

food|paths

SUMMARY REPORT

'IMPLEMENTATION OF SYSTEMS APPROACH IN TRANSNATIONAL CALLS - COMPREHENSIVE ANALYSIS AND LESSONS LEARNED'.

FOODPATHS WP3

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1. Summary

This report summarises an analysis of 21 calls, which includes calls from ERA-nets, HEU Partnerships, regional calls, HEU Framework Programme and Foundations. The analysis focused on how a food systems approach (FSA) can be implemented into future call mechanisms. Based on present analysis, it can be recommended to take the following into account when preparing calls within the HEU FutureFoodS Partnership:

1. Provide a definition of systems approach or a clear explanation of what is meant;
2. Be mindful and consistent with terminology, e.g. when using typical elements of a systems approach such as multi-/inter-/transdisciplinarity;
3. Cross-disciplinarity, stakeholder engagement, and multi-actor approach are highly demanded and also of great relevance for a systems approach call; think about where and how to ask for these aspects and consider the differences between the concepts;
4. When applying a systems approach it is important to consider both synergies and trade-offs;
5. Think about how impact shall be achieved by the projects, how the food systems approach contributes to impact and provides guidance and support towards applicants;
6. What additions to the proposals are sensible and what shall they contain (e.g. impact plan, Dissemination Exploitation and Communication plan, stakeholder engagement plan, implementation/valorisation plan etc.); adapt to the systems approach and consider also follow-up and adjustments over time (revisiting the plan);
7. Networking activities facilitated at programme level can be valuable to align and/or collaborate with other projects or programmes but they need to be backed up with dedicated resources (they might even be a necessity for co-design and co-creation);
8. Be open to new funding instruments beyond classical projects (e.g. knowledge hubs) to create mechanisms for fostering connectivity, co-creation and inclusiveness.

2. Introduction and aim of analysis

The FOODPathS WP3 follows the overall aim of “Building a Food System co-funding network and aligning funding strategies”. This implies thinking and working towards a transformation from established funding schemes and designs towards more co-creation based funding approaches respecting the needs of public authorities and researchers as well as providing the necessary room needed for stakeholder engagement and participation following the idea of a systems approach. The main target group of this WP are thus funders, both public and private, on regional and national scale and from different sectors of the food system.

The present 'Summary Report' is related to Task 3.3 “Aligning transnational call procedures and funding strategies in a systems approach” with FZJ as WP leader and AU-ICROFS as task leader with contribution from Cariplo, IRWIR PAN, Philea, FZJ, SeAMK, and ZonMw. These organisations constitute the working group of present analysis. The report is a first step aiming to document a larger research and analysis activity on integration of the food systems approach in the HEU Partnership call mechanism, with a particular view towards FutureFoodS. The final results of the analysis will be described in the deliverable (M30). Seven partners from seven countries were involved in the analysis and they represent networks of:

- Eastern European network (BIOEAST),
- ERA-Nets (CORE Organic and SUSFOOD2),
- Joint Programming Initiative a Healthy Diet for a Healthy Life (HDHL),
- Philanthropic organisations (Cariplo foundation and Philea),
- Regional actors (ERIAFF network of regions).

3. Methodology

In order to develop recommendations on how to implement a food systems approach in future calls, this analysis was conducted looking at good examples and lessons learned from European Joint Programming with established transnational calls in ERA-NETs, JPIs and other types of funding mechanisms. Thereby, the knowledge and information produced over two decades of implementation of transnational Research and Innovation (R&I) calls supported the WP3 team in the selection of cases and the development of categories setting the basis for the systematic analysis performed.

The present analysis aligns with the definitions of food systems used in the Sustainable Food Systems Partnership for People, Planet and Climate's SRIA¹. In the SRIA, the food system is defined as:

"(...) a system that embraces all elements (environment, people, inputs, processes, infrastructure, institutions, and power relations, markets and trade) and activities that relate to production, processing, distribution and marketing, preparation and consumption of food. A systems approach acknowledges the interactions between natural resources/ecosystems services, primary food production (farming, aquaculture and fishery), food processing, packaging, logistics, marketing, retail, food services, food consumption and waste management/recycling and the many feedback loops between them, which together defines the degree of complexity" (Sustainable Food Systems Partnership for People, Planet and Climate's SRIA, p. 14).

The above definition formed the basis for the selection of cases and the development of categories for systematic analysis.

3.a. Selection of Cases

One might ask, why it is relevant to analyse implementation of a food systems approach in transnational agri-food research funding after two decades of dedicated European Research Area calls. There are many aspects that could be included in answering this question, but essentially, the reason is that European R&I funding and research projects are still largely based on single thematic areas, which are reflected in specialised structures of both public funding and research institutions. Mobilising research and innovation (R&I) using systems thinking across ministries, research councils, and scientific departments is challenging. This challenge was nonetheless recognised by a number of actors; hence 21 transnational calls were analysed in order to develop recommendations on how a systems approach can be implemented into future call

¹ https://scar-europe.org/images/FOOD/Main_actions/SFS_Partnership_SRIA_31012023.pdf

mechanisms. The primary sources for the analysis were call texts and call annexes. When available and relevant the programme website or work programme were also consulted.

During the selection of cases, the priority was set on calls with transnational character in order to enable direct links and relevance for the targeted transnational programme of the co-funded Partnership 'FutureFoodS' under Horizon Europe.

It was decided to analyse calls from different types of programmes in order to have a diversity to learn from and cover as many relevant perspectives and approaches in the analysis as possible. Hence, a diverse group of calls, including ERA-NETs, HEU partnership programs, regional programs, and foundation-backed programs, formed the basis of the case selection. This diversity also enables assessment of potential variations in approaches based on the type of call mechanism.

The majority of the selected calls focuses on food and farming systems. However, the selected calls also encompass call topics beyond food and farming systems, e.g. calls that focus on water issues (JPI Water 2018 and PS Sustainable Blue Economy) and urban studies (PS DUT 2023 and ERA-NET SINO-EUROPEAN CALL 2022) were also included. While these calls do not directly focus on food and farming, they still utilise interesting features that resemble a systems approach.

In Annex 1 you can find details about all selected calls.

3.b. Categories Used and Development

In order to conduct systematic analysis of calls, a single template was developed and used for all 21 calls. The systems approach related categories were developed with the aforementioned definition (see section 2) as a guideline. The template (see Annex 2) consisted of variety of categories and was used by the working group to ease comparisons across calls and ensure alignment across the group involved in the work.

The categories were developed through collaborative brainstorming sessions to identify characteristics relevant to a systems approach. During this process three overarching themes emerged: 1) elements relevant to a systems approach, 2) implementation, and 3) call-specific features. The overarching themes and sub-categories for each theme were refined through consultation with the working group.

The **first theme** on elements relevant to a systems approach contained sub-categories that are relevant to systems approach principles such as multi-actor approach, cross-disciplinarity, theory of change, synergies, and trade-offs. The sub-categories indicate whether a systems approach is being utilised as well as what systems approach elements are prioritised.

The **second theme** regarding implementation of a systems approach, addresses how the calls are encouraging applicants to implement systems approach in projects. This theme can be considered to cover different methodologies on how to implement a systems approach. Subcategories include stakeholder engagement, networking activities, and dissemination, exploitation, communication (DEC).

The **third theme** on call specific features includes sub-categories on evaluation criteria, needs to upload additional document related to systems approach, supportive actions for applicants and activities aligned with future HEU partnerships. Information about evaluation criteria is especially important to understand how, if at all, the systems approach elements are included as mandatory criteria.

The WP3 team all contributed to analysing calls and filling in templates for each call. Hereafter a smaller working group assessed and validated the information received. Finally, the information was compared and analysed by the smaller working group. The findings have been summarised in the present report.

This approach to the analysis provides a structured framework for analysing call mechanisms through the lens of a systems approach. By systematically analysing various calls, targeted recommendations can be formulated to steer the design of future funding activities in the HEU FutureFoodS partnership.

4. Selected calls

The present 21 calls were identified, discussed and selected jointly by the partners of WP3 FOODPathS project. The different calls primarily cover Horizon 2020 and Horizon Europe Framework Programme periods, widely ranging from ERA-NET Cofunds, Art.185 initiatives, regional, national and European Partnership funding schemes. The selected calls involve a diverse range of funders ranging from national and regional public funders, private sector actors, foundations and philanthropic organisations, and the European Commission as co-funder in some of the instances. It is relevant to look into the different funding and geographical scales of the calls where:

- a) Foundations often launch national calls committing less than 1M EUR of funding,
- b) ERA-NET Cofunds that follow a transnational funding model, which covers larger number of countries with an average call budget between 5-15M EUR,
- c) Collaborative calls across different ERA-NET Cofunds that were present in the last phase of H2020 eventually managing to attract more than 15 countries in a single transnational call, but not always providing significantly higher budgets comparing to a single ERA-NET call due to a programme transition towards HEU and no top-up funding from the EC,
- d) Horizon Europe Partnerships that have up-scaled the funding commitments up to 50M EUR per call and offered annual funding call to researchers,
- e) Co-programmed and institutionalised Partnerships following regional funding calls seem to have the largest EU support and funding capacity, with the CBE JU 213M EUR call budgets, INTERREG Aurora with a 205M EUR call budget, or the EU call support from Mediterranean PRIMA Initiative with 220M EUR.

As illustrated above the scales of call budgets range across different type of funders and programmes indicating larger budget commitments by the public funders collaborating with the EC, while the calls launched by foundations and philanthropic funders (Foody Zero Sprechi, Agropolis) adopt more daring call objectives, inter-disciplinary objectives and call terminology, focussing on ensuring support of "virtuous acts (*dinamiche virtuose*)" in the calls of Cariplo Foundation), in order to visualise the agriculture as concept beyond agronomic practice that is impacted by "globalization of narratives, practices and institutions (values, norms, rules) and affecting agriculture as a whole and at many levels on spatial, temporal and jurisdictional scales² as used by the Agropolis Foundation in their call.

² Cash, D. W., W. Adger, F. Berkes, P. Garden, L. Lebel, P. Olsson, L. Pritchard, and O. Young. 2006. Scale and

The list of analysed calls and their basic typologies:

No	Call abbreviation	Call full title	Type of call
1	ERA-NET Circularity Call 2021	2021 JOINT CALL ERA-NET Cofund SusAn, FACCE ERA-GAS, ICT-AGRI-FOOD and SusCrop	ERA-Net schemes (with or without co-funding)
2	ERA-NET CO 2021	CORE Organic Cofund Third Call 2021	ERA-Net schemes (with or without co-funding)
3	ERA-NET HDHL Knowledge Hub 2019	ERA-HDHL Call: Knowledge Hub on Food and Nutrition Security	ERA-Net schemes (with or without co-funding)
4	ERA-NET SF-CO 2019	SUSFOOD2-CORE Organic joint call 2019	ERA-Net schemes (with or without co-funding)
5	ERA-NET SF-FOSC 2021	SUSFOOD2-FOSC joint call 2021	ERA-Net schemes (with or without co-funding)
6	ERA-NET SINO-EUROPEAN CALL 2022	Europe-China Joint Call, Joint Programming Initiative (JPI) Urban Europ	ERA-Net schemes (with or without co-funding)
7	Food-Water-Energy Nexus 2017	Sustainable Urbanisation Global Initiative (SuGi) – Food-Water-Energy Nexus, Belmont Forum and the Joint Programming Initiative (JPI) Urban Europe	ERA-Net schemes (with or without co-funding)
8	HEU Citizens' science	Citizens' science as an opportunity to foster the transition to sustainable food systems	HEU Framework Programme
9	HEU Environmental impacts	Environmental impacts of food systems	HEU Framework Programme
10	HEU FOODITY 2023	FOODITY – Open Call #1	HEU Framework Programme
11	HEU TITAN 2023	TITAN Open Call	HEU Framework Programme
12	Interreg Aurora	(Interreg VI-A) Sweden-Finland-Norway (AURORA)	Regional focus
13	Interreg Baltic Sea	Interreg Baltic Sea Region	Regional focus
14	JPI Water 2018	Water JPI 2018 Joint Call	ERA-Net schemes (co-funded and free)
15	NATIONAL Agropolis 2020	Agropolis Fondation 2020 Call for Proposals	Foundations
16	NATIONAL Foody Zero Sprechi 2021	Foody Zero Sprechi 2021	Foundations
17	PS BioDivMon 2022	Biodiversa+ Partnership Call 2022	PS schemes, co-funded
18	PS CBE JU 2023	Circular Bio-based Europe Joint Undertaking Call	PS schemes, old formats (co-programmed)
19	PS DUT 2023	Driving Urban Transitions Call 2023	PS schemes, co-funded
20	PS PRIMA 2023	PRIMA Call 2023 Section 1	PS schemes, old formats (co-programmed)
21	PS SBEP 2023	2023 First Joint Transnational Co-Funded Call	PS schemes, co-funded

Table 1: Analysed calls and their basic typologies

cross-scale dynamics: governance and information in a multilevel world. *Ecology and Society* 11(2): 8. [online]
 URL: <http://www.ecologyandsociety.org/vol11/iss2/art8/>

5. Quantitative overview of food systems approach in calls

For this analysis a “positive selection” of calls was done, meaning the call cases were chosen as good examples or good practices with regard to systems approach (SA). Unsurprisingly, specific objectives related to a SA could be observed in 18 out of 21 calls (86%). However, only in one third of cases (8 of 21), SA was defined or at least explained. When a SA definition was given, it also had a mandatory character for applicants.

Looking at the elements that were found to be typically related to SA, the following rough pattern can be observed:

- **Multi/inter/transdisciplinarity** was the element with highest incidence, occurring in all calls analysed and showing the strongest obligation, meaning it was mandatory in 90% of the analysed calls where it occurred.
- Several elements were used in about $\frac{3}{4}$ of the analysed calls: **Inclusiveness, Synergies, Geographical balance/widening** and **Multi-actor-approach**. Among those, the Multi-actor-approach stood out as it was also used as a highly mandatory criterion (in 88% of the calls where it was applied).
- In more than half of calls analysed the elements **Co-creation, Theory of change/transformation** and **Trade-offs** occurred.

Although the elements Synergies and Trade-offs are often used in combination as strongly interlinked aspects, it is obvious that Synergy was much more commonly used than Trade-offs and this is in line with using it as mandatory criterion (synergies was mandatory in 11 calls vs. trade-offs only in 6 calls). This indicates that Trade-offs are less apparent so far, similarly to Theory of change/transformation, which was only considered mandatory in 5 calls.

The elements with the lowest occurrence were **Interconnections/connections/interlinkages** with occurrence in about half of the cases.

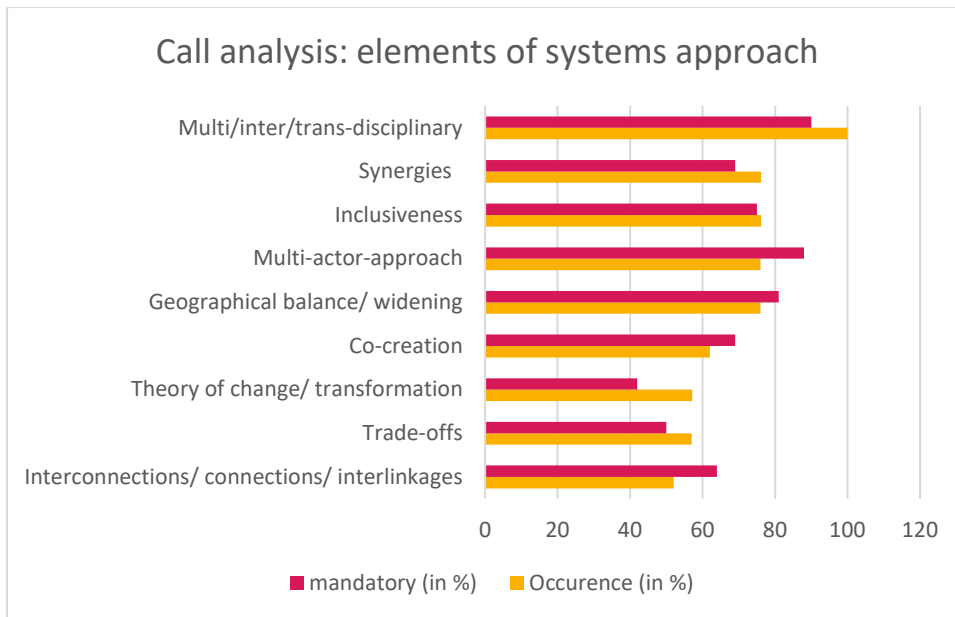


Figure 1: Quantitative overview of analysed elements related to systems approach

	Occurrence (in %)	Mandatory (in %)
Interconnections/connections/inter-linkages	52	64
Trade-offs	57	50
Theory of change/transformation	57	42
Co-creation	62	69
Geographical balance/widening	76	81
Multi-actor-approach	76	88
Inclusiveness	76	75
Synergies	76	69
Multi/inter/trans-disciplinary	100	90

Table 2: Elements related to systems approach, their occurrence in the analysed calls and their subsequent mandatory character

Looking at aspects related to the implementation of SA the following picture can be drawn:

Stakeholder engagement holds the “top position”, meaning it appears in all the calls analysed and is at the same time always a mandatory criterion (Figure 2). **Dissemination, Exploitation and Communication** follows with 90% occurrence and is also highly mandatory.

The need for **multiple levels or scales** occurs in a high number of call cases but is less obligatory. Interestingly **Networking activities** are mentioned only in about half of the calls analysed and mostly do not have a mandatory character.

Calls	Definition of SA	Multi-actor-approach	Cross-disciplinarity	Geographical balance/widening	Inclusiveness	Theory of change/transformation	Interconnections/connections/interlinkages	Synergies	Trade-offs	Co-creation	Stakeholder engagement
ERA-NET SF-FOSC 2021											
ERA-NET Circularity Call 2021											
ERA-NET HDHL Knowledge Hub 2019											
ERA-NET SINO-EUROPEAN CALL 2022											
JPI Water 2018											
ERA-NET SF-CO 2019											
Food-Water-Energy Nexus 2017											
ERA-NET CO 2021											
Foody Zero Sprechi 2021											
Agropolis 2020											
HEU FOODITY 2023											
HEU TITAN 2023											
HEU Environmental impacts											
HEU Citizens' science											
PS SBEP 2023											
PS BioDivMon 2022											
PS DUT 2023											
PS PRIMA 2023											
PS CBE JU 2023											
Interreg Aurora											
Interreg Baltic Sea											

Mandatory
Mentioned
Not mentioned

Figure 2: Heatmap with overview of mentioned and mandatory categories

6. Qualitative reflections on integration of SA in calls

The following section includes qualitative reflections on a selection of elements and concepts that are indicative of the use of the systems approach. First, various examples of, or lack of, descriptions of a systems approach are highlighted. Hereafter follows an analysis of different elements, e.g. multi-actor-approach, cross-disciplinarity, inclusiveness, etc., which includes examples on how each element is implemented in different call texts.

6.a. Descriptions of SA

The following sub-section gives examples on how the call text describes systems approach when there is a description of the concept, when there is not a description of the systems approach and how the use of a systems approach appears when the term is not mentioned at all.

Descriptions of food systems approach (6 calls)

As mentioned in chapter 4 of this analysis, specific objectives related to a Systems Approach could be observed in 18 out of 21 calls (86%). In about a third of cases (6 out of 21), the Systems Approach was explained/defined.

Further detailed analysis of the call texts revealed that in fact detailed definitions (like the definition from the SRIA on p.3 or the one mentioned in box 1 below) were not used in any of the calls analysed – but all six call texts contained more or less detailed explanations of the concept "systems approach" or "systemic". The most relevant explanations for each call can be found in an annex to this document (Annex 3).

*"A **systems approach** is understood as viewing a specific aspect (e.g. requiring more biofuel as energy source) as a component of a larger whole, having direct and indirect interactions with other, sometimes seemingly unrelated, aspects (e.g. land available for food production). This means that solving an issue in a particular sub-system should be approached with a 'holistic' perspective, taking account of possible trade-offs and feedback loops on other interconnected sub-systems".³*

Box 1: Example of detailed definition of "systems approach"

In the **ERA-NET SF-FOSC 2021** call text, applicants can read that with regard to **systems approach** they should "(...) Consider interconnections, synergies or trade-offs between different aspects or actors that directly or indirectly affect your field of research on a systems level, considering all economic, environmental, social, legislative, geographical, behavioural, business and environment dimensions" (ERA-NET SF-FOSC 2021, p. 7). The **ERA-NET HDHL Knowledge Hub 2019 call** mentions systemic approach and refers to Food 2030: „(...) The European Commission aims to tackle food and nutrition security (FNS) with research and innovation policies designed to future-proof food systems through a systemic approach referred to as FOOD2030.“ (ERA-NET HDHL Knowledge Hub 2019, p. 2). By this, the call equates the systems approach with Food 2030 - without directly providing a concrete definition. The call text from **ERA-NET SF-CO 2019** contains several explanations concerning "food systems", which is

³ Towards a Sustainable Food System“, Group of Chief Scientific Advisors, Scientific Opinion No.8, Mar 2020

described as dealing with sustainability, challenges and involving parties/stakeholders. Overall, this helps the applicants to understand what is meant by “systems approach“. The HEU TITAN 2023 call provides the explanations that

“(…) TITAN intends to follow to food system approach, meaning that we are considering the entire chain, taking into account the production, processing, distribution and consumption of food as well as sustainability, climate change and the recovery of biodiversity”
(HEU TITAN 2023, p. 6)

and it is further explains that

“Food systems fulfil many important functions, but at its core are three essential functions: ensuring food security and nutrition for a growing population, supporting the livelihoods of millions of people working in the food supply chain, and doing so in an environmentally sustainable way.” (HEU TITAN 2023, p. 7).

Together these explanations give a good impression of what the authors of the call text understand by systems approach. The same applies for the **HEU Citizens’ science** call text which explains that

*„Sustainable, healthy and inclusive food systems rely on systemic, cross-sectoral and participatory, multi-actor approaches and on integration between policy areas at all levels of governance. Food systems are to be understood as covering, ‘from farm to fork’, all the sectors, actors and disciplines relevant to and connecting i) environment protection requirements, ii) natural resources, iii) primary production on land and at sea, iv) food processing and packaging, v) food distribution and retail, vi) food services, vii) food consumption, viii) food safety, ix) nutrition and public health, and x) food waste streams.“*⁴

The **ERA-NET CO 2021 call** describes the systems approach by *„Multi-disciplinarity and system approach are therefore key to strengthen the impact on the sector concerned by the project idea.“* (ERA-NET CO 2021, p. 4) and gives a short explanation in the form of a footnote – saying: *“System Approach: Consider interconnections, synergies or trade-offs between different aspects or actors that directly or indirectly affect your field of research on a system level (e.g. economic, environmental, social, legislative, geographical, behavioural, business environment, etc.)”* (ERA-NET CO 2021, p. 54).

No description of food systems approach (6 calls)

During the analysis of the selected calls, it became apparent that seven calls referred to or encouraged the applicants to utilise a systems approach or food systems approach, without a clear description and the scope of these approaches. However, when reading the calls texts, it is clear that the calls indeed do refer to elements that imply a systems approach.

In several calls, such as the HEU FOODITY 2023, HEU Environmental impacts and the NATIONAL Agropolis 2020 call, the applicants must address food systems, however, none of the three calls provides a description of the scope of food systems. The HEU FOODITY 2023 and

⁴ Horizon Europe - Work Programme 2023-2024, p. 129

the HEU Environmental impacts calls aligns with the FOOD2030 priorities, which do offer more details about food systems on the website. The NATIONAL Agropolis 2020 call highlights that there is growing consensus that a food systems approach is needed to address the complexities of production and consumption. However, the NATIONAL Agropolis 2020 call does not provide further explanation of what a food systems approach is.

In the call text of the ERA-NET Circularity Call 2021 the word “system” comes up in various contexts in the call text and covers e.g. “mixed system“, the “farming system“ or “production system“. However, the call text does not have a detailed description of what systems are and even though the text asks applicants to use a systems approach as the guiding paradigm when applicable. Similarly, the PS PRIMA 2023 call also refers to various types of systems, e.g. farming systems, agroecosystems, and food systems, without further elaborating what the scope of the systems are.

In the Food-Water-Energy Nexus 2017 call, there is no specific explanation of what a system is, however, the Food-Water-Energy nexus approach offers a framework and tools for the analysis of complex systems in an urban context and acknowledges the importance of inter- and transdisciplinary approaches and the involvement all relevant stakeholders. Applicants are also asked to consider possible risks, synergies and trade-offs associated with new innovative solutions.

All of the above-mentioned calls do mention elements associated with a systems approach in the call texts, such as multi-actor approach, cross-disciplinarity or synergies. This will be further elaborated on in the following sections.

