



GIANT LEAPS

REPORT WITH RESULTS OF THE FIRST CO- CREATION WORKSHOPS

Project acronym: GIANT LEAPS

Project title: Gap resolution in sAfeTy, NuTritional, aLLergenicity and Environmental assessments to promote Alternative Protein utilization and the dietary Shift

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Executive Summary

The GIANT LEAPS project aims to deliver the strategic innovations, methodologies, and open-access datasets to speed up the transition from animal-based to alternative dietary proteins – the dietary shift. Achieving the dietary shift in practice is inherently complex due to the diverse set of actors involved and further hindered by major knowledge gaps. To maximise the potential to create impact, the project actively engages with a wide range of stakeholders across the value chain through its Stakeholder Board (SB) to identify the key knowledge gaps and the best approach to address these, to optimally disseminate the results and to ensure that developed solutions are broadly acceptable across stakeholder groups.

The GIANT LEAPS SB is an open group that will be further expanded during the project's lifetime, aiming to include representatives from key organisations throughout the whole supply chain from farm to fork. Three interactive multi-actor and co-creation workshops are planned with the SB members during the project lifetime, in addition to other engagement activities. The first co-creation workshop, covered in this report, was focused on the consultative role of the SB on the project content and approach, while later sessions will shift focus towards maximising the dissemination and exploitation of the project outcomes.

The first co-creation workshop was organised online on 29th September 2022. The meeting covered general information about the project, the role of the SB and two sets of interactive sessions in break-out rooms focussing on specific topics related to research-oriented work packages. The meeting was well attended by representatives of 23 SB organisations. The discussions delivered a wealth of recommendations, ideas and new initiatives that are summarised in this report and that are used by the work package leaders to enrich the respective work plans. Major outcomes include recommendations on the setup and execution of research plans, offers to receive specific input from stakeholders or to make use of their facilities, specific actions to share already existing data to prevent duplication, and ideas for further building the network and extending research collaborations.

As concrete follow-up steps, online sessions focusing on specific project related topics will be organised throughout the first project year, with the first two topics to be addressed in early 2023. Furthermore, an additional face-to-face meeting with all SB members and project partners is considered later in 2023 and an MS Teams site will be opened to facilitate interaction and build on the momentum of the first co-creation meeting between SB members and the GIANT LEAPS project partners.



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Project set-up and background

Project summary and Work Package descriptions

In order to describe the interaction between the GIANT LEAPS project and its Stakeholder Board (SB) meaningfully, as well as the outcomes of the first SB meeting, the structure and setup of the project needs to be clear. For that purpose, a summary of the project and short description of each Work Package (WP) is provided here.

Accelerating the transition from animal-based to alternative dietary proteins – the dietary shift – is key to reducing the footprint of our food system in terms of greenhouse gas emissions (GHG), energy, water and land use, and other relevant environmental impacts, and for improving the health and well-being of people, animals and the planet. GIANT LEAPS delivers the strategic innovations, methodologies, and open-access datasets to speed up this dietary shift, in line with the Farm-to-Fork strategy and contributing to the Green Deal target of reaching climate neutrality by 2050.

Achieving the dietary shift in practice is inherently complex due to the diverse set of actors involved, and is hindered by major knowledge gaps – scattered across the various alternative protein sources and the domains of health (safety, allergenicity and digestibility), environment (GHGs and other environmental and climate impacts, biodiversity, circularity), and/or barriers to adoption (technological, sensory, and consumer acceptance). The GIANT LEAPS consortium consists of the key actors and spans all expertise to address relevant knowledge gaps and to proactively engage to arrive at optimized future diets based on alternative proteins that are broadly accepted across stakeholder groups. In order to deliver required insights for short-, mid- and long-term decision making and impact, GIANT LEAPS protein sources have been selected for either targeted or full assessment based on their current level of specification. The innovations and improved methodologies combined with accessible and comprehensive information generated for a wide collection of alternative proteins will enable:

- Policymakers to prioritise changes in the food system towards the dietary shift based on desired impact,
- Value chain actors to make strategic scientific, business and investment choices,
- The general public to make more sustainable and healthy dietary choices.

WP 1 focuses on engagement with relevant stakeholders, such as European and national policymakers, food companies, NGOs and consumers, to retrieve their views and feed their information into the project and, vice versa, to disseminate project outcomes to the stakeholders and their networks. Consumer studies on barriers and drivers for acceptance of alternative proteins in daily diets, as well as consumer trade-offs between different aspects of the dietary shift are included in WP1 as well. The Stakeholder Board is embedded in this work package under the tasks: T1.1 Set-up of GIANT LEAPS stakeholder network, T1.2 Co-creation workshops and T1.3 Strategy for sustainable GIANT LEAPS platform development.

WP 2 investigates the processing technologies for developing sustainable, healthy and delicious foods from alternative proteins, as substitutes for egg, meat and milk protein-based foods.



WP 3 develops a toolbox that enables the safety by design approach across a range of hazards for alternative proteins (including nutritional imbalance), demonstrated using several case studies, and addresses critical issues in allergenicity assessment of alternative proteins.

WP 4 assesses the digestibility of alternative protein foods, both in vitro and in vivo, and thereby improves and validates existing in vitro digestion models, and carries out a human trial.

WP 5 assesses the sustainability (from environmental, economic and social impacts), biodiversity and climate change mitigation/adaptation potential from the production of several alternative proteins.

WP 6 sets up a data integration platform that collects and collates data on alternative protein sources from WP 2-5 as well as from existing public data sources while assuring the interoperability and data access between GIANT LEAPS partners and external parties. The platform will be based on a database management system hosted on a cloud server and connected through defined ontologies and data protocols.

WP 7 estimates and optimizes the impacts of the anticipated and consumer-accepted dietary shift on the environment and human health, in comparison with current traditional animal protein-containing diets. The ultimate aim is to define how alternative proteins can optimally be included in European diets and to provide the generated knowledge to all stakeholders, empowering them to play their part in achieving the dietary shift.

WP 8 aims to maximize the outreach and impact of the GIANT LEAPS products and innovations, in terms of enhanced market and business opportunities, growth and jobs in Europe, as well as the foreseen dietary shift, and dissemination of non-proprietary results. The WP 1 in particular the SB will be closely collaborating with this work package.

WP 9 and 10 deal with the project coordination and its ethics requirements. These WPs are not a direct subject for interaction and discussion with the SB.



Set-up of the GIANT LEAPS Stakeholder Board

Goal of the Stakeholder Board

GIANT LEAPS takes a co-creation, transdisciplinary and inclusive approach across the full range of supply chain actors and with special consideration for social well-being. This multi-actor and co-creation approach is foundational to the project and incorporated throughout project activities and subject domains.

An open Stakeholder Board (SB) was established early in the project proposal phase, and its members contributed to defining the main research questions during this phase. Engagement with the Stakeholder Board and co-creation is facilitated in Work Package 1, involving all project partners to shape the research process of the project. The project interacts with the SB on a regular basis. The Stakeholder Board is asked to provide input on the project approach to ensure it delivers insights and solutions that are most relevant to stakeholders and to maximise impact collectively. Within the project lifetime, three interactive multi-actor and co-creation workshops are envisaged to which the SB members, as representatives from consumer associations, primary producers, food industry, retail/hospitality industry, public health authorities, risk assessors and policymakers, will be invited to actively participate.

Stakeholder Board set-up

The GIANT LEAPS SB is an open group that will be further expanded during the project's lifetime, resulting in a sustainable stakeholder platform after the project's end. The envisaged composition of the SB includes representatives from various organisations relating to the whole supply chain from farm to fork (primary producers, food and ingredients producers, food processors and distributors, wholesalers, retailers, food service, restaurants), consumers, opinion leaders/regulators, public organisations, the scientific community, food manufacturers' associations, media, consumer organisations and the public. The SB has both a consultative role on the project content and approach, as well as a role to maximise the dissemination and exploitation of the project outcomes.

The Stakeholder Board will be open to new members throughout the whole project lifetime to keep expanding the coverage of relevant organisations across the value chain and to maximise dissemination and impact potential. In line with the GIANT LEAPS Consortium Agreement, new SB members will be admitted after the approval of the GIANT LEAPS Executive Committee. Stakeholder Board members will not become project partners and, therefore, will not have contractual obligations towards the project consortium. Project information or outcomes which are not subject to confidentiality will be shared with the SB members, in line with the publication procedure, as stated in the Consortium Agreement.

The current composition of the SB is provided in Table 1.



Table 1. Composition of the GIANT LEAPS Stakeholder Board (November 2022)

Stakeholder Board members	
Category	Organisation
Protein & flavour suppliers	Fuji Oil
	Firmenich
	Royal Cosun
	Cargill
	Avebe
	Quinoa Marche
Food & dairy manufacturers	Valio
	CJ
	Fazer
	Hochland / Simply V
	Westland
	Lantmannen
	Soredab (Savencia)
	Oatly
	Nestle
	Kellogg's
	Technology supplier
CER Groupe	
AirLiquide	
Economic / investment	World Economic Forum
	CounterFactual Ventures
Boards & platforms	European Alliance for Plant-based Foods
	Good Food Institute
	European Federation of the Associations of Dietitians
	International Platform of Insects for Food and Feed
	EuroFIR
Public sector / food authorities	FAO Office of Climate Change, Biodiversity and Environment
	former EFSA panel members
Research institutes	ILVO Vlaanderen
	Institute of Food Research and Product Development, Kasetsart University, Thailand
	Joint Research Centre (JRC), Directorate D Sustainable Resources, Land Resources Unit



Co-creation meeting_1: 29 September 2022

Organisation and attendance

The first Co-creation meeting of the GIANT LEAPS Stakeholder Board was organised on 29th September 2022. It was held online to enable as many SB members as possible to attend this meeting (no travel time required and cost effective) and to meet the timing of this deliverable.

Prior to this meeting, Bridge2Food sent a questionnaire to the SB members to investigate their interest in the SB, as well as their expectations and contributions to the project. In addition, SB members were asked to indicate their preferences regarding their participation in two rounds of work package round table discussions.

