



# DIVERSIFOOD

*Embedding crop diversity and networking for local high quality food systems*

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**H2020 - Research and Innovation Action**

## **Deliverable 1.3**

***Proven concept for a holistic,  
multi-actor approach suited for  
participatory research***

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- ☒ **PU:** Public (must be available on the website)
- ☐ **CO:** Confidential, only for members of the consortium (including the Commission Services)
- ☐ **CI:** Classified, as referred to in Commission Decision 2001/844/EC

**Comments:**

The authors changed the title of this report slightly, renaming it «Proven concept for a holistic, multi-actor approach suited for participatory research» rather than «Proven concept for a multi-actor approach suited for participatory researches» as stated in the DoA. The reason for this change is that the authors consider it important to underline in the title the integrated and systemic nature of the approach suited for participatory research.



## Abstract

DIVERSIFOOD has built its research activities on the perspective that re-introducing diversity in the agrifood systems is a complex process that demands **a comprehensive, integrated approach**, able to take into consideration a variety of aspects - including ecological, agronomical, organisational, economic, institutional, social, cultural, ethical, legal and political aspects - and the associated interdependencies. This requires that the research approaches address and integrate all these aspects at the multiple scales they manifest, mobilise all the available knowledge and experience, and, to that end, interact with all the diverse actors involved.

DIVERSIFOOD has conceived such a research approach as **a multi-actor, inter- and transdisciplinary, systemic approach**. A multi-actor research approach builds on the interaction and cooperation among several actors providing complementary perspectives, resources, methods and tools, which are utilised depending on the specific research question and agro-ecological and socio-cultural contexts. This implies combining natural and social science disciplines and associated methodological elements, as well as integrating this scientific knowledge with other types of knowledge and know-how, of experiential nature. Such an approach relates to a broader conception of research, to which all involved actors, sharing needs and goals, can contribute, in a collective and collaborative way. It also demands to develop a systemic view of all the dimensions and scales involved. To this end, a collaborative environment is needed to create conditions enabling different scientists and practitioners to interact effectively. In this way, they engage in a collective, mutual learning process, where the co-created knowledge is in iterative relation with its translation into new practices. **Actions of intermediation and facilitation**, aimed at supporting multi-actor interactions and adoption of a systemic approach, play a key role in this process. A high level of **reflexivity**, aimed at critically evaluating the role of all involved actors, the research operationalisation and the research effectiveness, is also important and is instrumental to the **transformative role** of the research activity.

This approach has resulted from the collective reflection of all the partners on a wide range of experiences within DIVERSIFOOD, from plant breeding to valorisation strategies. Over the course of the project, partners were involved in WP 1 in an **interactive and iterative process of collective reflection** on key concepts, methodological aspects, participatory/inter/trans-disciplinary/transformative characters of the research, and, finally, in defining the features of **a comprehensive research approach**, illustrated in **an overarching framework**.

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## Objectives

The **WP1** of the DIVERSIFOOD project aimed at identifying and specifying several conceptual and methodological elements to provide inputs to the other project WPs (2 to 5) and, more in general, to contribute to the debate on the most suitable approaches to deal with agrobiodiversity enhancement issue.

Within WP1, **Task 1.3** aimed at developing **an overarching framework** in which the specific concepts and reflections on methodological aspects developed in Tasks 1.1 and 1.2 are integrated and further elaborated. In particular, Task 1.3 has pursued the following two objectives:

- to define **a proven concept for a holistic, multi-actor approach suited for participatory research** aimed at maintaining and enhancing agrobiodiversity at various levels (genetic diversity in crops, farming systems, and food chains). The outcome of this work constitutes this Deliverable (**D1.3**);
- to create **an overview of key-elements and potential barriers and bridges**, that is to identify enabling or hampering factors in the implementation of holistic, multi-actor approaches in the research aimed at maintaining and enhancing diversity in farming systems and food chains. The outcome of this work constitutes the **Deliverable 1.4**.

The two deliverables are indeed closely integrated, as they share the general conceptual framework, the methodological and operational aspects (the process of collection of information from the DIVERSIFOOD partners and their processing over the project period), and the reflection on the insights provided by the meta-analysis of partners research experience. The focuses of the two deliverables and the related main outcomes are however different, as established in the DoA.

