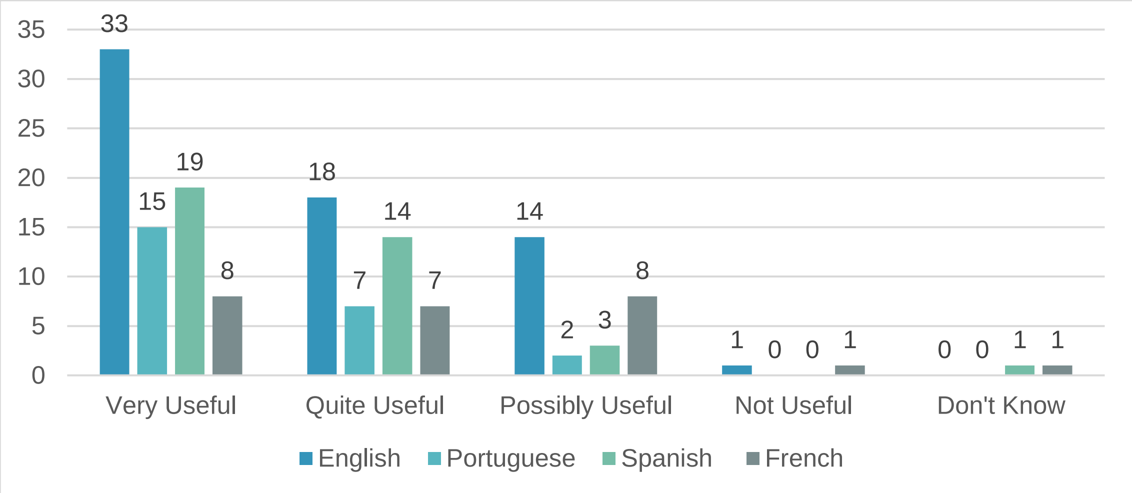

Figure 14. Perceived usefulness of the Market Development Training Module

3.2.4 International Market Development Training Module

We asked:

How useful would you find training about International Market Development for healthy food & drink products?

Topics will include using a self-assessment template to test your readiness to trade internationally, then developing an export plan and seeking funding for internationalisation.

The responses to the usefulness of International Market Development were more mixed, perhaps reflecting that not all business are currently or intending to sell internationally.

In the English survey, a majority felt that such training would be "Very" useful but some felt it would not be useful at all, whilst in France a majority were less sure and chose "Possibly" useful and a couple "Not" useful. In Spain views were split across "Very, Quite and Possibly" with a couple choosing "Not" useful. Portuguese respondents leaned towards "Very" useful, with some choosing also "Quite or Possibly" but no-one selected "Not" Useful.

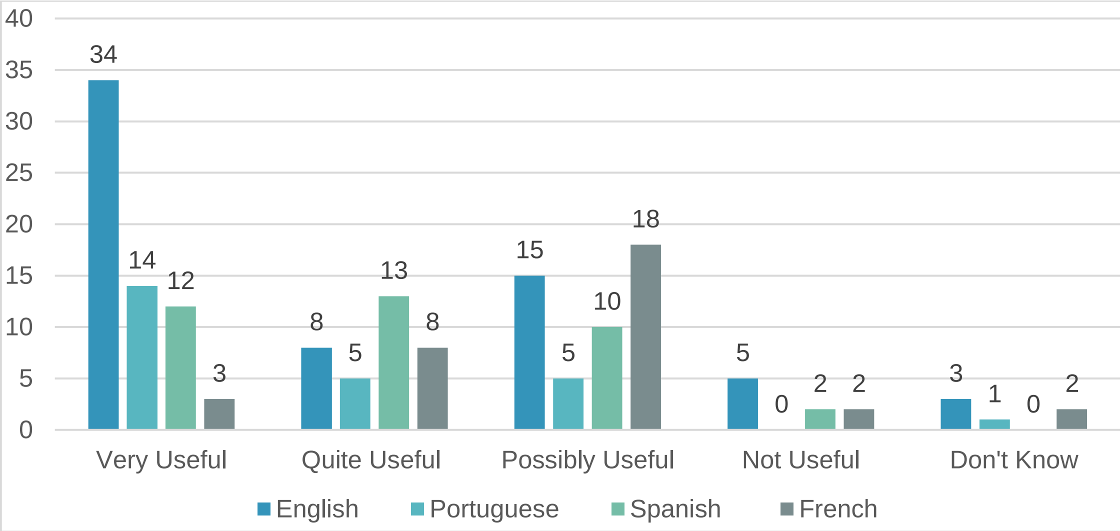

Figure 15. Perceived usefulness of the International Market Development Training Module

3.2.5 Product Development Critical Path Management Training Module

We asked:

How useful would you find training about Product Development Critical Path Management?

Topics will include helpful advice taking you along the development critical path including sourcing, factory trials, product testing, legal, food safety and artwork considerations.

The responses to the usefulness of Product Development Critical Path Management indicated that most businesses would find this useful to some degree. In the English survey, a majority felt they such training would be "Very" useful but some felt it would "Not" be useful at all. In Spain, the majority views were split across "Quite and Possibly" useful.

Portuguese respondents tended towards "Very" useful, with noticeably less choosing also "Quite or Possibly" and no-one selecting "Not" Useful. In France the majority were less sure and chose "Quite or Possibly" useful and some selected "Not" useful.

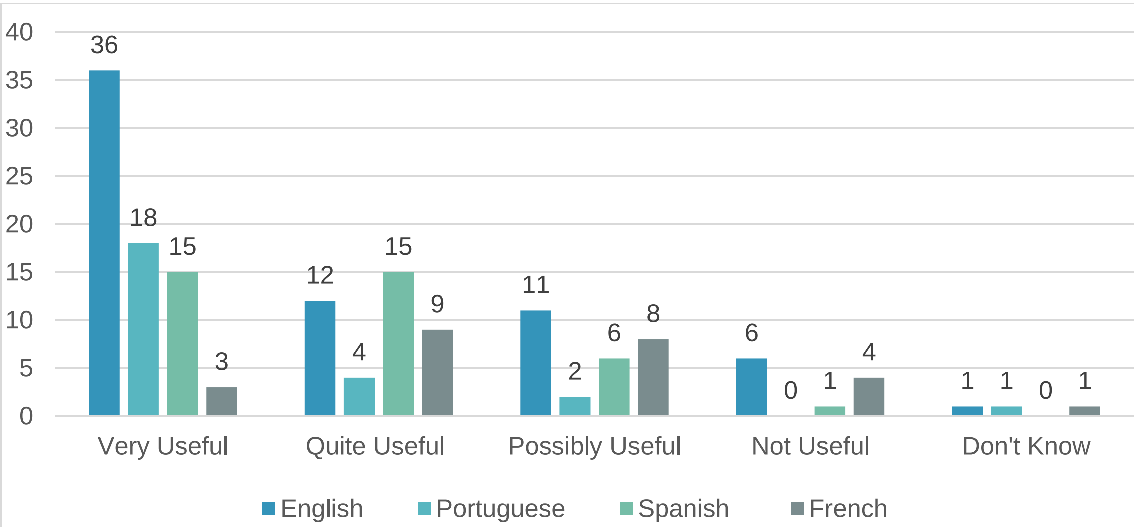

Figure 16. Perceived usefulness of the Product Development Critical Path Management Training Module

3.2.6 Preferred Formats of Training Delivery

We also asked SMEs about their preferred formats of training delivery. This was an important question for the AHFES team, particularly in light of the COVID-19 pandemic and the associated movement to online learning, and we have had much debate about the best way to deliver training and what the SME's would find the most accessible routes.

Survey results indicated that live webinars with an opportunity to ask questions were generally popular, but pre-recorded webinars and access to downloadable documents were also valued. "Other" suggestions included pre-recorded training and access to documents on demand but being invited to an online session where questions could be asked, or having access to a designated "tutor" by email or video calls who could answer any queries about the materials. In person training was also mentioned, if the current pandemic restrictions are lifted.

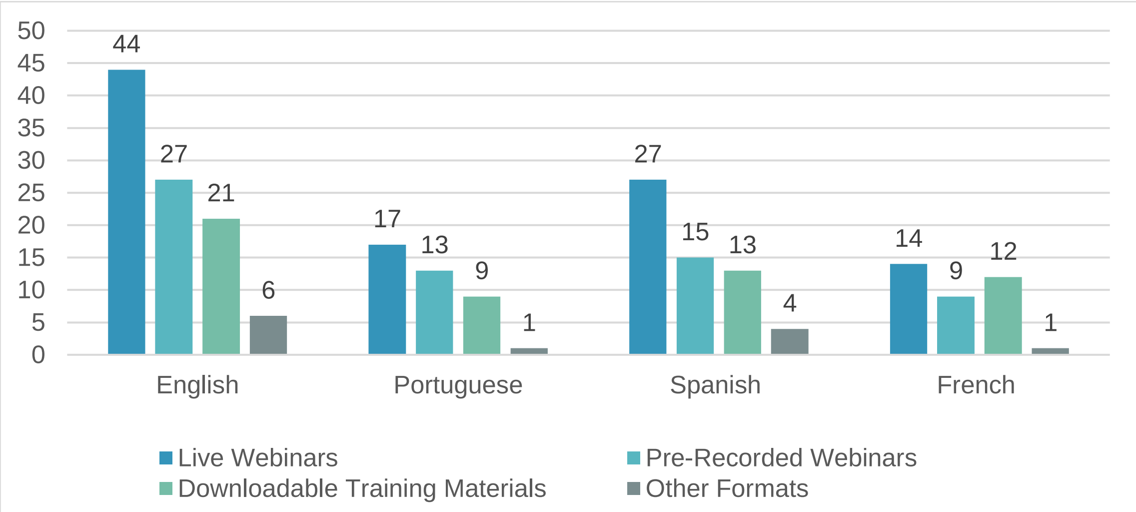

Figure 17. Preferred formats of training delivery across regions

3.2.7 Editable workbooks, templates, and checklists

A series of three questions asked respondents if they would value and use editable workbooks, templates, and checklists, respectively. In summary, the majority of respondents to the English, Portuguese and Spanish surveys felt that they would value and use editable workbooks to some extent, but French respondents were less enthusiastic. The majority of respondents across all the surveys felt that they would value and use editable templates to some extent. Also, the majority of respondents to the English and Portuguese surveys felt that they would value and use editable checklists, whereas Spanish and French respondents reported that they would be less likely to use or value checklists.