The agenda of the first Co-creation meeting covered presenting general information about the project, discussing the role of the Stakeholder Board, interactive sessions in break-out rooms focussing on specific topics related to work packages, and a plenary part to summarise the round tables and provide a future outlook.

12.30 - 13.00: Introduction of GIANT LEAPS project, WPs, role of Stakeholder Board

13.00 - 13.45: Rounds 1: WP leader Round Tables

13.45 - 14.15: Break

14.15 - 15.00: Rounds 2: WP leader Round Tables

15.00 - 15.15: Break

15.15 - 15.55: Summary WP Leaders from Round Tables

15.55 - 16.00: Wrap up, Q&A & Outlook

The first Co-creation meeting was attended by 43 participants, including representatives of 23 SB organisations (see Table 2 for details).

On behalf of GIANT LEAPS, the following project partners were present: André Brodkorb, Teagasc; Andrea Seleljova, Wageningen Research; Birgir Örn Smáráson, Matís; Charlotte Neher, Bridge2Food; Chiara Nitride, University of Naples; Clare Mills, University of Manchester; Edward Sliwinski, EFFoST; Emanuele Zannini, University College Cork; Esther van Asselt, Wageningen Research; Gerard Klein Essink, Bridge2Food; Harry Wichers, Wageningen Research; Laura Malinauskaite, Matís; Matilde Milana, Wageningen Research; Michael Siegrist, ETH Zürich; Nesli Sözer, VTT; Sergiy Smetana, DIL; Pasquale Ferranti, University of Naples; Paul Vos, Wageningen Research.



Table 2. SB organisations attending the first Co-creation meeting on 29 September 2022.

Stakeholder Board members	
Category	Organisation
Protein & flavour suppliers	Fuji Oil
	Firmenich
	Cargill
	Avebe
Food & dairy manufacturers	Valio
	Fazer
	Hochland / Simply V
	Westland
	Soredab (Savencia)
	Oatly
	Nestlé
Technology supplier	SPX Flow
	CER Groupe
	AirLiquide
Economic / investment	World Economic Forum
	European Federation of the Associations of Dietitians
	International Platform of Insects for Food and Feed
Public sector / food authorities	FAO Office of Climate Change, Biodiversity and Environment
	former EFSA panel members (2)
Research institutes	ILVO Vlaanderen
	Institute of Food Research and Product Development, Kasetsart University, Thailand
	Joint Research Centre (JRC), Directorate D Sustainable Resources, Land Resources Unit

The first Co-creation meeting was very well received by the SB members and the project partners. The meeting set up (plenary part and round table discussions) facilitated a good interaction between the SB members and project partners. Input received from the SB members on different topics was greatly appreciated by the WP leaders and will be further discussed within their work packages.

The main outcomes and conclusions from the round tables are summarised below. They were shared together with the meeting minutes with all Stakeholder Board members and the project partners.



Main outcomes and conclusions per Work Package

Main outcomes WP 1 co-creation sessions	
Suggestions to strengthen GIANT LEAPS	Questions, unclarities or potential issues identified
It would be interesting to know whether hybrid products (alternative protein + animal protein) could increase consumers' acceptance of alternative proteins.	Which countries to focus on (Italy might be more favourable than Spain because Italy represents the Mediterranean culture better than Spain)
Investigate consumers' acceptance of policy measures to increase alternative protein and how consumers might react to these policy measures.	Unwanted side-effects such as food waste (alternative foods offered but not consumed or "low-quality" meat cuts that are replaced by alternative proteins should be taken into consideration).
It is important to make the links to dietary recommendations and keep those in mind when thinking about policies but also acceptance of alternative proteins.	

Main outcomes WP 2 co-creation sessions	
Suggestions to strengthen GIANT LEAPS	Questions, unclarities or potential issues identified
Variation in the ingredient properties from one producer to another could be considered	How to address the ingredient variability?
The interaction between ingredient characteristics and the food applications should be considered so that the knowledge can be extrapolated to different providers	It is not only about functionality but also the supply chain, and quantity and price are important to consider.
Functionalization innovations should be scalable and affordable	Why not pea protein included in WP 2?
	Could combination of WP2 proteins with other proteins such as pea and soy be considered?
	How to balance the nutrition, sustainability, sensory etc?

Main outcomes WP 3 co-creation sessions	
Stakeholder input into case studies	<p>All stakeholders felt they could make a contribution to the risk assessment case studies which could take the form of</p> <ul style="list-style-type: none"> - Input into the choice of scenarios. Comments already contributed include ensuring the use of protein is taken into account at the start (processing aids, food functional ingredients versus fractions such as isolates), Adapting molecular based approaches for allergenicity risk assessment to whole food ingredients using e.g. phylogeny rather than single protein comparisons developed for transgenics (WP3 Task 3.4), Risk assessment of materials used in e.g. cell culture - Review of draft scenarios: Interactions with Cargill could also roadmap from EU Novel foods to GRAS and vice versa.



Main outcomes WP 3 co-creation sessions	
	ACTIONS: Plan further meeting in ~ 6 months to discuss draft scenarios
Skilling food innovators to navigate the risk assessment process	Teach-ins based on scenarios with SMEs through the ILVO Food Pilot Supporting FAO activities in the novel proteins space
Food allergen management	Test methods for new ingredients that need to have precautionary allergen labelling (issues of specificity for e.g. insects vs shellfish)

Main outcomes WP 4 co-creation sessions	
Suggestions to strengthen GIANT LEAPS	Questions, unclarities or potential issues identified
Get a broader picture on plant proteins	Not just (lower) digestibility than animal proteins, but also health effect; food structure “matrix effect”, processing, emulsification etc. ; part of mixed & total diet are aspects to consider
Include in vitro health markers – satiety and muscle health	Standardised or not? Aim to get recognised by organisations i.e. health claims
Benchmarking against what?	Benchmarking suggestions: dairy, soy, PROTEOS proteins (5 x plant proteins: sorghum, wheat bran cereals, black beans, pigeon peas, peanuts vs. collagen, whey proteins isolate, zein)
Undigested proteins – what happens?	= dietary fibre; possible health risk ->metabolites; include task to quantify undigested portions
Protein concentrates/isolates/flours	To include fibres, Diet WP: minerals
Involve FAO, EFSA Stakeholders	

Main outcomes WP 5 co-creation sessions	
Suggestions to strengthen GIANT LEAPS	Questions, unclarities or potential issues identified
Making sustainability results comparable	Big obstacle for policy makers (and researchers) – how can GL contribute towards this problem?
JRC – PEF & LCA methods and indicators	
FAO – climate mitigation/adaptation, biodiversity & ecosystem services	
Indication of additional partners for the Stakeholder group to further advise on sustainability matters	Blonk Consultants firm has developed the Agri-footprint database and others that could be useful for sustainability assessment in WP5
Include the concept of Basket of Product (BoP) on food	How can it be used with the sustainability framework of GL?
Good input from industry partners – their views and interests	Getting the information about which alternative proteins within Giant Leaps project perform best in CO2 emission reductions
Data integration with current databases	How the PEF and LCA results will be incorporated in current product PEF database, how the different types of data could be integrated



Main outcomes WP 5 co-creation sessions	
Suggestions to strengthen GIANT LEAPS	Questions, unclarities or potential issues identified
Method selection – the issue of allocation	JRC suggested that allocation should be based on nutritional value, maybe in addition to mass (which is the most common)?

Main outcomes WP 6 co-creation sessions	
Suggestions to strengthen GIANT LEAPS	Questions, unclarities or potential issues identified
Data Structure <- Consumer Attitude/Acceptance	Maintenance and Interoperability in Future – subscriptions?
Develop Open and Closed Versions of the platform	Allow visualisation and use by public on Open Version of the platform
Design screening approach	Data sharing and IP from industrial stakeholders is a challenge
Usability of Industrial data from open sources like dossiers for GRAS and EFSA (OpenTox)	
Huge potential for the applicability is defined	

Main outcomes WP 7 co-creation sessions	
Suggestions to strengthen GIANT LEAPS	Questions, unclarities or potential issues identified
Optimal diet: include several alternative protein sources/products to satisfy everyday dietary planning	What is the meaning of 'diets', do we focus on daily consumption patterns?
Nutritional assessment: include all macro- and micro- nutrients	What is intended as 'future'? 5, 10, 20 years?
Sustainability assessment: include other indicators than just CO2 (e.g. water usage for growing/producing new products)	
Optimal diet: Incorporating cost (production and consumption), sensory (consumers acceptance) and functional aspects	
Consider also supply chain availability for the EU regions	
Include market interaction organizations	

Main outcomes WP 8 co-creation sessions	
Suggestions to strengthen GIANT LEAPS	
EAPF: can provide intelligence on the regulatory and policy environment	
EAPF: advocacy towards a level playing field	
EAPF: we group many advocacy groups with EU and national reach. We also have many company members	
EAPF representative has experience is on EU regulations and policies	



Main outcomes WP 8 co-creation sessions
Suggestions to strengthen GIANT LEAPS
Expert: eager to apply the outcomes to support the development of scientific data needed for scientific assessment of the nutritional quality, safety and allergenicity of alternative protein sources by regulatory authorities and policy makers
Expert: eager to apply the outcomes to support the development of scientific data needed for scientific assessment of the nutritional quality, safety and allergenicity of alternative protein sources by regulatory authorities and policy makers
Expert: Clarify regulatory pathways and potential barriers for authorisation of novel protein sources for humans
Expert: EU regulatory authorisation: pathways and barriers under novel foods regulation
Expert: how are regulatory aspects addressed in the project? (link with WP3?)
WEF: strong involvement in relevant eco systems
WEF: will focus on important transitions like regenerative farming, dietary shift/protein transition
WEF: we can learn a lot from traditional vegetarian diets from Asia



Next steps

Based on the above input received during the first Co-creation meeting of the Stakeholder Board, the following concrete steps will be taken by each Work package:

Follow-up activities by GIANT LEAPS Work packages

Work package 1

For the selection of the four countries to represent the North, East, South and West of Europe, it was discussed whether Italy might be a more favourable country than Spain. This is because Italy would represent the Mediterranean culture better than Spain. Follow-up discussions with the members of WP7 are scheduled to further consider and decide upon this point.