No mention of food system or systems approach (9 calls)

In nine of the analysed calls, a systems approach is never explicitly referred to or described, however, several characteristics and elements indicative of systems approach are present in all the analysed calls. Some of the strong indicators of using systems thinking may include use of multi-actor approach, cross-disciplinarity, and stakeholder engagement. The calls that do not explicitly refer to a systems approach include PS SBEP 2023, PS BioDivMon 2022, ERA-NET SINO-EUROPEAN CALL 2022, JPI Water 2018 call, PS CBE JU 2023, PS DUT 2023, Interreg Aurora Call, Interreg Baltic Sea call and NATIONAL Foody Zero Sprechi 2021.

Even though these calls do not explicitly use a systems approach, they still implicitly use elements relevant to systems approach or approaches that are similar to what can be considered a systems approach. For instance, the PS SBEP 2023 call and the ERA-NET SINO-EUROPEAN CALL 2022 use an impact pathway approach as the general framework for applicants, which somewhat resembles a systems approach (see section 5.b and 6.b). Similarly, **PS CBE JU 2023** has no direct reference to systems approach, however, the PS CBE JU 2023 uses “(...) *a value chain approach which ensures that all the concerned actors in the bio-based system, including the supply chain, i.e. agriculture/forestry/aquaculture primary producers, bio-waste producers and management facilities (...)*” (PS CBE JU SRIA, p. 19). Thus, the value chain approach does indeed have overlapping elements with a systems approach, however, while the value chain approach is linear, the food systems approach includes significantly more actors and interactions.

In general, the use of a systems approach may not be explicitly articulated, however, the calls do demonstrate a commitment to use systems approach characteristics, such as interdisciplinary collaboration, interconnected dynamics, multi-actor approach and stakeholder engagement. These elements and their use are further elaborated in the following chapters.

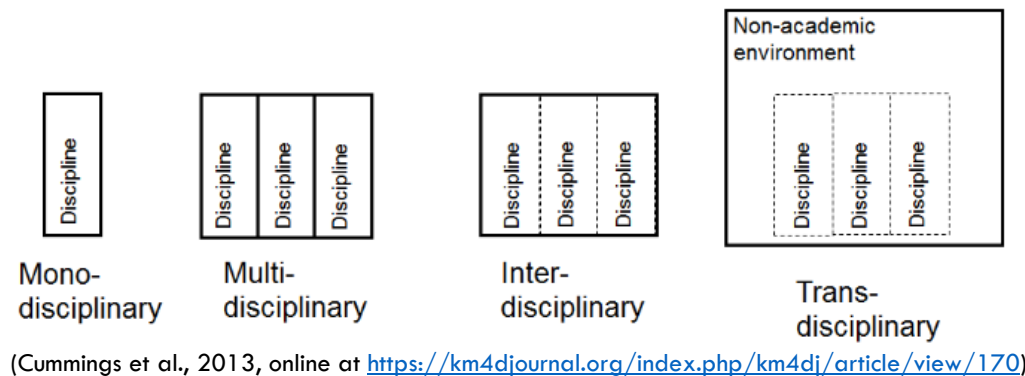
6.b. Elements with regard to SA

In the following sub-section, it is explored how cross-disciplinarity, multi-actor approach, inclusiveness, geographical widening, transformation, synergies and trade-offs are integrated into the analysed call texts.

Cross-disciplinary approach

Cross-disciplinarity was the element with the highest incidence (20 out of 21 cases) and it was mandatory in 15 of the 21 cases that have been analysed (see figure 2). Despite the high occurrence, the nature and importance of a cross-disciplinary approach varied across the analysed calls. Cross-disciplinarity are used in various ways in the analysed calls, however, present analysis subscribes to the definition in box 2.

Cross-disciplinarity is considered a collective term, that covers multi-, inter-, and trans-disciplinary approaches. The three approaches were all identified in the analysed calls. While the three approaches do have clear similarities, there are also differences. The multidisciplinary approach is the least integrated approach, meaning that disciplines “co-exist in a context” and researchers exchange results, however, there is no overlap between disciplines. In the interdisciplinary approach the disciplines are more integrated, and researchers will normally address system issues, where it is necessary to have strong collaboration across disciplines. The transdisciplinary approach is the most integrative approach and normally includes non-academic stakeholders in order to address context specific issues. The overall goal of the latter approach is to develop new frameworks and theories based on the integrative approach and research results.⁵



Box 2: Definition of cross-disciplinarity

Only the PS CBE JU 2023 used the collective term **cross-disciplinarity** and emphasized in the section on cross-cutting elements, that “*All proposals should foster cross-disciplinarity and consider the social, economic, behavioural, institutional, historical and/or cultural dimensions, as appropriate, of the proposed circular bio-based innovations.*” (PS CBE JU 2023, work programme, p. 25). The term is also mentioned in the call’s section on specific objectives, and thereby, PS CBE JU 2023 does not restrict the applicants to use a specific approach to cross-disciplinarity

⁵ Stock, P.; Burton, R.J.F. Defining Terms for Integrated (Multi-Inter-Trans-Disciplinary) Sustainability Research. Sustainability 2011, 3, 1090-1113. <https://doi.org/10.3390/su3081090>.

research and the applicants can therefore use the approach that they considered the most appropriate for the specific research topic.

The **multi-disciplinary approach** is integrated into calls such as ERA-NET SF-FOSC 2021, ERA-NET SF-CO 2019, PS SBEP 2023 and ERA-NET CO 2021. In the ERA-NET SF-FOSC 2021 call, multi-disciplinarity is mentioned throughout the call text from the introductory sections to scope of the call through the submission procedure, where the multidisciplinary aspects must be addressed in the application's section on expected impacts. Similarly, the ERA-NET CO 2021 call also includes multidisciplinary in the description of eligibility of applicants and further, it must also be integrated in the project description. In both the ERA-NET SF-CO 2019 and PS SBEP 2023, the need for multidisciplinary is mentioned in several parts of the call texts, though it is especially highlighted in the description of the thematic areas, where multidisciplinary must be taken into account for all topics. The ERA-NET HDHL Knowledge Hub 2019, NATIONAL Foody Zero Sprechi 2021 and the HEU FOODITY 2023 also highlight that the call will fund multidisciplinary research.

Several calls emphasise the need for an **inter-disciplinary approach**. In the ERA-NET Circularity Call 2021, all single-discipline projects are considered to be beyond the scope of the call and the applicant must address how an inter-disciplinary approach is used. However, no further description of an interdisciplinary approach is offered in the call text. Similarly, HEU Environmental impacts, PS PRIMA 2023 and Interreg Baltic Sea also encourage the use of interdisciplinary approaches but only elaborate to a limited extent on the reasons why this is important. The Food-Water-Energy Nexus 2017 call encourages the use of both inter- and trans-disciplinary approaches and highlights in the scope of the call, that applicants should *"(...) develop projects requiring collaborative, international, inter- and transdisciplinary research and innovation"* (Food-Water-Energy Nexus, p. 7). This leaves some flexibility to the applicants to choose the most appropriate approach for the project.

There are also examples amongst the analysed calls, where applicants are encouraged to make **trans-disciplinary research**. When trans-disciplinary research is encouraged, the calls generally also encourage strong collaboration with stakeholder and end-user groups. In the JPI Water 2018 call's description of trans-disciplinary approach and expected impact, it is emphasised that *"(...) all proposals should emphasise the effective participation of stakeholders and end-users (including industry) in research, and innovation actions (participatory approaches)"* (JPI Water 2018, p. 10). The PS DUT 2023 call similarly addresses the need for trans-disciplinary research in the scope of the call and in this regard it is mentioned that co-production of knowledge in collaboration with relevant stakeholders is preferred. The importance of stakeholder involvement is also highlighted in relation to the trans-disciplinary approach in the ERA-NET SINO-EUROPEAN CALL 2022.

Inclusiveness

The concept of inclusiveness is integrated into the calls in various different ways. The term inclusiveness can address a wide range of things and therefore the mention of inclusiveness in the analysed calls covers **gender balance, data sovereignty, stakeholder engagement and geographical inclusion**.

Several of the analysed calls emphasise that all project proposals must consider the **gender balance in the project**. The calls that explicitly highlight the need for gender balance in the project proposals are NATIONAL Agropolis 2020, PS SBEP 2023, JPI Water 2018, ERA-NET Circularity Call 2021, Food-Water-Energy Nexus 2017, PS CBE JU 2023, HEU FOODITY 2023, and PS DUT 2023. In order to operationalise this, most of the aforementioned calls

have integrated the gender balance into the evaluation criteria. In addition to the gender dimension, the Food-Water-Energy Nexus 2017 call also asks applicants to “(...) *broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)* (Food-Water-Energy Nexus 2017, p. 7).

When selecting calls for the present analysis, calls with a transnational character were prioritised, meaning that all calls intrinsically address and consider geographical widening. However, in some calls there is specific emphasis on the inclusion of different geographical scales. In the Food-Water-Energy Nexus 2017 call, the Interreg Aurora and the PS SBEP 2023 calls the need for **geographic inclusiveness** was highlighted as important. Specifically, the Interreg Aurora “(...) *promote cross-border projects that develop the region together in a smart, sustainable and inclusive manner.*” (Interreg Aurora, p. 3). The PS SBEP 2023 call highlights, in relation to the consortium compositions, that “*All (pre-)proposals are encouraged to consider geographical balance and implementation in appropriate geographic settings and according to the objectives of the proposal, including in low- and middle-income countries/regions, and less-performing countries*” (PS SBEP 2023, p. 41).

A large range of calls also addresses the need for **inclusion of all relevant stakeholders** in various stages of the funded projects. These calls include, among others, PS PRIMA 2023, ERA-NET Circularity Call 2021, HEU Environmental impacts, HEU Citizens’ science, PS DUT 2023, Interreg Baltic Sea call, ERA-NET HDHL Knowledge Hub 2019, and PS BioDivMon 2022. Stakeholder engagement will be further addressed in section 5.c on implementation of SA.

Multi-actor approach

Multi-actor approach (MAA) is a frequently identified SA element in the analysed calls, where 16 calls mentioned MAA and in 14 calls MAA was a mandatory element, although implemented in the call text in various different ways.

The ERA-NET SF-FOSC 2021, ERA-NET SF-CO 2019 and ERA-NET CO 2021 calls all have a similar approach to MAA, where it is implemented in the description of the **scope and thematic focuses** of the calls, here the MAA is highlighted as an aim for the calls, e.g., the ERA-NET SF-FOSC 2021 highlights that “*The aim of the Call is to foster scientifically excellent, multi-disciplinary and multi-actor research, development and innovation projects*” (ERA-NET SF-FOSC 2021, p. 6). In the three calls, the MAA is also integrated on the project description template, which the applicants must fill in. In the section on “Impact”, the applicants must address the expected impact based on cross-cutting issues, which entails use of a multi-actor, multi-disciplinary and systems approach, hence the applicants are prompted to address MAA when preparing the application.

Another approach to implement the MAA in the call, can be found with the PS CBE JU 2023, HEU Environmental impacts, and HEU Citizens’ science calls, where the use of MAA is part of the **eligibility criteria**. In the CBE JU work programme, it is highlighted that all Innovation Action projects must clearly include a MAA and describe it in the methodology section of the proposal. Further, the PS CBE JU 2023 highlights various aspects related to MAA, which the proposals have to address in the methodology section of the proposal. Similarly, the HEU Environmental impacts and HEU Citizens’ science calls, it is clearly defined that projects without MAA are ineligible for funding.

Several other calls, e.g. PS SBEP 2023, NATIONAL Foody Zero Sprechi 2021, PS PRIMA 2023, Interreg Aurora, Interreg Baltic Sea, encourage the use of a MAA in various parts of the call text, **often in the description of thematic areas**, however, without explicitly integrating the MAA in the evaluation criteria.

Other calls imply the MAA, without explicitly using the term. E.g., the Joint JPI call emphasises, that the **purpose of the funded knowledge hub** is to "(...) *increase facilitation of transnational research activities between individual researchers, research groups and research organisations in order to build a productive network of complementary competences in the field of food and nutrition security*" (ERA-NET HDHL Knowledge Hub 2019, p. 2). This can be interpreted as promoting a MAA within the project consortium. Similarly, the HEU FOODITY 2023 and HEU TITAN 2023 calls both stress the importance of **diverse and multidisciplinary consortium**, which may also be considered as a MAA.

Geographical scales and widening

Geographical scale and widening is mandatory in 13 of the 21 analysed calls, and it is also mentioned in a further 3 calls. However, all the calls that have been selected for analysis have a transnational character and all applications must therefore consider the geographical coverage of their projects. In several calls, the need for a transnational consortium is mentioned and encouraged, without further elaborating on the need or reasons to consider various geographies, territorialities, and scales. However, other calls do indeed ask the applicants to consider the project's geographical scales and contexts and widening efforts.

In the ERA-NET SF-FOSC 2021, ERA-NET SF-CO 2019, PS DUT 2023 and ERA-NET CO 2021 calls all proposals must address the **added value of the transnational collaboration** in the project description. The ERA-NET SF-FOSC 2021, ERA-NET SF-CO 2019 and ERA-NET CO 2021 calls encourage the applicants to consider cross-cutting issues and the added value of the transnational corporations and furthermore the geographical relevance of the projects has to be explicitly addressed in the project descriptions. Similarly, the call text of the PS DUT 2023 call includes a short section on 'Transnational Benefits', where it is outlined that "*Projects should support collaboration that goes beyond individual national efforts and demonstrates sharing, operationalising and transferring existing knowledge, resources, and research facilities to mutual, transnational benefit*" (PS DUT 2023, p. 9).

The PS DUT 2023 call further encourages the applicants to consider issues that can be **upscaled to other territorialities and broader contexts**. The ERA-NET CO 2021 also highlights that some thematic areas require that the projects must work with different geographical regions and consider how those can be adjusted and implemented at different territorialities. In the ERA-NET SINO-EUROPEAN CALL 2022, the applicants must also consider different geographical contexts by developing solutions that can be applied to both smaller European cities as well as Chinese metropolises. The NATIONAL Agropolis 2020 call also emphasises that projects should consider how to upscale results from local to international scale.

The Interreg Aurora call and the Interreg Baltic Sea call are both focusing on specific regional contexts. The Interreg Aurora call covers specified areas of Finland, Norway and Sweden and it is argued, that regional collaboration is necessary for smaller countries/regions in order to remain competitive in a globalised world. Hence, the Interreg calls fund cross-border projects in order to develop sustainable, smart solutions tailored to the geographical context. The Interreg Baltic Sea call also addresses common challenges in the Baltic region, which covers nine

countries. For both Interreg calls, the applicants must therefore work within a specific geographical context and address context dependent issues to be successful.

Hence, the abovementioned calls all ask the applicants to consider how project results can be **implemented at different scales and geographical contexts.**

Synergies and trade-offs

In food systems, the elements of the systems are interconnected and interdependent, meaning that actions in one part of the system may result in synergies or trade-offs in other parts of the system. Therefore, it can be beneficial to consider potential synergies and trade-offs before initiating system changes. In the analysed call texts, synergies and trade-offs were often mentioned in conjunction with one other and were for instance mentioned in the overall scope and objective of the call or in suggested research areas. In other cases, synergies or trade-offs were mentioned independently.

In some of the analysed calls, there was a strong focus on synergies and trade-offs in central parts of the call texts, e.g. in sections on the scope, objectives and expected outcomes. In the ERA-NET SF-CO 2019 call and the ERA-NET CO 2021 call, the projects are strongly encouraged to utilise a systems approach and recommended to *“Consider interconnections, synergies or trade-offs between different aspects or actors that directly or indirectly affect your field of research on a systems level (...)”* (ERA-NET SF-CO 2019, p. 6, ERA-NET CO 2021, p. 54). Synergies and trade-offs are thereby a central element of the framework the projects are expected to work within. In a similar fashion, the ERA-NET SF-FOSC 2021 call mentions in the section on expected outcomes, that projects are expected to identify synergies and trade-offs in relation to solutions to shocks, thereby making synergies and trade-offs central to the scope of the call. In the Food-Water-Energy Nexus 2017 call, the Food-Water-Energy Nexus approach provides a framework for analysing complex systems and it is highlighted, that the approach supports researchers in considering trade-offs and maximising synergies in food, water and energy sectors. Hence, the Food-Water-Energy Nexus 2017 call strongly integrates considerations for synergies and trade-offs throughout the call text. All PRIMA calls are using a Water-Energy-Food-Ecosystem Nexus, which also promotes focus on synergies and trade-offs across interdependent sectors.

In other calls, e.g. ERA-NET HDHL Knowledge Hub 2019, PS CBE JU 2023 and NATIONAL Agropolis 2020, synergies and trade-offs are highlighted in relation to potential research areas, where applicants are encouraged to consider synergies and trade-offs in regards to specific thematic areas. By placing the concepts in relation to a specific thematic area, they play a less significant role in the call as some proposals may then decide not to pay strong attention to synergies and trade-offs.

The importance of synergies is also mentioned in several calls in relation to synergies with existing initiatives, such as monitoring systems (i.e. PS BioDivMon 2022), research programmes and projects (i.e. JPI Water 2018, PS PRIMA 2023, PS CBE JU 2023, Interreg Baltic Sea) or EU Missions (i.e. PS SBEP 2023). By specifying which initiatives the future projects are expected to be in synergy with, the call text nudges the applicant to develop projects based on certain frameworks or knowledge and ensures that projects are in line with specific desired

methodologies and objectives. This ensures that projects build upon existing knowledge, ultimately contributing to more comprehensive and impactful solutions within the broader landscape of food systems research.

The emphasis on synergies and trade-offs is present across various calls, with some placing particular emphasis on these concepts within their scope, objectives, and expected outcomes. The incorporation of synergies and trade-offs underscores the interconnectedness of research areas and the importance of strategic alignment with existing initiatives.

Theory of Change/transformation

All the analysed calls are focusing on creating impactful research; therefore, all calls are intrinsically looking to create transformation and impact. In the analysis, calls with notable approaches or special focuses on transformative actions were highlighted. Two of the analysed calls used theory of change in the application process. However, other interesting approaches and rationales did appear in relation to the transformation.

The PS SBEP 2023 and the ERA-NET SINO-EUROPEAN CALL 2022 both use **theory of change** as an integral part of the application process, where the Theory of Change is used as a tool to define and plan the impact pathway of proposals/projects. In both calls, applicants must upload an annex to the application about their theory of change. The theory of change consists, in both calls, of a problem analysis, which includes a description of the problem and the info on whose problem it is. Hereafter, the applicants must develop an impact pathway, which outlines the pathway from research to real-life impacts. Both calls highlight, how the theory of change will be based on a myriad of assumptions, however, it does prompt the applicants to reflect on how the project will contribute to transforming existing systems. The ERA-NET SINO-EUROPEAN CALL 2022 emphasises that since the theory of change is based on assumptions, its theory of change should not be considered fixed but should rather be revisited and reflected throughout the research process.

In the PS DUT 2023 call, there is a clear focus on transformation throughout the call text and all projects must consider transition pathways within three different thematic topics. In Interreg Aurora, green transition and sustainable development is also integral to the call. The call utilises **horizontal principles** in relation to transition, where applicants should consider the three dimensions of sustainability in calls (social, ecological, and economic sustainability) in order to create sustainable transition and development. The NATIONAL Agropolis 2020 call uses the **UN Sustainable Development Goals** as a guideline for the transformative actions that are to be developed by the funded projects.

The Interreg Baltic Sea and ERA-NET HDHL Knowledge Hub 2019 highlight, how **transnational collaboration** will accelerate transformation towards more sustainable and resilient systems. Along similar lines, the ERA-NET SF-CO 2019 and ERA-NET SF-FOSC 2021 calls emphasise the importance of having a **systemic approach** and addressing **cross-cutting issues** to foster sustainable change.

Further, the ERA-NET SF-CO 2019 call also considers innovations as a key driver of change and therefore aims to fund innovative projects. In the HEU Citizens' science call, the projects should aim to contribute to behavioural changes amongst consumers, which will then lead to sustainable transformations of food systems. Therefore, the rationale in this call is, that consum-

ers play a key role in transformation processes. In the PS CBU JU 2023 call, innovation is considered to be the key driver of change.

6.c. Implementation of SA

The following section addresses measures used by the calls to encourage the applicants to use a systems approach. The implementation measures covered in this section include stakeholder engagement, networking activities and Dissemination, Exploitation and Communication.

Stakeholder engagement

Stakeholder engagement is addressed in all the analysed calls, which makes it the most commonly identified category along with cross-disciplinarity. Further, stakeholder engagement is mandatory in all analysed calls, which makes stakeholder engagement the most frequent mandatory category. The stakeholder engagement tends to be presented in connection with other concepts or frameworks, e.g. cross-disciplinarity, multi-actor approach or C&D plans.

The Food-Water-Energy Nexus 2017, PS DUT 2023 and PS BioDivMon 2022 calls can be highlighted as taking a particularly strong position on the importance of stakeholder engagement. In the Food-Water-Energy Nexus 2017, the importance of stakeholder engagement is emphasised from the onset of the call text and is included in e.g. the sections on scope, objectives, themes, proposal requirements, and project consortium. Hence, making stakeholder engagement an integral part of the call text. Stakeholder engagement also plays a key role in the PS DUT 2023 call, where the importance of stakeholder involvement, user-oriented and stakeholder knowledge are addressed throughout the call text and must explicitly be addressed in the proposals. Further, user engagement is also part of the evaluation criteria. Bio-DiverSa+, which has launched the PS BioDivMon 2022 call, has published an elaborate **stakeholder engagement handbook**⁶, which provides detailed information and guidelines on the importance of stakeholder engagement, identification of stakeholders when to engage with stakeholders, methods, planning, management of conflicts and monitoring/evaluation of stakeholder engagement. The handbook is a strong support mechanism where applicants can find resources and information on how to carry out robust stakeholder engagement.

In the ERA-NET SF-FOSC 2021 call and Interreg Baltic Sea, the applicants must outline the project's **stakeholder engagement plan in the C&D plan**, which is mandatory for all project proposals. Similarly, Interreg Baltic Sea and JPI Water 2018 highlight, that it is vital that results are communicated and disseminated to relevant stakeholder groups. By integrating stakeholder engagement in the C&D plan, it is acknowledged that stakeholder engagement requires a strong C&D strategy. However, successful stakeholder engagement also goes beyond C&D efforts and it is therefore necessary to assess the quality of the stakeholder engagement plan somewhat independently from the C&D plan. In the ERA-NET SF-CO 2019 and the ERA-NET CO 2021 call, the applicants are also encouraged to integrate the stakeholder engagement plan into the C&D plan, as the C&D plays a key part in the uptake of new practices.

⁶ [stakeholder-engagement-handbook.pdf \(biodiversa.eu\)](#)

In calls such as ERA-NET SF-CO 2019, ERA-NET CO 2021, HEU Environmental Impacts and HEU Citizens' Science, the need for stakeholder involvement, are mentioned in connection to the **multi-actor approach**, however, without specifying the differences between the two concepts. Stakeholder engagement and multi-actor approaches do indeed share many similarities, as both approaches emphasise collaboration and integration of diverse perspectives. However, while stakeholder engagement tends to focus on engaging specific individuals or groups with a vested interest in a particular issue or project, the multi-actor approach may involve a broader range of actors from various sectors and disciplines. The differences between the two concepts are worth considering when mentioning the two in conjunction with one another.

Networking activities

Networking activities were one of the lesser common categories identified in the calls, as they are mandatory in only four calls and mentioned in another seven calls. However, despite being a less prevalent category, some calls do have good practices when it comes to networking activities.

In some calls, **programme and cross-programme activities** are highlighted in the call text, which is true for the Food-Water-Energy Nexus 2017, PS DUT 2023 call and ERA-NET HDHL Knowledge Hub 2019 call. In the PS DUT 2023 call, which is funded under the DUT Partnership, these are mandatory activities, opportunities, and support for the funded projects. The time and budget for the participation in these activities should be integrated into the project proposal, hence the projects' participation will be financially supported to engage in networking activities within the partnership programme. Similarly, although with less clear financial support, the ERA-NET HDHL Knowledge Hub 2019 call also expects that proposals carry out activities in collaboration with the involved JPIs, such as JPI HDHL, JPI-OCEANS and FACCE-JPI. PS BioDivMon 2022 and PS PRIMA 2023 also support the **collaboration with existing initiatives**. The PS BioDivMon 2022 call specifically highlights that projects should consider collaborating with existing transnational networks, while PS PRIMA 2023 asks proposals to consider activities that are aligned with the other projects funded by the EU with reference to specific calls under the Work Programme 2023.

A few other call texts also encourage **networking or training** although in a more sporadic way. When incorporating networking activities in the call text it encourages and/or prompts the applicants to consider synergies with programmes, projects, or other relevant initiatives. By implementing the networking activities in the call, the applicants are also guided to consider certain themes, perspectives, or approaches in order to be relevant to the programmes, projects or initiatives mentioned in the call text.

Dissemination, Exploitation, and Communication

Dissemination, Exploitation, and Communication (DEC) are mentioned in 19 out of 21 calls and are mandatory in 15 calls, so overall, the DEC of project results are very well integrated in the current call mechanisms, however, there are slight differences in the characteristics and focus of the DEC. DEC is key to ensure impact and uptake of research results beyond the project consortium.