3.2.8 Online forum and discussion

We asked two questions in this context. The first question asked:

How much would you value or use an online forum allowing interaction with other people taking the training?

Whilst the majority of respondents to the surveys felt that they would value and use an online forum, this option also generated greater numbers of responses from businesses who advised they would be unlikely to use or value this opportunity compared to the other options for support materials that we suggested to them. This profile of responses can be seen in Figure 18.

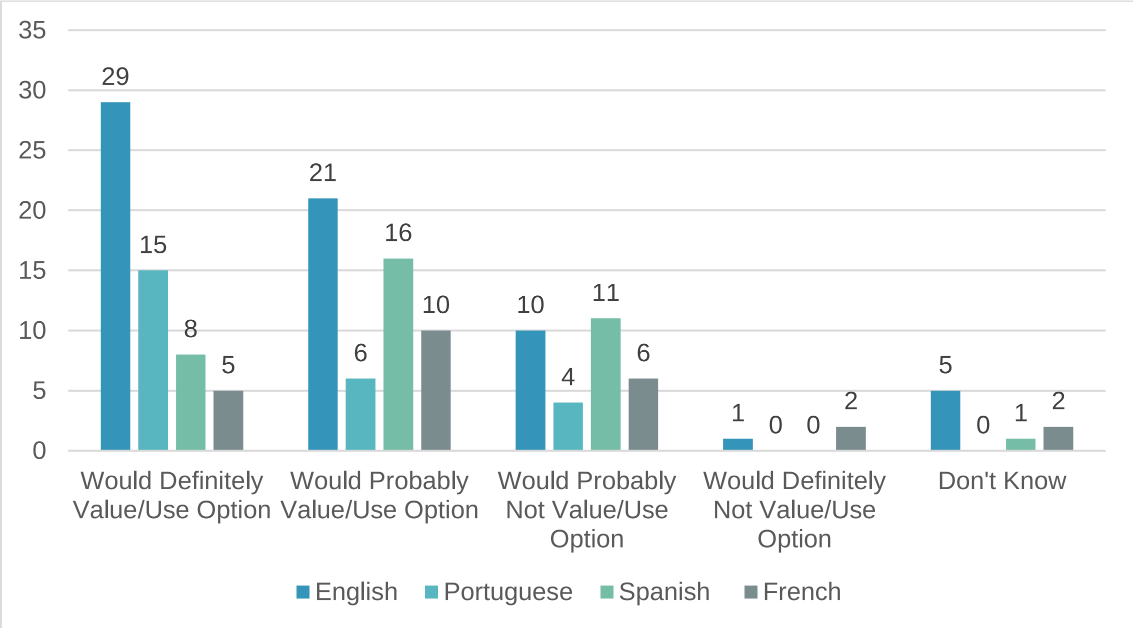

Figure 18. How much would you value or use an online forum

The second question asked:

How much would you value or use the opportunity to discuss learnings and seek bespoke support services from the AHFES team in your region?

As can be seen in Figure 19, the opportunity to discuss the training and ask direct questions with the AHFES partner in their region would "Definitely or Probably" be welcomed by a majority of respondents. However, it was a less popular option in Spain.

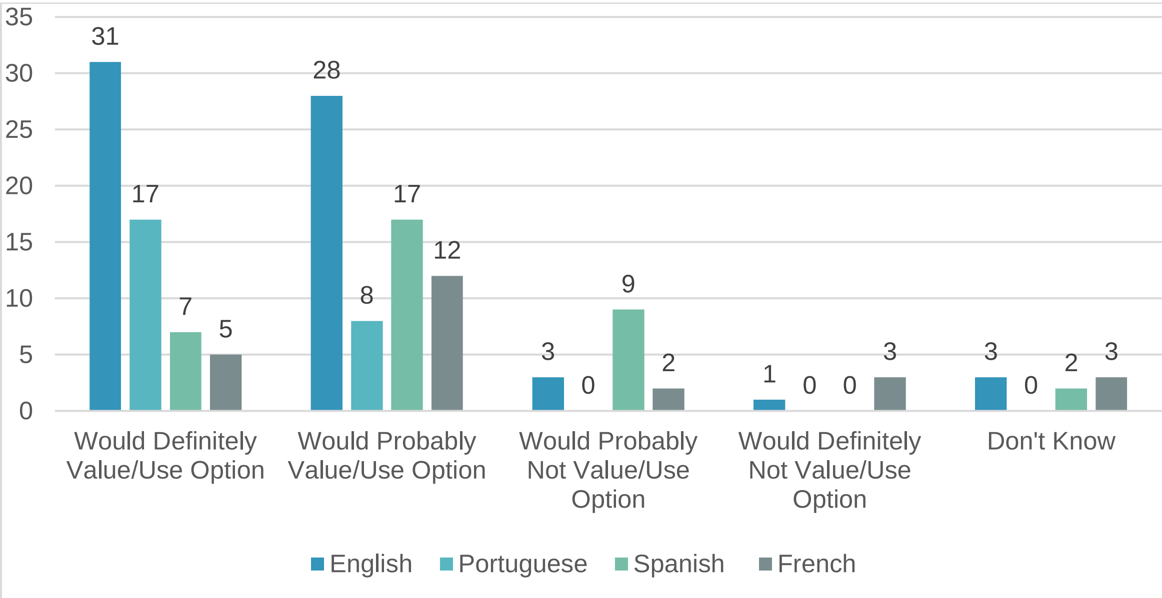

Figure 19. How much would you value or use the opportunity to discuss learnings

3.2.9 Additional training needs

We also included an open-ended question asking SMEs to identify any additional training needs they have. While many of the training needs identified are included as a focus of the training modules, the range of variation of specified needs is noteworthy and will shape the ongoing design of the AHFES training programme materials.

Please let us know any other training requirements that might support your business to produce healthy food or drink products

Analysis of all stated needs highlighted 6 categories (see Appendix A, Table 6 for full idea set).

- In the **trend information** category, SMEs identified the need for *training on evolving product development and consumer behaviour and demand trends*
- The **new product development (NPD) mentoring** category included SME suggestions of *testimonies from successful healthy food businesses* on their experiences of launching new products, and *help with NPD costs* including *investment advice* on innovation tools for SMEs undertaking periodical NPD. Also included is the needs for advice on *sourcing partners and finance for SMEs* that have completed reference daily intake testing.
- The **research and development** category included the need for *training on human nutrition* and *estimation of the nutritional contents* of food products, *product formulation, product shelf-life and nutritional analysis testing* and *packaging and preservation processes*. It also included requested guidance on *certification of original recipes and products, market testing and conducting product trials* using focus group tests.
- In the **management training** category SMEs identified additional training requirements in *production management and quality control, risk management, and healthy food innovation management and entrepreneurship*.
- The **product packaging mentoring** category included suggestions on *clean label training* and support in *sourcing equipment for sustainable packaging*.
- Finally, the **guidance on export market** category included the need for guidance on the *legal labelling requirements for export* and the *exporting process for a new product*, and *networking with AHFES project participants* to support internationalisation ambitions.

3.3 Service preferences of SMEs

For each type of service planned, we asked: "**How useful would this service be to your business?**". The answers to this question for each specific service are provided in the sub-sections below.

3.3.1 Building partnerships & creating connections

The majority of respondents indicated that they would find these services "Very, Quite, or Possibly" useful.