Following the question of one of the Stakeholder Board members, whether hybrid products including alternative proteins and traditional proteins could increase consumers' acceptance of alternative proteins, we will plan to include questions about the acceptance of hybrid products in our online consumer surveys.

In a later stage of the project, we will investigate consumers' acceptance of policy measures to increase alternative protein and the reactions of consumers towards such policies. During the Stakeholder Board meeting, the concern was voiced that we should keep (local) dietary recommendations in mind when thinking about policies and acceptance of alternative proteins. Taking this into consideration, we will first consult the local dietary recommendations and make sure that our proposed policy scenarios do not interfere with local dietary recommendations when we develop scenarios for potential policy measures.

Furthermore, the topic of potentially unwanted side effects that might arise from the promotion of alternative proteins was discussed and will be considered in the work of WP 1. As a potential scenario, the promotion and adoption of alternative proteins could lead to an increase in food waste when consumers consume less meat overall but keep demand for premium meat cuts. If consumers might substitute low-quality meat cuts with alternative protein products, low-quality meat cuts may remain unconsumed, thus increasing food waste while keeping demand for animal rearing high.

Work package 2

Stakeholder Board members who attended the WP 2 session expressed interest in protein ingredient sources such as soy, oats, pea, wheat, insects, rapeseed, potato, hemp, faba beans, chickpea and almond. Variation in the ingredient properties from one producer to another was flagged as a concern. In WP 2, oat protein ingredients from different providers (Fazer and Lantmannen) will be used to gain a greater understanding of the ingredient variability. WP 2 is also working with flours, protein concentrates and isolates to enable the mapping of knowledge gaps within various ingredient categories, with respect to degree of purity. The interaction between ingredient characteristics and food applications will be considered, so that the knowledge can be shared with different providers. Also, there was a remark from a SB member to focus on the supply chain, quantity and price. These aspects will be addressed by WP 2, in collaboration with WP 1. It was recommended that the functionalisation methods utilised to tailor sensory-nutritional-technological functionalities should be scalable and affordable. WP 2 mainly focuses on minimal, clean-label processing technologies (such as fermentation and enzymatic modification), and reproducibility will be demonstrated when moving from model systems to more complex food systems. Some of the selected products might be tested in pilot facilities of WP 2 food companies.



Work package 3

Stakeholder input into WP3 is largely focused on the case studies (Task 3.1). All the stakeholders involved in the WP3 sessions felt they could make a contribution to the risk assessment case studies which could take the form of input into the choice of scenarios. Comments already contributed include (1) Ensuring the use of protein is taken into account at the start (processing aids, food functional ingredients versus fractions such as isolates; (2) Adapting molecular based approaches for allergenicity risk assessment to whole food ingredients using e.g. phylogeny rather than single protein comparisons developed for transgenics (WP3 Task 3.4); (3) Scenarios should include a risk assessment of materials used in e.g. cell culture. The second aspect related to review of draft scenarios with interactions with Cargill specifically road mapping from EU Novel foods to US GRAS (Generally Regarded As Safe) regulations and vice versa. It was agreed that a further meeting should be planned for ~ 6 months to review draft scenarios with interested stakeholders.

Another aspect highlighted was the opportunity to skill food innovators to navigate the risk assessment process. Building on the Task 3.1 scenarios there was an opportunity to provide face-to-face teach-ins based, focused on SMEs, through the ILVO Food Pilot. There was also the opportunity to support FAO activities in the novel proteins space. Lastly, since many of the alternative ingredients being developed may pose allergenicity risks and require a precautionary allergen label (PAL) there was interest in working with stakeholders to explore how alternative proteins might be integrated into food allergen management plans. For example, the iFAAM tiered risk assessment process could be adapted as required. This will include the need for test methods for new ingredients that need to have a PAL (issues of specificity for e.g. insects vs shellfish). Further stakeholder involvement is envisaged with the patient organizations and clinical community through the Galen²ANACARE network who are considering joining the GIANT LEAPS SB to help facilitate this.

Work package 4

The objective of WP 4 was clearly outlined to the stakeholders; aspects of the feedback had been anticipated and all points were compiled and shared with the WP partners. Of particular interest was the wish to benchmark digestion data against known samples, such as protein sources from the international PROTEOS project (5 x plant proteins: sorghum, wheat bran cereals, black beans, pigeon peas, peanuts vs. collagen, whey proteins isolate, zein). In addition, stakeholders were interested in a wider view beyond proteins, and asked to include fibres and minerals. The determination of minerals and vitamins was also a request from the EU project officers. WP partners will assess the possibility of including them in the work, where possible.

Work package 5

WP 5 will use the points discussed in the Stakeholder Board meeting by building on previous work on sustainability assessment frameworks for food products, such as Product Environmental Footprint (PEF), consulting experts at FAO on climate vulnerabilities, mitigation and adaptation potentials, seeking out additional expertise on the social sustainability impacts of alternative protein production, and putting additional efforts in making the sustainability data as comparable between protein sources – alternative and conventional – where possible. Connecting to Join Research Centre (JRC) was very useful as they created the PEF framework, and a discussion was started on how to make results of sustainability assessments comparable between different organisations and frameworks. For this purpose, WP 5 connected to representatives from JRC responsible for PEF for alternative proteins to build on JRC's expertise and work. For instance, JRC already have PEFs for



quinoa and rapeseed that they said they can share these – the aim is to synchronise WP 5 work with theirs and build on it. JRC and FAO representatives' suggestions related to value allocation in sustainability assessments will be taken into consideration, e.g. basing impacts on mass or nutritional value as opposed to economic value, which is very volatile. FAO's expertise in climate change and biodiversity impact assessment of food, which are included in sustainability assessment in WP 5, will be consulted in this part of the work. Most of the stakeholders who participated in the discussion on sustainability, including researchers, policy advisers and producers, indicated the need for comparable data on the sustainability impacts of alternative protein production. This reinforced the focus of the WP 5 on creating comparable sustainability profiles for the short-listed alternative proteins, which would enable stakeholders to make informed choices.

Work package 6

Discussions with SB members on the WP 6 approach revealed that the applicability of an interoperable database platform has huge potential. To strengthen GIANT LEAPS, the following suggestions were made: a) include an investigation of consumer attitudes and acceptance to alternate dietary shifts to improve the functional foods to commercially succeed, b) offer platform with open and restricted access versions, and c) design a screening approach in the platform to filter datasets based on different parameters such as nutritional value, environmental impacts, cost efficiency etc. d) to integrate industry data from open sources, such as GRAS and EFSA dossiers (OpenTox). Along with the suggestions, there are some unanswered problems, ambiguities and potential issues related to how the platform will be maintained and interoperability ensured in the future when the project is finished. Will the platform be used for public and open access or will database access and analytic visualization be restricted, depending on subscriptions? The main challenges are stakeholder data sharing and intellectual property (IP).

WP 6 will include Stakeholder Board suggestions and inputs to provide a platform with various access restrictions - open access, restricted access, and closed access - to provide dedicated group control and long-term persistence and data preservation. There will be different design interfaces and filter screening options accessible, with the ability to screen based on product, ingredient, nutrition, environmental impact, and cost-effective characteristics. To incorporate industrial data, various open-access industrial data sources will be used.

Work package 7

Discussion with the SB members on WP 7 focused on criteria for selecting alternative proteins to be included for future diets. Besides the already identified criteria for composing future diets, it is also relevant to include taste (sensory aspects), functionality, consumer preference and costs. As for the nutritional aspects to be included, participants mentioned that in addition to the macronutrients, micronutrients should be incorporated too. Finally, participants indicated that the definition of a diet and the definition of 'future' should be made more clear.

The points raised above were used for internal WP7 discussion after the Stakeholder Board meeting, and as a basis for organising a meeting with all WP 7 partners. In these meetings, the 'future' was defined as 2035; as for the diet, discussions are ongoing and will be continued with the partners. Furthermore, a webinar will be organised with stakeholders allowing more in-depth discussion of the items mentioned above.



Future Stakeholder Board activities

In addition to the specific WP follow-up steps, **(online) sessions** on specific project related topics will be organised for the Stakeholder Board members who have an interest and/or expertise in these topics. The first two topics to be addressed in early 2023 will be related to WP 5 (sustainability data & analyses) and WP 7 (defining regional future diets). Bridge2Food jointly with Wageningen Research will take the lead in organising these first two online sessions, and more sessions will follow later in 2023.

The project plan defines a **second face-to-face Stakeholder Board meeting** at mid-project, i.e. in Autumn 2024. Due to the stakeholder interest, lively interaction and valuable outcomes of the first SB meeting, Bridge2Food together with Wageningen Research as Coordinator are evaluating the feasibility to organise an **additional face-to-face meeting** with all SB members and project partners in Q2 or Q3 2023.

For the purposes of sharing and exchanging relevant project information with the Stakeholder Board members, an **MS Teams site** is opened, where e.g. the information from the meetings, SB contact details and other relevant documents will be stored. Access will be provided for all SB members and project partners.



Annex I

Presented slides from the 1st Co-creation meeting held on 29th September 2022

GIANT LEAPS Stakeholder Board



Gap resolution in sAfety, NuTritional, aLlergenicity and Environmental assessments to promote Alternative Protein utilization and the dietary Shift

HORIZON-CL6-2021-FARM2FORK-01-12, grant no. 101059632

27 September 2022



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WELCOME!



It is about your expectations, contributions, interest in which work package(s), plan the meeting round tables, your contact details, and communication.

Form (<https://forms.office.com/r/14298quaJ3>)

And

Consent: To enable as open a discussion as possible, all meetings will be held under the Chatham House Rule. Also, anti-trust regulations of the EU are applicable. Joining the Stakeholder Board means that you agree to these terms!