In some of the calls, the DEC aspects are mentioned in relation to **impact**. An example of this is the JPI Water 2018 call, where the DEC must be explicitly addressed and targeted to society

and relevant stakeholders to ease the implementation of project results. Similarly, the PS DUT 2023 call and the Food-Water-Energy Nexus 2017 calls highlight the importance of clearly articulating benefits, and project results and improving scientific and technological understanding in order to **transfer results to end users**. In the PS BioDivMon 2022 and the Interreg Baltic Sea calls it is also found that the applicants must focus their DEC strategies on the transfer of knowledge in order to create strong outreach and impact.

As mentioned in section 5.b, the ERA-NET SINO-EUROPEAN CALL 2022 and the PS SBEP 2023 call, both use theory of change as a central part of the impact framework for applications. In both cases, the applicants must include a communication strategy in their impact pathway, that addresses which **engagement dialogues** are foreseen, how **results will be presented** and **whose responsibility** it is. Thereby, the DEC aspects are also clearly linked to the impact of the project.

Along similar lines, in the PS CBE JU 2023 and HEU TITAN 2023 calls a **business plan** must be integrated into the DEC plan, which can also be considered an impact pathway, as applicants must consider the target groups of the business plan and thereby of the DEC plan.

Other calls, namely the ERA-NET Circularity Call 2021, ERA-NET HDHL Knowledge Hub 2019 and PS PRIMA 2023, indicate that the DEC of the project must happen in **synergy and coordination with existing initiatives**. The ERA-NET Circularity Call 2021 encourages applicants to consider other ERA-NETS and European Knowledge Platforms when carrying out DEC activities. The ERA-NET HDHL Knowledge Hub 2019 mentions, that project partners should be available to participate in joint events with the ERA-nets that are managing and running the call. The purpose of participation in joint events is to exchange results and foster collaboration across projects and relevant initiatives.

6.d. Evaluation of SA

All the analysed calls use evaluation criteria in order to assess the quality of proposals and for comparison and selection of projects to be funded. Thus, evaluation criteria have a guiding role and are of high importance both for funders and researchers. In chapter 4 the quantitative overview already highlighted which elements were mandatory, which means that in those cases they were often part of the evaluation criteria.

But where do elements related to SA appear in the evaluation criteria? Basically, they occur spread over all criterion types (general/excellence/quality of implementation/impact). Most often they are found under the impact criterion (see Figure 3). Seven out of the 21 calls use general criteria, meaning that those are not using the typical categories of excellence, quality of implementation and impact.

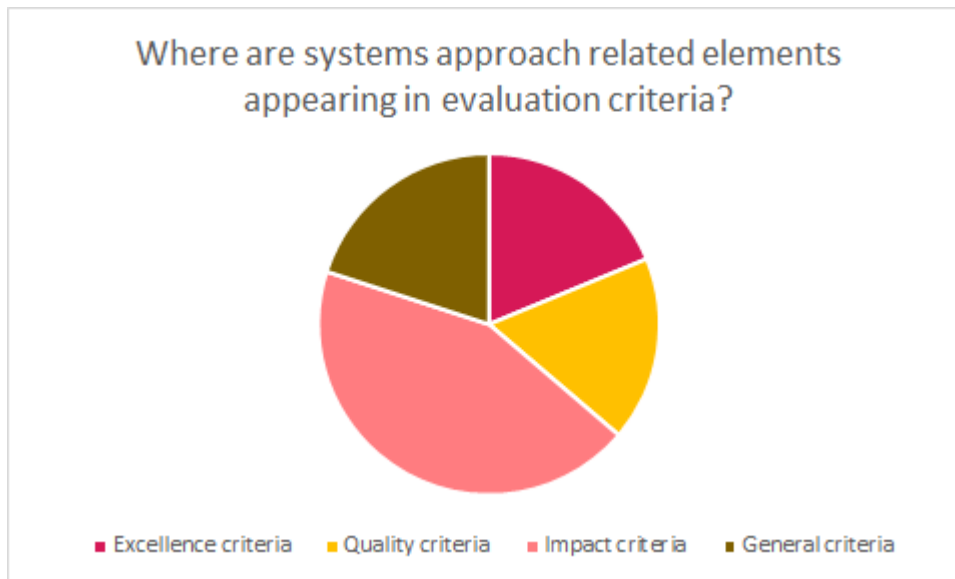


Figure 3: Systems approach-related evaluation criteria

Some of the analysed calls use the systems approach very prominently in their evaluation. Five calls use the wording “systems approach“ or “systemic“ directly in their evaluation criteria, these are: ERA-NET SF-FOSC 2021, ERA-NET Circularity Call 2021, ERA-NET SF-CO 2019, ERA-NET CO 2021 and PS BioDivMon 2022. All of them use the impact criterion for referring to the systems approach.

An example is the cross-cutting criteria used by ERA-NETs SF, FOSC and CO:

- *“Multi-actor-approach: Involve different actors and stakeholders in your research project from the outset (by means of participation as well as transparent communication),*
- *Multi-disciplinary approach: Take account of different viewpoints and involve actors from the disciplines beyond your existing network,*
- *Systems approach: Consider interconnections, synergies or trade-offs between different aspects or actors that directly or indirectly affect your field of research on a systems level (e.g. economic, environmental, social, legislative, geographical, behavioural, business environment, etc.).” (ERA-NET SF-FOSC 2021 pp. 6-7 and ERA-NET SF-CO 2019 p 6).*

The remaining 16 calls which were analysed also take SA criteria into account, but they refer to single elements that are related to a SA.

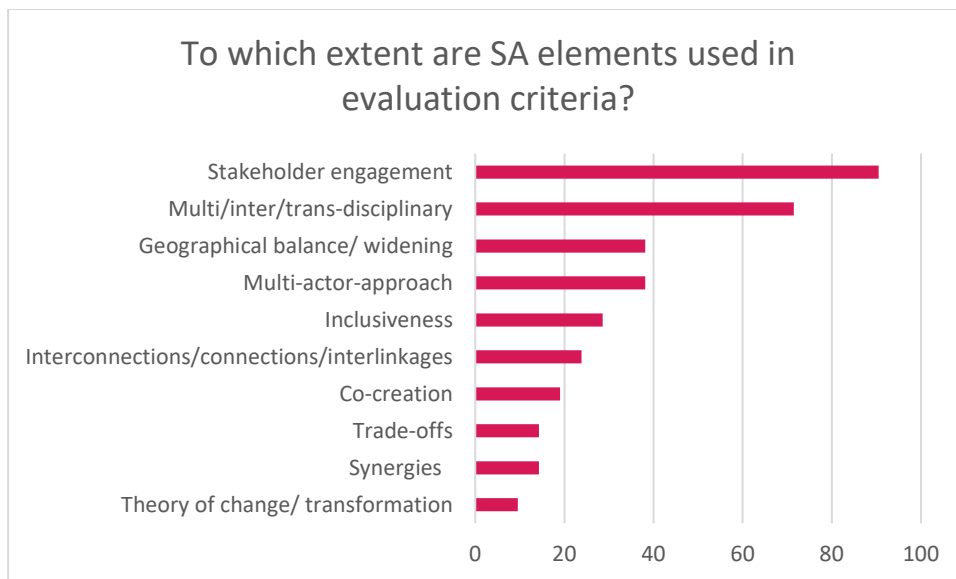


Figure 4: Frequency of SA elements in evaluation criteria

Thereby, the element of stakeholder engagement is most often used in the evaluation criteria and integrated into criteria on impact, general criteria, and excellence (in the order of magnitude)

Also strongly present in the evaluation criteria is cross-disciplinarity and it is used mainly under the excellence criteria. In some cases, it is used in more than one criterion, namely under excellence and quality. Surprisingly it is not commonly found under the impact criterion. This picture is similar to the multi-actor approach, which appears in about 40% of call cases as a relevant criterion for the evaluation of excellence and quality. Interestingly, the multi-actor approach is very often applied in calls which use general criteria (ERA-NET HDHL Knowledge Hub 2019, Foody Zero Sprechi 2021, HEU FOODITY 2023, PS CBE JU 2023).

Evaluation of the elements „Theory of change“, „interconnections“, „synergies“, „trade-offs“ do only appear in the impact criterion and are used to a lower extent (in less than 20% of the analysed calls)

Cases of special interest

There are some cases which put a very distinct focus on certain aspects, which is also clearly visible in their evaluation.

Stakeholder engagement and transdisciplinarity in PS BioDivMon 2022

In the Biodiversa+ Partnership, stakeholder engagement is prominently targeted both in pre- and full-proposal evaluation. In the pre-proposal step, the impact criterion asks „*To what extent does the project appear to have a credible approach/ambition towards stakeholder and/or end-user engagement to achieve the expected societal and/or policy impact?*“ (PS BioDivMon 2022, p. 93). In the full-proposal step, both excellence and impact criteria refer to systems-approach-related elements. Thereby, the excellence criterion is used for cross-disciplinarity: „*Level of mobilisation and integration of different scientific disciplines and competencies in the*

proposed research (level of inter- and multi-disciplinarity)“ (PS BioDivMon 2022, p. 93) and the impact criterion focuses more on stakeholder engagement: „The expected Impact of the proposed research for society and/or policy and the quality and efficiency of plans for stakeholder engagement“ (PS BioDivMon 2022, p. 94).

The criteria used to evaluate the level of transdisciplinarity, as defined*, and stakeholder engagement planned at the different stages of the project - which will be used by the experts and which applicants are invited to consider – are the following:

- a) Rationale for the stakeholder engagement planned in the project
- b) Identification of appropriate stakeholders to be engaged in the project
- c) Description of precise interests and support/investment from identified stakeholders on the specific aims of the project...
- d) Methods/activities proposed for engagement of relevant stakeholders,
- e) Evidence that the necessary skills to engage stakeholders are available in the project team or will be obtained

* *“What is meant by transdisciplinarity? Though several definitions of transdisciplinarity coexist, the definition used here is the involvement of stakeholders at the different stages of the project where relevant, for instance, to define research objectives and strategies, facilitate inputs from non-academic stakeholders, better incorporate the diffusion of learning produced by the research and facilitate a systemic way of addressing a challenge” (PS BioDivMon 2022, p. 96).*

Multi-actor-approach: PS CBE JU 2023

The multi-actor approach is an integral part of the proposal and must be clearly described in a specific section. The following explanation is given:

“The multi-actor approach is a form of responsible R&I, it aims to make the R&I process and its outcomes more reliable, demand-driven, shared and relevant to society. It also aims to have these outcomes shared more extensively. This entails more than just widely disseminating a project’s results, or listening to the views of a board of stakeholders“ (PS CBE JU 2023, p. 23).

The call text clearly describes which actors should be included (depending on the objectives of the proposals) and that involvement should take place all over the course of the project. A co-creation process from science and practice is envisaged to build the project proposals and a number of expected aspects are listed, e.g.:

- *“how the project intends to use existing practices and tacit knowledge. This should be illustrated in the proposal with a sufficient number of high-quality knowledge exchange activities outlining the precise and active roles of the different non-scientific actors in the work. The cross-fertilisation of skills, competencies and ideas between actors should generate innovative findings and solutions that are more likely to be applied on a wide scale;*
- *how the project will facilitate the multi-actor engagement process by making use of the most appropriate methods and expertise;” (PS CBE JU 2023, p. 24).*

In addition, a reference to cross-disciplinarity is given: „All proposals should foster cross-disciplinarity and consider the social, economic, behavioural, institutional, historical and/or cultural dimensions, as appropriate, of the proposed circular bio-based innovations. Applicants should therefore ensure that contributions from the SSH are integrated at various stages of their proposed project, and the actions required, participants and disciplines involved. Whenever relevant, applicants should consider public awareness raising, social engagement and social impact aspects with respect to circular bio-based solutions.”

Impact pathways (connected to Theory of change): ERA-NET SINO-EUROPEAN CALL 2022 and PS SBEP 2023

The ERA-NET SINO-EUROPEAN CALL 2022 uses the following criteria for „Impact and User Engagement (societal and broader impacts of project results)”:

- Fit to societal challenges identified in the call text
- Potential for impact, and quality of identification of societal challenge, underlying knowledge-related causes, and realistic identification of assumptions
- Engagement of stakeholders and response to stakeholder demand
- Quality of the impact plan, including:
 - Logical and cohesive theory of change
 - Logical Impact pathway linked to the theory of change

The Theory of change approach, which is also highlighted in section 6.c is also reflected in the evaluation criteria as part of the distinct impact plan.

The city level in Foody Zero Sprechi (philanthropic funding)

An example with a different perspective is the Foody Zero Sprechi 2021 call, which has a very distinct focus on the city level. Therefore, aspects used for evaluation include:

„ability to involve young people, that guarantees sustainability over time of the activity; ability to involve producers and agri-food wholesalers present in Milan Agri-Food Market; clear definition of social impact, environmental and economic aspects of the project; support from other subjects of the Milan's food system such as, for example: universities, research institutions, ATS, schools, citizens' committees, businesses, trade associations, sector of catering, etc.(...)“ (NATIONAL Foody Zero Sprechi 2021, p. 5)

7. Collection of notable aspects

The following section includes a reflection on the guiding ideas behind the calls as well as interesting aspects based on call types and in specific calls.

7.a. Guiding ideas behind calls

Besides looking at the systems approach, whether explained or just mentioned, the guiding ideas behind the 21 calls analysed were also considered.

Due to the nature of the selected calls, enforcing transnational R&I projects, all of them contain the element of **innovation** and cross-border **collaboration**. Some calls lay a specific geographical focus on collaboration between regions (e.g. Interreg calls) or certain countries/areas (e.g. the Mediterranean, Baltic Sea, EU and China).

A strong guiding idea, present in almost all calls is **sustainability**, often coupled with **resilience** and **biodiversity**. In some cases, sustainability is targeted to a certain focus besides food, e.g. focus on water, cities or organic food and farming.

In several calls, **circularity** appears as a powerful driver for transformation or green transition on the way to sustainability/sustainable systems in general. This again goes along with specific attention to interconnections and synergies, also called nexus points, e.g. the Food-Water-Energy Nexus 2017 call or calls on mixed farming systems (ERA-NET Circularity Call 2021 and ERA-NET CO 2021).

Inter- and transdisciplinarity are underlying mechanisms in all of those cases, e.g. the ERA-NET HDHL Knowledge Hub 2019, ERA-NET SF-CO 2019, ERA-NET SF-FOSC 2021 and PS CBE JU 2023.

Interestingly but not surprisingly, the calls which have been launched under Horizon Europe show a clear **impact-driven focus** (in line with the Horizon Europe objectives) and so do the calls launched by philanthropic funders (NATIONAL Foody Zero Sprechi 2021 and NATIONAL Agropolis 2020). A characteristic of this focus is the high importance of the **multi-actor approach**, which is needed in order to reach societal impact. Another example for this is the PS SBEP 2023 call, which emphasises impact-driven transformation using **Theory-of-change** as methodology.

7.b. Aspects with regard to call types

In this section, a number of interesting comparative questions related to the systems approach in the call mechanism arising from already presented material are addressed. Are ERA-NET or Cofunded calls better for implementing SA? Do foundations or philanthropic institutions conduct their R&I calls differently compared to public funders? Do we see the progression over time where more 'system' aspects are included in newer calls with respect to those launched earlier? Are calls with a larger funding budget and a wider number of funding partners more likely to include a systems view than those with a limited budget and fewer funders included, or perhaps the other way around?

In the following, two examples are presented, however, these do not provide an exhausting overview but rather highlight some of the relevant comparative issues.

One of the interesting aspects that is related to the call types arises from the very nature of the funders that are included in the call. The calls, for instance, ERA-NET Cofunds, include public funding bodies, while the PS CBE JU 2023 calls are based on joint funding from the European Union and from the private sector where the public funders have only an advisory role. These two funding call realities, ensure distinct (im)possibilities when it comes to the involvement of the private sector and as a consequence limited impact of the call on the entire food system if not all partners can be involved. This means that in the cofund calls, national public funders

decide based on their national legislation which type of actors can be involved and often there is a limit for private sector inclusion, while in CBE JU calls public funders have only an advisory role and no budgetary committees, allowing the full integration of public partners, larger call budgets and also having a food systems aspect integrated differently into the call mechanism using for instance a different terminology. For example, the principle of 'cascading' was brought into the CBE JU programme when re-naming it and adding 'Circular' to Bio-based Europe Joint Undertaking (CBE JU) expanding the original programme scope named Bio-based Europe (BBI). This change, where circularity was added, offered a possibility to work on circularity and environmental aspects (e.g., cascading use of biomass, use of residues and by-products, ensuring no competition between food and land). The cascading principle is also directly mentioned in the call topics and there are individual evaluation sheets tailored to each of the calls. These aspects offer significantly different environments for working with R&I where the industry as a funder can promote applied research, more financial stability and perhaps more coherent decision-making not based on the national rules of each funder. The actual success and impact related to the SA integration would require additional research and interviews with stakeholders that are envisaged along the runtime of FOODPathS.

Another interesting aspect that is related to the call types arises again from the very nature of funders that are included in the call, but this time not their type but rather 'geography'. There are programmes where the transnational calls are strongly shaped by the geography of the consortium, for example, calls with a regional character under the PRIMA Partnership Art.185 covering Mediterranean countries. Despite that under this cooperation model there are primarily national public funders, the regional nature and urgent agri-food challenges in Mediterranean basin has prompted PRIMA partners to develop particular approaches towards the food systems through a so-called 'nexus' thematic area in the calls. The nexus area has emerged due to two different reasons, on one side to address realities with the existing regional crises and conflicts in the Mediterranean basin, and on the other hand the need to work across sectors of water, energy, food, and ecosystems (WEFE) that 'have historically been managed independently from each other in the Mediterranean region, with limited considerations of cross-sectoral interactions. Hence, the nexus approach has provided a funding platform for the public funders where they are able to address societal and agri-food issues in an unified manner on the regional level while also reaching higher-level of the R&I impact.

7.c. Aspects with regard to single calls

Theory of Change/Impact pathways

All analysed calls do indeed aim to fund impactful research which will be implemented in practice and create positive societal change. The PS SBEP 2023 call and the ERA-NET SINO-EUROPEAN CALL 2022 utilise a notable impact plan approach, which includes a Theory of Change, to increase the chance of impact generated from the R&I projects. The two calls use the same approach and applicants must consider and address various aspects in their project proposals.

In both cases, the Theory of Change consists of a problem analysis and an impact pathway. In the problem analysis, the applicants must consider which and whose problem the project will address as well as the knowledge gaps and desired impacts. Hereafter, the applicants must

develop an impact pathway, which outlines how research results will be disseminated and lead to the desired impact. Both calls highlight, that the theory of change will be largely based on a range of assumptions, meaning that the theory of change is not a static plan but rather a reflective tool that can be revisited and adjusted throughout the project duration.

In both calls, applications must plan productive interactions, meaning knowledge exchange between relevant actors (e.g. farmers, scientists, consumers etc) to ensure that knowledge is socially relevant and exploitable. Both calls highlight co-design and co-creation as approaches to create productive interactions.

Finally, and perhaps most significantly, the applicants must develop a strategic activity plan, which includes plans for stakeholder engagement, communication, monitoring, evaluation and learning, capacity strengthening and risk assessments. The purpose of the strategic activity plan is to develop a solid strategy for the trajectory from output through outcome to societal impact. The strategic activity allows the call offices to monitor that the project partners are putting in efforts to create impactful research.

The rationale behind the use of the Impact Pathway approach is, that asking projects to extensively plan for how research outputs will create impact will increase the chances of successfully realising societal impact. Therefore, the calls recognise, that impact will not happen without carefully planned strategic efforts on how the research outputs turn into outcomes and finally impact. The funding bodies of the two calls therefore expect that that by asking applicants to develop impact pathways and a theory of change, it increases the chances of actual impact.

Knowledge Hub

The ERA-NET HDHL Knowledge Hub 2019 call only funded one project, which is in contrast to the other analysed calls. However, the concept and approach outlined in the call were strongly positioned and included interesting aspects with regard to a food systems approach. The purpose of the call was to fund a cross-sectoral knowledge hub with a food system perspective. The overall purpose of the knowledge hub is described as:

- *“increase facilitation of transnational research activities between individual researchers, research groups and research organisations in order to build a productive network of complementary competences in the field of food and nutrition security.*
- *provide added value by bringing together complementary competences through knowledge flow from scientific research towards practice.*
- *support a more integrative and multidisciplinary approach and ensure the involvement of key stakeholders.”* (ERA-NET HDHL Knowledge Hub 2019, p. 2).

The funded knowledge hub must, amongst other things, facilitate knowledge transfer, capacity building, data access and sharing, and identify knowledge gaps. Additionally, the funded knowledge hub must target producers, agri- and food industry and consumers as the main stakeholder groups for creating impact, which creates a solid basis for transferring R&I knowledge, fostering capacity building across stakeholder groups and creating multidisciplinary collaboration within the food systems. Further, the knowledge platform must address at least two out of four outlined themes, which results in the knowledge hub covering various perspectives and thereby creating a holistic view of the food system.

The knowledge hub utilises a systems approach as it promotes cross-disciplinary and multi-actor approaches. Furthermore, the knowledge hub has the potential to strengthen synergies across initiatives (e.g. projects or programmes), networking activities and stakeholder engagements through knowledge transfer and capacity-building activities. The ERA-NET HDHL Knowledge Hub 2019 call does indeed have a very specific nature, which allows the call text to narrow its aims, purpose and expected impacts considerably. While this may not be possible for all calls the clear purpose of the knowledge hub can serve as inspiration to other calls.

8. Connection between programme, call, and project level

This systematic analysis considers 21 transnational calls representing a diversity of programmes to learn from. In order to include insights from multiple levels, the original idea was to analyse programs, calls and projects. However, the number of interesting calls increased notably compared to what was first anticipated and additionally the analysis of programmes and underlying strategies revealed to be very time-intensive and on a highly general level. Therefore, the call level was prioritised, specifically given the aim to develop recommendations for the design of future funding activities in the upcoming FutureFoodS partnership.

Nevertheless, a closer look into projects could give an indication of how systems approaches that were called for, were designed, and implemented in reality. Did the projects achieve their goal and perform impactful R&I? A collaboration with FOODPathS WP6 enabled a form of validation to receive the project perspective by performing focus groups with project coordinators stemming from several of the analysed calls. The guiding question was “What do leaders of food projects think about food research that is interdisciplinary and systems-oriented”? What are experiences, lessons learned, challenges and possible recommendations? A number of 17 participants (from 7 different calls) took part in 3 online focus groups. A sound description and report of this activity will be available by FOODPathS in due time.

9. Takeaways for future calls

Based on the present analysis, future calls take following recommendations into account when preparing calls for applications that use a food systems approach.

RECOMMENDATIONS:

1. Provide a definition of systems approach or a clear explanation of what is meant;
2. Be mindful and consistent with terminology, e.g. when using typical elements of a systems approach such as multi-/inter-/transdisciplinarity;
3. Cross-disciplinarity, stakeholder engagement, and multi-actor approach are highly demanded and also of great relevance for a systems approach call; think about where and how to ask for these aspects and consider the differences between the concepts;
4. When applying a systems approach it is important to consider both synergies and trade-offs;
5. Think about how impact shall be achieved by the projects, how the food systems approach contributes to impact and provides guidance and support towards applicants;
6. What additions to the proposals are sensible and what shall they contain (e.g. impact plan, DEC plan, stakeholder engagement plan, implementation/valorisation plan etc.); adapt to the systems approach and consider also follow-up and adjustments over time (revisiting the plan);
7. Networking activities facilitated at programme level can be valuable to align and/or collaborate with other projects or programmes but they need to be backed up with dedicated resources (they might even be a necessity for co-design and co-creation);
8. Be open to new funding instruments beyond classical projects (e.g. knowledge hubs) to create mechanisms for fostering connectivity, co-creation and inclusiveness.

10. Appendices

- Annex 1: Background information about calls
- Annex 2: Template for systematic analysis
- Annex 3: Filled in templates for all calls

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Appendix 1: Information about selected calls

1. Circularity Call by 4 Era Nets (ERA-NET Circularity Call 2021)

In 2021 the 4 ERA Nets and Era Net Cofunds SusAn, FACCE ERA-GAS, ICT-Agri-Food and Sus-Crop launched a joint call. The title of the call was “Circularity in mixed crops and livestock farming systems with emphasis on climate change mitigation and adaptation”. The call was funded by 30 organisations from 22 countries, 7 outside the EU and 4 outside Europe; namely funders from Argentina, Uruguay, New Zealand and the Global Research Alliance. The call followed the one-stage submission procedure. 9 projects were selected for funding. The projects started end of 2021 or beginning 2022.

2. ERA-Net CORE Organic Cofund Third Call 2021 (ERA-NET CO 2021)

CORE Organic Cofund launched its Third Call for research proposals in January 2021. The funding network consists of 13 funding bodies from 13 countries: Algeria, Bulgaria, Denmark,

Estonia, Finland, Germany, Italy, Morocco, Norway, Poland, Romania, Slovenia, Turkey, committing around 5M EUR for transnational research call on "*Organic farming systems for improved mixed plant and animal production*".