The ultimate goal of the Task 1.3 work is to distil **recommendations** for using holistic, multi-actor approaches in future projects. These recommendations constitute the final part of Deliverable 1.4.

## Conceptual framework

WP1 team has built its research activities on some assumptions, which affected the way to contribute to the project activities, that is setting the work to do with the other partners, aimed at defining a conceptual-methodological framework for doing research on the issue. These assumptions stemmed from the experience it had gained in previous research activities, furthermore shared with most of the partners. This provided assurance of a good alignment with partners around the entry points of the WP1 work.

Agrobiodiversity enrichment is part of a process of transition to more sustainable models of production-consumption. Within the broader pathway of change, it implies a shift from the paradigm of uniformity and standardization of genetic materials underlying food production to the one of maintenance and enhancement of the diversity of plants, crop and food systems. The former has been instrumental to the productivism paradigm that has characterised the development of agroindustry, driven by a few powerful players and leading to negative



externalities; the latter wants to contribute to the resilience and transformation of farming and food systems according to a set of ethical (social and environmental) values, looking at the wellbeing of all the living systems and at a broad societal involvement around a new food culture.

Into a transformative research perspective, in DIVERSIFOOD this meant co-production of new knowledge and sharing and mobilisation of this knowledge to contribute intentionally to processes of social change. This specific approach of our research, which informs our commitment as scientists and practitioners, had major epistemological implications, shaping the WP1 team approach to the topic.

Re-introducing diversity in agrifood systems is a complex process that demands a comprehensive and integrated approach, open to interaction with all the diverse actors directly and indirectly involved and able to take into consideration the variety of aspects that intervene to affect the functioning of farming and food systems and actors' actions. These aspects include ecological, agronomical, technological, organisational, economic, institutional, social, cultural, ethical, legal and political aspects, as well as the related interdependencies. The research approach has to address and integrate all these aspects, at the multiple scales they manifest, and mobilise all the available knowledge and experience to that end.

In theoretical terms, the WP1 team adopted a holistic and social constructionist approach, taking into account the need to mobilise the multiple actors, resources, processes, interactions, inter-dependencies that influence the management of the question.

Through this approach, it decided to evaluate partners' research activities already oriented to enrich the cultivated diversity and to embed it in food supply chains. The aim was to uncover, in the reality of the research activities, the ways to actualise the multi-actor approach, the involvement and integration of different types and sources of knowledge, the consideration of the diverse aspects involved and the capacity to integrate them, as well as the capacity to develop awareness, self-criticism and, thus, reflexivity on the research actions carried out.

## Methodological aspects

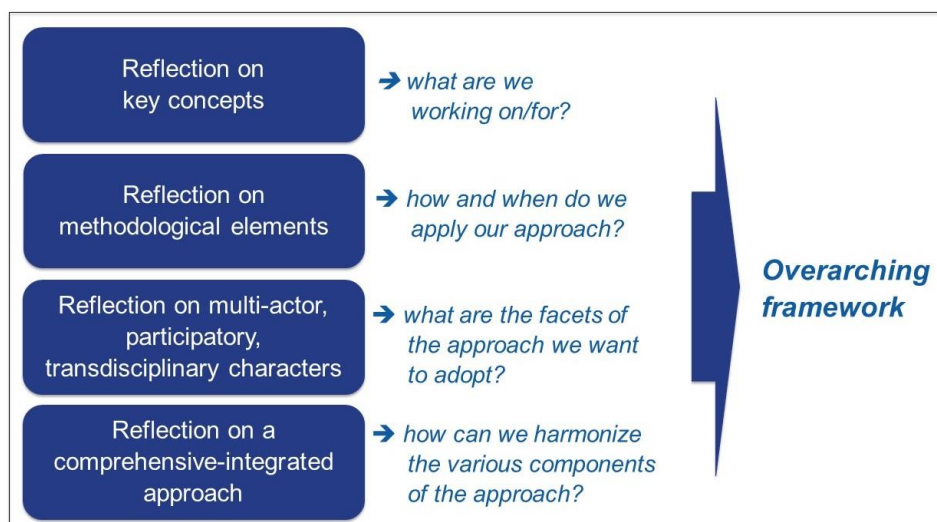
All partners were involved in the work of WP1. Over the course of the project, all partners contributed, through a **participatory and iterative process**, to the identification and refinement of concepts, methodological approaches and associated frameworks, based on their experiences and new insights from their research activities, as well as on their interaction within the DIVERSIFOOD project. Indeed, the analysis of successful or hampering factors in partners' development and implementation of methodologies and experimental designs and the collective discussion of the associated results allowed achieving confirmation of our theoretical hypotheses and the further definition of the building blocks of the holistic, multi-actor research approach and, thus, the definition of the related overarching framework.