VERY POSITIVE: YOU WILL WANT REGULAR UPDATES & COMMUNICATION

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AGENDA

12.30 - 13.00:

- > Opening – Gerard Klein Essink, Bridge2Food
- > Introduction of Project & WP Leaders – Paul Vos, Wageningen UR
- > Stakeholder Board – Gerard Klein Essink, Bridge2Food

13.00 - 13.45: Rounds 1: WP leader Round Tables

13.45 - 14.15: Break

14.15 - 15.00: Rounds 2: WP leader Round Tables

15.00 - 15.15: Break

15.15 - 15.55: Summary WP Leaders from Round Tables

15.55 - 16.00: Wrap up, Q&A & Outlook – Gerard Klein Essink, Bridge2Food

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Project introduction

Paul Vos, Coordinator, Wageningen Research

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GIANT LEAPS set-up

- Project duration: 1 September 2022 – 31 August 2026
- HORIZON Research and Innovation Action
- Call / topic: HORIZON-CL6-2021-FARM2FORK-01-12
- Final EU/total budget: € 10.3 / 11.9 million
- 34 complementary partners: knowledge institutes, SMEs and large companies, network organisations

Wageningen Research	IRTA	Matis	University College Cork	VTT
University of Naples	LUKE	Wageningen University	DIL	Teagasc
INRAE	AgroParisTech	Medical University Sofia	AZTI	IRIS
EFFOST	Bridge2Food	Viva Maris	Solar Foods	GreenColab
Europa Media	FSN Consultancy	Mosa Meat	Napiferyn Biotech	CAPNUTRA
FrieslandCampina	DAAB	Roquette	Bugging Denmark	Danone Nutricia Research
ETH Zürich	AGT Foods	University of Manchester	Unilever	(soon: University of Surrey)

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Stakeholder Board: aim and set-up

- **Aim: co-create & help maximising dissemination / exploitation → impact**
 - Ensure relevant knowledge gaps are addressed
 - Ensure solutions are relevant to end users
 - Early sharing of results & information with SB
 - Input from SB will be used to adapt or validate Work Package plans
 - Collaborate to create maximal scientific, societal and economic impact
- **Set-up: participants**
 - Open structure: interested parties can join, also after granting
 - Advisory role, SB members are not part of project consortium
 - No contractual obligation or IP rights
 - Aim to include full coverage of food system actors across value chain
 - Public & private sector
 - From primary production to retail & food service

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Stakeholder Board meetings

- Co-creation workshops and regular update meetings during the 4-year project duration
 - 3 major meetings: at project start-up, year 2, year 4 (in person / hybrid)
 - Regular online updates & early result sharing (when cleared from IPR perspective)
 - Organize specific interactions, meetings, actions as relevant
 - Address specific topics
 - WP-specific interactions, advice, joint meetings
- Commitment from Stakeholder Board members
 - Time to participate in meetings & provide your perspective
 - Voluntary: sharing of data, advice, network opportunities, etc.

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The EU Green Deal & Farm to Fork Strategy



Farm to Fork Strategy: overall goals



A sustainable food system ensures **environmental, social and economic sustainability**
→ alternative proteins play an important role!



GIANT LEAPS approach & ambition

■ The issue:

- Accelerating the transition from animal-based to alternative dietary proteins is key to making our food system sustainable and for improving health and well-being.
- The protein transition is a complex problem, to be addressed on all levels: availability, sustainability (environmental, economic and social), safety, health, technical feasibility and consumers acceptance.



Knowledge gaps to address:

- **Data** is scattered and incomplete across protein sources and the relevant knowledge domains.
- **New methodologies** are needed to address crucial issues (e.g. allergenicity)
- **Innovations** are needed to overcome technological, sensory and other limitations

→ **Solution:** fill essential knowledge gaps to arrive at an integrated assessment of alternative protein sources to innovate and optimize the sustainability, safety and healthiness of future diets

→ **Ambition:** achieve 50% of total protein intake from plant and alternative sources in EU diets by 2030 by informing and providing solutions to policymakers, businesses and the public

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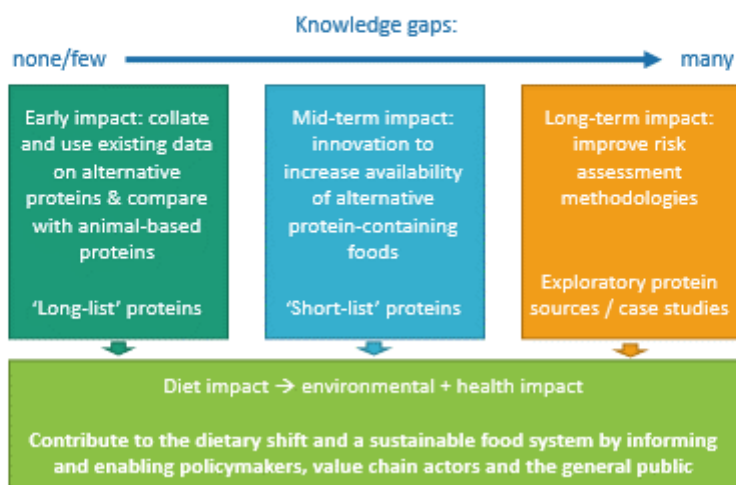
GIANT LEAPS concept: integrated approach towards future diets



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Maximise environmental and health impact: Focus on short to long-term diet impact



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Innovation focus on 9 protein sources ("short list")



Focus on filling knowledge gaps and innovation across experimental WPs (WP2-5), including processing technology and food design innovations
For cultured meat (beef) the focus is limited to filling knowledge gaps

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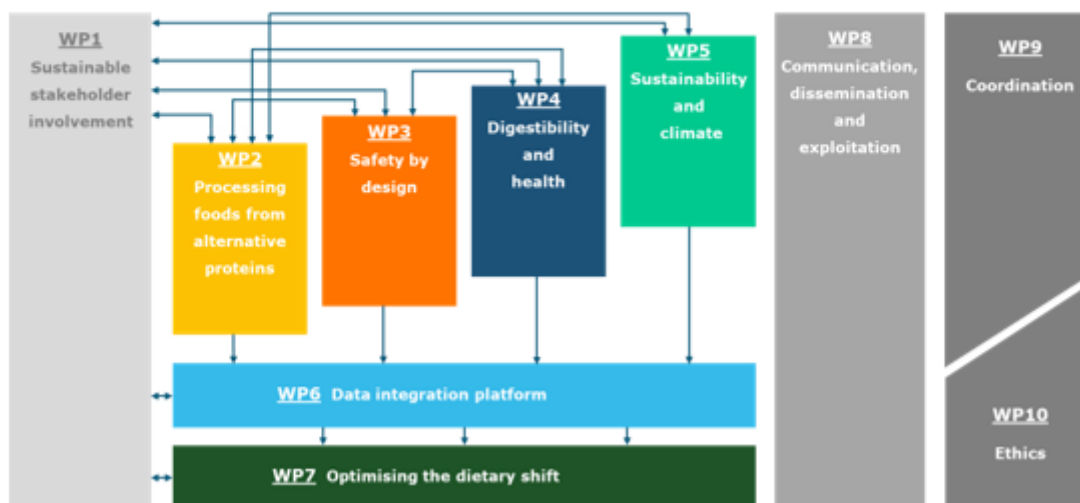
Protein source focus: current overview

	Plant	Microbe & fungal	Ocean-based	Insect	Cultured meat	Traditional animal
Exploratory sources (TBD)	e.g. hemp, leaf proteins		e.g. algal fractions			
Short list (experimental work, data generation)	faba, lentil, oat, quinoa, rapeseed	single-cell proteins	microalgae	crickets	cultured beef	
Long list (data collection & use in modelling)	soy, wheat, pea, chickpea, potato, brewer's spent grain		Spirulina sp., fish side streams, krill			beef, pork, chicken, milk, other dairy <i>For comparison purposes</i>

Note: protein source selection for various project activities may be subject to change

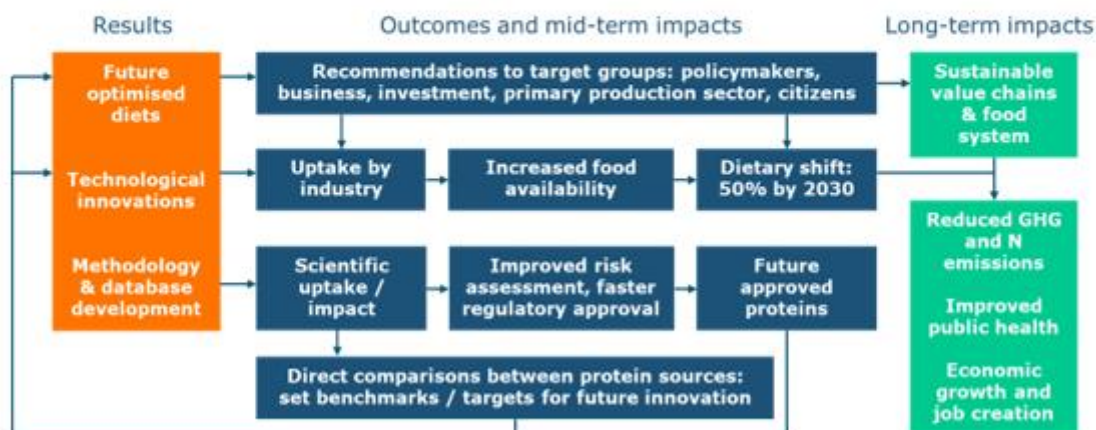
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Work package structure and interactions





Pathways to impact



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Thank you for your attention!

- Short or burning questions?
- We look forward to connect & find synergies!