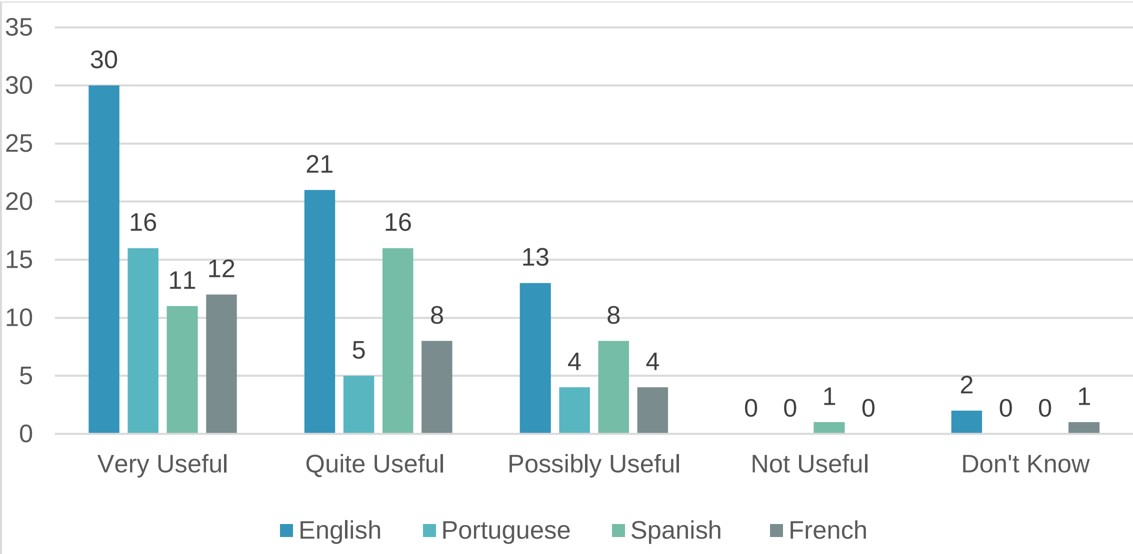

Figure 20. Building partnerships and creating connections with others to enhance your innovation projects

3.3.2 Participating in innovation events to gain knowledge

The majority of respondents indicated that they would find these services "Very, Quite or Possibly" useful.

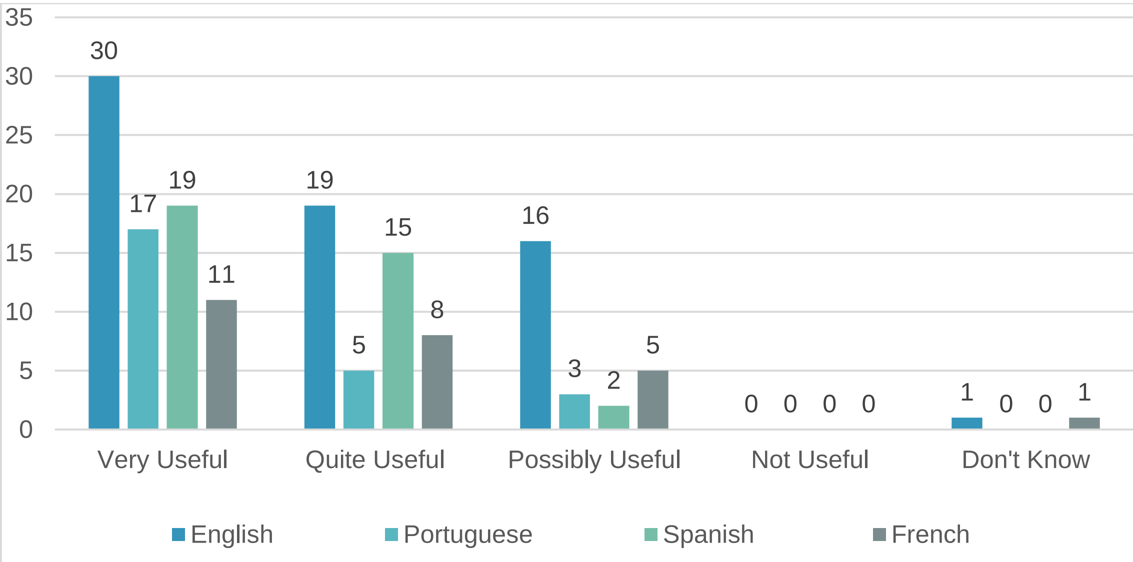

Figure 21. Participating in innovation events to gain knowledge

3.3.3 Participating in matchmaking events with other organisations

The majority of respondents indicated that they would find these services in some way useful, although the number reporting it as "Very" useful was generally less when compared to options of other services.

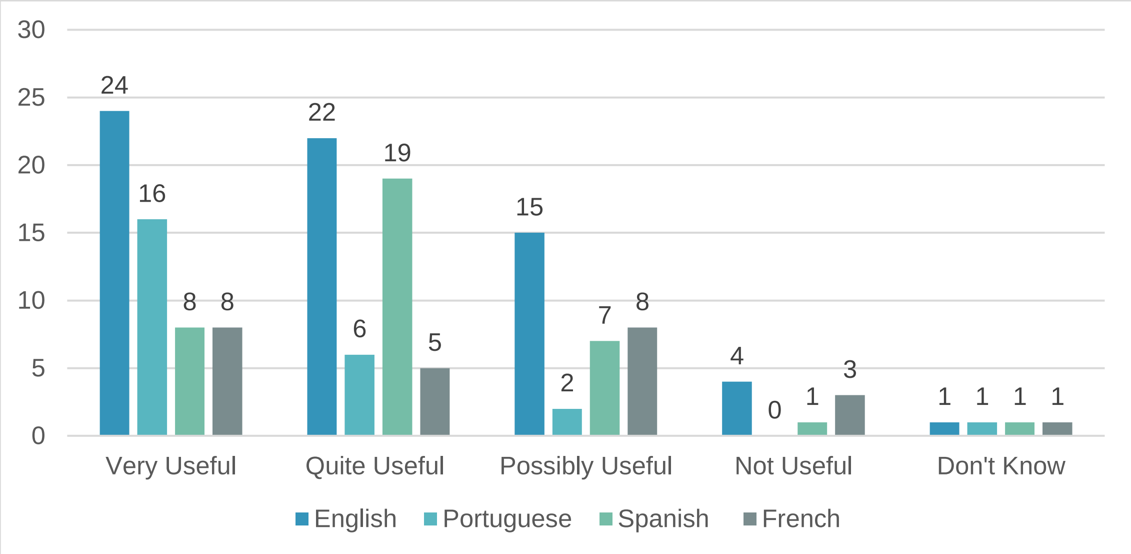

Figure 22. Participating in matchmaking events with other organisations

3.3.4 Support with Research and Development for new products or technologies

There were strong indications that businesses would find these services "Very or Quite" useful.

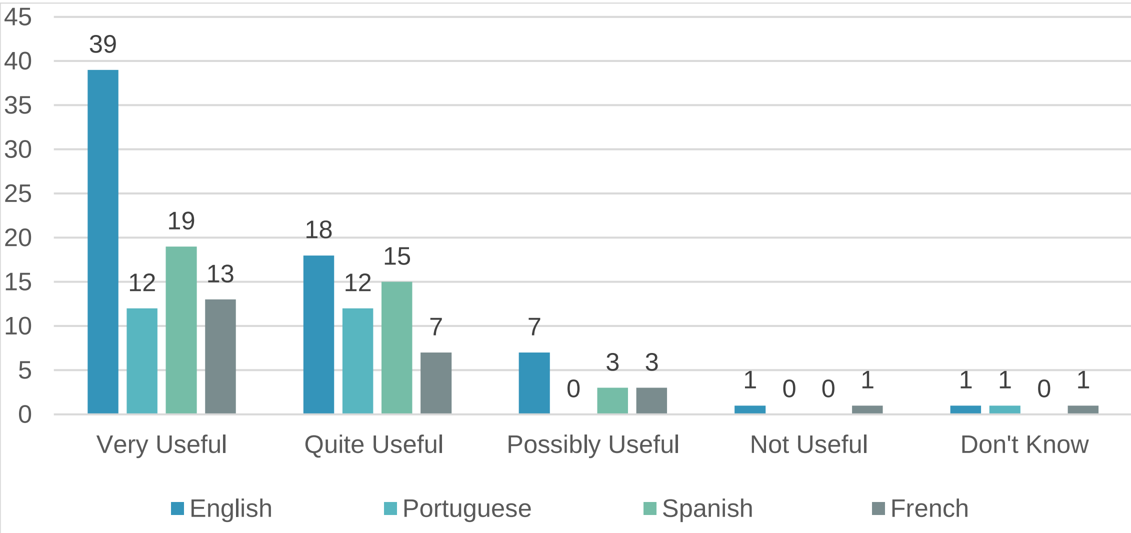

Figure 23. Support with Research and Development for new products or technologies

3.3.5 Innovation Support for Product formulation and reformulation to create healthy food or drink products

The majority of respondents indicated that they would find these services in some way useful.

In France, more businesses would not find them useful, compared with other regions.

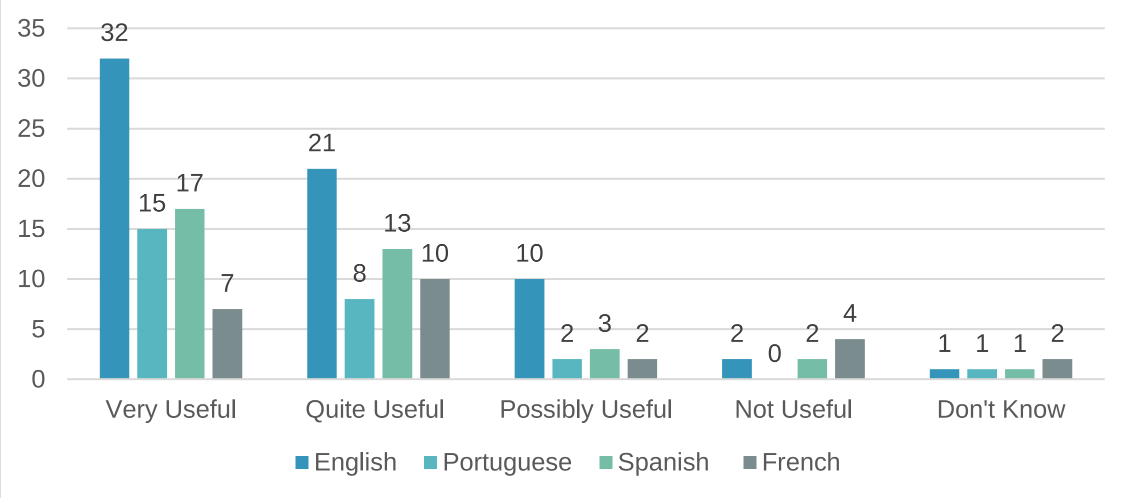

Figure 24. Innovation support for product formulation and reformulation

3.3.6 Support locating, interpreting & utilising consumer & market insight reports

The majority of respondents indicated that they would find these services in some way useful, but with less businesses certain that they would find this "Very" useful.