The development of a comprehensive framework for holistic and multi-actor research thus built on an **analysis of the DIVERSIFOOD research experience**. The empirical materials for this analysis included:

- partners initial positioning with regard to the main concepts involved in agrobiodiversity management and the collective discussions to distil a set of key-concepts whose definitions and importance is agreed upon among partners (see D1.1);

- analysis of the specific research activities carried out by the partners in the project (analysis of case studies, or other activities developed in the WPs), through frames developed and provided for that purpose (see D1.2);
- results of collective work done by the partners during the annual meetings (from the kick-off meeting in April 2015 to the last meeting in January 2019) and of individual work done in the inter-meeting periods; this work was aimed at uncovering partners' positioning with regard to the main methodological approaches adopted in their research activity and at stimulating collective learning and, in some cases, partners' repositioning.

This analysis thus concerned different areas, which involved the work developed by the three tasks of the WP1 in a closely integrated way (indeed the partners in charge of the three tasks cooperated in the work of each task). The ultimate goal of the analysis was to contribute to the building of an overarching framework, outcome of the third task (T 1.3). The areas involved in the analysis were the following ones, each aimed at exploring a specific aspect:



## Process and related outcomes

In this section, we illustrate each area of the analysis and the related outcomes, referring to the several steps realised in WP1.

### *Co-defining key concepts*

During the project, the partners were involved first in a work of identification of **keywords** (see Figure 1) concerning the main project topic and then in the progressive definition of **key concepts**.

Keywords integrate theory and practice, represent concepts and areas of interaction/action at the same time. Their identification and definition may help to foreground the multiplicity of perspectives brought by the researchers and, thus, the multi-dimensionality of the subject of the research activity, researchers' normative orientation, the attitude towards the multi-actor dimension, etc. Summing up, keywords are means to stimulate a collaborative process in a



research project, uncovering diversity but also helping to combine it in a common, shared framework. Moreover, they allow creating a common semantic basis, useful to facilitate communication among partners and with other stakeholders.