3. JPI HDHL (ERA-NET HDHL Knowledge Hub 2019)

The JPI HDHL call 'Knowledge Hub on Food and Nutrition Security' was launched in 2019 with 10 funding partners.

4. ERA-Net SUSFOOD2-CORE Organic Cofunds Joint Call 2019 (ERA-NET SF-CO 2019)

The joint call was launched under overall theme 'Towards sustainable and organic food systems'. The network consists of 21 funding bodies from 18 countries/regions, committing around 9.5M EUR for transnational research. In June 2020 the Call Board members selected for funding 12 research projects.

5. ERA-Net SUSFOOD FOSC Call (ERA-NET SF-FOSC 2021)

The ERA-Net SUSFOOD2 - FOSC Call 2021 was a joint call between two ERA NET Cofunds. One of the Networks is the co-fund SUSFOOD2 focusing on sustainable food production and consumption, the other Network is the co-fund FOSC supporting research on food systems and climate. The joint call was titled: "Innovative solutions for resilient, climate-smart and sustainable food systems" and brought together 14 funding bodies from 13 countries, committing 7.85 Mill€ to the call. The geographical coverage included EU countries as well as non-EU countries such as Argentina, UK, Türkiye, Morocco and Algeria. While the geographical focus remained on Europe, funders from three continents took part (Africa, Europe, Latin-America). The call was conducted in a 1-step procedure. As a result 5 project proposals were selected for funding. The five projects started in 2022.

6. ERA-Net SINO-EUROPEAN (ERA-NET SINO-EUROPEAN CALL 2022)

ERA-Net Sino-European initiative was developed as a response towards global urbanisation challenges. The Joint Programming Initiative Urban Europe (JPI Urban Europe) and the National Natural Science Foundation of China (NSFC) have agreed to work towards a long-term cooperation programme. The ERA-Net Cofund Urban Accessibility and Connectivity Sino-European call launched in 2022, the key themes were: 'Sustainable Urban Logistics' and 'Climate-neutral Mobility' have been selected. There were 10 funding agencies involved in the call, with 5.3M Euro and 20M RMB. It is interesting partnership constellation as this call was actually implemented as an additional activity of ERA-Net Cofund Urban Accessibility and Connectivity (EN-UAC).

7. Food-Water-Energy Nexus 2017

The Sustainable Urbanisation Global Initiative (SUGI)/Food-Water-Energy Nexus is a call jointly established by the Belmont Forum and the Joint Programming Initiative Urban Europe. The cooperation was established in order to bring together the fragmented research and expertise across the globe to find innovative new solutions to the Food-Water-Energy Nexus challenge. The total available budget for this call was approx. 28.5 M€, including support from the European Commission through Horizon 2020. 27 funding agencies contributed to the call. The proposals were assessed by an expert panel and 15 projects were selected for funding.

8. Horizon Europe “Farm2Fork” (HEU Citizens’ science)

Another Horizon Europe topic that was analysed was the “Citizens’ science as an opportunity to foster the transition to sustainable food systems” HORIZON-CL6-2024-FARM2FORK-01-6¹ from the “Fair, healthy and environmentally-friendly food systems from primary production to consumption (HORIZON-CL6-2024-FARM2FORK-01)” Call. The call was organised in a one-stage procedure. The topic asked for around two projects with a combined budget of 10.000.000€. It was open from 17th October 2023 until 22nd February 2024. The projects should aim to “better understand citizens’ food consumption behaviour, the factors influencing choices and drivers that would facilitate changes in behaviour in an inclusive manner towards healthy and sustainable food consumption practices”.

9. Horizon Europe “Zero Pollution” (HEU Environmental impacts)

The European Union directly funds research through the Horizon Europe framework programme and its calls for Research and Innovation actions. Two of those Horizon calls were analysed. One being the Topic “Environmental impacts of food systems” (HORIZON-CL6-2024-ZEROPOLLUTION-01-3)²[6] under the call “Clean environment and zero pollution” (HORIZON-CL6-2024-ZEROPOLLUTION-01). The topic asked for a single project with a budget of 7.000.000€. It was open from 17th October 2023 until 22 February 2024. The topic was about understanding of the impacts related to the green-house gas (GHG) emissions stemming from food systems, i.e. environmental impacts of primary food production and harvesting.

10. HEU FOODITY 2023

The HEU FOODITY 2023 were a 1M€ pilot development programme for creating 6 data-driven solutions to drive innovation in food and nutrition while putting the power of personal data use back into the hands of citizens. Each beneficiary could receive up to 187.500€. The FOODITY consortium consisted of 7 partners and the call aimed to engage different entities, including SMEs and start-ups, research and technology organisations (RTOs) and universities, social innovation actors and training organisations.

11. Titan Open Call (HEU TITAN 2023)

TITAN - Transparency solutions for transforming the food system is a 4 –year Horizon Europe R&I project that aims to demonstrate the latest transparency-related solutions to help drive the formation of a demand-driven European economy predicted on the production and consumption of healthy, sustainable, and affordable food. The TITAN project consists of eight universities, three research institutes, thirteen small and medium-sized enterprises, and three non-profit organizations. The 27 partners are located in 14 countries throughout Europe, namely: Belgium, Finland, France, Italy, Germany, Greece, Netherlands, Norway, Serbia, Poland, Portugal, Spain, Switzerland, and United Kingdom³. The project includes the provision of an extensive tender for an open call (€1.25M), that was opened at the end of 2023. The aim of the call was to select and fund eight of the most innovative and ambitious pilot projects that will enhance the value of

¹ <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl6-2024-farm2fork-01-6?tenders=false&programmePart=&callIdentifier=HORIZON-CL6-2024-FARM2FORK-01>

² <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl6-2024-zeropollution-01-3>

³ <https://titanproject.eu/>

food supply chains through increased transparency. The proposals must fit in one of the three domains of 1) Food Safety, 2) Sustainability and 3) Health.

12. Interreg Aurora (Interreg Aurora)

European Territorial Cooperation – better known as Interreg – is part of the EU’s structural and investment policy. With Interreg, the EU supports cross-border infrastructure, job market integration and cultural exchange (so-called Interreg A). Interreg also covers transnational cooperation in larger areas such as the Baltic Sea Region or the Alpine Space aiming at territorial integration of these areas (Interreg B). From 2021 to 2027, the EU provides 1,466,000,000 euros for this type of cooperation⁴. One of the analysed calls belongs to the programme Interreg “Aurora”. Interreg Aurora is a cross –border cooperation from 2021-2027 The total budget is 205 Million €^{5[2]}. It covers regions of Norway, Finland and Sweden. The programme area covers the traditional Sami region - Sápmi - which means that the programme is an important resource for the safeguarding and development of the Sami culture, livelihood, industries, and above all, the Sami languages^{6[3]}. The goal is to encourage cross-border collaboration, and thereby strengthening the competitiveness, sustainability and attractiveness of the programme area through social inclusion, digitalisation and just green transition. 4 priorities and 8 specific objectives are addressed. The programme is carrying out different calls, with two distinct types of calls, one for “small-scale projects” and one for “regular projects”. The analysis concentrated on the regular call type, of which already 6 calls have been planned, the first one launched in 2022, the second and third already closed and the 4th open at the time of analysis while the 5th and 6th call are planned to run in 2024 and 2025. The programme document however is the same for every call.

13. Interreg Baltic Sea (Interreg Baltic Sea)

A second Interreg Programme which was part of the analysis was the Interreg Baltic Sea Region. The actual programme runs from 2021 -2027 (it had a predecessor programme from 2014-2020) and encompasses 9 countries bordering the Baltic Sea, 8 EU member states (Denmark, Estonia, Finland, Latvia, Lithuania, Poland, Sweden parts of Germany) and 1 non-EU state (Norway, several regions only). Like the Interreg Aurora the Interreg Baltic Sea has a programme manual which is mandatory for each call⁷. According to the programme manual, “the overall objective of the Programme is to put into practice innovative, water-smart and climate-neutral solutions through transnational cooperation for the benefit of the citizens across the Baltic Sea region”. The programme covers four priorities and 9 programme objectives.

14. JPI Water 2018 (JPI Water 2018)

JPI Water 2018 launched their Joint Call on “Closing the Water Cycle Gap – Sustainable Management of Water Resources” in 2018. The total call budget was €19.3M, where 20 national funders from 18 countries have tentatively allocated €13.36M and the EC €5.9M. As a result, eighteen transnational projects recommended for funding for €15.2M including €4.9M cofounded by EC.

⁴ https://www.interreg.de/INTERREG2021/EN/Home/home_node.html;jsessionid=67A4DF3BC891E37315F750ED0400E653.live21324

⁵ <https://www.interregaurora.eu/wp-content/uploads/NEW-GET-TO-KNOW-INTERREG-AURORA.pdf>

⁶ <https://www.interregaurora.eu/wp-content/uploads/Godkand-15-dec-2023-sfc2021-PRG-2021TC16RFCB027-3.1.pdf>

⁷ https://interreg-baltic.eu/wp-content/uploads/2024/01/2024.01.11_BSR_Programme-Manual_version-7.0.pdf

15. NATIONAL Agropolis 2020 (NATIONAL Agropolis 2020)

The Call 'Climate change, biodiversity, food systems: Agriculture-Based Solutions' was a national call launched by Agropolis Foundation in 2020. The call budget was up to € 750.000. The call addresses the agriculture as a concept not only agronomic practice where 'globalization of narratives, practices and institutions (values, norms, rules) affects agriculture as a whole and at many levels on spatial, temporal and jurisdictional scales' (Cash, D. W., W. Adger, F. Berkes, P. Garden, L. Lebel, P. Olsson, L. Pritchard, and O. Young. 2006. Scale and cross-scale dynamics: governance and information in a multilevel world. *Ecology and Society* 11(2): 8. [online] URL: <http://www.ecologyandsociety.org/vol11/iss2/art8/>). The call targets research units belonging to the Foundation's scientific network (Labex Agro).

16. Foody Zero Sprechi (NATIONAL Foody Zero Sprechi 2021)

The Call 'Foody Zero Sprechi' was national call launched by Foundation Cariplo targeting local area of Milan city (IT). The call budget was € 100.000. The aim of the call is to support "virtuous actions"; that would limit the food waste and reach persons in need. The call is targeting the NGO sector.

17. European Biodiversity Partnership – BioDivMon Call (PS BioDivMon 2022)

The European Biodiversity Partnership (Biodiversa+) co-funded by the European Commission published the call titled "Improved transnational monitoring of biodiversity and ecosystem change for science and society – BIODIVMON" in 2022. The call gathered 46 funding organisations from 33 countries, the committed indicative budget was 40 Mill€ incl. EC contribution. Following a 2-step selection process, 33 projects were selected. The geographical coverage was concentrated on Europe, but quite some funders from outside the European Union were contributing, such as Brazil, Ivory Coast, Moldova, Morocco, Norway, South Africa, Switzerland, Taiwan, Tunisia and Türkiye. The Province of Bolzano also took part (regional funder).

18. Circular Bio-based Europe Joint Undertaking (PS CBE JU 2023)

'The Circular Bio-based Europe Joint Undertaking (CBE JU) is a 2 billion Euro partnership between the European Union and the Bio-based Industries Consortium (BIC) that funds projects advancing competitive circular bio-based industries in Europe. CBE JU is operating under the rules of Horizon Europe, the EU's research and innovation programme, for the 2021-2031 period. The partnership is building on the success of its predecessor, the Bio-based Industries Joint Undertaking (BBI JU), while addressing the current challenges facing the industry'. The present CBE JU call 2024 offers a budget of 213M Euro for three type of actions: Innovation Action (IA), Research and innovation actions (RIA), Coordination and support actions (CSA). The thematic areas are indicated in the CBE Ju Annual Work Programme.

19. European Partnership Driving Urban Transitions – Second Call (PS DUT 2023)

The European Partnership Driving Urban Transitions (DUT) published its second call in 2023. Its title is "People-centred urban transformation" and at the time of analysis it is still running. Funding agencies from 27 countries will be funding the selected research projects. Most funding organisations are member states of the EU, but also associated countries (Switzerland, Türkiye, Iceland) are represented as well as funding organisations from third countries (Canada/Quebec and Korea).

20. PRIMA Partnership (PS PRIMA 2023)

'Partnership for Research and Innovation in the Mediterranean Area' (PRIMA) is Art.185 type of programme initiated based on the Decision (EU) 2017/1324 of the European Parliament and the Council of 4 July 2017 (PRIMA Decision), the PRIMA partnership ran from 7 August 2017 to 31 December 2028. The European Union (EU) has decided to support the programme with a maximum financial contribution of EUR 220 000 000 (Article 3 of Decision (EU) 2017/1324) (AWP 2023, p.6). PRIMA has 19 participating member states and through its calls it supports four thematic areas: 1) Water Management, 2) Farming Systems, 3) Agri-food Value Chain and 4) WEFEX Nexus addressing jointly aspects of water, energy, food and ecosystems. The last annual call was published in 2024 covering all four thematic areas under two call programme sections offering total budget of 62.6M Euro.

21. European Sustainable Blue Economy Partnership, 1st Call (PS SBEP 2023)

The 2023 first joint transnational call of the European Sustainable Blue Economy Partnership (SBEP), a co-funded Partnership that started in 2022, was titled "the way forward: a thriving sustainable blue economy for a brighter future". It encompassed 5 priority areas. The call was funded by the EC and 36 funders from 23 countries. Including the EC contribution the call volume was approx. 50 Mill€. The funders were located primarily in European countries, but non-european union funders were also present such as Brazil, Iceland, Faroe Islands, Norway and Türkiye. Following a 2-step selection process, 19 projects were selected.

Appendix 2: Template for analysis

Explanation: please screen your selected call (programme/ project) example in view of the following elements, regarding the following lead question: "How was the idea of "Food System" articulated and implemented in the call". Please note that terminology might differ according to writing style. The methodology could therefore be a mix of comprehensive reading and word search.

Background info on selected example (e.g. call/ programme/ project)			
Name of example	e.g. SUSFOOD-CORE Organic joint call 2019		
Type of example	Please briefly describe your selected example, e.g. transnational call for R&I projects; public funders from xy countries involved; project duration 3 years,		
Time scale	Publication date of call announcement/ start or duration of projects		
Thematic scope	e.g. title of example might suffice „Sustainable and resilient food systems“		
Source used for analysis (public/confidential)	e.g. call announcement, SRIA, proposal (confidential), website...		
Short description how the systems approach appears in the selected example			
Analysed elements that are related to systems approach			
	y/n	Is it mandatory?	short description
Is a definition of systems approach stated?			
Are specific objectives mentioned that are clearly systems related?			
Do the following keywords (or words with similar meaning) appear and in what context?			
• multi-actor-approach			
• multi/inter/trans-disciplinary			
• geographical balance/ widening			
• inclusiveness			
• theory of change/ transformation			
• Interconnections/ connections/ interlinkages			
• Synergies			
• Trade-offs			
• Co-creation			
• others			
Are the following aspects raised, especially when it comes to implementation of systems approach			
• stakeholder engagement			
• networking activities			
• Dissemination, Exploitation & Communication			

<ul style="list-style-type: none"> • Need for multiple levels or scales (e.g. of food chain, geographical coverage, stakeholder types etc.) 			
<ul style="list-style-type: none"> • others 			
Call specific features			
What evaluation criteria are used? Please highlight those related to systems approach			
Are there additional documents/ uploads required that are related to systems approach (e.g. stakeholder engagement plant etc.)			
Are there any supportive actions planned towards applicants (e.g. partnering, webinars, additional info etc.)			
Are activities foreseen or emphasized that align to future actions of the Partnership, e.g. living labs, knowledge hub, observatory or others			
others			

Appendix 3: Analysis of calls (filled in templates)

1. ERA-NET Circularity Call 2021

Background info on selected example (e.g. call/ programme/ project)			
Name of example	2021 Joint Call of SusAn, ERA GAS, ICT Agri FOOD and SusCrop		
Type of example	Joint Call of four Era Net Co-Funds		
Thematic scope	Circularity in mixed crops and livestock farming systems with emphasis on climate change mitigation and adaptation		
Source used for analysis (public/confidential)	Call Announcement		
Short description how the systems approach appears in the selected example	The systems approach is embedded in the call because the thematic scope necessitates a systems approach. The call is about circular mixed cropping systems . Technically the Systems approach is embedded by making it mandatory that projects "Take a systems approach" . The circular economy approach to mixed crop-livestock production will include synergy and complementarity with sectors such as environmental protection. In the case in which it is appropriate, this may mean addressing other issues that arise from the individual project's approach to mixed crop-livestock systems. These could include, for example, soil quality; biodiversity; adaptation to climate change; increased protein autonomy; business models and consumer-oriented approaches; or the limitations or trade-offs that may occur within mixed systems.." and exclude single -discipline projects		
Analysed elements that are related to systems approach			
	yes / no	Is it mandatory?	short description
Is a definition of systems approach stated?	No	Yes	"In research, naturally, this requires a systems approach, whether a project focuses on whole systems or on key elements of the system at the pertinent scale of one farm or groups of farms. The development or comparison of whole systems needs to be "grounded" by links to real life examples of agriculture and the investigation of selected key elements requires a description of the role and interaction of these elements in the system."
Are specific objectives mentioned that are clearly systems related?	Yes	Yes	Farming systems; Circular Systems,
Do the following keywords appear and in what context?			
- multi-actor-approach	No	No	

- multi/inter/trans-disciplinary	Yes	Yes	Description of work: Concept and methodology (please describe also how you apply system thinking , your interdisciplinary approach and the use of stakeholder knowledge/involvement and gender dimension in research and innovation content); Single disciplinary projects excluded
- geographical balance/ widening	No	No	
- inclusiveness	Yes	Yes	Description of work: Concept and methodology (please describe also how you apply system thinking, your interdisciplinary approach and the use of stakeholder knowledge/involvement and gender dimension in research and innovation content)
- theory of change/ transformation	No	No	
- Interconnections/ connections/ interlinkages	No	No	
- Synergies	No	No	
- Trade-offs	Yes	No	Mentioned as potential research Area: Trade-offs within mixed crop-live-stock farming systems, including strategies to maximise net human edible protein production with special attention to food/feed competition within circular food systems.
- Co-creation			
- others			
Are the following aspects raised, especially when it comes to implementation of systems approach			
- stakeholder engagement	Yes	Yes	Description of work: Concept and methodology (please describe also how you apply system thinking, your interdisciplinary approach and the use of stakeholder knowledge/involvement and gender dimension in research and innovation content) and as part fo the Systems Approach: "... or the limitations or trade-offs that may occur within mixed systems."
- networking activities	No	No	
- Dissemination, Exploitation & Communication	Yes	No	Applicants to the 2021 Joint Call have to allocate sufficient resources in their budget for dissemination on their project goals, planning and results, considering also the use of ERA- NETs and other European Knowledge Platforms (ICT-AGRI-FOOD Knowledge Incubator, FOOSC Knowledge Platform, EIP-AGRI etc).
- Need for multiple levels or scales	Yes	No	Mentioned as one possible reseach topic: Effect of diversification at different levels (plant/animal and production system) on ecologic and economic resilience; identification of nature-based solutions; production efficiency, short-term versus long-term financial profitability; ecosystem services and external costs.
- others			
Call specific features			
What evaluation criteria are used?	3		Excellence (Including applications of systems thinking) , Relevance and potential impact (Including sytsnes thinking), Implementation (Including Stakeholder Plan and multi disciplinarity / composition of consortium)
Are there additional documents/ uploads required that are related to systems approach	Yes	Yes	Data Management Plan
Are there any supportive actions planned towards applicants	Yes	No	Webinar for Applicants
others			

2. ERA-NET CO 2021

Background info on selected example (e.g. call/ programme/ project)	
Name of example	CORE Organic Cofund Third call 2021
Type of example	Transnational call for R&I projects; public funders from 13 countries involved. Project duration 3 years. 5 mill euros. An ERA-NET.

Time scale	Call announcement: 11 th January 2021. Proposal submission 8 th March 2021 (one step). Start of projects: autumn 2021. Duration: 3 years.		
Thematic scope	Title of the call: "Organic farming systems for improved mixed plant and animal production"		
Source used for analysis (public/confidential)	call announcement at the Core Organic website		
Short description how the systems approach appears in the selected example	<p>"System" is in the title. A part of the European Green Deal indicated in the Farm to Fork and Biodiversity Strategies.</p> <p>„The expected impacts focus on organic food systems adopting mixed farming practices, supporting animal health and welfare, innovative cropping and production systems as well as feed production and biodiversity, aiming at accommodating the growing demand for more organic products“ It is anticipated that the organic food systems already exists.</p>		
Analysed elements that are related to systems approach			
	y/n	Is it mandatory?	short description
Is a definition of systems approach stated?	y	yes	<p>Did not find a specific definition, but a long description including: "The opposite of specialised.", "improving biodiversity, reducing greenhouse gas emissions and reducing nutrient losses.", „solutions and synergies with multiple aims"; „Diversity is key“</p> <p>Mandatory: projects must encompass mixed farming systems and the different geographical and climatic conditions covered by the funding partners participating in the Call.</p>
Are specific objectives mentioned that are clearly systems related?	y	Yes in two out of Three topics see *	<p>„The focus is on the identification, exploration and assessment of different solutions and synergies to develop more robust and resilient mixed animal farming systems with multiple aims.“</p> <p>„We encourage the development of multi-species animal farming systems and/or animal systems integrated with crop production, agroforestry and/or pastoralism. Hereby, potential ecological synergies can be exploited in all aspects of the farming system.“</p> <p>„robust and resilient agro-ecosystems for perennial and annual crops' production, in line with the principles that enhanced functional biodiversity would benefit the agricultural environment and responding to consumers' expectations.“</p> <p>„Innovative cropping and production systems could support the wellbeing of the agro-ecosystem and improve nutrient cycling by using new crop combinations“</p> <p>„Relevant research should result in diversified, stress-tolerant, multi-functional, robust and resilient cropping systems leading towards farming practices with reduced environmental and climate impact.“</p> <p>„understand how growers can make the best use of genetic diversity within and between crops, and of the natural biodiversity at field, farm and landscape levels.“</p> <p>„the development of self-sufficient animal farming systems and the overall sustainability of organic value chains“</p>
Do the following keywords appear and in what context?			
- multi-actor-approach	y	y	Is aiming at
- multi/inter/trans-disciplinary	y	y	Is aiming at
- geographical balance/ widening	y	y	It is a transnational cofounded call
- inclusiveness	n	n	
- theory of change/ transformation	n	n	
- Interconnections/ connections/ interlinkages	Y	y	As a part of the definition of System approach, see below
- Synergies	y	y	
- Trade-offs	y	y	
- Co-creation	y	y	<p>Collaboration is mentioned as part of the consortium agreement</p> <p>Call is with the aim of establishing transnational research collaboration</p>

			Universities from the Public-private partnership in collaboration with public universities Scientific description of the research activities, collaboration among partners. Added-value of the transnational collaboration
- others			
- recycling	y	y	“Recycling of nutrients on farms or at a regional level“; „nutrient recycling between farms and other parts of the food system,,
- value chain	y	y	“a value chain approach is needed, which involves upstream and downstream partners capable of interlinking skills, knowledge and disciplines.“; „The whole value chain should be taken into consideration including economic aspects that impact local 19 animal farming systems“
Are the following aspects raised, especially when it comes to implementation of systems approach			
- stakeholder engagement	y	y	Potential impact: „Testing existing or new mixtures of crop varieties suitable for organic production, increased biodiversity and ecosystem health maintenance – addressing relevant research and networking among breeders, research facilities, farmers, processors and retailers (following living laboratory approaches) “
- networking activities	y	y	As a part of the definition of multiactor approach, se below: Take account of different viewpoints and involve actors from the disciplines beyond your existing network
- Dissemination, Exploitation & Communication	Y	Y	A DEC-plan is mandatory
- Need for multiple levels or scales	y	y	Mentioned for all three topics
- others			
Possible output and potential impact			<ul style="list-style-type: none"> • Increased scientific knowledge of mixed animal farming systems, including mutual benefits for animal health and animal welfare. • Improved guidelines for managing complex agricultural systems, including animal health and animal welfare management as well as feeding strategies; • Assessment of alternatives to contentious inputs in mixed animal farming systems • Providing cropping models/systems for more diversified, stress-tolerant, multi-functional, robust and resilient organic crops • Re-design and develop cropping and feeding strategies with innovative use of crops, grassland, forage, byproducts and other potential protein sources including methods and techniques for processing; • Support for organic animal production by taking the whole value chain and related economic aspects into consideration that strongly condition local animal farming systems; • Support for sustainable local farming systems and economies driven by organic animal production.
Call specific features			
What evaluation criteria are used?	y	y	1) Excellence of the research proposal: scientific quality of objectives, ambition in relation to the call scope and topic addressed and innovative progress beyond the state-of-the-art 2) Quality and efficiency of the implementation: appropriateness and soundness of the research approach and methodology, feasibility, effectiveness of the work plan, complementarity/ competences/ diversity of partners and disciplines, adequacy of the budget and balance between partners in terms of activities, risk management, capacity building activities, communication and dissemination 3) Potential impact: contribution towards organic food systems , potential to innovate/ implement, embracing of cross-cutting issues, transnational added value
Are there additional documents/ uploads required that are related to systems approach	n		