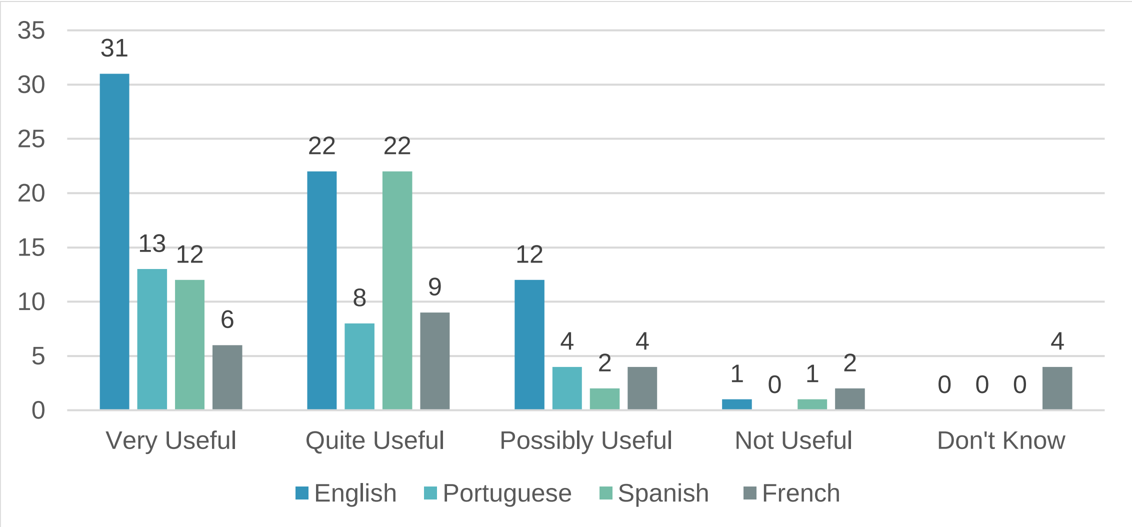

Figure 25. Support locating, interpreting & utilising consumer & market insight reports

3.3.7 Design and marketing support for packaging and marketing materials

The majority of respondents indicated that they would find these services in some way useful.

Desire for this service was noticeably higher in the English language survey than in other regions.

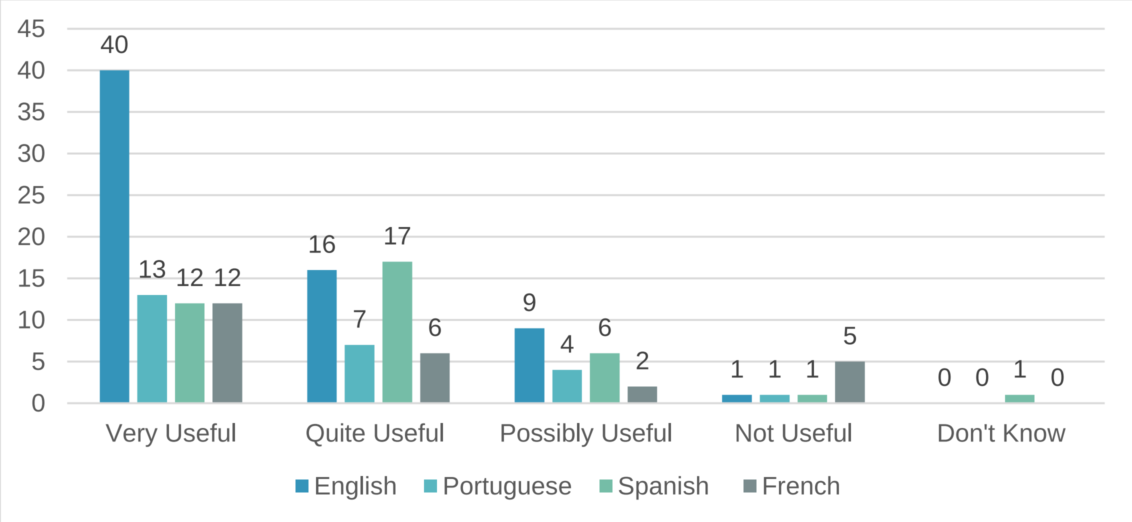

Figure 26. Design and marketing support for packaging and marketing materials

3.3.8 Support in Managing and Protecting Intellectual Property

The majority of respondents indicated that they would find these services in some way useful, but with less businesses certain that they would find this “Very” useful.

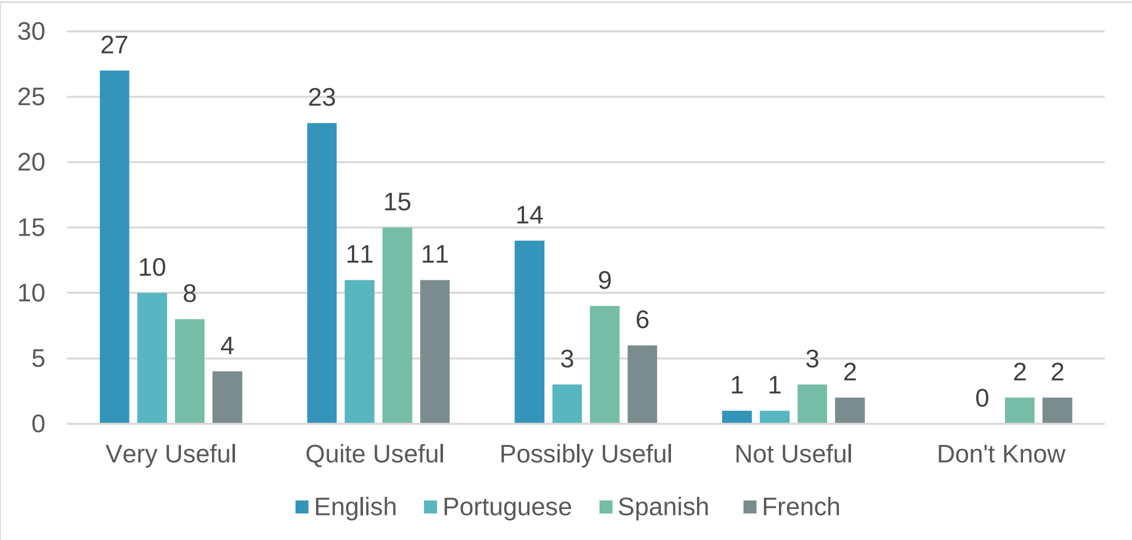

Figure 27. Support in Managing and Protecting Intellectual Property

3.3.9 Communicating opportunities for regional, national or international funding and access to research

This service would seem to be viewed as "Very" useful to businesses who responded to the English language survey, although a majority in all the surveys would find it useful to some degree.

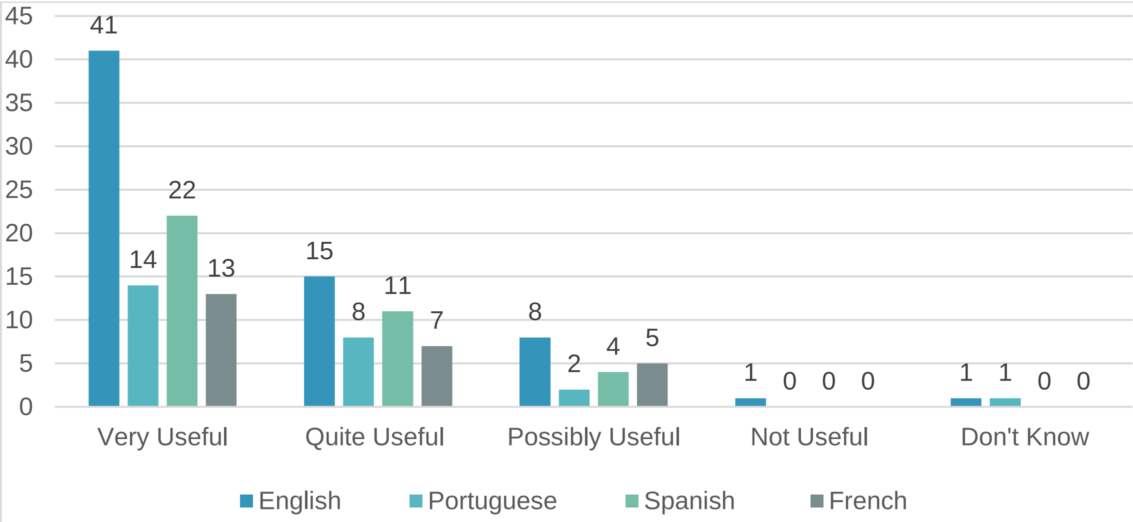

Figure 28. Communicating opportunities for regional, national or international funding and access to research

3.3.10 Support for preparing proposals for funding or participation in projects

Similarly, this service would seem to be viewed strongly as "Very" useful to businesses who responded to the English language survey, although a majority in all the surveys would find it "Very or Quite" useful.