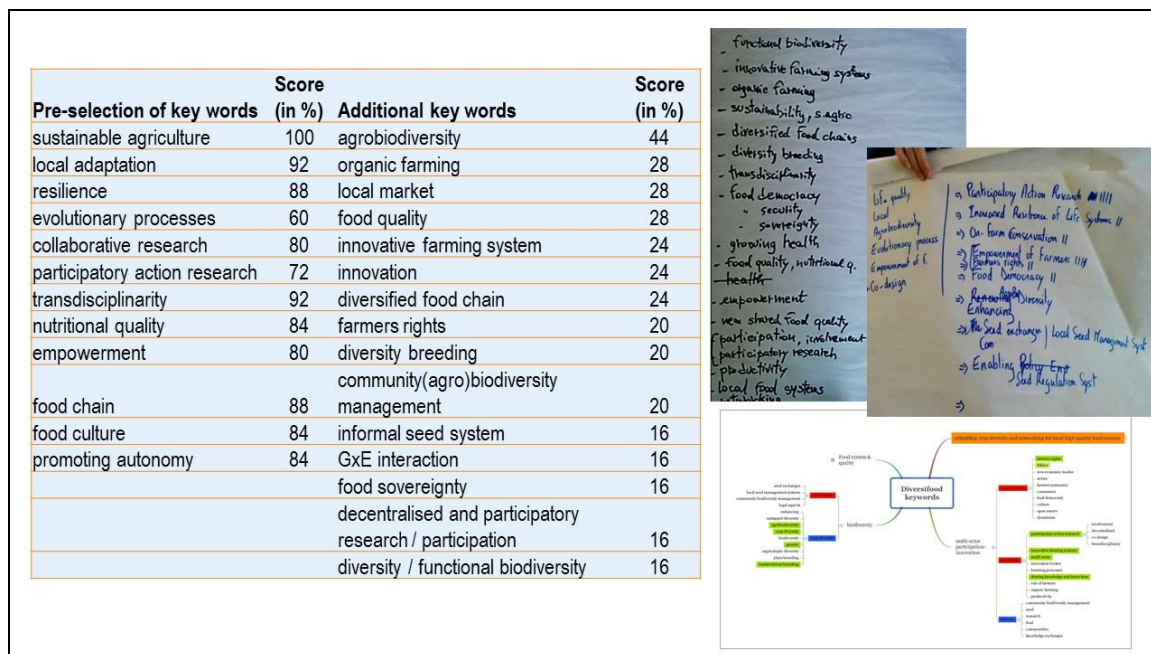


Figure 1: Results of the exercises on keywords since the kick-off meeting in St.Gilles, in April 2015

Starting from the kick-off meeting and during the first year, the interaction among the partners led to refine a first list of main keywords. For each key-word/concept, a definition was elaborated collectively according to partners' experiences; then all DIVERSIFOOD activities related to these keywords were summarised. This allowed identifying a set of key concepts, considered as crucial in dealing with the issue of agrobiodiversity enhancement (see D1.1 and Booklet #0 "9 Key Concepts for food diversity"):

- 1) diversified food system,
- 2) food quality,
- 3) sustainable food systems,
- 4) food democracy,
- 5) community management of agro-biodiversity,
- 6) collaborative, participative and action research,
- 7) trans-disciplinarity and paradigmatic shift,
- 8) co-evolutionary processes,
- 9) resilience.

In each of these key concepts various perspectives of the biological and social sciences were integrated. Indeed, this work on keywords and key concepts was very useful to align all the partners, coming from different backgrounds and experiences, around a common awareness of the complexity of the matter and the related methodological challenges, engaging them in a work of de-construction and re-construction of their approach of (action-) research on agrobiodiversity issues. A main outcome of the exercise was that partners were very much in line with each other,

and that they started seeing the importance of a holistic approach, taking on board perspectives from both natural and social sciences.

The identified key concepts clearly show, in addition to the role assigned to agrobiodiversity enhancement as condition for environmental and social sustainability of food systems, a shared recognition of the importance of ‘diversity’. Cultivated diversity is seen as a necessary key-element of the food system (diversified food systems) and of food quality. Diversity is also a constitutive element of an innovative, participatory and democratic approach both in managing agrobiodiversity and food-related choices (where the role/right and specificities of local communities emerges) and in designing and carrying out research activities (where different sources and forms of knowledge co-exist and integrated with each other). The potential of diversity is then expressed by the last two concepts (co-evolutionary processes and resilience), which refer to the co-existence of multiple spheres and their interdependence.

Another opportunity for partners to experience the relevance of the existence of different perspectives and the importance of achieving shared meanings was represented by an exercise where partners were involved in thinking about the terms used when dealing with plant breeding and agrobiodiversity. The exercise was proposed during the third annual meeting in Vienna (March 2018). The aim was to elaborate a common and agreed set of definitions of the different forms of cultivated varieties, in which biological, economic and sociological research perspectives were integrated.

To that end, a set of criteria to consider each kind of varieties/plant populations from DIVERSIFOOD perspective was developed. An integrated comprehensive approach thus was used, including the following perspectives: genetic structure; technical aspects (distinguishing among: breeding, farming and processing); sociological, economic, cultural and legal-political aspects (see Table 1).