Are there any supportive actions planned towards applicants	y		A webinar
Are activities foreseen or emphasized that align to future actions of the Partnership			
others			

3. ERA-NET HDHL Knowledge Hub 2019

Background info on selected example (e.g. call/ programme/ project)			
Name of example	Food and Nutrition Security Knowledge Hub		
Type of example	Joint Knowledge Hub call of 3 JPIs, FACCE-JPI, JPI Oceans and JPI HDHL. Transnational and multidisciplinary call to allow for research, networking and coordination, and capacity building.		
Time scale	3 step procedure January 2019: Pre-announcement and launch of the call April 2019: Deadline for submission Expression of Interest June 2019: Network meeting and opening of the proposal submission September 2019: Deadline proposal submission October 2019: rebuttal phase November 2019: Deadline final proposal. July 2020: Start of the project, duration 36 months (extended due to COVID-19)		
Thematic scope	The impact of climate change on the nutritional quality and composition of food; understand the consequences on human diets and health; and to propose adaptive strategies/ measures to ensure global/ European food and nutrition security.		
Source used for analysis (public/confidential)	Call announcement (public)		
Short description how the systems approach appears in the selected example	The aim to achieve a systems approach in this call is by connecting research communities along the entire food value chain to propose adapted, acceptable and sustainable solutions to achieving food and nutrition security. It promotes the building of lasting transdisciplinary coordination across a range of fields. In addition, the outcomes will include policy briefs and exchange between R&I and industry. The outcomes will also reach three main stakeholder groups namely producers, Agri and food industry, and consumers.		
Analysed elements that are related to systems approach			
	y/n	Is it mandatory?	short description
Is a definition of systems approach stated?	Y	Y	The European Commission aims to tackle food and nutrition security (FNS) with research and innovation policies designed to future-proof food systems through a systemic approach referred to as FOOD2030. The objective of FOOD 2030 is to contribute to the transformation of European food systems so as to make them 'future-proof', i.e. sufficient, sustainable, resilient, responsible, diverse, competitive and inclusive. FACCE-JPI, JPI HDHL and JPI Oceans cover the necessary scientific fields to ensure integrated research across the whole food system.
Are specific objectives mentioned that are clearly systems related?	Y	Y	During the knowledge hub, the impacts of potential interventions should be assessed with respect to resilience and sustainability (economic, environmental, and social/cultural) and nutritional value. The following actions will contribute to developing the knowledge base needed to realise guidelines for producing and consuming food that include resilience, sustainability and nutritional aspects. Additionally, it will provide: <ul style="list-style-type: none"> - A roadmap for future research needs - Targeted policy briefs that provide holistic advice on food systems - Exchange between R&I and industry how to work towards new and adapted food products that are both economically viable and healthy and sustainable.
Do the following keywords appear and in what context?			
- multi-actor-approach	Y	Y	The purpose of the KH is to: <ul style="list-style-type: none"> - increase facilitation of transnational research activities between individual researchers, research groups and research organisations in order to build a

			productive network of complementary competences in the field of food and nutrition security. - provide added value by bringing together complementary competences through knowledge flow from scientific research towards practice . - support a more integrative and multidisciplinary approach and ensure the involvement of key stakeholders .
- multi/inter/trans-disciplinary	Y	Y	Support a more integrative and multidisciplinary approach and ensure the involvement of key Stakeholders. The overall aim of the Knowledge Hub on Food and Nutrition Security is to foster transnational and multidisciplinary collaboration and networking in order to accelerate, further characterize and to manage the impact of climate change on nutritional make-up of food, and to propose adaptive strategies/ measures to ensure food and nutrition security
- geographical balance/ widening			
- inclusiveness	Y	N	Studies are needed to understand factors influencing consumer choices such as acceptability, ethics, availability, safety, labelling and price, social/cultural factors and taking into account the important role played by retailers and marketers.
- theory of change/ transformation	Y	Y	Different interventions should be sought along the food value chain to achieve sustainable nutritious and resilient food systems- from improved nutritional quality of production, through processing and transformation , and eventually to human consumption and health. Changing the practices of actors in the food system to improve diets.
- Interconnections/ connections/ interlinkages	Y	?	For this, participating funding organisations will bring together research groups from various disciplines to form an international consortium that will design and implement the KH. The platform will carry out joint multidisciplinary activities aiming at integrating expertise, knowledge, facilities and databases in different areas , such as biology, food sciences, agronomy, nutrition, bioinformatics, etc.
- Synergies	Y	N	It is necessary to identify the tensions, barriers, synergies and opportunities, at the level of production, retail, food service and consumers, to allow sustainable and healthy food consumption.
- Trade-offs	Y	N	Research should also lead to a better understanding of how consumers make choices when facing trade-offs, for example between food quality and environmental impact (which in turn will affect prices), taking into account that not all consumers are the same.
- Co-creation	Y	Y	Cross cutting activities should be carried out, including education, outreach, data sharing, standardization, harmonization and new research, to support a knowledge flow from scientific research towards practice . This will support a multidisciplinary approach and ensure the involvement of key stakeholders . Dialogue and co-design with stakeholders is crucial for acceptance and uptake of the research outcomes among societal actors.
- others			Research and networking activities to foster multidisciplinary research and transnational collaboration and reduce fragmentation in the research field are the primary focus of the KH. The networking activities should contribute to the current challenges in the area of Food and Nutrition Security research, and ensure that existing research activities in this area are coordinated. Examples of networking activities could include: - Bringing together, for example, clinicians; crop, farmed animal, aquaculture, fisheries, food and nutrition scientists; biological scientists, (bio) informatic experts, data sharing experts, and industry to enhance dialogue between different disciplines. - Case studies for data sharing. - Development of SOPs for collection and handling of samples, data collection and processing as well as basic analysis and data formatting. - New multidisciplinary research to address aims of the call
- Others: cross sectorial	Y	Y	The 3 JPIs have decided to establish a cross sectorial knowledge hub with mandate to look at the impact of climate change on the nutritional quality and composition of food; understand the consequences on human diets and

			health; and to propose adaptive strategies/ measures to ensure global/ European food and nutrition security.
Are the following aspects raised, especially when it comes to implementation of systems approach			
- stakeholder engagement	Y	Y	The applicants are strongly encouraged to collaborate across sectors , including academic sector, private sector and industrial partners, where appropriate
- networking activities	Y	Y	- Interface and build collaborations with the other JPI HDHL, JPI-OCEANS and FACCE-JPI Joint Actions and relevant organisations within Europe and worldwide The network is expected to develop a joint research plan and to carry out integrating and training activities.
- Dissemination, Exploitation & Communication	Y	Y	the Network Coordinator should be available to participate in meetings/workshops with the aim to: - Exchange results. - Develop a joint strategy to coordinate and facilitate integration of the planned activities of the JPI HDHL, JPI-OCEANS and FACCE-JPI - Communicate results across the JPI HDHL, JPI-OCEANS and FACCE-JPI (e.g. at Management Board meetings. Conferences and symposia organised by the JPI HDHL, JPI OCEANS and FACCE-JPI). Deliver knowledge for policy making , anticipate scientific and technological needs (priorities) and provide efficient scientific support for strategic and political decision-making in its thematic field.
- Need for multiple levels or scales	Y	Y	The applicants are strongly encouraged to collaborate across sectors , including academic sector, private sector and industrial partners , where appropriate. Specific outcomes of the Knowledge Hub will deliver impact to the three main stakeholder groups: - Producers (in a broad sense) - Work providing knowledge and know-how on which practices will increase resilience, sustainability and nutritional quality of food. - Agri and food industry (post-“farmgate”) - Work with industry to increase diversity in feed and food sources to provide greater nutritional qualities and contribute to resilient production systems by exploring food products that are both ethically and economically viable. - Consumers - Work with citizens to promote a dialogue to increase awareness of healthy and sustainable diets taking into account nutritional quality, food safety, production methods, sensory aspects, ethical and environmental issues.
- others			
Call specific features			
What evaluation criteria are used?	5		Relevance, scientific excellence, quality of the transnational collaboration (Multidisciplinary approach) and potential impact (researchers, public health, socio-economic health and industry)
Are there additional documents/ uploads required that are related to systems approach	N		No
Are there any supportive actions planned towards applicants	Y		After the Expression of Interest from participants, they were broad together to write together a proposal to set up a network.
Are activities foreseen or emphasized that align to future actions of the Partnership	Y		Trainings
others			

4. ERA-NET SF-CO 2019

Background info on selected example (e.g. call/ programme/ project)	
Name of example	SUSFOOD-CORE Organic Cofunds joint call 2019

Type of example	ERA-NET transnational call for R&I projects; public funders from countries involved; project duration 3 years.		
Time scale	Publication date of call announcement: 2 nd and revised version 10 th September 2019; Start duration of projects: late 2020 or by spring 2021 for 36 months (still running mainly following the requested extensions)		
Thematic scope	„Towards sustainable and organic food systems“		
Source used for analysis (public/confidential)	Call announcement (public)		
Short description how the systems approach appears in the selected example	Systems approach (Call Announcement/ Cross-cutting issues (CCIssues), p. 6): Consider interconnections, synergies or trade-offs between different aspects or actors that directly or indirectly affect your field of research on a systems level (e.g, economic, environmental, social, legislative, geographical, behavioural, business environment, etc.).		
Analysed elements that are related to systems approach			
	y/n	Is it mandatory?	short description
Is a definition of systems approach stated?			<p>FS Approach indicated:</p> <p>Scope</p> <ul style="list-style-type: none"> - In this regard, system approaches based on agroecological principles are gaining recognition as a pathway to enable sustainable intensification of food production and consumption, not only for organic food production, but also in the conventional sector.(p.5) - In the Joint Call, we will support research projects taking a <u>system approach considering, as far as possible, all relevant aspects in the food system</u> and their potential to increase its sustainability (Topic 1, p.5); - CCIssues (p.6) - Impact together with CCI: <p>Expected impact (considering cross-cutting issues: multi-actor/ multi-disciplinary and system approach) (p.11)</p> <ul style="list-style-type: none"> - In connection with the AE definition: ‘The agroecology as a scientific discipline is beyond agroecosystems scales and has ‘a larger focus on the whole food system, defined as a global network of food production, distribution and consumption’ (p.18).
Are specific objectives mentioned that are clearly systems related?	Yes	Yes	<ul style="list-style-type: none"> • Call Text (Topic 1, p.19): <p>This approach includes valorisation and use of side streams following a zero-waste philosophy, making use of new and innovative tools (e.g. Industry 4.0), and a systemic concept that considers all the steps involved in food production from farm to fork to support the transition towards a resilient, efficient and competitive food and drink sector.</p> <ul style="list-style-type: none"> • DEFRA (National Rules, after p.65)): <p>Defra’s funding is restricted to research proposals considering a food systems approach with a primary focus on food chain impacts.</p> <p>Research proposals should target productivity and competitiveness alongside environment and other priorities within a systems approach. Multi- and interdisciplinary research expertise is encouraged.</p> <p>Defra’s interest is in research projects that propose a farm to fork approach with focus on food chain impacts (i.e. post farm gate). Projects which consider the interdependencies and trade-offs between different food production stages across the entire food chain are of interest.</p>
Do the following keywords appear and in what context?			<p>Textual search:</p> <ul style="list-style-type: none"> • System approach(es) – 5 • Food system approach – 1 • Food system(s) – 72 times • Approach - 16 times • change (climate, social, actual change) – 7 times
- multi-actor-approach	Yes	No	The CCI criteria was not mandatory, but: ‘The issues should be taken into account across all topics and be individually adapted to each project in order to increase projects’ value and impact’ (p.6)
- multi/inter/trans-disciplinary	Yes	No	

- geographical balance/ widening	Yes	No	
- inclusiveness			N/A
- theory of change/ transformation	Yes		Innovation will therefore be key to support food systems transformation and for this to operate within natural resource boundaries and diminish climate change impact. (p.5); Mild processes gives the opportunity to make side streams available for new, high-quality applications, change single process operations or the re-design of the entire food supply chain.(p.21) – breaking down the process and setting requirements for evaluation on different levels could be a relevant step. It comes close to cascading effect from CBE JU calls.
- Interconnections/ connections/ interlinkages	Yes	No	
- Synergies	Yes	No	
- Trade-offs	Yes	No	Providing research evidence methodological frameworks for comparison of different solutions, trade-offs and policy recommendations for a diversity of food that promotes sustainable and organic food systems (p.21) – potential focus on requiring well-developed and tailor-made system approached methodology
- Co-creation	No		
- others			
Are the following aspects raised, especially when it comes to implementation of systems approach			
- stakeholder engagement	Yes	No	
- networking activities	No		
- Dissemination, Exploitation & Communication	Yes	Yes	
- Need for multiple levels or scales	Yes	no	Mainly as involvement of stakeholders and geographical coverage.
- others			
Call specific features			
What evaluation criteria are used?			Pre- proposals: -Evaluation results and recommendations of the expert panel (relevance, quality, impact) - National funding availability: each funding body should not oversubscribe the available national budget by more than 3-4 times, -Geographical balance in case of projects with the same score. Full proposals -Excellence of the research proposal, -Quality and efficiency of the implementation, -Potential Impact.
Are there additional documents/uploads required that are related to systems approach	No		Not directly.
Are there any supportive actions planned towards applicants			Webinar for the applicants was offered.
Are activities foreseen or emphasized that align to future actions of the Partnership			Yes as a prescription, but not systematically.
others			

5. ERA-NET SF-FOSC 2021

Background info on selected example (e.g. call/ programme/ project)

Name of example	SF-FOSC Joint Call 2021
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Type of example	Joint Call of two Era Net Co-Funds, SUSFOOD2 and FOSC, 1 Step call, 5 Projects selected		
Thematic scope	Innovative solutions for resilient, climate-smart and sustainable food systems		
Source used for analysis (public/confidential)	Call Announcement		
Short description how the systems approach appears in the selected example	The systems approach is embedded in the call because the thematic scope necessitates a systems approach. The call is about sustainable and resilient food systems. Technically the Systems approach is embedded via 3 cross cutting issues . The fulfillment of cross cutting issues by applicants is part of the evaluation under one of the three evaluation categories (impact) .		
Analysed elements that are related to systems approach			
	yes / no	Is it mandatory?	short description
Is a definition of systems approach stated?	Yes	Yes	"The aim of the Call is to foster scientifically excellent, multi-disciplinary and multi-actor research, development and innovation projects. We will support projects taking a food systems approach considering all relevant aspects that have potential to increase sustainability (Topic 1) and resilience (Topic 2). Spatial scales can be different, from local focus to projections at the regional or macro-regional levels.....Sustainability of food systems is defined here as "a food system that supports food security, makes optimal use of natural and human resources, and respects biodiversity and ecosystems for present and future generations, which is culturally acceptable and accessible, environmentally sound and economically fair and viable, and provides the consumer with nutritionally adequate, safe, healthy and affordable food". Systems approach: Consider interconnections, synergies or trade-offs between different aspects or actors that directly or indirectly affect your field of research on a systems level, considering all economic, environmental, social, legislative, geographical, behavioural, business and environment dimensions."
Are specific objectives mentioned that are clearly systems related?	Yes	Yes	The whole call is about food systems, Topic 1 Sustainability of Food Systems, Topic 2 Resilience of Food Systems
Do the following keywords appear and in what context?			
- multi-actor-approach	Yes	Yes	The aim of the Call is to foster scientifically excellent, multi-disciplinary and multi-actor research, development and innovation projects..... Multi-actor approach: Involve different actors and stakeholders in your research project from the outset (by means of participation as well as transparent communication),
- multi/inter/trans-disciplinary	Yes	Yes	The aim of the Call is to foster scientifically excellent, multi-disciplinary and multi-actor research, development and innovation projects.SUSFOOD2 promotes a cross-sectoral and multi-disciplinary approach from biology to food engineering and social sciences.....Multi-disciplinary approach: Take account of different viewpoints and involve actors from the disciplines beyond your existing network. Bridging silos within food systems and across disciplines can strengthen a multi-disciplinary approach to sustainability and resilience.
- geographical balance/ widening	Yes	No	Research consortia are encouraged to consider the cross-cutting issues (see Chapter 2) as well as good geographical coverage regarding the consortium composition and/or the content of a project proposal in order to strengthen the impact.
- inclusiveness	No	No	
- theory of change/ transformation	Yes	No	Transformation is mentioned as a goal (transformation of food systems)
- Interconnections/ connections/ interlinkages	Yes	No	Mentioned in the definition of Systems approach
- Synergies	Yes	No	Mentioned in the definition of Systems approach

- Trade-offs	Yes	No	Mentioned in the definition of Systems approach
- Co-creation	No	No	
- others			
Are the following aspects raised, especially when it comes to implementation of systems approach			
- stakeholder engagement	Yes	Yes	Communication, Dissemination and Exploitation Plan (including Stakeholder Engagement): A plan for communication, dissemination and exploitation of the results has to be provided and is considered in the evaluation procedure. In addition the plan should also give information on stakeholder engagement throughout the course of the project.
- networking activities	no	no	
- Dissemination, Exploitation & Communication	Yes	Yes	C&D Plan mandatory
- Need for multiple levels or scales (e.g. of food chain, geographical coverage, stakeholder types etc.)	Yes	No	FOSC promotes a system approach that includes the addressing of scales : i) spatial scales – local, regional and global level, and ii) time scales, using the 2050 time horizon to include the expected climate risks and demographic changes
- others			
Call specific features			
What evaluation criteria are used?	3		Excellence, Relevance and potential impact (Including cross-cutting issues), Implementation (Including Stakeholder Plan and multi disciplinarity / composition of consortium)
Are there additional documents/uploads required that are related to systems approach	Yes	Yes	Communication, Dissemination, Exploitation Plan and Data Management Plan
Are there any supportive actions planned towards applicants	Yes	Yes	Webinars, Partnering Tool
others			

6. ERA-NET SINO-EUROPEAN CALL 2022

Background info on selected example (e.g. call/ programme/ project)			
Name of example	ERA-NET COFUND URBAN ACCESSIBILITY AND CONNECTIVITY SINO-EUROPEAN CALL, 2022 call		
Type of example	Transnational call for R&I projects; public funders from China, Belgium, Denmark, France, Netherlands, Poland, Romania, Slovenia, Sweden; project duration 3 years,		
Time scale	Submission of pre-proposals 12 April 2022/start between January-May 2023.		
Thematic scope	URBAN ACCESSIBILITY AND CONNECTIVITY		
Source used for analysis (public/confidential)	Call text		
Short description how the systems approach appears in the selected example	A systems approach is not directly mentioned. However, elements related to a systems approach is part of the call text (e.g. multi-dimensional needs, stakeholder engagement, multi-disciplinarity, theory of change). These elements are part of the evaluation criteria.		
Analysed elements that are related to systems approach			
	y/n	Is it mandatory?	short description
Is a definition of systems approach stated?	N	n/a	
Are specific objectives mentioned that are clearly systems related?	Y	y	“Enhance the planning and operational decisions at the urban scale, reflective of multi-dimensional needs such as efficiency, sustainability, transition, social security and adaptability to data and innovation.” (Page 9)
Do the following keywords appear and in what context?			
- multi-actor-approach	N	N/A	Engagement of stakeholders in mandatory and composition of consortium should fit the topic and be complimentary.

- multi/inter/trans-disciplinary	Y	Y	Projects must be transdisciplinary and encourage projects to apply from a wide variety of disciplines. Part of evaluation criteria.
- geographical balance/ widening	Y	Y	Consortium must include partners from both China and Europe – must address issue in both geographical contexts. E.g. how solution can be applied in European cities and Chinese metropolis.
- inclusiveness	Y	N	“Integration of gender and diversity perspectives in the project plan and goals when applicable”
- theory of change/ transformation	Y	Y	“The impact plan should include a Theory of Change. A Theory of Change describes how the research process can contribute to societal impact, taking into account the context and actors involved, and describing the sequence of logically-linked consequential relations.” (P14)
- Interconnections/ connections/ interlinkages	N	N	
- Synergies	N	N	
- Trade-offs	N	N	
- Co-creation	Y	Y	“Examples of productive interactions are: Co-design: formulation of research questions and approaches jointly with potential end-users. Co-creation: joint execution of research projects and interactive dialogue on research results.” (P14). Quality of co-creation in part of evaluation.
- others			
Are the following aspects raised, especially when it comes to implementation of systems approach			
- stakeholder engagement	Y	Y	The impact plan must include information about: “Stakeholder engagement: who are the relevant stakeholders to engage with according to context analysis, how are the productive interactions organised and when?” (P 14)
- networking activities	N	N	
- Dissemination, Exploitation & Communication	Y	Y	Impact plan must include information about: “Communication strategy: how are engagement dialogues organised and results exchanged and translated, and whose responsibility is it? Monitoring, Evaluation and Learning: how are results of activities monitored and evaluated, such that assumptions can be tested and activities adjusted accordingly, and whose responsibility is it?”
- Need for multiple levels or scales	N	N	
- others			
Call specific features			
What evaluation criteria are used? Please highlight those related to systems approach			Projects are evaluated on (1) scientific quality, (2) impact and user engagement (societal and broader impacts of projects and (3) quality of consortium and sino-european collaboration. Point 2 include evaluation on: <ul style="list-style-type: none"> - Engagement of stakeholders and response to stakeholder demand - Quality of impact plan <ul style="list-style-type: none"> o Logical and cohesive theory of change o Logical impact pathway linked to the theory of change o Feasible and appropriate strategic activity planning Point 3 include evaluation on <ul style="list-style-type: none"> - Balance in the consortium - Composition in consortium compared to topics needs, transnational relevance and complementarity - Integration of gender and diversity - Quality of transdisciplinarity, cross-sectoral collaboration and co-creation
Are there additional documents/ uploads required that are related to systems approach	Y	Y	Impact plan, which includes info about theory of change, stakeholder engagement, communication strategy and monitoring
Are there any supportive actions planned towards applicants	Y	N	Webinars

Are activities foreseen or emphasized that align to future actions of the Partnership	N	N/A	
others			Approaches should be compared between European and Chinese settings.