Stakeholder Board organization:
Gerard Klein Essink – Bridge2Food
gkleinessink@bridge2food.com

Project coordination team:
giantleaps@wur.nl





Stakeholder Board

Gerard Klein Essink – Bridge2Food

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Stakeholder Board as part of WP1



- Task 1.1 GIANT LEAPS stakeholder and scientific network
Duration: M1-48 (B2F, WR, IRTA, MATIS, UCC, EFF, FSN, Mosa)
- Task 1.2 Co-creation workshops with stakeholders
Duration: M1-48 (B2F, EFF, FSN)
- Task 1.3 Strategy for sustainable GIANT LEAPS platform development
Duration: M12-36 (B2F, EFF, FSN)

GIANT LEAPS H2M

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Stakeholder Board Goal

- GRANT AGREEMENT

The SB will be part of the activities in WP1 and WP8 and has both a *consultative role on the project content and approach, and a role to maximise the dissemination and exploitation of the project results.*

- The ultimate goal of this WP is engagement, better outcomes, cross-fertilization to create a better food world
- This task is successful when we have concrete numbers of:
 - > WP Leaders/teams: # valuable connections & ideas
 - > WP Leaders/teams: created 'unity' in the project
 - > Reached # of professionals

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Stakeholder Board

- Additional stakeholders will be identified and approached to join the SB to extend it to a least 50 stakeholders halfway through the project.

Protein category Theme Leaders (WR, IRTA, MATIS, UCC, Mosa) will connect with running LC-SFS-17-2019 projects and align all WP activities on the respective protein categories. Connection to other projects including HORIZON-CL6- 2021-FARM2FORK-01-02.

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Stakeholder Board – Q1

- 29 Sept. 1st Meeting!
- Oct + Nov > Define expert gaps + invite others
- Option: 5 Dec. Paris (prior to Fi Europe) Live Workshop Meeting
Stakeholder Board + WP Leaders

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WP break-outs: collated slides

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WP 1 – Sustainable stakeholder involvement

Lead Participant: ETHZ: Michael Siegrist, Fabienne Michel, Bruno Etter

Partner: B2F: Gerard Klein Essink

GIANT LEAPS Stakeholder Board meeting, 29 September



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WP objectives & tasks

O1.3 Identify consumer acceptance of alternative proteins, and potential barriers for acceptance

O1.4 Identify policies acceptable to consumers to achieve a shift in replacing animal protein foods

T1.4 Survey to identify promising alternative proteins and foods to consumers

T1.4 Survey to investigate consumer trade-offs for alternative protein foods

T1.6 Survey to identify acceptable policies to consumers



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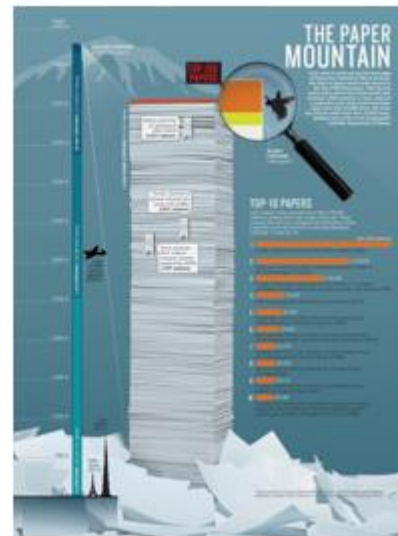


What do we aim to achieve?

The ultimate goal of this WP is **to successfully publish our findings in peer-reviewed journals and become highly cited**

This WP is successful when...

- Input for the projects of other partners is provided
- Consumer's views on protein alternatives are better understood
- Environmentally-friendly lifestyles are promoted



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How can Stakeholder Board participants contribute to this WP?

- Most promising alternative protein sources from industry point of view
- Technological trends and improvements for protein processing
- Samples of new products (cultured meat)



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Main outcomes WP1 co-creation sessions

Suggestions to strengthen GIANT LEAPS	Questions, unclarities or potential issues identified
It would be interesting to know whether hybrid products (alternative protein + animal protein) could increase consumers' acceptance of alternative proteins.	Which countries to focus on (Italy might be more favourable than Spain because Italy represents the Mediterranean culture better than Spain)
Investigate what consumers' acceptance of policy measures is to increase alternative protein consumption and how consumers might react to these policy measures.	Unwanted side effects such as food waste (alternative foods offered but not consumed) or "low-quality" meat cuts that are replaced by alternative proteins should be taken into consideration.
It is important to make the links to dietary recommendations and keep those in mind when thinking about policies but also acceptance of alternative proteins.	

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WP 2 – Processing foods from alternative protein sources

Nesli Sözer (WP2 leader)

GIANT LEAPS Stakeholder Board meeting, 29 September



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WP 2 objectives & tasks

Grant aim:

Investigating processing technologies for developing sustainable, healthy and delicious foods from alternative proteins, as alternatives for egg, meat and milk protein-based foods

Tasks:

- 2.1. Ingredient characterization
- 2.2. Ingredient functionalization
- 2.3. Design of innovative food structures

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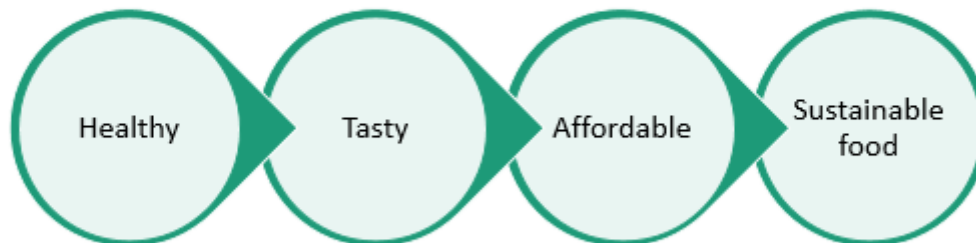
Protein sources we focus in WP2 “the short list”



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What do we aim to achieve?



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How can Stakeholder Board participants contribute to this WP?

- **Ingredient producer:**
 - Are you producer of WP 2 proteins (faba, lentil, oat, quinoa, rapeseed, microalgae, SCP, cricket)? If yes, would you like to share ingredient specs, manufacturing information, functional properties?
- **Food producer:**
 - Which alternative proteins are you using in your products and in which product form? Do you have foods where WP2 protein(s) are the main ingredient (which WP2 protein?)
 - What are your major challenges with alternative proteins? Have you succeeded in solving them? Which kind of strategies you have used so far? Would you like to share your knowledge, experience or non-confidential data with us?

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Main outcomes WP2 co-creation sessions

Suggestions to strengthen GIANT LEAPS	Questions, unclarities or potential issues identified
Variation in the ingredient properties from one producer to another.	How to address the ingredient variability?
The interaction between ingredient characteristics and the food applications should be considered so that the knowledge can be extrapolated to different providers.	It is not only about functionality but also supply chain, quantity and price are important to consider.
Functionalization innovations should be scalable and affordable.	Why is pea protein not included in WP2?
	Could combination of WP2 proteins with other proteins such as pea and soy be considered?
	How to balance the nutrition, sustainability, sensory etc.?

WP2 stakeholder ingredient interests: Soy, oats (coming from oat grain not oat protein per se), pea, wheat, insects, rapeseed, potato, hemp, faba beans, chickpea, almond protein

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WP 3 Alternative Protein Sources - Safety by Design

Professor Clare Mills (Universities of Manchester and Surrey)

GIANT LEAPS Stakeholder Meeting



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Food safety – an integral part of the UN “one health agenda”

Having an effective tool box for risk assessment of the alternative proteins will make an important contribution to their effective delivery into the market place whilst ensuring consumer trust in the new foods.



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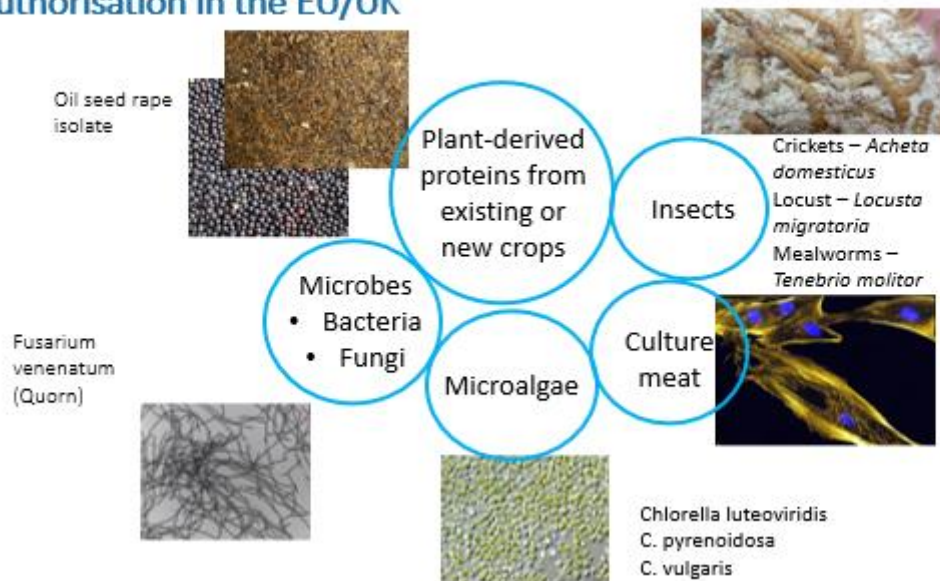
Alternative protein sources – where do they fit in EU regulatory frameworks?

- Traditional foods from 3rd countries
 - For foods with a 25-year history of use
 - Must be in the customary diet of a significant number of people in at least one third country
- EU and UK Novel Food Regulation (EU2015/2283)
 - Food and food ingredients with a new or intentionally modified primary molecular structure
 - Foods and food ingredients consisting of or isolated from
 - Micro-organisms, fungi or microalgae
 - Plants or Animals Foods except foods/food ingredients obtained by traditional propagation or breeding practices and having a history of safe use

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Most alternative proteins will require a novel food marketing authorisation in the EU/UK



Q: How can we help support effective safety assessments for alternative proteins?

A: Safety by Design!