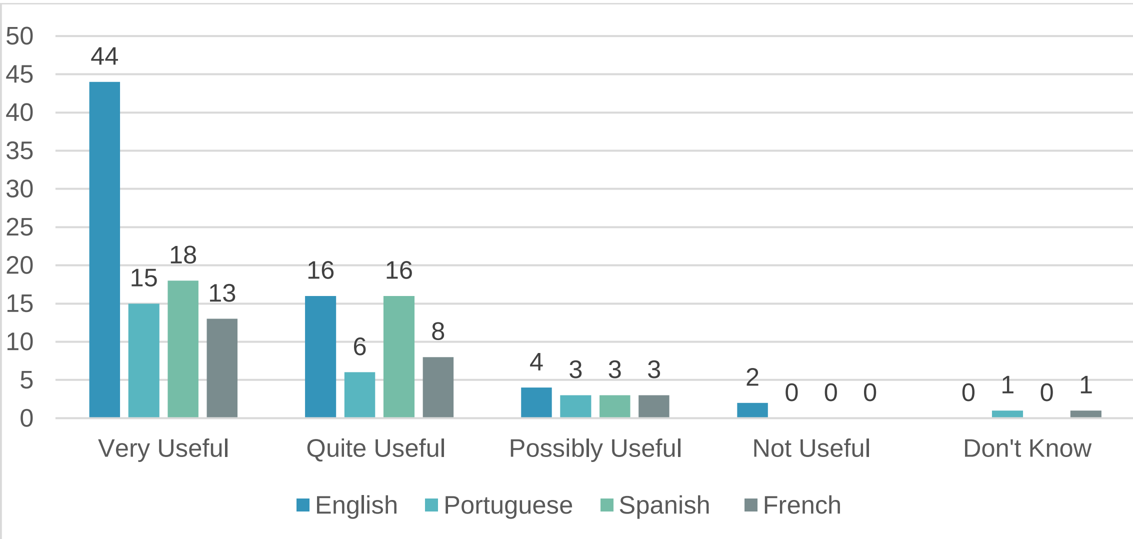

Figure 29. Support for preparing proposals for funding or participation in projects

3.3.11 Introductions to potential project partners, locally or internationally

This service would seem to be viewed as useful to some degree by a majority of businesses who responded to all the surveys, although those who considered it might be “Quite or Possibly” useful was higher than for other services.

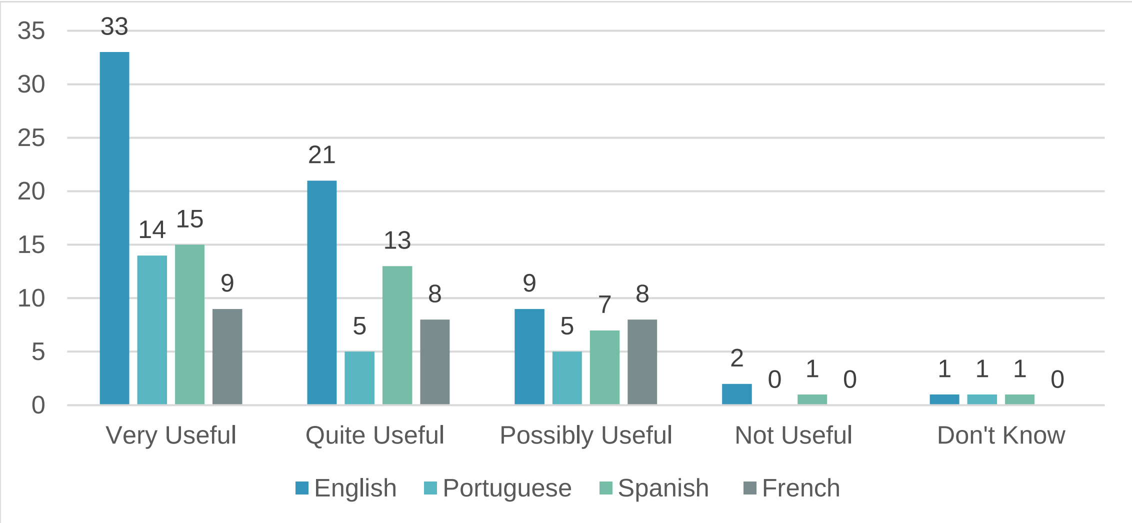

Figure 30. Introductions to potential project partners, locally or internationally

3.3.12 Support for developing your business plan

Whilst this service would seem to be viewed as useful to some degree by a majority of businesses who responded to all the surveys, it received more feedback as “Not” being useful than other services options.

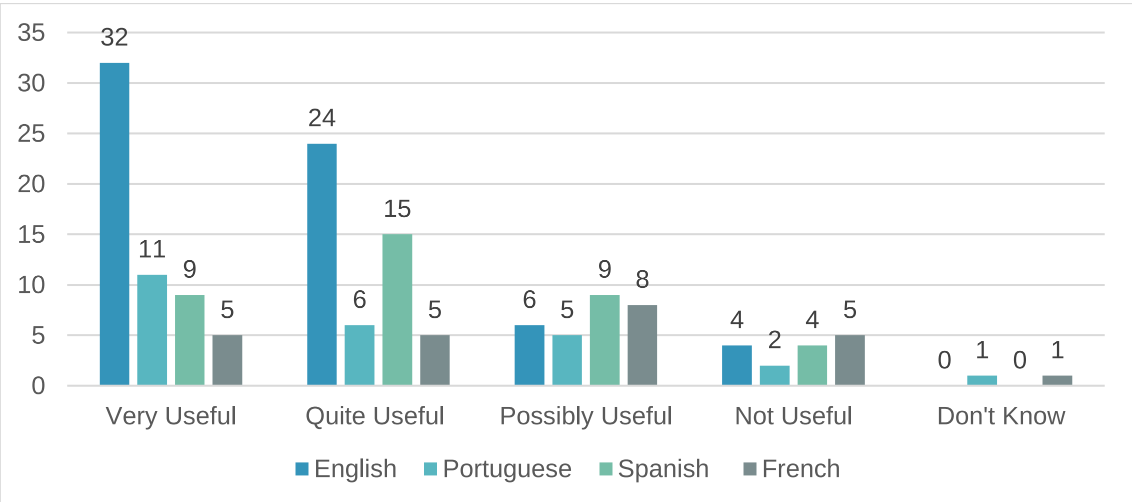

Figure 31. Support for developing your business plan

3.3.13 Support for development of internationalisation plans

This service would seem to be viewed as useful to some degree by a majority of businesses who responded to all the surveys, although the number of companies who considered it might only be "Quite or Possibly" useful was higher than for other services. A few indicated it would not be useful or were uncertain, which might indicate that not all SME's desire to trade internationally.

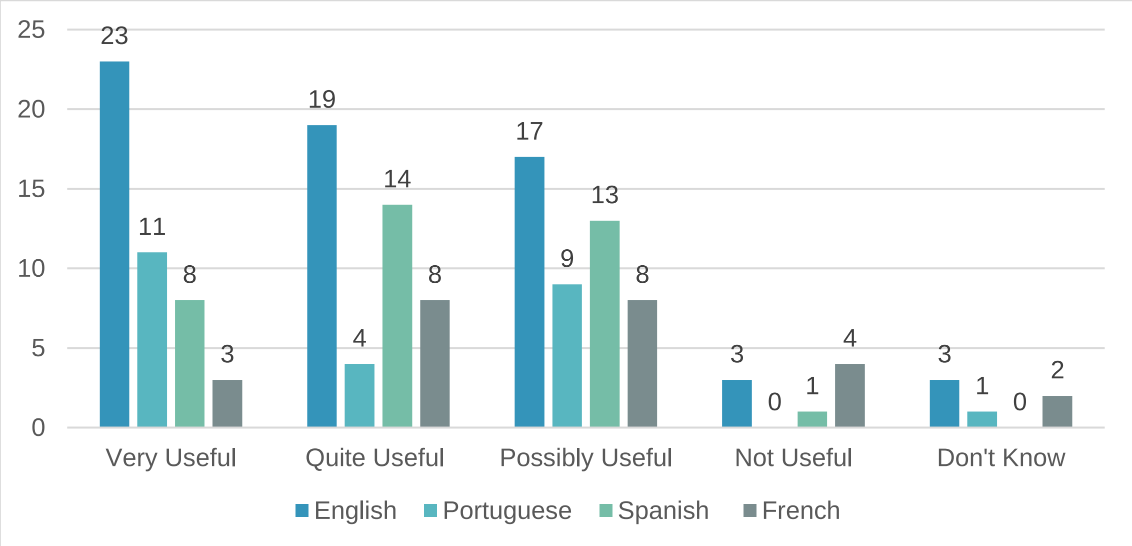

Figure 32. Support for development of internationalisation plans

3.3.14 Providing insight into international market structures, regulatory considerations and consumer behaviours

Similarly, and probably related to the last question, whilst this service would seem to be viewed as useful to some degree by a majority of businesses, those who viewed it as "Quite or Possibly" useful was higher than for other services. Those who indicated it would not be useful or were uncertain, might be unsure whether trading internationally was in their business plan.