7. Food-Water-Energy Nexus 2017

Background info on selected example (e.g. call/ programme/ project)			
Name of example	Sustainable Urbanisation Global Initiative (Belmont Forum and Urban Europe) Food-Water-Energy Nexus, joint call 2017		
Type of example	Transnational call for R&I projects, 24 funding agencies from 20 countries/regions involved; project duration 3 years.		
Thematic scope	Food-Water-Energy Nexus		
Source used for analysis (public/confidential)	Call announcement		
Short description how the systems approach appears in the selected example	The Sustainable Urbanisation Global Initiative is aware of the importance of inter- and transdisciplinary approaches – of involving all kind of relevant stakeholders and by this creating synergies. However, their approach also includes the need to consider all possible risks and trade-offs associated with new innovative solutions. These requirements are expressed in the call announcement and therefore will also apply to the chosen future projects.		
Analysed elements that are related to systems approach			
	y/n	Is it mandatory?	short description
Is a definition of systems approach stated?	n	n	
Are specific objectives mentioned that are clearly systems related?	n	n	
Do the following keywords appear and in what context?			
- multi-actor-approach	n	n	
- multi/inter/trans-disciplinary	y	y	All projects are asked to combine inter- and transdisciplinary research approaches. Projects should examine a variety of coupled interactions and feedbacks among relevant systems and include an interdisciplinary , multinational and multi-scalar approach. All proposals must integrate across the natural sciences and social sciences and should include an interdisciplinary , multinational approach.
- geographical balance/ widening	n	n	
- inclusiveness	Y	y	Teams (<i>projects</i>) should also consider... how the proposed activities advance discovery and understanding while promoting teaching, training, and learning; broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.); Not as a key word, but within a description
- theory of change/transformation	n	n	
- Interconnections/connections/ inter-linkages	n	n	
- Synergies	y	n	Approaches (<i>projects</i>) may coordinate, develop and assess the linkages and synergies between co-designed knowledge platforms, innovative social practice, and sustainable applied solutions in the context of FWE.
- Trade-offs	y	n	The FWE nexus approach offers a framework for developing goals, targets, and solutions that balance trade-offs and maximize synergies between the food, water and energy sectors. The development of novel solutions for the complex challenges, including multi-level governance and management, and dynamic emerging risks and trade-offs , that urbanisation imposes on the FWE systems will contribute to the ability of populations to transition to sustainable consumption and production. (balancing tradeoffs and minimizing social and cultural inequalities)

			...proactive solutions would target balancing trade-offs and amplifying synergies between the food, water, and energy sectors.
- Co-creation	y	y	The word "Co-creation" is mentioned as part of the evaluation criterion "Quality"
- others	y	y	Projects should support collaboration that goes beyond individual national efforts and demonstrates sharing, operationalizing and transferring existing knowledge, resources, and research facilities to mutual benefit.
Are the following aspects raised, especially when it comes to implementation of systems approach			
- stakeholder engagement	y	y	"All projects mustclearly engage stakeholders" The projects are encouraged to develop tools for better stakeholder engagement, such as simulation systems and customizable capacity building interfaces. Proposals (<i>projects</i>) should also include end-users, policy-makers or other relevant stakeholders and should include science products, which are directly applicable, available and usable to relevant stakeholders. Engagement of community participants or other stakeholders in the planning, designing, and completing of the research is necessary. The Belmont Forum and JPI Urban Europe recognize the need for integrated solutions involving natural and social sciences, arts and humanities, engineering and stakeholders from all relevant fields
- networking activities	n	n	The call is part of the Belmont Forum and Joint Programming Initiative Urban Europe, which include various joint programme activities like knowledge sharing and networking . (Concrete networking activities are not mentioned in the call document.)
- Dissemination, Exploitation & Communication	y	n	The call text states for projects in theme 1 that the focus areas may include "design public communication and engagement pattern for transition for stakeholders (public and private companies, local and city governance)"
- Need for multiple levels or scales (e.g. of food chain, geographical coverage, stakeholder types etc.)	y	y	Understanding the regional/global FWE resource-flow connections and impacts on regional and global economies, natural and social systems necessitates transnational projects that connect not only multiple disciplines but also a variety of practitioners such as producers, farmers, other actors in supply chains and services, consumers, community groups, planners, and decision makers (e.g. city authorities). Since applied solutions are context dependent (e.g. geographic, cultural and demographic), an important component is identifying effective models for the transfer and scaling of interventions across different regions and scales to contribute to a comprehensive spatial perspective. Developing mitigation strategies will i. a. require to face distinct multi-scalar barriers The projects should search for common, scalable, and/or transferable solutions (technical, nature-based, governance, social innovation, and financial mechanisms) to foster new green and sustainable circular economies.
- others	y		Projects should support collaboration that goes beyond individual national efforts and demonstrates sharing, operationalizing and transferring existing knowledge, resources, and research facilities to mutual benefit.
Call specific features			
What evaluation criteria are used?		y	<ul style="list-style-type: none"> • Excellence – Intellectual Merit • Impact and User Engagement (societal and broader impacts of project results) • Quality (inter-disciplinarity and Personnel) and Efficiency of project implementation. Co-creation is mentioned
Are there additional documents/ uploads required that are related to systems approach	n	n	
Are there any supportive actions planned towards applicants	n	n	
others	n		

8. HEU Citizens' science

Background info on selected example (e.g. call/ programme/ project)

Name of example	Citizens' science as an opportunity to foster the transition to sustainable food systems (grant); Call: Fair, healthy and environmentally-friendly food systems from primary production to consumption (HORIZON-CL6-2024-FARM2FORK-01)		
Type of example	HORIZON-RIA HORIZON Research and Innovation Actions; public; transnational		
Time scale	Opening date: 17 October 2023, deadline date: 22 February 2024		
Thematic scope	As there is a need for more data-driven decision making, engaging citizens in research through the provision of data on their practices, choices and attitudes towards the food system provides potential for a more direct citizen engagement in transforming food systems. The approach allows to exchange ideas, solutions, and opinions to encourage Responsible Research and Innovation (RRI) in driving sustainable food system transformation.		
Source used for analysis (public/confidential)	Public call announcement		
Short description how the systems approach appears in the selected example	There is a definition of food systems in the "topic destination" section. It is stated that "sustainable, healthy and inclusive food systems rely on systemic, cross-sectoral and participatory, multi-actor approaches and on integration between policy areas at all levels of governance. Food systems are to be understood as covering, 'from farm to fork', all the sectors, actors and disciplines relevant to and connecting i) environment protection requirements, ii) natural resources, iii) primary production on land and at sea, iv) food processing and packaging, v) food distribution and retail, vi) food services, vii) food consumption, viii) food safety, ix) nutrition and public health, and x) food waste streams."		
Analysed elements that are related to systems approach			
	y/n	Is it mandatory?	short description
Is a definition of systems approach stated?	y	y	As above.
Are specific objectives mentioned that are clearly systems related?	y	y	Proposals must implement the 'multi-actor approach' and ensure adequate involvement of citizens/civil society, together with academia/research, industry/SMEs and government/public authorities and include social innovation as the solution is at the socio-technical interface and requires social change, new social practices and social ownership.
Do the following keywords appear and in what context?			
- multi-actor-approach	y	y	Expected implementation of multi-actor approach.
- multi/inter/trans-disciplinary	y	y	This topic should involve the effective contribution of Social Sciences and Humanities disciplines.
- geographical balance/ widening	n	n	Not directly mentioned.
- inclusiveness	y	y	In the context of expected implementation of multi-actor approach.
- theory of change/ transformation	y	y	Project results are expected to contribute to positive changes in individual behaviour towards healthy and sustainable food consumption and sustainable food system transformation.
- Interconnections/ connections/ interlinkages	n	n	
- Synergies	y	y	Proposals are expected to connect personal data on food to other areas, such as mobility and health and identify synergies.
- Trade-offs	n	n	
- Co-creation	y	y	Proposals are expected to explore the potential of 'citizen's science' in the food systems domain by engaging and empowering citizens in using and providing data and technology to ensure inclusive solutions to drive sustainable food system transformation by promoting sustainable food consumption, reducing food waste, and creating a resilient food system.
- others	n	n	
Are the following aspects raised, especially when it comes to implementation of systems approach			
- stakeholder engagement	y	y	In the context of expected implementation of multi-actor approach.
- networking activities	y	n	In the "topic destination" section it is mentioned that R&I will accelerate the transition to sustainable, healthy and inclusive food systems by, among others, networking and exchanging knowledge on food fraud and food safety and exploring the influence of climate change on food safety.

- Dissemination, Exploitation & Communication	y	n	Where appropriate, proposals are encouraged to cooperate with actors such as the European Commission Knowledge Centre for Global Food and Nutrition Security and the Africa Knowledge Platform, also for the purpose of dissemination and exploitation of results
- Need for multiple levels or scales	y	n	The need for multiple levels is mentioned in the definition of food systems in the context of multi-actor approach and integration between policy areas at all levels of governance.
- others	n	n	
Call specific features			
			Proposals are expected to (among others): - Explore the potential of 'citizen's science' in the food systems domain by engaging and empowering citizens in using and providing data and technology to ensure inclusive solutions to drive sustainable food system transformation by promoting sustainable food consumption, reducing food waste, and creating a resilient food system. - Identify the challenges and drivers encouraging citizens to share data to ensure inclusive food system transformation. - Develop and test tools by using data and technology to enhance uptake of healthy and sustainable diets and foster sustainable food system transformation. - Explore which data types are most useful to share (behavioural data, data from private providers, such as data gathered by relevant apps, stated data...etc.) and how to meaningfully harmonize data to use data for food system transformation by different actors, and which tools to best make use of, such as Artificial Intelligence (AI) while analysing how consumer data can be shared in an anonymized and safe way complying with the General Data Protection Regulation (GDPR) rules. - Proposals are encouraged to cooperate with actors such as the European Commission's Joint Research Centre (JRC). The JRC may provide expertise on how to strengthen the relationship between scientists and European policy makers and to promote research and collaboration on food systems science.
What evaluation criteria are used?	y	y	
Are there additional documents/ uploads required that are related to systems approach	n	n	
Are there any supportive actions planned towards applicants	n	n	
Are activities foreseen or emphasized that align to future actions of the Partnership	n	n	
others	n	n	

9. HEU Environmental impacts

Background info on selected example (e.g. call/ programme/ project)			
Name of example	Environmental impacts of food systems (grant); Call: Clean environment and zero pollution (HORIZON-CL6-2024-ZEROPOLLUTION-01)		
Type of example	HORIZON-RIA HORIZON Research and Innovation Actions; public; transnational		
Time scale	Opening date: 17 October 2023, deadline date: 22 February 2024		
Thematic scope	Understanding of the impacts related to the green-house gas (GHG) emissions stemming from food systems, i.e. environmental impacts of primary food production and harvesting		
Source used for analysis (public/confidential)	Public call announcement		
Short description how the systems approach appears in the selected example	Although "food systems" are at the centre here, there is no clear definition of what that system is. The system is treated here "as a whole", although some elements of systems approach are mentioned.		
Analysed elements that are related to systems approach			
	y/n	Is it mandatory?	short description
Is a definition of systems approach stated?	n	n	

Are specific objectives mentioned that are clearly systems related?	y	y	Proposals should identify synergies among the three dimensions of sustainability, different sectors and actors across food systems. The multi-actor approach is also expected to implement by involving a wide range of food system actors and conducting inter-disciplinary research.
Do the following keywords (or words with similar meaning) appear and in what context?			
- multi-actor-approach	y	y	Proposals are expected to implement the multi-actor approach by involving a wide range of food system actors and conducting inter-disciplinary research.
- multi/inter/trans-disciplinary	y	y	Conducting inter-disciplinary research.
- geographical balance/widening	n	n	Not directly mentioned.
- inclusiveness	y	y	In the context of expected implementation of multi-actor approach.
- theory of change/ transformation	n	n	
- Interconnections/ connections/ interlinkages	n	n	
- Synergies	y	y	Proposals are expected to identify and map opportunities and innovative solutions, including existing good practices, that maximise synergies among the three dimensions of sustainability (i.e. environmental – including climate and biodiversity, economic, social - including health), different sectors, as well as actors across the food systems (from production/ harvesting to consumption), minimising trade-offs and reducing pollution as well as other environmental and climate impacts in food systems as a whole. One of the outcomes should be also increased overall knowledge of the environmental and climate impacts stemming from the food systems, including potential trade-offs/synergies with other sustainability aspects (environmental, social, economic).
- Trade-offs	y	y	As above.
- Co-creation	n	n	
- others	n	n	
Are the following aspects raised, especially when it comes to implementation of systems approach			
- stakeholder engagement	y	y	In the context of expected implementation of multi-actor approach.
- networking activities	n	n	
- Dissemination, Exploitation & Communication	n	n	
- Need for multiple levels or scales	y	y	It is emphasised that there is a need of broader view on the impact of food systems, taking into account multiple levels of food chain, including food processing, manufacturing, packaging, distribution, trade, consumption.
- others	n	n	
Call specific features			
What evaluation criteria are used?	y	y	Proposals are expected to (among others): - Collect relevant qualitative and quantitative data on environmental and climate impacts related to water, air and soil pollution stemming from the food systems, biodiversity losses, climate change and negative impacts on human health, as well as data on freshwater consumption, soil erosion, resource and energy efficiency of food production and supply practices. - Assess the environmental impacts of food systems from a life-cycle perspective, using the Environmental Footprint methods. - Identify and map opportunities and innovative solutions, including existing good practices that address the identified impacts and promote the uptake of sustainable food production (including harvesting) and/ or food supply practices, including consumption practices, with minimum impact. - Identify and map opportunities and innovative solutions, including existing good practices, that maximise synergies among the three dimensions of sustainability (i.e. environmental – including climate and biodiversity, economic, social - including health), different sectors, as well as actors across the food systems (from production/ harvesting to consumption), minimising trade-offs and reducing pollution as well as other environmental and climate impacts in food systems as a whole.

			- Implement the multi-actor approach by involving a wide range of food system actors and conducting inter-disciplinary research.
Are there additional documents/uploads required that are related to systems approach	n	n	
Are there any supportive actions planned towards applicants	n	n	
Are activities foreseen or emphasized that align to future actions of the Partnership	n	n	
others	n	n	

10. HEU FOODITY 2023

Background info on selected example (e.g. call/ programme/ project)			
Name of example	FOODITY – FOod and nutritiOn Data-driven innovation respectful of citizen's Data Sovereignty		
Type of example	Project funded under the European Union's Horizon Europe research and innovation programme under grant agreement N° 101086105		
Time scale	Start date: 1 January 2023, end date: 31 December 2025		
Thematic scope	Innovations spearheading a nutrition revolution and personal data sovereignty		
Source used for analysis (public/confidential)	Project website		
Short description how the systems approach appears in the selected example	There is no system approach mentioned. Some elements may be considered as systems related, but they appeared only in the call for proposal for this project.		
Analysed elements that are related to systems approach			
	y/n	Is it mandatory?	short description
Is a definition of systems approach stated?	n	n	
Are specific objectives mentioned that are clearly systems related?	y	n	The main objective of the project is to demonstrate the potential of user's personal data in health and nutrition solutions to contribute to more just and environmentally-friendly food systems, reaching over 200,000 citizens in the communication actions. This data can improve the entire food system value chain, as its actors (producers, distributors, retailers) can also use it to create more sustainable processes
Do the following keywords appear and in what context?			
- multi-actor-approach	n	n	Not mentioned but is related to the description of need for multidisciplinary consortia
- multi/inter/trans-disciplinary	Y	Y	FOODITY will fund multidisciplinary consortia of 2-3 entities that include small and medium-sized enterprises (SMEs) and start-ups, research and technology organisations (RTOs) and universities, social innovation actors and training organisations. The consortia must demonstrate the capacity to develop the data-driven solution and collectively show capacity for user engagement and social innovation
- geographical balance/widening	y	y	In the consortium there are 7 organisations from 7 countries.
- inclusiveness	y	y	Data collected in digital solutions in the food and nutrition domain can be used by food producers, distributors and retailers to innovate towards more environmentally friendly activities. However, since the platforms are closed to the public, there is limited possibility of using data for common good. With this in mind, the EU-funded FOODITY project aims to create a healthy ecosystem of digital solutions for food and nutrition that respect citizens' right to personal data sovereignty.
- theory of change/ transformation	n	n	
- Interconnections/ connections/ interlinkages	n	n	
- Synergies	n	n	
- Trade-offs	n	n	

- Co-creation	Y	Y	Citizen engagement is expected as part of the development of the solutions and during the pilots to ensure that the above aims will not only be reached, but that developed solutions will fit needs and interests, allowing for maximum impact.
- others	n	n	
Are the following aspects raised, especially when it comes to implementation of systems approach			
- stakeholder engagement	y	y	FOODITY will run a 2M€ pilot development program funding 12 Industry and research collaborations to develop pilots demonstrating the potential of data-driven innovations in health and nutrition, engaging citizens in their development. The goal is to reach more than 200 000 citizens. “Citizen engagement is expected as part of the development of the solutions and during the pilots to ensure that the above aims will not only be reached, but that developed solutions will fit needs and interests, allowing for maximum impact.”
- networking activities	y	n	There are mentoring, coaching and training mentioned.
- Dissemination, Exploitation & Communication	y	y	The goal is to deliver 12 data-driven solutions in the food and nutrition domain.
- Need for multiple levels or scales	y	y	It is mentioned in the context of the different areas of expertise of the organisations involved in the consortium. “From Austria to Ireland — and from ICT-based solutions to social innovation experts —, our diverse team brings together strong expertise in large research and innovation projects.”
- others	n	n	
Call specific features			
What evaluation criteria are used? Please highlight those related to systems approach			Full description of criteria can be found in the guidelines for applicants: FOODITY-OC1-Annex-1-Guidelines-for-Applicants-v1.1 (1).pdf 1. Concept and Research Challenges 2. Impact and innovation potential 3. Data rights and citizen engagement 4. Implementation & Team
Are there additional documents/uploads required that are related to systems approach	n/a	n/a	
Are there any supportive actions planned towards applicants	n/a	n/a	
Are activities foreseen or emphasized that align to future actions of the Partnership	n	n	
others			

11. HEU TITAN 2023

Background info on selected example (e.g. call/ programme/ project)	
Name of example	TITAN – Transparency solutions for transforming the food system
Type of example	Project has received funding under the European Union’s HORIZON EUROPE research and innovation programme under grant agreement No 101060739 and UK Research and Innovation (UKRI) under the UK government’s Horizon Europe funding guarantee grant numbers 10042327 (Cardiff University), 10040501 (Queens University Belfast), and 10042327 (University of Surrey).
Time scale	Start date: 1 September 2022, end date: 31 August 2026
Thematic scope	TITAN will provide an extensive platform for the development of a wide range of innovations that aid transparency and address societal and planetary health to make the food system fair, healthy, and environmentally friendly.
Source used for analysis (public/confidential)	Project website
Short description how the systems approach appears in the selected example	There is no system approach described. However, some elements are systems related. System approach is mentioned only in the context of building Network of Expertise (TITAN Stakeholder Board): “The Network Of Expertise (NOE) that will be built during the runtime of the project as the stakeholder Board, will be an essential part of the Hub. Ideally, the NOE consists of representative sets of experts in the identified topics of TITAN (Transparency, Sustainability, New (Digital) Technologies, Food System Approach) and the related subtopics.”

Analysed elements that are related to systems approach			
	y/n	Is it mandatory?	short description
Is a definition of systems approach stated?	n	n	
Are specific objectives mentioned that are clearly systems related?	y	y	One of the objectives is to provide food stakeholders with fit-for-purpose, state-of-the-art solutions for increasing and monitoring transparency in the food system.
Do the following keywords appear and in what context?			
- multi-actor-approach	n	n	Although the “multi-actor approach” doesn’t appear itself as a keyword, the diversity of consortium partners may suggest the use of such an approach. The TITAN consortium consists of eight universities, three research institutes, thirteen small and medium-sized enterprises, and three non-profit organizations.
- multi/inter/trans-disciplinary	y	y	Interdisciplinary is not directly mentioned, but appears in the context of methods used (TITAN will develop 15 innovative solutions including exploiting DNA-based Rapid Detection Methods, Blockchain, AI, and IoT).
- geographical balance/ widening	y	y	27 consortium partners are located in 14 countries throughout Europe, namely: Belgium, Finland, France, Italy, Germany, Greece, Netherlands, Norway, Serbia, Poland, Portugal, Spain, Switzerland, and United Kingdom.
- inclusiveness	n	n	
- theory of change/transformation	n	n	
- Interconnections/ connections/ interlinkages	n	n	
- Synergies	n	n	
- Trade-offs	n	n	
- Co-creation	n	n	
- others	n	n	
Are the following aspects raised, especially when it comes to implementation of systems approach			
- stakeholder engagement	y	y	There is a TITAN Stakeholder Board (Network Of Expertise). “Becoming a member of the TITAN Stakeholder Board comes with the following: - Join a vibrant community focused on a relevant topic, stay informed, and engage with other members of the network. - Be informed earlier. - Contribute to publications.
- networking activities	y	y	As above.
- Dissemination, Exploitation & Communication	y	y	In is mentioned in the context of providing more transparent information to the consumer on the health and sustainability of food products.
- Need for multiple levels or scales	y	y	It is mentioned in the context of the diverse type of the organisations involved in the consortium and their geographical coverage.
- others			
Call specific features			
What evaluation criteria are used?	n/a	n/a	
Are there additional documents/uploads required that are related to systems approach	n/a	n/a	
Are there any supportive actions planned towards applicants	n/a	n/a	
Are activities foreseen or emphasized that align to future actions of the Partnership	y	y	TITAN will provide an extensive platform for the development of a wide range of innovations that aid transparency and address key challenges identified in the European Green Deal. Moreover, the most important outcome of TITAN is to build an EU Hub that will function as a centre of expertise and as a first point of contact with the aim of promoting and facilitating systemic solutions related to transparency. The Hub will function as a one-stop shop that helps companies to become more competitive.
others			

12. Interreg Aurora

Background info on selected example (e.g. call/ programme/ project)			
Name of example	Interreg Aurora 2021-2027 (Interreg VI-A, Sweden-Finland-Norway, Nuts III regions, AURORA)		
Type of example	All applicants are advised to contact Interreg Aurora secretariat and fill "project idea template" to test their project idea, consortium and expected results. Duration up to 36 months. At least two countries have to be involved in the project.		
Time scale	Projects must be done by 2029. Programme is based on different calls: I. 21.6.-31.8.2022; II. 1.2-28.3. 2023; III. 7.8.2023 – 1.9.2023.; IV: 5.2.-5.3.2024; Future calls: TBD See more: https://www.interregaurora.eu/projects/calls-for-applications/		
Thematic scope	Joint programme strategy: main development challenges and policy responses Priority 1: Smart and sustainable growth (smart specialization, research and innovation) Priority 2: Green and sustainable transition (climate change adaptation)		
Source used for analysis (public/confidential)	https://www.interregaurora.eu/support/programme-documents/		
Short description how the systems approach appears in the selected example	As a part of European green transition/biodiversity/eco-system-based approaches – concentration on smart specialization and smart food to increase green transition, multi-stakeholder approach emphasized, as well as regional aspects (like peatlands, role clean water and water management, sustainable tourism etc)		
Analysed elements that are related to systems approach			
	y/n	Is it mandatory?	short description
Is a definition of systems approach stated?	N (Y)		Call is based more on green transition, which is defined several times/different aspects (not specifically in relation to food)
Are specific objectives mentioned that are clearly systems related?	Y		Food chain aspect few times
Do the following keywords appear and in what context?			
- multi-actor-approach	Y	Y	Multi-stakeholders
- multi/inter/trans-disciplinary	Y	N	Knowledge sharing preferred
- geographical balance/ widening	Y	Y	Regional call
- inclusiveness	Y	Y	"...promote cross-border projects that develop the region together in a smart, sustainable and inclusive manner."
- theory of change/ transformation	Y	N	Green transition, smart and sustainable growth, sustainable development
- Interconnections/ connections/ interlinkages	Y	Y	European Green Deal Strategy, national and regional ERDF programs, UN Sustainable Development Goals
- Synergies	Y	Y	https://www.interregaurora.eu/programme-manual/apply-for-a-project/project-relevance-and-context/
- Trade-offs	Y	N	
- Co-creation	Y	N	Especially new business opportunities
- others			
Are the following aspects raised, especially when it comes to implementation of systems approach			
- stakeholder engagement	Y	N	Considering project goals and consortium. Stakeholder collaboration is also highlighted multiple times.
- networking activities	Y	N	
- Dissemination, Exploitation & Communication	Y	Y	
- Need for multiple levels or scales (e.g. of food chain, geographical coverage, stakeholder types etc.)	Y	N	"...important to be able to transfer knowledge, influence people or carry out certain processes that are important for the socially and ecologically sustainable development of the region."
- Others			gender equality, CO2 emissions/transportation/urban mobility, role of technology and digitalization in transformation emphasized
Call specific features			
What evaluation criteria are used?			https://www.interregaurora.eu/programme-manual/apply-for-a-project/assessment-and-selection-procedure/

			cross-border co-operation, new partnership, sustainable development, innovative / concrete /long-lasting results
Are there additional documents/ uploads required that are related to systems approach	Y		Strategic environmental assessment, https://www.interregaurora.eu/wp-content/uploads/SEA-AURORA_final-version_20210610.pdf
Are there any supportive actions planned towards applicants	Y		Aurora secretariat & NCPs help applicants/consortiums, also web pages https://www.interregaurora.eu/programme-manual/plan-your-project/seminars-events-trainings/
Are activities foreseen or emphasized that align to future actions of the Partnership	Y		Preparatory/pilot projects for bigger projects, such as Horizon EU or Life projects
others			

13. Interreg Baltic Sea

Background info on selected example (e.g. call/ programme/ project)			
Name of example	Interreg Baltic Sea Region 2021-2027		
Type of example	Transnational around Baltic Sea (Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland and Sweden + Norway), at least three member countries have to involved in the project, duration max 36 months, based on EU ERDF		
Time scale	All together 4-5 calls between 2022-2026, projects done by 2029		
Thematic scope	Innovative societies/resilient economies and communities or Climate-neutral societies/ circular economy		
Source used for analysis (public/confidential)	Program manual and other material from website https://interreg-baltic.eu/about/		
Short description how the systems approach appears in the selected example	Through circular economy and smart specialization approaches. "...supporting the transition towards greener and more resilient societies and economies through transnational cooperation. Digitalisation is a central enabler in this transition." Also, customer orientation and transfer of knowledge are emphasized.		
Analysed elements that are related to systems approach			
	y/n	Is it mandatory?	short description
Is a definition of systems approach stated?	N		Text is more about transformation, which is not clearly explained/defined, resilience is defined to some extent (including supply chains & production)
Are specific objectives mentioned that are clearly systems related?	Y		Transnational knowledge sharing, transforming economies toward circularity, upscale existing circular approaches, establish a systemic and holistic approach, cutting across different sectors, "new innovations for approaches...", and "The current Programme aims at more systematic approaches. Societal and economic resilience building will be the core of projects' interventions"
Do the following keywords appear and in what context?			
- multi-actor-approach	Y	Y	Must be presented/project participant
- multi/inter/trans-disciplinary	Y	N	Mentioned in "reduce silo-thinking" in the BSRs/countries
- geographical balance/ widening	Y	Y	Representativeness of the project
- inclusiveness	Y	Y	"As a result indicator: Organisations with increased institutional capacity due to their participation in cooperation activities across borders"
- theory of change/ transformation	Y	N	More in smart specialization and green mobility context, and in connection to increase of resilience
- Interconnections/ connections/ interlinkages	Y	N	Example of actions: Piloting actions solving specific challenge in building resilience through better connections between research and regional innovation systems.
- Synergies	Y	Y	Expected results and their contribution to the selected action: "ensure synergies between EUSBSR stakeholders and stakeholders of other strategies in the non-EU countries of the Baltic Sea region", and also synergies across EU funds (Horizon EU, Life)
- Trade-offs	Y	Y	Project activities: "should stimulate exchange and sharing knowledge among the policy areas, including cooperation with the non-EU neighboring countries"