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Stakeholder input to deliver impact

- Specific inputs

- Collaborations being developed with Ga²lenANACARE to link to WP3 allergic reactions observatory and allergic consumer survey on labelling preferences.
- Build strategic links to aligned projects on allergenicity risk assessment from EFSA (led by EuroFIR) and ITN (led by Kitty Verhoeckx, Utrecht and involving Medical University of Sophia)



- Wider collaborations

- Potential for stakeholders to input into review of the different risk assessment case studies developed through WP3.
- Potential for input into harmonised digestion protocols and gut epithelial cell models.

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How can we help support effective safety assessments for alternative proteins?

Overall objective:

To develop a toolbox to enable “safety by design” across a range of hazards for alternative proteins (including nutritional imbalance) which will also support applications for regulatory approvals

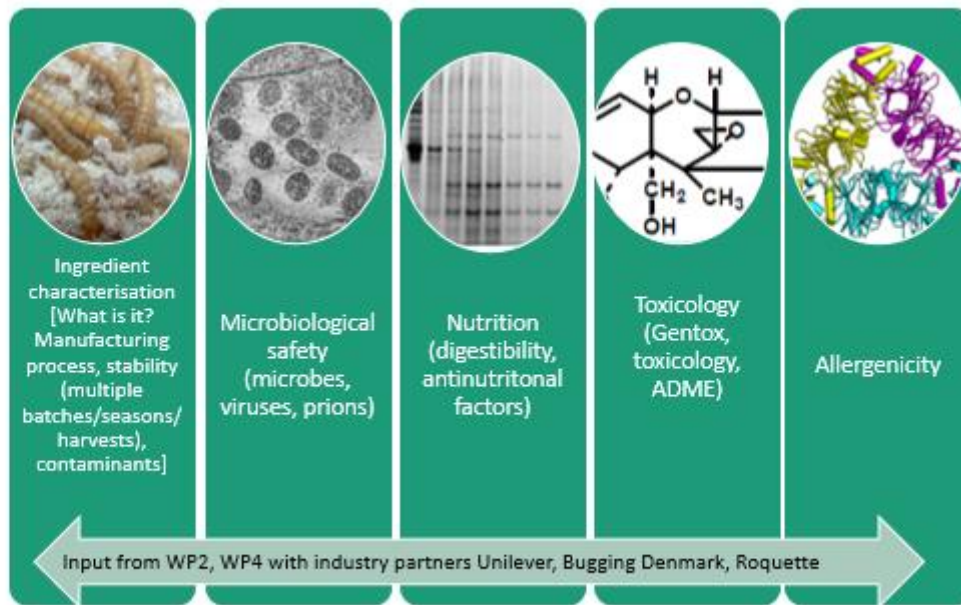
Specific sub-objectives

1. Provide a gap analysis and application of *in silico* and novel *in vitro* methods for identifying compounds of toxicological concern
2. Address critical issues of allergenicity risk assessment relating to risks posed to those with existing allergies as a consequence of cross-reactivity and the whole population regarding *de novo* sensitisation
3. Develop more effective approaches to post-market surveillance to understand how the paradigm shift in dietary protein may impact on adverse reactions and (particularly) food allergies

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Risk assessment of different alternative proteins (Task 3.1, UoM/UoS lead)



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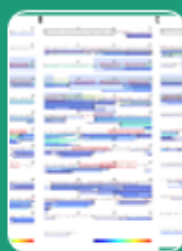
Case studies to be developed for five exemplar ingredients

- Five ingredient types will be chosen for the focus of WP3 activities
- Comparators of different allergenicities identified
 - High e.g. cow's milk, peanut
 - Moderate e.g. soybean
 - Low e.g. rice/maize

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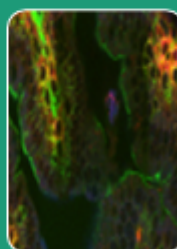


How can we help support effective safety assessments for alternative proteins?



Task 3.2 *In vitro* digestion to support safety assessment (UNINA)

- NMR and untargeted mass spectrometry (MS) analysis to identify bio-accessible novel compounds using *in vitro* digesta linked to QSAR type approaches applied to identify novel compounds of concern;
- Proteins/peptides in digests analysed to identify persistent fragments and consensus protocols for digestion/analysis.



Task 3.3: Novel toxicological assay for identification of potential hazards (WR)

- Impact on immune cell lines and human stem cell derived intestinal epithelial cells (IECs).
- Effects on cell differentiation and on modulation of immune related pathways will be evaluated using whole genome gene expression analysis and cytokine profiling.

How can we help support effective safety assessments for alternative proteins?



Task 3.4: Allergenicity risk assessment toolbox (INRAe)

- *in silico* tools to identify risks relating to cross-reactive allergies will be assessed and a novel 3D modelling approach to define specific HLA binding motifs implemented to improve predictive capacity of *in silico* tools;
- *In vitro* cell -lines and *ex-vivo* samples will be assessed regarding *de novo* sensitization risks, developing methods and readouts using the hyper- and hypo-allergens compared with the alternative protein ingredients



Task 3.5: Post-market risk communication and surveillance of new protein sources (DAAB)

- A survey of labelling preferences for novel proteins with allergic consumer groups;
- A pilot allergic reactions reporting observatory will be developed by adapting the iFAAM on-line-reactions in the community tool.



Main outcomes WP3 co-creation sessions

Input received from a diverse group of stakeholders from FAO, industry and research & regulatory backgrounds

(1) Stakeholder input into case studies

- All stakeholders felt they could make a contribution to the risk assessment case studies which could take the form of:
 - Input into the choice of scenarios. Comments already contributed include:
 - Ensuring the use of protein is taken into account at the start (processing aids, food functional ingredients versus fractions such as isolates)
 - Adapting molecular based approaches for allergenicity risk assessment to whole food ingredients using e.g. phylogeny rather than single protein comparisons developed for transgenics (WP3 Task 3.4)
 - Risk assessment of materials used in e.g. cell culture
 - Review of draft scenarios
 - Interactions with Cargill could also roadmap from EU Novel foods to GRAS and vice versa
- ACTIONS:** Plan further meeting in ~ 6 months to discuss draft scenarios

(2) Skilling food innovators to navigate the risk assessment process

- Teach-ins based on scenarios with SMEs through the ILVO Food Pilot
- Supporting FAO activities in the novel proteins space

(3) Food allergen management

- Test methods for new ingredients that need to have a PAL (issues of specificity for e.g. insects vs shellfish)

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WP 4 Digestibility and Health

André Brodkorb & Chiara Nitride

GIANT LEAPS Stakeholder Board meeting, 29 September



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WP objectives & tasks

4.1 Establish a **nutritional passport** for **alternative protein** ingredients and derived foods, and monitor their fate during **in vitro gastro-intestinal transit** and absorption of nutrients

Process-induced changes, AA profiles, Brush border membranes, anti-nutritional factors

4.2 Develop novel and improved **in vitro** methods for determination of **protein quality and bioavailability**

Method development and standardisation, in vitro gut barriers

4.3 Determine digestibility of proteins by an **in vivo** human intervention trial

Ileal digesta, protein/amino acid digestibility, metabolic utilization of dietary protein, kinetics

4.4 Assess the down-stream **health** effects of alternative proteins, their ingredients and formulated foods

Satiety 'fuller for longer', muscle 'growth & development

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What do we aim to achieve?

Ultimate goal of this WP is

- Knowledge:
 - Methods
 - Nutritional passport for alternative proteins (*in vitro* vs. *in vivo*) → Health
- Outreach



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How can Stakeholder Board participants contribute to this WP?

- Guidance on choice of proteins
- Health biomarkers
- Method recognition (WHO, EFSA)

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Main outcomes WP4 co-creation sessions

Input received from a diverse group of stakeholders from industry, research and regulatory backgrounds

Topics to strengthen GIANT LEAPS	Suggestions / solutions / specific issues
Get a broader picture on plant proteins	Not just (lower) digestibility than animal proteins, but also health effect; food structure "matrix effect", processing, emulsification etc. ; part of mixed & total diet
Include in vitro health markers – satiety and muscle health	Standardised or not? Aim to get recognised by organisations i.e. health claims
Benchmarking against what?	Benchmarking suggestions: dairy, soy, PROTEOS proteins (5 x plant proteins: sorghum, wheat bran cereals, black beans, pigeon peas, peanuts vs. collagen, whey proteins isolate, zein)
Undigested proteins – what happens?	= dietary fibre; possible health risk → metabolites; include task to quantify undigested portions
Protein concentrates/isolates/flours	To include fibres, Diet WP: minerals
Involve FAO, EFSA Stakeholders	

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WP 5 – Sustainability & Climate

Birgir Örn Smáráson

GIANT LEAPS Stakeholder Board meeting, 29 September



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WP objectives

- GIANT LEAPS sustainability framework that includes methods for alternative protein production on biodiversity and ecosystem services (using LCA/non-LCA methods), PEF category rules
- Estimate the overall sustainability of selected alternative proteins through environmental, economic and social LCA
- Assess the appropriateness of alternative proteins to serve as climate mitigation and/or adaptation solutions
- Circularity potential of alternative proteins
- Offer direction for improvements within the selected alternative protein production systems to promote sustainability, circularity, resilience and climate neutrality

GIANT LEAPS STAKEHOLDER BOARD MEETING

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WP tasks

- 5.1. Alternative production system mapping
- 5.2. Inventory data collection protocol and data gathering
- 5.3. Sustainability assessment through environmental, social and economic LCA
- 5.4. Assessment of climate vulnerabilities, mitigation potentials and adaptation strategies
- 5.5. Assessment of (potential) impacts on biodiversity and ecosystem services
- 5.6. Assessment of circularity potential through by-product valorisation



GIANT LEAPS STAKEHOLDER BOARD MEETING

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What do we aim to achieve?

- The ultimate goal of this WP is to map the value chains of the shortlisted alternative proteins, **assessing their sustainability impacts** and creating PEFs (product environmental footprint), so that they could be compared to each other and other protein sources when **making decisions on what role they can play in transition to sustainable food systems**
- Integrated sustainability framework
- Product environmental footprint (PEF) category rules – NEW!
- Full sustainability profiles of alternative proteins
- Life Cycle Inventory database with sustainability data – filling the knowledge gap!