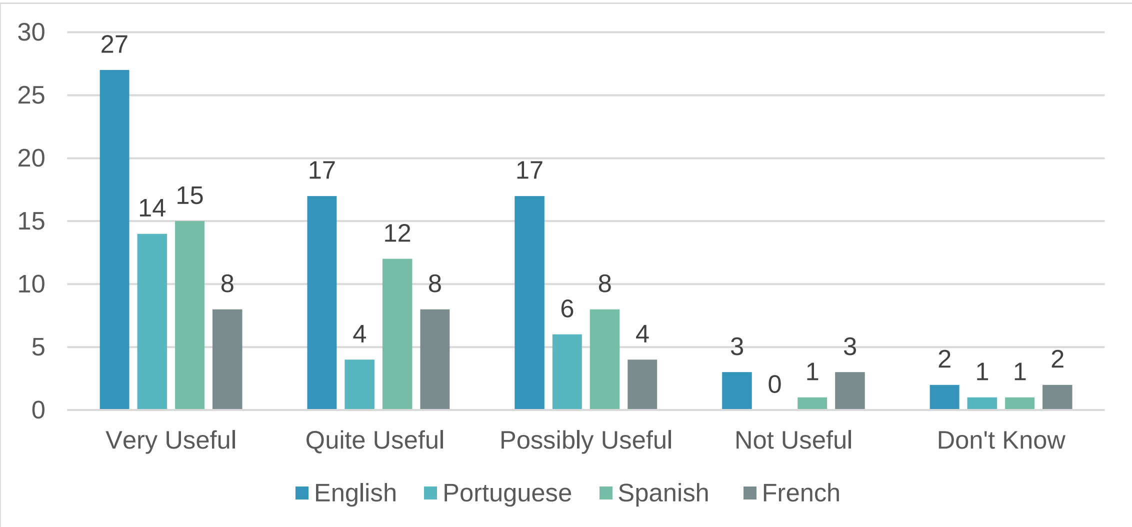

Figure 33. Providing insight into international market structures, regulatory considerations and consumer behaviours

3.3.15 Additional innovation service needs

We also included an open-ended question asking SMEs to identify any additional innovation service needs they have. Again, while many of the innovation service needs identified are included in the initial AHFES service provision package, the range of innovation service needs is noteworthy and will shape the ongoing design of the AHFES service provision programme.

Please let us know any other innovation service requirements that might support your business to produce healthy food or drink products

Analysis of all stated needs highlighted 7 categories (see Appendix A, Table 7 for full idea set).

- The **financial supports category** consisted of the necessity for *advice on financial engineering and targeting suitable financiers*. It also included the need to *access linked support funds and funding schemes* to part finance innovative product costs for the producer to facilitate entry of such products to the market at a competitive price.
- The **research and development category** needs were acquiring *knowledge of customer trends, conducting comparative analysis* with similar products in the market and accessing *food technologist expertise* during the NPD process. It also included the need to access *affordable nutrition testing and shelf life testing* and *advice on clean labelling and alternative packaging materials*.
- Central to the **production mentoring category** were the needs for *engineering and technical innovation training* to improve the production process, knowledge of emerging *supply chain and traceability technology* and *advice about equipment and industrial needs*.
- The **regulatory compliance category** needs were food *regulatory compliance training and consultancy* and *legal advisory support*.
- The **marketing and communication category** included the necessity to acquire *visual and media communication tools*, guidance on inclusion of 'local' produce as part of *the healthy food and drink message* and *access to platforms* that allow *"product claims" to be validated* and *communicate transparency* to end-consumer and stakeholders.
- The **distribution and logistics mentoring category** included the need for *access to a starter list of export contacts* and *expert advice on routes to market and access to distribution networks*.
- The **networking and cooperative partnership category** needs consisted of establishing *cooperative partnerships with emerging companies* and *engagement by food enterprise agencies* in the design, formulation and improvement of product packaging. It also included the necessity for *network opportunities between SMEs and third level institutions researching health beneficial ingredients* and *cooperation between third level institutions and SMEs to develop more sustainable, lighter and cheaper packaging*.

4 Summary and conclusion

The AHFES project is providing opportunities for training and the provision of innovation services that facilitate the ability of SMEs to respond to consumer needs and key market trends in the area of healthy food and drinks. The current deliverable report (D5.3) has provided a synthesis of insights from the consumer and market analyses conducted by the AHFES partners (D5.1 and D5.2) in addition to the results of a survey across the six AHFES partner regions to investigate training and service needs and preferences of SMEs in the context of specific opportunities under development by AHFES training and service partners. The aim of the survey was to ensure that the planned provision of training and services by the AHFES project would be targeted to deliver the maximum possible support for SMEs in each region as they seek to develop and bring new or reformulated healthy food and drink products to market.

Analyses indicated that SMEs across all six AHFES regions report moderate levels of strength and competencies in relation a number of core innovation functions:

- Market research and insights about market trends
- Research, development and innovation capacity
- Partnerships with universities/technology centres
- Marketing & distribution/sales channels
- Financial resources to invest in new product development

The strongest competence area reported by SMEs is in the area of research, development and innovation capacity. Companies also reported that the most helpful 4H partnerships are partnerships with university research groups and technology centres. At the same time, financial issues and concerns were consistently rated as problematic in the initial AHFES survey work with SMEs.

SMEs also recognise both the challenges and opportunities in the healthy food and drinks sector. Notably, SMEs recognise challenges associated with:

- The evolving attitudes of the consumer to food and drinks products such as the desire for clean-label products and traceability
- The cost of new product development and establishing export markets, which can restrict the ability of SMEs from fully exploiting the opportunities
- The challenge of connecting with the buying public, and the need to compete in a multimedia age to promote products and engage with potential consumers

At the same time, the market analysis highlights clear opportunities for SMEs including:

- The growing trends of market segmentation, snackification, the adventurous consumer who perceives food as a sensory experience, mindful eating, and sustainability
- The market for “indulgent and reward” products also provides healthy food SMEs with the opportunity to promote premium indulgent products (e.g. chocolate) as a reward

AHFES partners have identified and are currently working with a large number of SMEs who are actively working to innovate and are ambitious in relation to their future success. Notably, nearly three quarters of companies surveyed were already producing healthy food products, with the remaining group of SMEs interested in producing new or improved healthy food products. Also, two thirds of the companies had already implemented changes in products to make them healthier, and the remaining one third intended to implement changes in the future. Companies recognise market trends as important, and highlighted a number as particularly important based on their current perspectives and ongoing innovation efforts, for example, transparency on ingredients used, the importance of natural and organic ingredients, and transparency on provenance information.

As noted, the AHFES training framework is divided into 4 themed programmes, as shown below. By providing an overview of each specific training offering in the AHFES training programme, the survey conducted as part of D5.3 allowed SMEs to state their preferences in a way that is matched to their needs. It is clear from the results that SMEs are eager to engage in all proposed training offerings, with some variation across regions and with data available to each AHFES partner to optimize local training offerings and training modules that would be most suitable for specific SMEs they are working with. In addition to stating their preferences in relation to the current suite of AHFES training modules, SMEs were asked to highlight any additional training needs and in this context noted needs across the following categories: (1) trend information, including evolving product development and consumer behaviour and demand trends; (2) new product development (NPD) mentoring including advice on tools, methods and financing; (3) research and development, including training on human nutrition, product formulation, nutritional analysis, preservation, certification, and trials; (4) management, including production management, quality control, risk management, and innovation management; (5) product packaging mentoring, including clean label training and sourcing equipment for sustainable packaging; and (6) guidance on export market including legal labelling requirements for export, exporting processes, and international networking.

Consumer Insight & Market Understanding		
Product Lifecycle Management	Market Development	Product Development Critical Path Management
	International Market Development	

Similarly, the survey conducted as part of D5.3 noted introduced SMEs to supportive innovation services across four domain areas shown below, again allowing SMEs an opportunity to state their preferences highlight any additional needs. Survey results indicated that SMEs are eager to engage in all service offerings, with variation across regions and with data available to AHFES partners on specific service preferences identified by each company they are working with. Service provision will involve individualised engagement with SMEs across these domain areas.

Integration in Innovation Networks	Innovation Services
Support in Business Development	Support in Market Building and Internationalisation

Overall, engagement with SMEs across WP5 activities has highlighted the many challenges and needs of SMEs, while also revealing the many market opportunities and SME competencies and strengths that need to be leveraged to maximize the innovation capabilities of SMEs across AHFES regions. The design of training and service delivery offerings is ongoing, and D5.3 provides valuable insights that helps to inform implementation work training in 2021 and 2022. Specific challenges highlighted by SMEs in the current phase of work as shown in Figure 10 included:

- **Economic considerations** -- finding and *securing funding*, the *significant costs of NPD, and costs associated with trials, technology, marketing, etc.*
- **Establishing effective partnerships -** identifying and engaging with *suitable manufacturing and packaging partners*, *sourcing ingredients and sustainable packaging materials, etc.*

- **Time management** - addressing *staff shortages*, *time demands of paperwork and correspondence* with consumers and partners.
- **Logistics and distribution** - *supply chain management*, moving niche products on to mainstream retailers, *distributors reducing their product portfolio due to Covid-19*, etc.
- **Regulatory compliance** - meeting *nutritional targets*, achieving *regulatory compliance*, securing *intellectual property rights protection, and scientific validation* of product claims, etc.
- **Marketing strategy** - identifying the *best channels to reach target audiences, digital marketing, creating year-round demand* for the product, *linking concepts* of added value, high quality ingredients and healthy eating to the product and *creating public awareness* and educating the consumer without losing competitive advantage. Further challenges were *differentiating the product* from others in a crowded marketplace, acquiring knowledge of *evolving market trends and market segmentation* to facilitate rapid responses to market challenges and *re-educating consumers* on the health benefits of food and drink products previously perceived as unhealthy.
- **Research and development** challenges include conducting *market research, gap analyses and feasibility studies*, *securing access* to trial kitchens and precise nutritional information, the *product trialling process*, identifying *alternative healthier ingredients* which increase the nutritional value and shelf-life of the product while ensuring it tastes pleasant. Additional challenges include *sustainable packaging design, product labelling* which transmits the *nutritional benefit and innovation* of the product to the consumer and identifying the *correct product price point*.
- Central to the **industry knowledge and expertise** category were the challenges of *accessing one-to-one business mentoring* on NPD issues including networking with suitable partners, product formulation to factory level, routes to market, legal and technical issues and the selection of production site. Figure 1 demonstrates the above outlined diversity of challenges within each of the categories as identified by the category analysis.