- Co-creation	Y	N	"Innovation' pointing out the importance to further improve the global competitiveness of the BSR.", promote SMEs capacity building and competitiveness
- others			
Are the following aspects raised, especially when it comes to implementation of systems approach			
- stakeholder engagement	Y	Y	"Programme pays special attention to adjustments of the innovation ecosystems to <u>support resilience building</u> . The <u>ecosystem is understood</u> as ability of multiple and interconnected stakeholders to work together effectively using available resources e.g. financial and human. Exiting policies and regulations as well as culture supportive to innovation are other important elements of the ecosystem. Furthermore, the solutions developed by projects should adapt smart specialisation approaches to reinforcing the region's resilience at the macro scale."
- networking activities	Y	N	Especially with stakeholders; Actions may provide stakeholders with a networking occasion and help actively engage them in the planning and implementation of the EUSBSR Action Plan (organise steering committees as well as meetings with civil society groups, conferences, training sessions, and surveys)
- Dissemination, Exploitation & Communication	Y	Y	Application should include WP Transferring solutions, "communicate and transfer the ready solutions to the target groups not only inside the project partnership, but also to other organisations that were so far not connected closely to the project"
- Need for multiple levels or scales	Y	Y	Geographical coverage needed
- others			
Call specific features			
What evaluation criteria are used?	Y		Programme manual, p 44 ->, Contribution to the policies and strategies , Does the project plan to contribute to achieving specific goals or implementing actions of other strategic documents relevant to the Programme area? Preparing , piloting and evaluating, transferring solutions , Is there a clear approach on how the project plans to develop or adapt solutions?
Are there additional documents/ uploads required that are related to systems approach	Y		Depending on application topic, Policy area documents
Are there any supportive actions planned towards applicants	Y		Specified time plan for webinars, webpage updates etc
Are activities foreseen or emphasized that align to future actions of the Partnership	Y		Knowledge sharing is emphasized
others			

14. JPI Water 2018

Background info on selected example (e.g. call/ programme/ project)			
Name of example	Water JPI, 2018 Joint Call		
Type of example	Transnational call for R&I projects; public funders from EU and EU associated countries; project duration 24-36 months		
Time scale	Pre-announcement December 2017, Step 1 submission 24 April, step 2 submission 18 September 2018, project start circa April 2019		
Thematic scope	Closing the Water Cycle Gap – Sustainable Management of Water Resources		
Source used for analysis (public/confidential)	Call text (public)		
Short description how the systems approach appears in the selected example	Systems approach is not mentioned explicitly, however, they do use elements of a systems approach. E.g. projects must address interconnections and synergies, must be multidisciplinary, include stakeholders and consider how to support dissemination and exploitation of results.		
Analysed elements that are related to systems approach			
	y/n	Is it mandatory?	short description

Is a definition of systems approach stated?	N	N/A	
Are specific objectives mentioned that are clearly systems related?	N	N/A	
Do the following keywords appear and in what context?			
- multi-actor-approach	N	N/a	The funding partners wish to promote transdisciplinary research.
- multi/inter/trans-disciplinary	Y	Y	The funding partners wish to promote transdisciplinary research. "Tackling societal challenges always requires a transdisciplinary approach. Therefore, all proposals should emphasise the effective participation of stakeholders and end-users (including industry) in research, and innovation actions (participatory approaches)." (P10) – Part of the evaluation criteria
- geographical balance/widening	Y	N	International cooperation is encouraged. Sub-themes encourage projects to consider the local and/or regional context
- inclusiveness	Y	Y	Gender dimension must be considered in all proposals. Evaluation will also consider gender balance and fair geographic and institutional distribution.
- theory of change/ transformation	N	N	
- Interconnections/ connections/ interlinkages	Y	Y	The projects are ask to consider the following statement: "Cross-cutting issues, such as socio-economic and/or capacity development aspects (contributions to standards and norms) constitute an added value to R&I in this field" (P10)
- Synergies	Y	Y	Proposals should build on on-going research activities thereby creating synergy/coordination with other national/EU projects à should describe opportunities and initiatives for cooperation with other activities (p10)
- Trade-offs	N	N	
- Co-creation	Y	Y	All proposals must highlight the effective participation of stakeholder and end-users (participatory approach). This is a requirement and stakeholders can be SMEs, industries, authorities, public administration, associations and civil society organisations.
- others			
Are the following aspects raised, especially when it comes to implementation of systems approach			
- stakeholder engagement	Y	Y	See above (co-creation). Proposals are expected to "Connect to stakeholders, involving them in the proposals;"
- networking activities			
- Dissemination, Exploitation & Communication	Y	Y	C&D must be addressed by applicants and should consider communication to society and dissemination to stakeholders to ease future implementation. The effectiveness of the C&D activities are part of the evaluation criteria.
- Need for multiple levels or scales	N	N	
- others			
Call specific features			
What evaluation criteria are used?	Y		Trans-disciplinarity when relevant, strong C&D
Are there additional documents/uploads required that are related to systems approach	N	N/a	
Are there any supportive actions planned towards applicants	Y	N	3 webinars
Are activities foreseen or emphasized that align to future actions of the Partnership	N	N/a	
others			

15. NATIONAL Agropolis 2020

Background info on selected example (e.g. call/ programme/ project)	
Name of example	Call for Proposal by Agropolis Fondation: "Climate change, biodiversity, food systems: Agriculture-based solutions".
Type of example	This call for proposals specifically invites proposals that include new collaborations between researchers, disciplines, approaches and methodologies (including participatory research, involving key stakeholders).

Time scale	Started in December 2019, closed in March 2020		
Thematic scope	The Call for Proposals broad scope is designed to generate proposals addressing the various themes identified under each of the three-crosscutting axe: (1) Agriculture and climate change: adaptation and mitigation; (2) Conservation and sustainable use of biodiversity; (3) Responsible production and consumption.		
Source used for analysis (public/confidential)	Call announcement, publicly available here		
Short description how the systems approach appears in the selected example	Axis 3: Responsible production and consumption Under this axis, the aim is to contribute in ensuring sustainable food system by moving towards more responsible production and consumption		
Analysed elements that are related to systems approach			
	y/n	Is it mandatory?	short description
Is a definition of systems approach stated?	N	N	
Are specific objectives mentioned that are clearly systems related?	Y	Y	<p>“Axis 3: Responsible production and consumption - Under this axis, the aim is to contribute in ensuring sustainable food system by moving towards more responsible production and consumption. Among the key issues, the following themes may be the subject of research and training proposals:</p> <ul style="list-style-type: none"> - Food environments: food landscapes, food deserts, food swamps; - Co-designing agro-ecosystems with stakeholders (e.g., farmers, policy-makers, experts, etc.); - Governance of sustainable food systems (certification and quality of production, public regulations, role of companies, coordination of sectors); - Bio-economy in circular economy in food and non-food system, to include, among others efficient waste and resource management; - Animal and/vs plant-based proteins (food transition); - Innovation and socio-ecological transition.”
Do the following keywords appear and in what context?			
- multi-actor-approach	Y	Y	This term specifically does not appear. However, there is a mention of "co-designing agro-ecosystems with stakeholders (e.g., farmers, policy-makers, experts, etc.)", which suggests a collaborative or multi-actor approach.
- multi/inter/trans-disciplinary	Y	Y	“The Foundation seeks to encourage and mobilize a combination of disciplines, revisit their research practices and ways of building research projects. Proposals should include new (to the extent possible) collaborations (or reinforce existing ones) between researchers, disciplines, approaches and methodologies (including participatory research involving key stakeholders) so as to tackle, directly or indirectly, sustainable development challenges.”
- geographical balance/ widening	Y	Y	There is no direct mention of "geographical balance" or "widening." However, the call for proposal does discuss the importance of visibility and international dimension, potential benefits for developing countries, and the involvement of actors from the South, which could relate to geographical balance.
- inclusiveness	Y	Y	The term "inclusiveness" specifically does not appear. The closest reference is related to the "quality of partnership and collaboration" and the potential involvement of actors from various regions.
- theory of change/ transformation	N	N	
- Interconnections/ connections/ interlinkages	N	N	
- Synergies	Y	Y	The call for proposal mentions "- Socio and agro-ecosystem co-viability and co-benefits, synergies, tensions, trade-offs" under Axis 1, which deals with conservation and sustainable use of biodiversity.
- Trade-offs	Y	Y	See point above;
- Co-creation	Y	Y	The term "co-creation" specifically does not appear. However, the call for proposal does mention "co-designing agro-ecosystems with stakeholders" which implies a form of collaborative creation or development.
- others			
Are the following aspects raised, especially when it comes to implementation of systems approach			
- stakeholder engagement	Y	Y	The call for proposal emphasizes co-designing agro-ecosystems with stakeholders, including farmers, policymakers, and expert.

- networking activities	N	N	
- Dissemination, Exploitation & Communication	N	N	
- Need for multiple levels or scales	Y	Y	The call discusses understanding the effects of climate change on agricultural systems at multiple levels - from genes to landscapes, and from local to international scales.
- others			
Call specific features			
What evaluation criteria are used?	Y	N	A submitted proposal should tackle at least one of the crosscutting axes (axis 3 'Responsible production and consumption' the aim is to contribute in ensuring sustainable food system by moving towards more responsible production and consumption.)
Are there additional documents/ uploads required that are related to systems approach	N	N	
Are there any supportive actions planned towards applicants	N	N	
Are activities foreseen or emphasized that align to future actions of the Partnership	N	N	
others			

16. NATIONAL Foody Zero Sprechi 2021

Background info on selected example (e.g. call/ programme/ project)			
Name of example	Foody Zero Sprechi		
Type of example	Joint call between Fondazione Cariplo, Milan Municipalities		
Thematic scope	Solutions to reduce food waste and use food excedences of fresh fruit		
Source used for analysis (public/confidential)	Call Announcement		
Short description how the systems approach appears in the selected example	The systems approach is embedded in the call because the idea that inform the call is to create a project that foster interactions across different actors (researchers, food producers, NGOs, policy makers and philanthropic organizations) to work together to develop a model that reduce food waste and fresh fruits excedences.		
Analysed elements that are related to systems approach			
	yes / no	Is it mandatory?	short description
Is a definition of systems approach stated?	No		
Are specific objectives mentioned that are clearly systems related?	Yes	Yes	
Do the following keywords (or words with similar meaning) appear and in what context?			
- multi-actor-approach	Yes	Yes	The aim of the Call is to foster research projects that include multi-actor approach: Involve different actors and stakeholders in the research project from the researchers, to food producers and NGOs active in the field of food aids
- multi/inter/trans-disciplinary	Yes	Yes	
- geographical balance/ widening	No	No	
- inclusiveness	No	No	
- theory of change/ transformation	yes	No	Transformation is mentioned as a goal (transformation of food systems)
- Interconnections/ connections/ interlinkages	Yes	No	To support and build on existing interconnections
- Synergies	Yes	No	Synergies are mentioned as a goal (facilitate and maximize synergies)

- Trade-offs	No	No	
- Co-creation	No	No	
- others			Impact
Are the following aspects raised, especially when it comes to implementation of systems approach			
- stakeholder engagement	Yes	Yes	The research project need to engage with existing networks and stakeholders working in the field: NGOs, municipality and producers
- networking activities	no	no	
- Dissemination, Exploitation & Communication	Yes	Yes	No mandatory requirement here but communication and dissemination are part of the activities that all applicants at Cariplo need to present
- Need for multiple levels or scales	Yes	No	Need to engage different kinds of stakeholders
- others			
Call specific features			
What evaluation criteria are used?	3		awareness of the related critical issues to the lack of management of surpluses food before it becomes waste; high knowledge of the context of the city of Milan and good practices existing in the fight against waste food; clarity of the formulation of objectives and the strategies adopted; logical experimental design with respect to project goals; adequacy of methodologies and strategies with respect to the objective of the proposal; ability to involve young people, that guarantees sustainability over time of the activity; ability to involve producers and agri-food wholesalers present in Milan Agri-Food Market; clear definition of social impact, environmental and economic aspects of the project on the collection and redistribution of food surpluses in the market Milan Agri-Food; consolidated experience in collecting e redistribution of food surpluses; support from other subjects of the Milan's food system such as, for example example: universities, research institutions, ATS, schools, citizens' committees, businesses, trade associations, sector of catering, etc... congruity of the economic proposal with respect to the objectives presented in the application; sharing of project costs through adequate co-financing
Are there additional documents/uploads required that are related to systems approach	No		
Are there any supportive actions planned towards applicants	Yes	Yes	Webinars
others			

17. PS BioDivMon 2022

Background info on selected example (e.g. call/ programme/ project)	
Name of example	2022 BiodivMon, Biodiversa+ call
Type of example	Transnational call for monitoring of biodiversity and ecosystem change, co-funded call, public funders from 33 countries involved; project duration 3 years.
Time scale	Launch of the call: September 2022 two-step proposal stage (pre-proposal and full proposal stage) Project granting: November 2023
Thematic scope	"Improved transnational monitoring of biodiversity and ecosystem change for science and society"
Source used for analysis (public/confidential)	Public Call text and webpage
Short description how the systems approach appears in the selected example	This call aims to maintain successful, robust monitoring approaches developed under the call also after the end of the projects, with support from involved stakeholders, programmes, and researchinfrastructures.
Analysed elements that are related to systems approach	

	y/n	Is it mandatory?	short description
Is a definition of systems approach stated?	N		
Are specific objectives mentioned that are clearly systems related?	Y	N	Proposals should fill gaps in terms of coverage of taxa, ecosystem types, regions, and sampling frequency and, where relevant, consider concrete linkages to operational monitoring networks, research infrastructures, and other existing efforts at national, European, and global level.
Do the following keywords appear and in what context?			
- multi-actor-approach	Y	N	Involvement of citizens, policymakers, management
- multi/inter/trans-disciplinary	Y	N	Projects are encouraged to consider interdisciplinary issues, cutting across the themes identified in the call and adopting or studying a broad range of methodological approaches. This call aims at funding transdisciplinary research projects demonstrating academic excellence, as well as potential societal impact and policy impact
- geographical balance/ widening	Y	Y	National, European and global level
- inclusiveness	Y	N	
- theory of change/ transformation	N	N	
- Interconnections/ connections/ interlinkages	Y	N	This call aims at funding transdisciplinary research projects demonstrating academic excellence, as well as potential societal impact and policy impact
- Synergies	Y	Y	Finding synergies between different monitoring systems. Also, thorough analysis of their outcomes, improved data collection through reinforcement of existing schemes and development, and implementation of new tools and technologies
- Trade-offs	N	N	
- Co-creation			
- others			
Are the following aspects raised, especially when it comes to implementation of systems approach			
- stakeholder engagement	Y	N	Applicants should consider how the knowledge can be co-produced with stakeholders and disseminated in outreach actions to maximize societal impact. Not mandatory but strongly encouraged
- networking activities	Y	N	Reinforcement of existing transnational networks and further development of feedback to stakeholders with user-friendly and digital tools and approaches
- Dissemination, Exploitation & Communication	Y	Y	Proposed projects should provide relevant information and practical tools to promote the use of biodiversity monitoring data to provide science-based support for policy makers, authorities, and practitioners concerned with decision making, planning, designing, and managing a broad range of environments. Outreach to society is key for successful implementation of research into practice, which means that communication aspects should be carefully designed and fully integrated in the proposed project, and visualisation and analysis tools should be participatory.
- Need for multiple levels or scales	Y	Y	This call will support research projects in which the approaches and skills of natural sciences, technical sciences (including computer sciences and engineering), social sciences (e.g. economy, innovation sciences, psychology, sociology), and humanities (e.g., history, law, human geography), are integrated to address the specific objectives of each proposal. Global scope: "The physical, biological and social processes associated with development and deployment of NBS take place at a range of spatial scales, from the local to regional and global. Therefore, a sufficient understanding of these processes relies on studies performed at multiple sites and scales, also taking their connections into account. These in turn need to explicitly consider the ways in which processes at one scale might drive or constrain processes at other scales, and how local results include commonalities that apply across regions and nations."
- others			
Call specific features			

What evaluation criteria are used?			
Are there additional documents/ uploads required that are related to systems approach			Biodiversas Guide on Policy Relevance: https://www.biodiversa.org/1543 BiodivERsA Guide on Stakeholder Engagement: https://www.biodiversa.org/702
Are there any supportive actions planned towards applicants	Y		Training events to exemplify the added value and variety of tools at hand for the researchers to make their data freely accessible will be organised by Biodiversa+. Also an online information session was organised on the 20 th of September 2022.
Are activities foreseen or emphasized that align to future actions of the Partnership	Y	N	Collaboration with different actions on biodiversity monitoring within the Biodiversa+ partnership through the coming years.
others			

18. PS CBE JU 2023

Background info on selected example (e.g. call/ programme/ project)			
Name of example	Circular Bio-based Europe Joint Undertaking (CBE JU)		
Type of example	Cooperation between the EC and Bio-based Industries Consortium (BIC) to create Circular Bio-based Europe Joint Undertaking (2 billion EURO Partnership). CBE JU is established under <u>Council regulation (EU) 2021/2085</u> of 19 November 2021 as an institutionalised European partnership . The programme is the successor of BBI JU . The funding projects focus on competitive, sustainable, and circular European bio-based industries, and there 14 flagships industrial biorefineries that were built. Aim at producing innovative bio-based products and materials from renewable resources. Make the European Green Deal Reality.		
Time scale	CBE JU Work Programme 2023 (WP) is analysed here.		
Thematic scope	<p>As presented in the SRIA 2030, the CBE JU partnership will fund <u>projects focused on 'the production of bio-based chemicals, materials, food and feed ingredients and soil nutrients</u>. Biofuels, bioenergy, food and feed, pharmaceuticals and medical devices are not within the remit of the partnership⁹. [...] <u>For example, the production of food is excluded from the scope but processes producing food may have co-products that are within the scope and side streams</u> that can be used as feedstock for producing bio-based products within the CBE JU scope. (WP, p.14)</p> <ul style="list-style-type: none"> Develop innovative and efficient methods to extract and produce valuable molecules and components from biomass (addressing material decomposition processes which are energy-consuming) and individuate new market sectors for such materials (e.g., pigments, new materials for additive manufacturing, bioadhesives and bio-based functional additives, food and feed ingredients etc.). (WP, p.28) <p>Admissibility The conditions are described in Annex A of the General Annexes to the Horizon Europe Work Programme 2023–2024 which shall apply mutatis mutandis to the actions covered in this AWP, taking into consideration the following: ▪ <u>Innovation Actions, including Flagships</u>: the page limit of the application is 70 pages (Part B). ▪ <u>Research and Innovation Actions: the page limit of the application is 50 pages (Part B)</u>. Dissemination and Exploitation plan ▪</p>		
Source used for analysis (public/confidential)	Public: SRIA (2021-2027), Annual Work Programme with individual call announcements.		
Short description how the systems approach appears in the selected example	<p>From CBE JU SRIA – Annex IV describing the KPIs in fully quantitative manner, still it resembles systemic thinking in a given thematic context of the programme (example of objective 5 below, p.54):</p> <p>5. Expand circularity in bio-based value chains. <i>N of innovative products that are biodegradable, compostable, recyclable, reused or upcycled (circular by design)</i> <i>N projects developing circular production practices (incl. industrial & industrial-urban symbiosis)</i></p>		
Analysed elements that are related to systems approach			
	y/n	Is it mandatory?	short description
Is a definition of systems approach stated?	No	No	There is no direct reference to system approach, but here we find references to value chain and bio-based systems: 'CBE JU actions will implement a value chain approach which ensures that all the concerned actors in the bio-based system, including the supply chain, i.e. agriculture/forestry/aquaculture primary producers, bio-waste producers and management facilities, etc. are appropriately involved in the selected project proposals and are represented to the largest possible extent in the project consortia' (SRIA, p.20).

Are specific objectives mentioned that are clearly systems related?	Yes	Not sure	<p>This example refers to the cascading principle that has a direct applicability for production and can be learning point that we can set systems criteria at the different stages of the process: -The activities to be funded by the CBE JU will follow the principles of cascading use of sustainably-sourced biological feedstock (including bio-based waste, residues and side-streams), as well as delivering innovative solutions with improved climate and environmental performance. (SRIA, page 4).</p> <p>-The cascading use of biomass entails maximising the resource-use efficiency by prioritising the processing steps by value creation. (SRIA, fn.35, page 21).</p>
Do the following keywords appear and in what context?	Yes		<p>Transition 25 times Systems 81 (industrial systems, bio-based systems) Systems approach 0 times Change (climate change) Transformation (packaging) 1 time Chains 72 Approach 26 -Multipronged approach -Cascading approach -Cascading principle 19 -Industrial symbiosis/ Industrial-urban symbiosis WP, p.126 Example: New technologies allow expanding their production capacity to convert bio-based feedstock to added value products, following the cascading approach, and/or to produce new and higher-value products to take full advantage of the existing assets and keep them competitive with the current market requirements (SRIA?, p. 31)</p>
- multi-actor-approach	Yes		<p>The multi-actor approach is a form of responsible R&I, it aims to make the R&I process and its outcomes more reliable, demand-driven, shared and relevant to society. It also aims to have these outcomes shared more extensively. This entails more than just widely disseminating a project's results, or listening to the views of a board of stakeholders. A multi-actor project ensures the genuine and sufficient involvement of a targeted array of actors, which serves the objectives of the topic. These actors include: i) researchers, ii) farmers / farmers' groups and associations, iii) foresters / foresters' groups and associations, iv) aquaculture producers, v) fishers / fishers' groups and associations, vi) advisors, vii) food and bioeconomy businesses, viii) other businesses, ix) consumer associations, x) local communities, xi) citizens, xii) civil society organisations including NGOs, and xiii) government representatives (SRIA?, p.23)</p>
- multi/inter/trans-disciplinary	Yes		<p>Increase cross-disciplinary research and innovation activities, reaping its benefits for the development and demonstration of sustainable bio-based solutions. (WP, p.9)</p>
- geographical balance/widening	Yes		<p>An integrated approach, between stakeholders across several territorial dimensions, including the mobilisation of national and regional authorities, is expected to create more favourable conditions for market uptake of bio-based solutions and services. (SRIA, p. 4)</p>
- inclusiveness	Yes		<p>All CBE JU actions will apply the 'open science' concept as set out in the Horizon Europe regulation and will implement a value chain approach which ensures that all the concerned actors in the bio-based system, including the supply chain, are appropriately involved and represented in the project consortia (SRIA, p. 5) Farmers [even if not the primary target group] are able to supply biomass in the form of purpose grown plants or as by-products and waste from agricultural and agro-food production. A specific "deployment group" – see chapter 5 on Governance – for agriculture primary producers and other feedstock providers could be set up to develop and support this in detail. (SRIA 16)</p>
- theory of change/ transformation	Yes		<p>-Contribute to match interests, priorities and technological status of different participating companies and other actors as well as gaining support from public and private investors to a large-scale systemic change. <u>One example would be clustering several enterprises/technology providers around a main woody-biomass operator³⁵ to valorise its side and residual streams.</u> (WP, p.28). -The New European Bauhaus (NEB) Initiative¹⁰⁵ was launched in 2020 by the European Commission to advance the green transition of our societies. <u>It translates the European Green Deal into tangible change on the ground, making our neighbourhoods, public spaces, industrial ecosystems (e.g. construction), behaviours, and lifestyles more sustainable, inclusive, and beautiful.</u></p>

- Interconnections/ connections/ interlinkages	No		
- Synergies	Yes		Synergies, 23 times, operational level and geographical scales
- Trade-offs	Yes		Strengthened application of the hierarchy of materials use, <u>trade-offs</u> , synergies, business models, participatory approaches, with positive environmental, social and economic impacts in regional and rural development. (WP Call, p.66)
- Co-creation			A structured co-creation process is foreseen for the formulation of calls included in the Annual Work Programmes, based on the SRIA and the lessons learned from previous calls, as monitored and reported by the CBE JU Programme Offices. (p.11), also p.23
- Integrated approach			The impact assessment ³⁰ of the different options for the public-private partnership between the EC and the bio-based industry has highlighted that the optimal implementation of actions requires a new, integrated approach, between stakeholders across several territorial dimensions, e.g. from rural, coastal, urban areas and geographic regions. This approach may include the mobilisation of national and regional authorities that can create more favourable conditions for market uptake of bio-based solutions and services.(SRIA, page 19)

Are the following aspects raised, especially when it comes to implementation of systems approach

- stakeholder engagement	Yes		The first CBE JU stakeholder forum will take place in the second part of 2023 (WP, p.95)
- networking activities	Yes		The online CBE JU networking platform (WP, 128)
- Dissemination, Exploitation & Communication	Yes		
- Need for multiple levels or scales	Yes		See before.
- others			

Call specific features

What evaluation criteria are used?			The guiding principles for evaluating if an industrial activity falls within the scope of the partnership will be based on: a) assessment of what is the dominant application of the bio-based material produced and if this dominant use falls into the scope; b) the principle of cascading use of biological resources aiming to best valorise the sustainable use of feedstock ¹⁰ . In line with above, biorefineries for sustainable processing of biomass into an array of added-value products (e.g. bioactive substances, chemicals and materials) will fall under the scope if the focus of the project is on materials; while energy production is a complementary activity that improves the overall resource efficiency of the production process and it takes place in accordance with the cascading principle. (WP p.14) under the condition of respecting the “food first” and “cascading use” principles, surplus streams from agricultural biomass processing such as carbohydrates, or oils, can be used as feedstock for CBE JU projects. (WP, p.20) Seek synergies with the existing regional food, feed, or bioenergy value chains to further strengthen their economic and environmental sustainability in line with the cascading principle of biomass use. (WP Call announcement, p.42)
Are there additional documents/uploads required that are related to systems approach			/
Are there any supportive actions planned towards applicants			/
Are activities foreseen or emphasized that align to future actions of the Partnership			/
others			Note: Meeting planned with CBE JU on 15 December to ask how for example ‘cascading principles’ are integrated in the application templates and in the evaluation criteria.