GIANT LEAPS STAKEHOLDER BOARD MEETING

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How can Stakeholder Board participants contribute to this WP?

- Alternative protein production system mapping, protocols and data collection – input/recommendations from research institutions, e.g., JRC
- Life cycle assessment – input from producers and LCA practitioners?
- Assessment of climate vulnerabilities, mitigation potentials, adaptation strategies, biodiversity and ES impacts – research institutions, NGOs and FAO?
 - Potential to connect to the most affected stakeholders along the value chain?
- Circularity potential – inputs/recommendations from producers and policy makers on assessing/improving circularity and method selection?



GIANT LEAPS STAKEHOLDER BOARD MEETING

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Main outcomes WP5 co-creation sessions

Input received from a diverse group of stakeholders from JRC, FAO, World Economic Forum and industry

Topics to strengthen GIANT LEAPS	Suggestions / solutions / specific issues
Making sustainability results comparable	Big obstacle for policy makers (and researchers) – how can GL contribute towards this problem?
JRC – PEF & LCA methods and indicators	
FAO – climate mitigation/adaptation, biodiversity & ecosystem services	
Indication of additional members for the Stakeholder group to further advise on sustainability matters	Blonk Consultants firm has developed the Agri-footprint database and others that could be useful for sustainability assessment in WP5
Include the concept of Basket of Product (BoP) on food	How can it be used with the sustainability framework of GL?
Good input from industry partners – their views and interests	Getting the information about which alternative proteins within Giant Leaps project perform best in CO2 emission reductions



Main outcomes WP5 co-creation sessions

Topics to strengthen GIANT LEAPS	Suggestions / solutions / specific issues
Data integration with current databases	How the PEF and LCA results will be incorporated in current product PEF database, how the different types of data could be integrated
Method selection – the issue of allocation	JRC suggested that allocation should be based on nutritional value, maybe in addition to mass (which is the most common)?

GIANT LEAPS STAKEHOLDER BOARD MEETING

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WP 6 - Data Integration Platform

Sergiy Smetana (DIL)

GIANT LEAPS Stakeholder meeting 29 September 2022

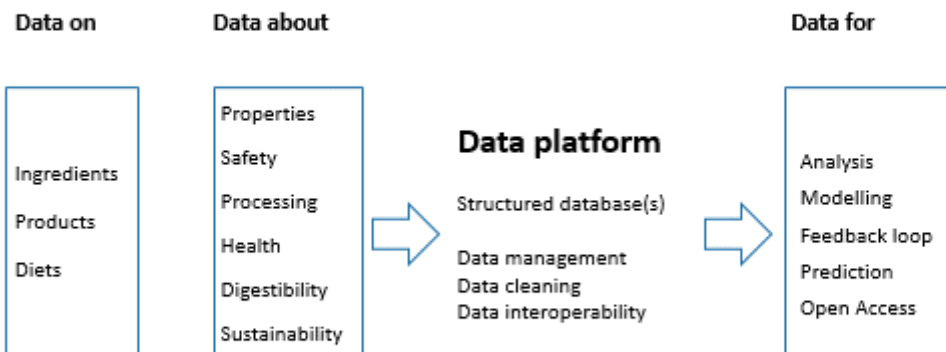
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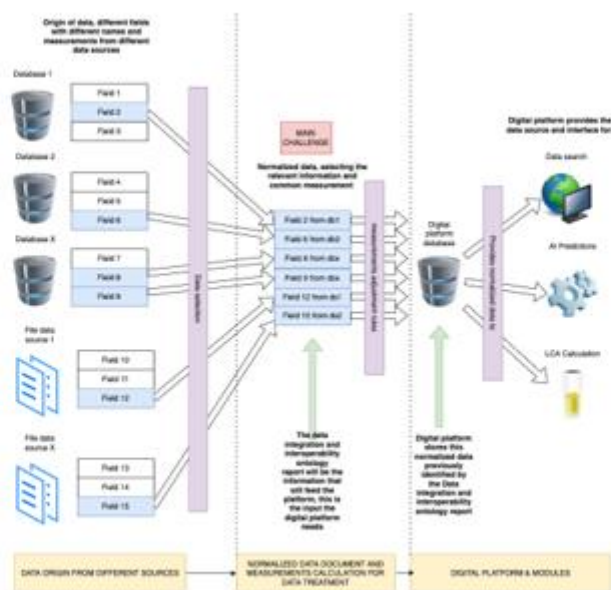
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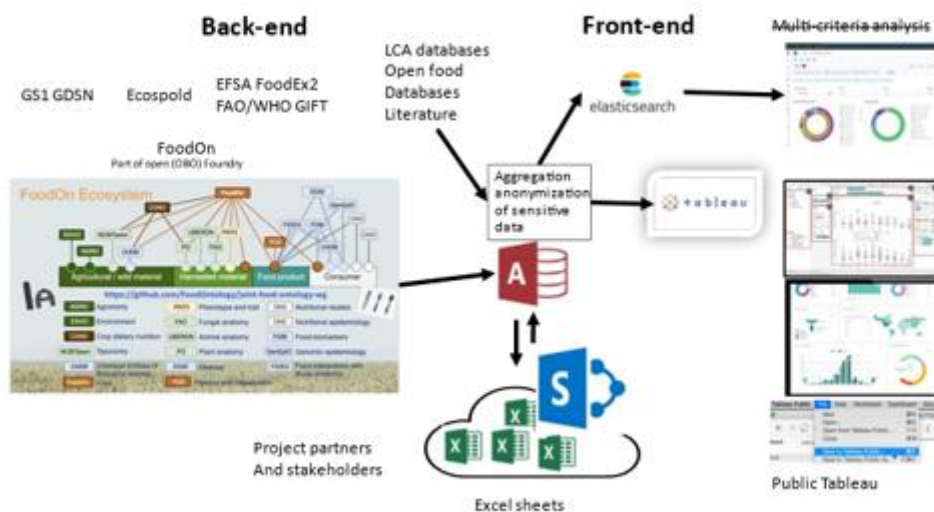
WP setup



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WP partners

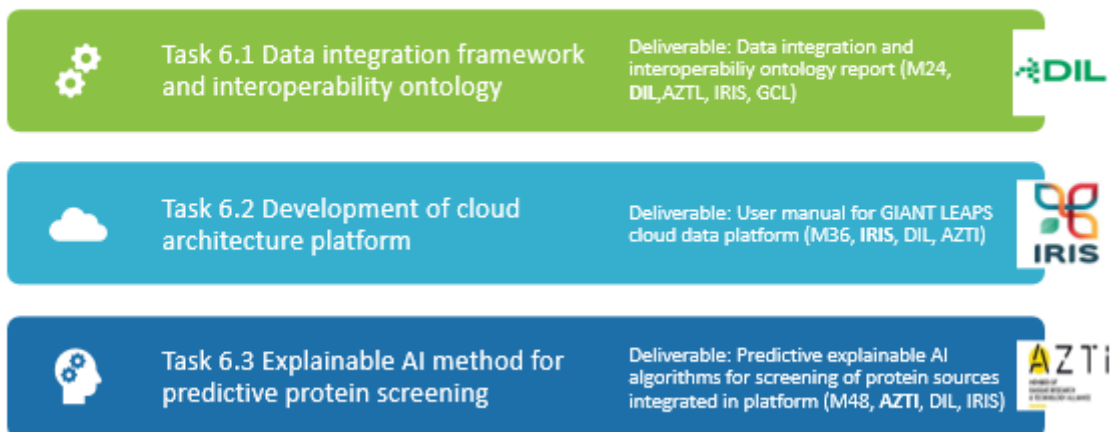
- DIL- Deutsches Institut für Lebensmitteltechnik e.V.
- AZTI- Fundacion AZTI - AZTI Fundazioa
- IRIS- IRIS Technology Solutions, Sociedad Limitada
- GCL- GreenCoLab from Centro De Ciencias Do Mar Do Algarve Univ



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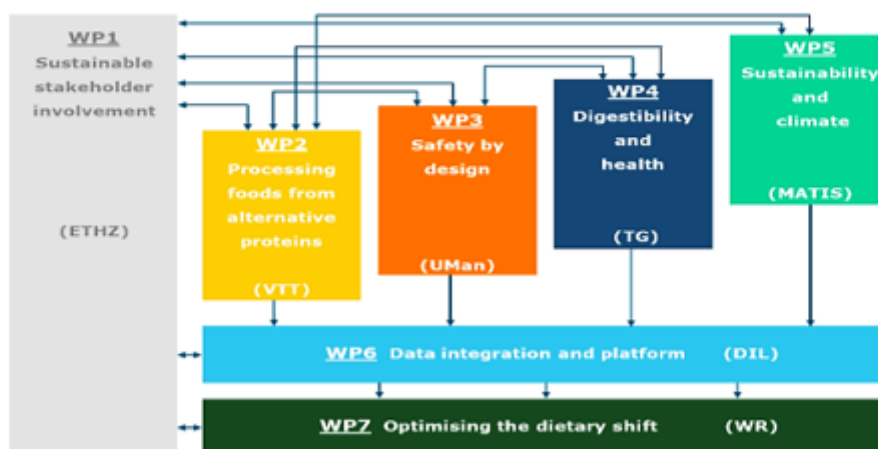


WP6 tasks and deliverables



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WP interactions & dependencies (M1-12)



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What do we aim to achieve?