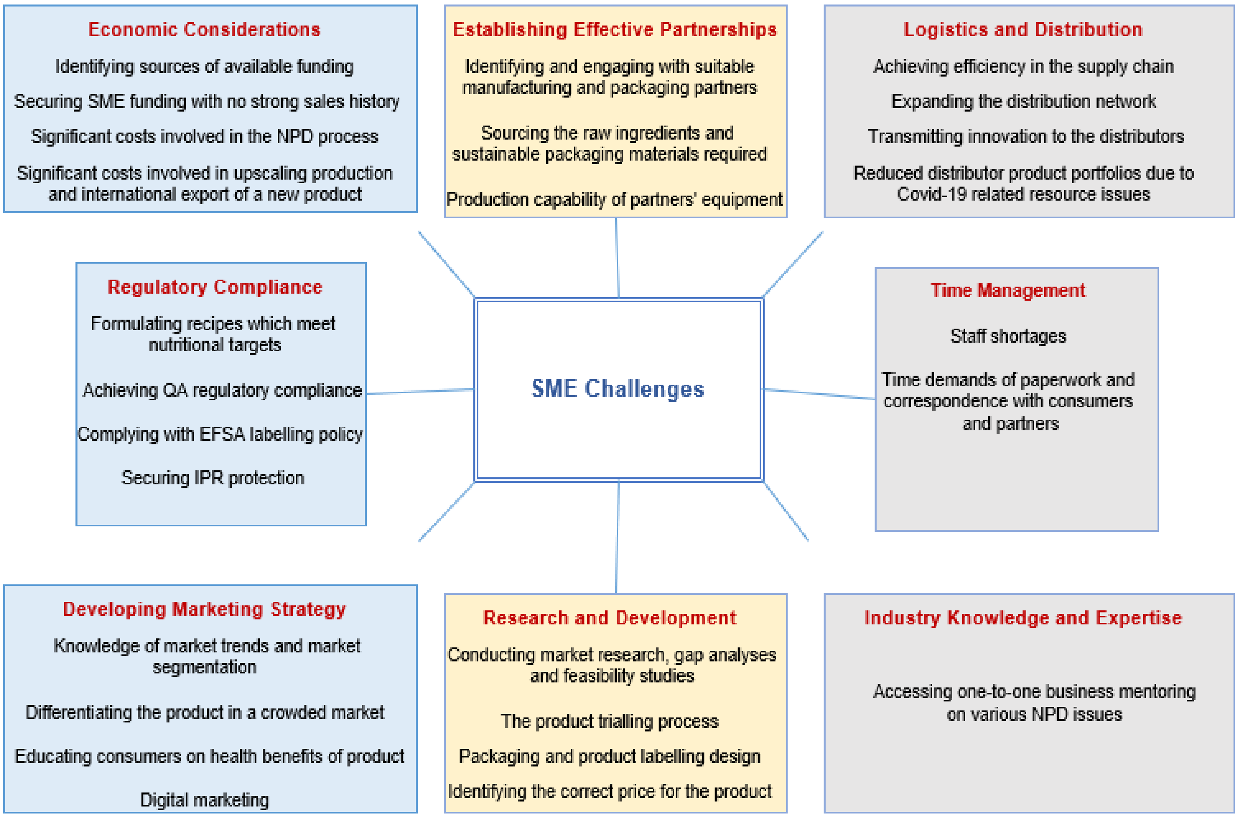

Figure 10. SME identified challenges in developing and launching healthy food and drink products

Abbreviations: New Product Development (NPD), Small Medium Enterprise (SME), European Food Safety Authority (EFSA), Intellectual Property Rights (IPR), Quality Assurance (QA)

The consumer and market analyses conducted by the AHFES partners (D5.1 and D5.2), together with the results of the SME training and service needs and preferences survey, provide valuable insights into the strengths, weaknesses, opportunities, and threats (SWOT) for SMEs developing and launching healthy food and drink products (see Table 3 for full SWOT ideas set). Regarding strengths, SMEs across the AHFES survey regions reported moderate levels of strength in all key competence areas, with research, development and innovation capacity identified as the strongest areas of competence. From a SWOT perspective, the needs identified across the different outputs where SMEs report a lack of specific knowledge, skills and resources could be classified as potential weaknesses. The potential weaknesses identified in the consumer analysis centred on a lack of communication skills and a failure to improve and innovate across all stages of product development and delivery. Furthermore, potential weaknesses reported in the AHFES survey focused on a lack of specialist knowledge and skills in addition to training and innovation service deficiencies. The market analysis highlighted a number of growing market trends which have been identified by SMEs as opportunities (e.g. 'snackification') along with other specific opportunities (e.g. "natural/organic ingredients") in the healthy food and drinks sector. Finally, key challenges to the successful development and launch of healthy food and drink products as reported by the SMEs could be classified as potential threats. In particular, this applies to SME identified challenges which pertain to the market and environment generally.

Table 3. Summary of SME identified strengths, weaknesses, opportunities, and threats

Strengths	**Weaknesses**
SMEs report moderate strength in key competence areas: • Research, development, and innovation capacity • Market research and insights about market trends • Partnerships with universities/technology centres • Marketing and distribution/sales channels • Financial resources to invest in new product development	*Potential weakness noted in consumer analysis:* • Failure of the healthy food industry to promote the interaction of consumers and the industry when launching a new product • Failure to explain value added to products. • Lack of collaboration with the scientific/ technological community • Failure to improve the labelling system • Failure to develop sustainable processes for food processing, preservation, packaging, and logistics systems *Major potential weaknesses to SME growth:* ➢ Need to secure funding for the business ➢ Lack of knowledge of funding availability ➢ Need to establish cooperative partnerships with supply chain partners ➢ Need to invest in research and development and a new product marketing strategy ➢ Requirement to meet regulatory compliance ➢ Lack of SME training and mentoring *SME identified areas of training deficiencies:* • Trend information • New product development mentoring • Research and development • Management • Product packaging mentoring • Guidance on the export market *SME identified innovation service deficiencies:* ➢ Financial supports ➢ Research and development supports ➢ Production mentoring ➢ Expert advice on regulatory compliance ➢ Marketing and communication mentoring ➢ Guidance on distribution and logistics ➢ Networking and partnership supports
Opportunities	Threats
Primary market segmentation trend opportunities identified in the AHFES market analysis: • Snackification • Adventurous consumer • Mindful eating • Sustainability • "Indulgent and reward" healthy food products • "Transparency on ingredients used" • "Natural/organic ingredients" • "Transparency on provenance information"	• Securing funding • Evolving consumer attitudes to the products • Time management and management of logistics and distribution • Meeting regulatory compliance • Undertaking research and development • Creating a successful marketing strategy • Accessing industry knowledge and expertise • Costs of new product development and establishing export markets restrict SMEs exploiting new market opportunities • Need to promote products and engage with potential consumers via social media

Appendix A – SME responses to open-ended questions

Table 4. Category field analysis of SME identified challenges in developing and launching healthy food and drink products

Economic Considerations	*Establishing Effective Partnerships*	*Logistics and Distribution*	*Regulatory Compliance*	*Developing Marketing Strategy*	*Research and Development*	*Time Management*	*Industry Knowledge and Expertise*
Acquiring knowledge of the sources of available funding	Identifying and engaging with suitable manufacturing and packaging partners that understand our business	Trust in the supply chain	Achieving QA compliance	Identifying the best channels to reach our target audience	Gap analysis: identifying a demand gap in the market for which we can produce a healthy food product	Dealing with large quantities of paperwork	Access to useful one-to-one business mentoring on NPD and routes to market
How to access funding when a SME is labelled a high investment risk due to no history of strong sales/upward growth	Sourcing of the raw ingredients and sustainable packaging materials required. With Brexit, likely future challenge of delays in lead times in sourcing ingredients	Shortening the supply chain	Understanding of how to meet criteria to fortify our products with vitamins and minerals	Digital marketing: addressing the knowledge deficit required to attract followers on social media platforms, to engage followers and to convert engagements into sales	Market research: identifying which countries would be ideal for our product and which market routes to target	Inability to focus on product sales due to large quantities of correspondence and queries from consumers and partners	Access to legal and technical advice and authority