19. PS DUT 2023

Background info on selected example (e.g. call/ programme/ project)	
Name of example	DUT (Driving Urban Transitions) Call 2023
Type of example	Driving Urban Transitions (DUT) is a partnership within Horizon Europe with the aim of driving urban development towards a sustainable future.

	HORIZON-CL5-2021-D2-01-16		
Time scale	Publication date of call announcement: 1 st September 2023. Dead line for preproposals 21 st November 2023. Dead line full proposals 30 th April 2024. 2 stages. Start of projects: September 2023- January 2025.		
Thematic scope	„The purpose of this call for proposals is to support transnational research and/or innovation projects addressing urban challenges to help cities in their transition towards a more sustainable economy and functioning“		
Source used for analysis (public/confidential)	https://innovationsfonden.dk/da/p/internationale-samarbejder/dut-call-2023 DUT Call 2023 - DUT Partnership		
Short description how the systems approach appears in the selected example	“addressing urban challenges to help cities in their transition towards a more sustainable economy and functioning.“; „tackling complex grand challenges“; „aims to develop, skills and tools (including technology) that facilitate urban change , boost urgently needed urban transformations, and bring existing and new knowledge and evidence into action.“; „aiming at all kinds of innovation and capacity building needed to transform our neighbourhoods and urban areas“		
Analysed elements that are related to systems approach			
	y/n	Is it mandatory?	short description
Is a definition of systems approach stated?	N	N	Transportation system Energy system Urban system Stakeholder ecosystem Supply system Rural systems Agrifood systems Food systems Did not find a definition, not even in the glossary in annex E, see below
Are specific objectives mentioned that are clearly systems related?	N	N	
Do the following keywords appear and in what context?			
- multi-actor-approach	y	y	Does not appear as such, but in the call text it is stated that “All projects must clearly engage stakeholders and demonstrate user needs relevant to the project goals (see the evaluation criteria in Chapter 4.2)“
- multi/inter/trans-disciplinary	y	y	“Projects are expected to take a transdisciplinary and preferably co-creative approach from the early project formulation stages.“
- geographical balance/widening	y	y	Projects should support collaboration that goes beyond individual national efforts and demonstrates sharing, operationalising and transferring existing knowledge, resources, and research facilities to mutual, transnational benefit.
- inclusiveness	Y	N	“lenses on inclusiveness,“; „attractive and inclusiveness of sustainable modes of transport.“ They show this link: Widening and Inclusiveness — ERA-LEARN
- theory of change/transformation	Y	Y	The whole text is on transformation and transition
- Interconnections/connections/interlinkages	N	N	Not relevant
- Synergies	N	N	Not relevant
- Trade-offs	N	N	Not relevant
- Co-creation	y	y	„in co-creation with urban stakeholders and R&I actors“ „make citizen co-creation, participation and engagement better“. Co-creation mentioned in expected output
- others			
Are the following aspects raised, especially when it comes to implementation of systems approach			„To foster exchange between the projects, dissemination and communication to stakeholders, decision makers and the general public, and to refine and identify challenges and objectives for future Calls, the DUT Partnership has established a multi-layered scheme of mandatory activities, opportunities and support for projects. Time and budget (including travel expenses) of a maximum of EUR 30 000 should be reserved by the consortium as a whole for these programme activities.“
- stakeholder engagement	y	y	See above

- networking activities	y	y	See above
- Dissemination, Exploitation & Communication	y	y	"The DUT Partnership strongly promotes open science and communicating the open science principles to the research community as well as to other stakeholder communities."
- Need for multiple levels or scales	y	n	Expected output: "Projects should contribute to ensuring urban areas are planned and designed with nature to guarantee they are welcoming places for all, whilst also being resilient to risks and threats, protecting and making the best use of resources available, cutting across different spatial and governmental scales."
- others			Avoid – shift paradigme
Call specific features			
What evaluation criteria are used?			<p>Excellence – Intellectual Merit</p> <ul style="list-style-type: none"> • Clarity and pertinence of the objectives • Credibility of the proposed approach and soundness of the concept • Added value of transnational co-operation • Clarity and feasibility of the project design and of the proposed methodology* • Identification of risks and mitigation plan* <p>Sub-criteria adapted to ROA:</p> <ul style="list-style-type: none"> • Originality, contribution to new strategic knowledge, progress beyond the state-of-the-art <p>Sub-criteria adapted to IOA:</p> <ul style="list-style-type: none"> • Innovativeness of the approach compared to existing solutions <p>Impact and User Engagement (societal and broader impacts of project results)</p> <ul style="list-style-type: none"> • Relevance to the Call topics • Integration of diversity and gender perspectives in the project plan and goals when applicable • Engagement of stakeholders (e.g. communities, cities, policy makers, regulators, NGOs, or industry) • Effectiveness of the proposed measures for the dissemination and/or exploitation of project results (*) both at the transnational and the regional levels <p>Sub-criteria adapted to ROA:</p> <ul style="list-style-type: none"> • Potential of the project to provide insights to an important societal issue and produce useful knowledge for stakeholders* <p>Sub-criteria adapted to IOA:</p> <ul style="list-style-type: none"> • Market potential of the project and/or capacity to respond to a demand or a need* <p>Quality and Efficiency of project implementation</p> <ul style="list-style-type: none"> • Composition, quality, and suitability of experience and expertise of the consortium to address the project goals (including interdisciplinarity, cross-sectorial collaboration, and co-creation aspects where relevant) • Complementarity and balance of substantial contributions of partners of the consortium • Feasibility and appropriateness of timescale • Global value for money (costs are realistic and reasonable with respect to the ambition of the project and the expected results and impact) • Appropriateness of costs allocation and justification of requested resources (staff, equipment, etc.)* • Appropriateness of the allocation of tasks and workloads, ensuring that all participants have a valid role and adequate resources in the project to fulfil that role * • Appropriateness of the management structures and procedures, including risk, quality, and innovation management* • Consideration of regulatory and ethics issues, when necessary*
Are there additional documents/uploads required that are related to systems approach			
Are there any supportive actions planned towards applicants	y		Webinar 12 th September 2023

Are activities foreseen or emphasized that align to future actions of the Partnership			
others			

20. PS PRIMA 2023

Background info on selected example (e.g. call/ programme/ project)	
Name of example	The present example is from PRIMA - Partnership for Research and Innovation in the Mediterranean Area and their annual call covering 'Section 1 – Farming Systems 2023; Section 3 – Food value chain. Based on the Decision (EU) 2017/1324 of the European Parliament and the Council of 4 July 2017 (PRIMA Decision) ¹ , the PRIMA partnership ran from 7 August 2017 to 31 December 2028. The European Union (EU) has decided to support the programme with a maximum financial contribution of EUR 220 000 000 (Article 3 of Decision (EU) 2017/1324) (AWP 2023, p.6):
Type of example	Please briefly describe your selected example, e.g. transnational call for R&I projects; public funders from xy countries involved; project duration 3 years, Thematic Area 2-Farming systems: Topic 1.2.1-2023 (IA) Actions to restore and return degraded lands in the Mediterranean region into productive agroecosystems. AREA 2: PRIMA is proposing an action aiming to galvanize sustainable solutions for land restoration and drought resilience to restore soil health in Mediterranean drylands in collaboration with the EU Mission 'A Soil Deal for Europe. Many areas of the Mediterranean Basin are classified as <u>drylands</u> ¹ , with one-third already showing signs of desertification and likely to be more impacted in the coming years. Desertification is accelerated and exacerbated by climate change (long drought periods), leading to the loss of vegetal cover and fertility of the soil, making these areas <u>increasingly unsuitable for agriculture</u> . Desertification has significant environmental consequences in the region due to <u>biodiversity loss</u> and <u>decreasing biological productivity</u> . In this context, most of the current varieties cannot afford and withstand the occurrence of more extreme conditions. It also has a severe socio-economic impact on the more vulnerable categories of people, such as small-holding farmers for whom agriculture is a primary source of livelihood, creating income reduction, and thus also triggering migration (Call text, p.2) à Thematic Area 2 - Operational Objective 5 - Research Priority 3- Cross-Cutting: Soil sustainability Thematic Area 3-Food value chain: Topic 1.3.1-2023 (RIA) Increasing agri-food supply chain (cereal) resilience in the MENA region. AREA 3: Today, more than ever, the Mediterranean region is facing unprecedented and interdependent environmental, economic and social challenges that affect food security, health, nutrition, sustainability, and thus, the livelihoods of all people across the Mediterranean region. High population growth rates drive increased food demand in a region already heavily distressed by climate change <u>with low internal food production capacities</u> . à Thematic area 3, Operational Objective 8 (New Agri-Food Business Models)
Time scale	Call published on 23 January 2023, PRIMA considers that proposals requesting a contribution from the EU in the range of EUR 4.1 million and with a duration of 36 months would allow this specific challenge to be addressed appropriately (Call text, pp.1,3).
Thematic scope	A2: Call: Section 1 – Farming Systems 2023 Topic 1.2.1-2023 (IA) Actions to restore and return degraded lands in the Mediterranean region into productive agroecosystems. Proposals should scale up existing local knowledge and/or propose practices already tested at a research scale in the Mediterranean region to restore soil health on degraded lands capitalising on agroecological practices. The use of species, varieties and breeds, previously or de novo generated by classic and novel breeding techniques and better adapted to local climatic conditions with minimal watering/inputs and generating incomes and food for the local holders are strongly encouraged (Call text, p.3). A3: Under this general challenge, applicants would build on available assessments of current vulnerabilities and market risks from <u>external factors and stressors influencing Mediterranean food systems (biological hazards, extreme weather events, land degradation, economic crises and political conflicts)</u> to generate tailored strategies, roadmaps, and evidence-based recommendations helping to mitigate the adverse effects of these stressors and guide the design and development of recovery efforts that can accelerate progress towards resilient Mediterranean societies (Call text, p.3)
Source used for analysis (public/confidential)	Public: call text (2 different call texts covering two different topics A2 and A3), Guidelines, Annual Work Programme 2023, web-site.
Short description how the systems approach appears in the selected example	A2: -A multi-actor approach, including all the relevant stakeholders (public and private actors), is strongly encouraged to ensure the system's sustainability even after the project's end (Call text, p. -A 'market replication' aims to support the first application/deployment in the market of an innovation that has already been demonstrated but not yet applied/deployed in the market due to market failures/barriers to uptake. 'Market replication' does not cover multiple applications in the market of an innovation ¹ that has

			<p>already been applied successfully once in the market. 'First' means new at least to PRIMA countries or new at least to the application sector in question. <u>Often such projects involve a validation of technical and economic performance at system level</u> in real life operating conditions provided by the market. (Guideline, p.6)</p> <p>A3: influencing Mediterranean food systems (biological hazards, extreme weather events, land degradation, economic crises and political conflicts) (Call text, p.3)</p>
Analysed elements that are related to systems approach			
	y/n	Is it mandatory?	short description
Is a definition of systems approach stated?	Yes	No	<p>A2: A multi-actor approach, including all the relevant stakeholders (public and private actors), is strongly encouraged to ensure the system's sustainability even after the project's end. (Call announcement, p.3)</p> <p>A3: See below</p>
Are specific objectives mentioned that are clearly systems related?	Yes	N/A	<p>Expected impact (not objectives but relevant, Call text.4)</p> <ul style="list-style-type: none"> • A better understanding of the short and long-term drivers of change that <u>may affect food systems</u>, and in particular, the cereal supply chain in the MENA region and put food security at risk, • Better understanding the vulnerabilities, dependencies and critical <u>infrastructures of the food systems, and in particular, the cereals supply chain</u> to improve the cereals supply chain in the MENA countries. • Develop innovative solutions and evidence-based recommendations for strategies, action plans and best practices that policymakers, businesses and food systems can use to <u>enhance the resilience of the food systems and ensure food security</u>. <p>- Actions are needed to help the Mediterranean food systems become fairer and more resilient – an absolute necessity in overcoming looming threats of climate change, water scarcity, and economic and political conflicts (Call text, p.6).</p>
Do the following keywords appear and in what context?	Yes	Yes	<p>!An additional “WEFE- Water-Energy-Food-Ecosystems- Nexus theme” has been included in PRIMA calls as of 2019 to reach PRIMA's objectives. Nexus solutions are the missing link to relieve long-standing issues for which the conventional sectoral approach is not sufficiently working to achieve Sustainable Development Goals (SDGs). The resource nexus concept fulfils this need, specifically looking at resource interlinkages between water, energy and food and their reliance and impact on ecosystems. (AWP p.8)</p> <p>The objective is to <u>enlarge the PRIMA portfolio of WEFE Nexus projects and case studies</u>. The project proponents should use lessons learned from the Nexus projects funded by PRIMA by developing a close partnership during the implementation of respective projects. The successful consortia are strongly encouraged to participate in the Mediterranean WEFE Nexus Community of Practice created as an outcome of the WEFE Science Advances Conference to stimulate cross-organization collaboration and knowledge sharing in the Mediterranean region. (AWP, p.6)</p>
- multi-actor-approach	Yes	No	A2: A multi-actor approach, including all the relevant stakeholders (public and private actors), is strongly encouraged to ensure the system's sustainability even after the project's end. (Call announcement, p.3)
- multi/inter/trans-disciplinary	No		Not directly, but nexus concept is close to it.
- geographical balance/ widening	Yes	Yes	<p>As of 10 April 2018, the PRIMA partnership includes 19 Participating States (PS): Algeria, Croatia, Cyprus, Egypt, France, Germany, Greece, Israel, Italy, Jordan, Lebanon, Luxembourg, Malta, Morocco, Portugal, Slovenia, Spain, Tunisia and Turkey (AWP 2023, p.6)</p> <p>Mediterranean Partner Countries as defined in section 5.1.1 of the PRIMA Annual Work Plan 2023 include the following <u>Third Countries associated to Horizon 2020 (AC): Israel, Tunisia, and Turkey</u>. Also included are the following Third Countries not associated with Horizon 2020 (TC), having concluded <u>international agreements for scientific and technological cooperation setting out the terms and conditions of their participation in PRIMA: Algeria, Egypt, Jordan, Lebanon and Morocco</u>. (Call text, fn.2, p.1).</p>
- inclusiveness	Yes	Yes	<p>Due to the specific challenge of this topic, and in line with our principles of allowing maximum participation from <u>Southern Mediterranean Countries to foster both North-South and South-South cooperation</u>, the following additional eligibility criteria apply: “In addition to the minimum number of participants set out in the standard eligibility conditions (section 5.1.3), consortia must include at least one independent legal entity established in any of the MPCs²⁶. The places of the establishment of the legal entities must cover at least two different specific regions in the MPCs. (web-site)</p>

- theory of change/ transformation	Yes	No	A3: A better understanding of the <u>short and long-term drivers of change that may affect food systems</u> , and in particular, the cereal supply chain in the MENA region and put food security at risk (Call text, p.4)
- Interconnections/ connections/ interlinkages	Yes	No	
- Synergies	Yes	No	Applying it to policy interventions generates important information about <u>synergies and trade-offs</u> across several resource-related goals to contribute to more effective management strategies.(AWP, P.8)
- Trade-offs	Yes	No	As above
- Co-creation	Yes	No	p.19 encourage multi-actor approach, co-creation
- others			
Are the following aspects raised, especially when it comes to implementation of systems approach			
- stakeholder engagement	Yes	Yes	<i>"In addition to the minimum number of participants (3 legal entities) set out in the standard eligibility conditions (mentioned above), consortia must include at least one additional independent legal entity established in any of the MPC.</i>
- networking activities	Yes	Yes	A2: <u>-Continuation among the projects</u> : The project's proponents should use solutions against desertification from projects funded by previous PRIMA and Horizon 2020/Horizon Europe calls by developing a close partnership during the implementation of respective projects (Call text, p.3). -Proposals should include dedicated tasks and appropriate resources for coordination measures and joint activities with relevant projects funded by the EU Mission, such as Work Programme 2023 topics HORIZON-MISS-2023-SOIL-01-04, HORIZON-MISS-2023-SOIL-01-08 and HORIZON-MISS-2023-SOIL-01-094, the latter ones promoting the creation of Living Labs and Lighthouses (Call text, p.2)
- Dissemination, Exploitation & Communication	Yes	Yes	A2: Proposals should set a clear plan on how they will collaborate with other projects selected under this and any other relevant topic by participating in joint and common communication and dissemination activities. (Call text, p.2)
- Need for multiple levels or scales	Yes	Yes	KPI from nexus activities: <ul style="list-style-type: none"> Strengthen policy integration between Nexus and adaptation mechanisms across sectors at different scales and among the principal actors (AWP, p.38)
- others			A2: Proposals should perform these tasks using a <u>business model</u> that guarantees the functioning of the network and its services beyond the project's lifespan (Call text, p. 1).
Call specific features			
What evaluation criteria are used? Please highlight those related to systems approach			A2: KPIs web-site <ul style="list-style-type: none"> Hectares of desertified areas restored Number of innovative solutions applied for land restoration Number of business models deployed? Number of stakeholders engaged The proposals should indicate their contribution to relevant SDGs and methodology to contribute to reporting SDG indicators. A3: KPI (Call text, p.4) <ul style="list-style-type: none"> Number of identified drivers of change affecting the cereals supply chain Number of strategies and action plans prepared to ensure appropriate cereals supply during unforeseen crises with the local governments in the MENA region Number of solutions aiming to diversify food Number of training workshops/public events on the markets conducted to streamline local food environments Number of solutions aiming to improve the supply chain of cereals <u>Nexus</u> : Key Performance Indicators (AWP, p.37) <ul style="list-style-type: none"> Number of Nexus-based <u>adaptation and mitigation</u> solutions able to minimize shock, risks, and vulnerability and address impacts and risks associated with climate change Number of engaged stakeholders and end-users Number of business models of Nexus-based adaptation and mitigation solutions developed

Are there additional documents/ uploads required that are related to systems approach	Yes	No	The multisector approach should ensure active involvement and dialogue between relevant stakeholders, producers, smallholders, end-users, and policymakers. Dissemination, networking, training activities and tools should be utilized.(Call text, p.3)
Are there any supportive actions planned towards applicants	No		
Are activities foreseen or emphasized that align to future actions of the Partnership	Yes	Not sure	Alignment with AE Partnership and Soil Mission.
others			PRIMA Partnership has number of relevant elements that we could learn from: it has a long implementation timeframe until 2028 overlapping with the Partnerships, well developed widening and inclusiveness aspect beyond the EU, different thematic orientation due to the climate and strategic priorities (e.g., climate conditions, aspects of food security), special interest goes to funding of the cross cutting topic called 'WEFE nexus concept' that was added to the calls and it would be relevant to talk to Prima secretariat how it is evaluated.

21. PS SBEP 2023

Background info on selected example (e.g. call/ programme/ project)			
Name of example	2023 SBEP First Joint Transnational Co-Funded Call: The way forward: a thriving sustainable blue economy for a brighter future		
Type of example	HE Partnership First Call, Cofunded by EC		
Thematic scope	Blue Economy of the future		
Source used for analysis (public/confidential)	Call Announcement and Annexes		
Short description how the systems approach appears in the selected example	Systems approach does not appear but interesting Theory of Change Approach (Mandatory)		
Analysed elements that are related to systems approach			
	yes / no	Is it mandatory?	short description
Is a definition of systems approach stated?	No	No	The call mentions "Ecosystems" as it is part of the topic, but Food Systems are not mentioned; neither is a systems approach mandatory for the projects
Are specific objectives mentioned that are clearly systems related?	No	No	
Do the following keywords appear and in what context?			
- multi-actor-approach	Yes	Yes	All the impact-oriented priority areas address transversal issues and point to the need for multidisciplinary approaches, involving actors from research – including, where appropriate, social sciences and humanities – and innovation (public and private sectors) to policymakers and citizens of the relevant communities.....A project needs, as a minimum, to address one or more of the following points including a multi-actor approach: [several content related points follow]
- multi/inter/trans-disciplinary	Yes	(yes)	All the impact-oriented priority areas address transversal issues and point to the need for multidisciplinary approaches, involving actors from research – including, where appropriate, social sciences and humanities – and innovation (public and private sectors) to policymakers and citizens of the relevant communities.
- geographical balance/ widening	Yes	No	All (pre-)proposals are encouraged to consider geographical balance and implementation in appropriate geographic settings and according to the objectives of the proposal, including in low- and middle-income countries/regions, and less-performing countries;

- inclusiveness	Yes	No	Gender: All proposals should integrate the gender dimension of R&I activities; other point: geographical balanceincluding in low- and middle-income countries/regions, and less-performing countries;
- theory of change/ transformation	Yes	Yes	The most interesting difference of this call to other calls or the most innovative part is the Annex A: Theory of change: To better consider these different aspects, it is requested to include a plan that describes what impact the R&I process is expected to achieve in the long run and how it contributes to the overall impacts defined for the call. One way to make such a plan is to establish a methodology of Theory of Change (ToC) with a related Impact Pathway (IP) in order to describe the research process, mentioning well-specified outputs and outcomes. See below a summary with further information on the Theory of Change, as well as freely accessible online workshop proposed by the Dutch Research Council (NWO): https://impact.nwo.nl/en/working-with-an-impact-plan . The integration of the above elements will be considered in the evaluation of the proposals. In particular, it will be considered whether the proposal ensures that the project consortium, in its composition, sufficiently reflects the project's stated aims in relation to output, outcome and impact creation, i.e. that its initial Theory of Change is realistic and achievable by the consortium partners. A training session will also be organized at the beginning of the funded projects (back-to-back to the kick-off meeting) to exchange best practices related to Theory of Change principles.
- Interconnections/ connections/ interlinkages	Yes	(Yes)	At the regional level, complementarities and synergies with the lighthouses of the Mission "Restore our Oceans and waters" will be requested mainly on the valorisation of the outcomes of the projects Synergies with lighthouses will be requested
- Synergies	Yes	Yes	At the regional level, complementarities and synergies with the lighthouses of the Mission "Restore our Oceans and waters" will be requested mainly on the valorisation of the outcomes of the projects
- Trade-offs	No	No	
- Co-creation	No	No	
- others			
Are the following aspects raised, especially when it comes to implementation of systems approach			
- stakeholder engagement	Yes	Yes	Stakeholder engagement in the research projects will be positively evaluated to enhance innovation, policy, and societal relevance and ultimately, to increase the impact of the projects; The integration of the above elements will be considered in the evaluation of the proposals. In particular, it will be considered whether the proposal ensures that the project consortium, in its composition, sufficiently reflects the project's stated aims in relation to output, outcome and impact creation, i.e., that its initial Theory of Change is realistic and achievable by the consortium partners. Part of Annex A: Theory of Change: Stakeholder engagement: Who are the relevant stakeholders to engage with according to context analysis, how are the productive interactions organised and when?;
- networking activities			
- Dissemination, Exploitation & Communication	Yes	Yes	Part of Annex A: Theory of Change: Communication strategy: How are engagement dialogues organised and results exchanged and translated, and whose responsibility is it?;
- Need for multiple levels or scales	Yes	No	At selection level of projects: Maximizing the number of countries/regions involved in the projects funded; • Ensuring a balance between sea-basins involved in the projects funded;
- others			
Call specific features			

What evaluation criteria are used?	Yes	Pre: Excellence, Impact; Full: Excellence, Impact, Quality and efficiency of Implementation; Impact is the category in which the pathways to impact are scored and therefore the special Annex A of this call is evaluated. "The credibility of the pathways to achieve the expected outcomes and impacts specified in the call text, and the likely scale and significance of the contributions to the project." 2 at pre proposal , 3 at full proposal stage
Are there additional documents/ uploads required that are related to systems approach	Yes	Annex A: Theory of change; Annex F Data Management Plans
Are there any supportive actions planned towards applicants		
others		Geographical and Gender Balance of Experts: The composition of evaluation committees will consider the gender and geographical balance.