type / description	Genetic structure	Breeding techniques	Farming practices	Processing	Sociological	Economic	Cultural	Legal/political
Genetic resources	All genetic structures are possible	Every techniques including biotechnologies	Seeds used/stored but technical term focused on genetic level	Conserving genes, not whole cultivar, thus disconnected of food chains	Disconnected from farmers-breeders concept of plant breeding	Natural resource	Conventional concept, not used for PPB	Policy concept; Part of biodiversity management
Population	Mostly heterogeneous; Genetic diversity dynamic	Breeding concept and overarching technical term for heterogeneous material e.g. in UK, just CCP (Composite Cross Population), or dynamic management of populations bred by farmers	Not refer to this, only for breeding	Not refer to this, only for breeding	Not connected	Not so much used on market	Not connected	Technical term; Temporary European experiment for marketing
Landraces	Population, heterogeneous and evolving; The heterogeneity depending on pollination biology of the species	Bred by the farmers/mass selection; locally adapted	Mostly disappeared after WW2. Some revival XXI century with low input agriculture and marginal regions	Mostly associated to artisanal processes without high standardized processes	Connection to locality; Relationship with farmers related to the cultural context	Niche market concept reappropriated; Robustness provides basic incomes	Continuity of cultivation through time; Current importance depending of country/region	Belong to tradition? No Intellectual Property (IP) rights; Only considered as EU conservation varieties, politically neglected today
Heirloom	Population, heterogeneous	Mass selection; Bred by farmers and amateurs	More a UK concept; Depends on the country	Artisanal processes	Connected to heritage concept; American slang; Pedigree of plants correlated with pedigree of people using it	Marketing concept	Traditional values en Europe, UK “folk varieties”; A long history of use “heritage”	Not really in discussion; No IP rights
Traditional variety	From homogeneous variety to populations; Can be a landrace; Bred by farmers or breeders with selection crossing respecting natural processes	No biotechnologies; Mass selection, farmer selection or old conventional varieties	Sometimes not used any more. After WW1 no more; Local adaptation and traditional practices; Used widely during certain period by certain people; Low-input and organic agricultures	Artisanal processing; Traditional practices; Processing adapted to each variety population... Good quality artisanal food	Food culture associated to old way of life; Has a history but can grow in different regions often with knowledge associated; Community management	Marketing uses often the concept with imaginary used in marketing; Empowerment and circular economy	Connected to local areas tradition; History heritage (protecting it); Linked to the past traditions, linked to “old” concept	Variety has different uses, and interpretations; No IP rights; Conservation varieties sometimes



Local variety	Can be traditional or new variety; Mainly heterogeneous	Developed and mainstream in one region; Farmer selection/mass selection; Bred by farmers with or without participatory plant breeding (PPB) programmes			Can be old or newly developed embedded in local commons; Knowledge associated	Niche market		
Farmer/peasant variety	All possible; Mostly heterogeneous	Mass selection and new methods for breeding diversity testing (PPB)	All possible	Farm saved seeds; Self consumption or short chains	Opposite of modern variety: owned by farmers; Peasant has different meanings in different countries; Innovation and collective management	Local economy usually species specific; Seed autonomy; Added value	Peasant – for some countries, the word has bad connotation; Seed autonomy	Peasant, alternative agriculture term; No definition
Modern variety	Phenotypic and genetic homogeneity except for Open Pollinated Varieties (OPV)	All techniques	Large scale industrial agriculture; specific seeds of markets; Often associated with high level of inputs; Can also be used for low input and organic agricultures	All produce for global markets; Uniform for processing; Bred for industrial processing	Produced and distributed by commercial seed companies; Disconnection with farmers; Mainstream agriculture	Business for seed companies, more driven by markets than by farmers needs; Traded within general mass market and industrial agro-industry chain	No attention for farmers cultural values; mainstream consumption	Perfectly supported by present legal environment; Registered on official catalogue; Legally protected by Intellectual Property (IP) rights
Cultivar	Generally uniform except OPV; Word used sometimes in botanical books				Is a product			No legal definition; when legally protected, see modern variety

Table 1: Results of the exercise during the 3<sup>rd</sup> AM in Vienna, in March 2018

Another, parallel reflection involved the collective identification of the paradigm of reference for the approach being developed in DIVERSIFOOD. This reflection, based on the more general thinking on theoretical-conceptual approach to the agrobiodiversity management topic, started at the beginning of the project, developed and consolidated over the project, assuming a more precise form in its last part. It led to the definition and sharing of a specific **paradigm shift**: from the uniformity and standardization paradigm, which characterised the development of the agri-food industry (instrumental to productivism), to the paradigm of the respect for any form of life, and thus for any manifestation of diversity in food systems (see D1.1 and IF # 16).