Economic Considerations	***Establishing Effective Partnerships***	***Logistics and Distribution***	***Regulatory Compliance***	***Developing Marketing Strategy***	***Research and Development***	***Time Management***	***Industry Knowledge and Expertise***
Significant funding required for research and development (e.g. workspace, trialling, equipment)	Production capability: access to processing and packaging technology	Expanding our distribution network: access to new retailers and markets	Achieving gluten-free status	Creating year-round demand for healthy food and drink products	Conducting a feasibility study: determining the financial viability of the new product and its compatibility with the existing product range	Hospitality and retail staff shortages in the Welsh region of Betws y Coed	Networking with the right partners for our product
Cost to launch small volumes of new product initially while producing other products at the same time	Suitability of partners' equipment: willingness to work with smaller producers	National distributors reducing their product portfolio due to resource issues arising from Covid-19 pandemic	Formulating recipes which meet nutritional targets	Clearly defining healthy eating: linking concepts of added value, high quality ingredients and healthy eating to our product	Securing access to trial kitchens and precise nutritional information		Expert advice on formulating product to factory level
Added value of local produce mostly relies on high cost foods	Resources and equipment required to produce product formulation on a large scale	Transmitting innovation to the distribution through the product packaging and image	Labelling: achieving compliance with EFSA policy	Creating public awareness and educating the consumer without losing competitive advantage	Trialling the product, using the feedback to change the product to meet consumer's demands in terms of nutritional values		Guidance on selecting production site: suitability of facility and location

Economic Considerations	Establishing Effective Partnerships	Logistics and Distribution	Regulatory Compliance	Developing Marketing Strategy	Research and Development	Time Management	Industry Knowledge and Expertise
Funding to share risk of new product		Moving niche products on to mainstream retailers	Securing IPR protection	Differentiating our product from other similar products in a crowded marketplace	Identifying alternative healthier ingredients which increase the nutritional value of the product while ensuring it tastes pleasant		
Significant capital required for marketing			Having the nutritional qualities of our product scientifically validated	Agile information: knowledge of evolving market trends and market segmentation to have a rapid response capacity to market challenges	Shelf-life: identifying natural applications to add to our products to increase shelf-life		
Cost of upgrading IT systems (e.g. CRM system implementation)				Re-educating the public on the health benefits of food and drink products previously perceived as unhealthy	Packaging design: using recyclable, sustainable/ecological packaging materials		

Economic Considerations	*Establishing Effective Partnerships*	*Logistics and Distribution*	*Regulatory Compliance*	*Developing Marketing Strategy*	*Research and Development*	*Time Management*	*Industry Knowledge and Expertise*
Securing funding to enable entry into the export market					Product labelling: understanding what information needs to go on the packaging to transmit the nutritional benefit and innovation of the product to the consumer		
					Correct pricing of the product: quality healthy products face market competition from cheaper, lower quality items		

Abbreviations: New Product Development (NPD), Small Medium Enterprise (SME), European Food Safety Authority (EFSA), Intellectual Property Rights (IPR), Customer Relationship Management (CRM), Quality Assurance (QA)

Table 5. Category field analysis of identified needs for the successful development and growth of the healthy food and drink SMEs surveyed

Economic Considerations	*New Product Marketing*	*Production and Distribution*	*Research and Development*	*Regulatory Compliance*	*SME Development Mentoring*	*SME Training*
Knowledge of funding availability and completion of funding applications	Invest manpower and money in a digital marketing and e-commerce strategy for the new product	Establish cooperative partnerships with innovative supply, production and distribution partners to meet consumer needs	Conduct a feasibility study to confirm economic viability of the product and its place in existing product range	Completion of relevant regulatory standard of paperwork needed to manage risk assessments and risk analyses	Advice on securing funding including how to write a business plan	Training in marketing and sales
Adequate funding required for marketing and selling of new products	Devise a clear marketing strategy and sales plan to launch the new product to market	Source reliable suppliers of the required ingredients for the new product	Investigate current consumer trends in targeted national and international markets	Ensure new product is regulatory compliant and meets food safety criteria	Support from an NPD coach on conducting market research and identifying suitable commercial partners	Better knowledge of innovative equipment to improve production
Financing of research and development	Identify routes to market	Find adaptable production partners with capacity to scale product production up when demand outgrows test kitchen demand	Micro bacterial research and shelf-life testing	Achieve certification to ensure QA	Networking opportunities with cohorts of non-competing companies to share learning experiences	Better understanding of digital markets and e-commerce
Securing of funding to initially finance a salary for the individual setting up new healthy food and drink business	Create packaging and branding to intertwine with existing business brand and range of products	Find distribution partners who meet the specific requirements of the product (e.g. frozen foods) and will actively promote the product	Use of new alternative ingredients in the product formulation process to meet consumer nutritional targets and market trends	Ensure product labelling is compliant with legal requirements	Access to expert advice on research and development (e.g. assistance of a food technologist in formulation of new products)	Training in staff recruitment

Economic Considerations	*New Product Marketing*	*Production and Distribution*	*Research and Development*	*Regulatory Compliance*	*SME Development Mentoring*	*SME Training*
Financing for the purchase of new technologies and machinery within the framework of NPD	Establish a unique selling point and position for the new product in the market	Technological efficiency: create a supply chain technology platform, secure IT support and integration of input to accounts of wholesale/online orders and postage labels	Increased innovation and efficiency in product production and packaging processes that improves quantity, and environmental and social sustainability		Advice on manufacturing and labelling regulatory compliance and legal affairs (e.g. IPR)	Increased knowledge of trends within target markets
Sourcing of cost-effective food diagnostic testing	Expose the new product to a wider population which is already well educated on healthy eating	Export development: gain access to targeted international export markets	Review of pricing model to reflect current cost of living and wage levels		Innovation support via engagement with academic partners	
Investment in local manufacturing to ensure economic stability	Communication to the consumer of the QA standard of the product				Advice on managing accounts and producing cash flow forecasts	
Funding for large scale production to ensure competitive product pricing						
Funding for joint projects involving companies from different food sectors						

Abbreviations: New Product Development (NPD), British Retail Consortium (BRC), Quality Assurance (QA), Intellectual Property Rights (IPR)

Table 6. Category field analysis of SME suggestions of additional training requirements

Trend Information	*NPD Mentoring*	*Research and Development Training*	*Management Training*	*Product Packaging Mentoring*	*Guidance on the Export Market*
Product development (e.g. functional ingredients, sugar alternatives, sustainable packaging)	Sharing of experiences and learning from experienced food businesses who have successfully launch new health products	Training on product shelf-life and nutritional analysis testing	Training in production management and quality control	Clean label related training	Guidance on the process of exporting a new product
Consumer behaviour and demands due to determinants of Brexit, Covid-19 pandemic and sustainability concerns	Recommendations of innovation tools for businesses only conducting NPD periodically	Product formulation advice	Training in innovation management and entrepreneurship for the food sector	Support in sourcing equipment for sustainable packaging	Networking between AHFES project participants to support internationalisation ambitions
	Help with NPD costs	Gain understanding of human nutrition and how to calculate likely nutritional contents of food products	Risk management training on how to conduct risk assessments and best practice in HACCP documentation		Gain knowledge regarding the legal requirements on labelling to export
	Finding partners and financing for businesses who already completed RDI testing	Training in packaging and preservation processes	Risk management training on risk analysis, food fraud and BRC requirements		
		Learn about certification of original recipes and products			
		Guidance on market testing and how to conduct product trials using focus group tests			

Abbreviations: New Product Development (NPD), British Retail Consortium (BRC), Reference Daily Intake (RDI), Hazard Analysis & Critical Control Point (HACCP)

Table 7. Category field analysis of SME suggestions of additional innovation service needs to support business in producing healthy food and drink products

Financial Supports	Research and Development	Production Mentoring	Regulatory Compliance	Marketing and Communication	Distribution and Logistics Mentoring	Networking and Cooperative Partnerships
Advice on financial engineering and search for suitable financiers	Market research: Knowledge of current and future customer trends in the healthy food and drinks sector	Training on engineering and technical innovation to improve the production process	Food regulatory compliance training and consultancy	Guidance on inclusion of 'local' produce as part of the healthy food and drink message	Advice on routes to market	Participation of food enterprise agencies in the design, formulation and improvement of product packaging
Access to linked support funds	Market research: Conduct comparative analysis with similar products in the market using SWOT techniques	Knowledge of emerging supply chain and traceability (farm to fork) technology	Legal advisory support	Visual and media communication tools	Guidance on access to distribution networks	Network opportunities between healthy food and drink SMEs and third level institutions researching health promoting and health beneficial ingredients
Funding scheme to finance 50% of the costs of innovative products to the producer to allow the product to enter the market at a competitive price	NPD: Assistance of a food technologist in this process with advice on using innovative alternative ingredients and reformulating a product to meet customer needs	Advice about equipment and industrial needs		Access to platforms that allow "product claims" to be validated and communicate transparency to end-consumer and stakeholders	Provision of a starter list of export contacts	Cooperation between third level institutions and healthy food and drink SMEs to develop more sustainable, cheaper and lighter packaging

Financial Supports	*Research and Development*	*Production Mentoring*	*Regulatory Compliance*	*Marketing and Communication*	*Distribution and Logistics Mentoring*	*Networking and Cooperative Partnerships*
	Packaging and labelling innovation: advice on clean labelling and alternative packaging materials					Establishment of cooperative partnerships with emerging companies
	Access to affordable nutrition testing and shelf life testing					

Abbreviations: New Product Development (NPD), Small Medium Enterprise (SME)