The ultimate goal of this WP is to set up Data Integration Interoperability platform



This WP is successful when we can predict protein properties and their potential for sustainable integration in diets

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Main outcomes WP6 co-creation sessions

Input received from various food industry partners

Suggestions to strengthen GIANT LEAPS	Questions, unclarities or potential issues identified
Data structure <- consumer attitude/acceptance	Maintenance and interoperability in future – subscriptions?
Develop open and closed versions of the platform	Allow visualisation and use by public on open version of the platform
Design screening approach	Data sharing and IP from industrial stakeholders is a challenge
Usability of industrial data from open sources like dossiers for GRAS and EFSA (OpenTox)	
Huge potential for the applicability is defined	

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WP 7 - Optimising the dietary shift

Esther van Asselt

GIANT LEAPS Stakeholder Board meeting, 29 September



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WP7 Objectives

- O7.1 Assess the **impacts** of the foreseen **dietary shifts** using alternative protein derived foods on **human health** and the **environment**, and compare these with current, traditional diets
- O7.2 Arrive at optimal dietary shifts, accepted by consumers and complying to health and environmental requirements



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Traditional proteins:

- Animal-based proteins (chicken, egg, milk etc)

Alternative proteins:

- Plant-based (soy, cereals, legumes, potatoes etc)
- Ocean-based (microalgae, fish side streams)
- Microbe/fungal proteins (Single cell proteins)
- Insects
- Cultured meat



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What do we aim to achieve?

- The ultimate goal of this WP is to estimate all pros and cons of the foreseen dietary shift
- This WP is successful when:
 - We are able to develop a tool that can assess the effects of a diet shift on various criteria, such as sustainability, safety and nutritional values
 - We can cooperate nicely with all partners and stakeholders in the project making use of all available knowledge and expertise

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How can Stakeholder Board participants contribute to this WP?

- Which alternative proteins would be most promising to include in future diets?
- What do you think is relevant in future diets? What should we take into account?
- Which organizations could we contact to get more input?
- Do you have data on nutritional aspects, sustainability, safety of alternative proteins?
- Would you like to be involved in Multi-criteria decision analysis (MCDA)?

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Countries selection to represent N, S, W and E Europe

Region	Country
North	Finland
South	Spain
West	Germany
East	Poland

Criteria for selection

- Size: Larger countries for representativeness
- Availability of food consumption data from EFSA database
- Language

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Main outcomes WP7 co-creation sessions

Suggestions to strengthen GIANT LEAPS	Questions, unclarities or potential issues identified
Optimal diet: include several alternative protein sources/products to satisfy everyday dietary planning	What is the meaning of 'diets' ?
Nutritional assessment: include all macro and micro-nutrients	What is intended as 'future': 5, 10, 20 years?
Sustainability assessment: include other indicators than just CO2 (e.g. water usage for growing/producing new products)	
Optimal diet: Incorporating cost (production and consumption), sensory (consumers acceptance) and functional aspects	
Consider also supply chain availability for the EU regions	
Include market interaction organizations	

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WP 8 - Communication, Dissemination and Exploitation

Edward Sliwinski, PhD

GIANT LEAPS Stakeholder Board meeting, 29 September



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WP objectives & tasks

- O8.1. Enable effective communication and dissemination of GIANT LEAPS results
- O8.2. Maximize the exploitation of GIANT LEAPS products and innovations
- O8.3. Develop recommendations for policymakers
- O8.4. Educate and train professionals and EU citizens

GIANT LEAPS NOM

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What do we aim to achieve?

- The ultimate goal of this WP is to disseminate and exploit Giant Leaps project results as well as communicating about the research with various audiences
- This WP is successful when at the end of the project the outreach and impact is achieved that was indicated in the grant agreement

GIANT LEAPS NOM

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How can Stakeholder Board participants contribute to this WP?

- Help to grow the eco-system on alternative proteins,
- Spread news about (progress of) Giant Leaps in your network
 - Share newsletters and other updates
 - Participate in social media
- Support with composing policy briefs
 - Propose topics for policy briefs
 - Support writing policy briefs
- Give input on education materials
 - Provide input for e-learning materials
 - Check drafts of e-learning materials

GIANT LEAPS NDM

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Discussion & co-creation session

- Do you have any questions?
- Do you have any comments?
- Do you have any suggestions?
- Are there areas where you would like to have a certain involvement?
- Are there areas where you could offer support in any way?
- Are you interested to help with outreach?

GIANT LEAPS NDM

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Main outcomes WP8 co-creation sessions

Suggestions to strengthen GIANT LEAPS
EAPF: can provide intelligence on the regulatory and policy environment
EAPF: advocacy towards a level playing field
EAPF: we group many advocacy groups with EU and national reach. We also have many company members
EAPF representative has experience is on EU regulations and policies
Expert*: eager to apply the outcomes to support the development of scientific data needed for scientific assessment of the nutritional quality, safety and allergenicity of alternative protein sources by regulatory authorities and policy makers
Expert*: Clarify regulatory pathways and potential barriers for authorisation of novel protein sources for humans
Expert*: EU regulatory authorisation: pathways and barriers under novel foods regulation
Expert*: how are regulatory aspects addressed in the project? (link with WP3?)

*Expert has history with EFSA

GIANT LEAPS NDM

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Main outcomes WP8 co-creation sessions

Suggestions to strengthen GIANT LEAPS
WEF: strong involvement in relevant eco systems
WEF: will focus on important transitions like regenerative farming, dietary shift/protein transition
WEF: we can learn a lot from traditional vegetarian diets from Asia

Education programs (link with WP3)

Hans Verhagen has a strong link with EFSA (WP4)

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Annex II

Minutes of the 1st Co-creation meeting held on 29th September 2022



Meeting notes of the 1st GIANT LEAPS Stakeholder Board meeting

Meeting date: 29 September 2022

Location: online MS Teams meeting

Project number: 101059632

Project name: Gap resolution in sAfeTy, NuTritional, allErgenicity and Environmental assessments to promote Alternative Protein utilization and the dietary Shift

Project acronym: GIANT LEAPS

Topic: HORIZON-CL6-2021-FARM2FORK-01-12

Stakeholder Board parties represented: Air Liquide; Avebe; Cargill; Cer Groupe; European Federation of the Associations of Dietitians (EFAD); FAO Office of Climate Change, Biodiversity and Environment; Fazer; Firmenich; Flanders Research Institute for Agriculture, Fisheries and Food (ILVO); former EFSA panel members; Fuji Oils; Hochland; Institute of Food Research and Product Development, Kasetsart University; International Platform of Insects for Food and Feed; Joint Research Centre JRC-ISPRA; Oatly; Soredab; Nestlé; SPX Flow; Valio; Westland; World Economic Forum.

GIANT LEAPS participants: André Brodkorb, Teagasc; Andrea Selejova, Wageningen Research; Birgir Örn Smáráson, Matís; Charlotte Neher, Bridge2Food; Chiara Nitride, University of Naples; Clare Mills, University of Manchester; Edward Sliwinski, EFFoST; Emanuele Zannini, University College Cork; Esther van Asselt, Wageningen Research; Gerard Klein Essink, Bridge2Food; Harry Wichers, Wageningen Research; Laura Malinauskaite, Matís; Matilde Milana, Wageningen Research; Michael Siegrist, ETH Zürich; Nesli Sözer, VTT; Sergiy Smetana, DIL; Pasquale Ferranti, University of Naples; Paul Vos, Wageningen Research.

Agenda:

- Opening and introduction of project
- Stakeholder Board
- WP-specific Round Table discussions (2 rounds)
- Summary of Round Tables by WP leaders
- Wrap up & Outlook

Meeting notes:

1. Opening & introduction



This Stakeholder Board meeting and future meetings are held under Chatham House rule (<https://www.chathamhouse.org/about-us/chatham-house-rule>) to enable open discussions. In relation to this, Stakeholder Board (SB) organizations rather than specific representatives are mentioned in the meeting attendance list of these meeting notes and no specific individuals or organizations are quoted, unless the subject matter relates to specific contributions SB organisations can make to the project. Furthermore, anti-trust regulations of the EU apply to the SB meetings.

The project setup was presented, including work package (WP) interrelationships and interactions. All slides shared in the meeting will be shared along with these meeting notes, including the information on project setup.

2. Stakeholder Board setup & information

- The aim of the SB is to co-create and help maximising the project dissemination and/or exploitation to reach maximum impact.
- The SB is open for new parties to join (upon approval of the project's Executive Committee).
- The SB has an advisory role. SB members are not a member of the GIANT LEAPS project consortium and there is no contractual arrangement or registration fee in place.
- GIANT LEAPS aims to include full coverage of food system actors across the value chain within the SB.
- There will be 3 major meetings during the 4-year project, with regular online updates in between and specific interactions, workshops and meetings to be planned as considered relevant by the project and (a subset of) SB parties.
- The commitment of parties to be an SB member is to be willing to spend time in SB meetings and providing their perspective as it relates to project topics and activities. SB members are also invited to share relevant data, advice, network opportunities, joint meetings etc. on a voluntary basis.
- SB members are invited to share the names of other organizations they consider valuable and complementary to the current SB composition via email with the Coordination Team (giantleaps@wur.nl)
- **Post-meeting note:** a Microsoft Teams environment will be set up shortly to share information (including meeting notes, recorded SB sessions, etc.) and to facilitate interaction between the SB and the project.

3. Round Table discussions and summaries

- In two rounds of 45 minutes each Round Table discussions were organised in break-out sessions for WPs 1-8 with participation of interested SB members and the WP leaders. To encourage open discussions, these sessions were not recorded.
- At the end of the two rounds, WP leaders summarized the discussions in a plenary session. The recording of these summaries and the wrap-up of the meeting will be shared shortly with all SB members (through a dedicated Microsoft Teams environment). The written summaries per WP are included in the slides that are shared with these notes, therefore the content is not duplicated in these notes.

4. Wrap-up & follow-up

- The collated slides will be shared with SB members and can be shared within SB member organizations.
- An option to organize an in-person meeting on 5 December was discussed, connected to the Food Ingredients meeting in Paris. **Post-meeting note:** due to limited availability and overall feasibility, the **5 December meeting option is cancelled**. Instead, multiple online follow-up meetings around specific topics of interest will be organized in 2023 to continue or follow up on topics that were addressed in the 1st online SB meeting. These meetings may be planned with a smaller group of SB members to have a focused discussions, but will still be shared with and open to all SB members to join. Furthermore, an in-person SB meeting may be planned later in 2023 if a suitable occasion can be identified. If so, it will be announced well in advance to all SB members.