### *Reflection on methodological elements*

The second important area of partner collective engagement was the **reflection on methodological elements** in dealing with agrobiodiversity issues (food diversity), taking into account their complexity, the different perspectives involved, and, consequently, the different fields of research and associated frames and types of knowledge to be mobilised.

The entry-point of this collective process of reflection was partners' **awareness of the multiplicity of perspectives and related research and methodological needs** involved in their activity. The work done on the key concepts greatly contributed to the achievement of this awareness, showing the co-existence of and interaction among different processes - social, ecological, technological, cultural -, across multiple scales, and involving different actors with different views and competencies, and different methods of research.

Another significant opportunity to foster partners' awareness in this sense was an exercise in which partners worked on positioning a list of biological and social science methods into a framework considering two different dimensions of data obtained: their quantitative vs. qualitative nature on one axis, and their explanatory vs. descriptive nature on the other one (Figure 2). The exercise was useful to a further development of partners' awareness of the variety of methods involved. Its results however also clearly showed the lack of sharp positioning for all the methods and the existence of rather nuanced methodological positioning by partners, even focusing on their specific field of research. In general, they did not consider it a problem to combine different types of methods (e.g. quantitative and

qualitative, or natural and social science methods) or to assign different features to the same method. These results appeared encouraging for the search of a new comprehensive and integrated approach, based on the dialogue and interaction among different disciplines and fields of action.

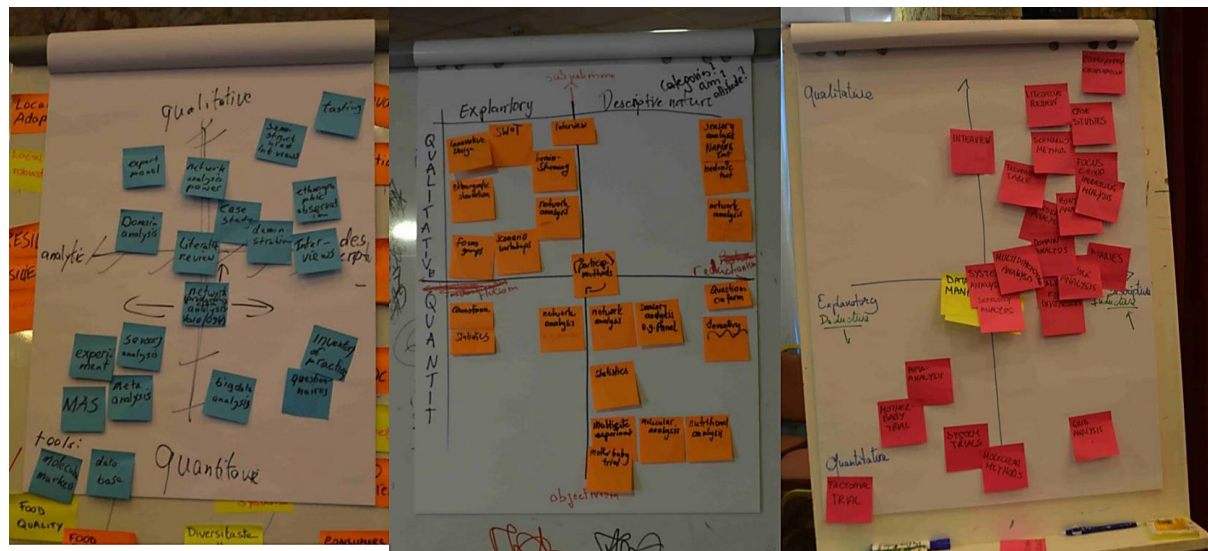


Figure 2: Results of the exercise during the 1<sup>st</sup> AM in Nicosia (Cyprus), in February 2016

The mentioned exercise also confirmed some difficulties by partners in working on diagrams, quadrants, etc. referring to well established ontological-epistemological frames but not always deeply known or handled (a similar situation had already occurred in the early work on keywords and methods). The WP1 team understood that using this approach might be disorienting or frustrating for partners, inhibiting their active participation. For this reason, the team decided to take another way to stimulate a reflection on methodological choices and associated implications.

Partners were helped to reflect more in depth on the methodological aspects, starting from **an alignment around a common terminology**. To that end, they were provided with a **classification of methodological elements of research** including *approach*, *methodology*, *methods* and *tools* (Figure 3).

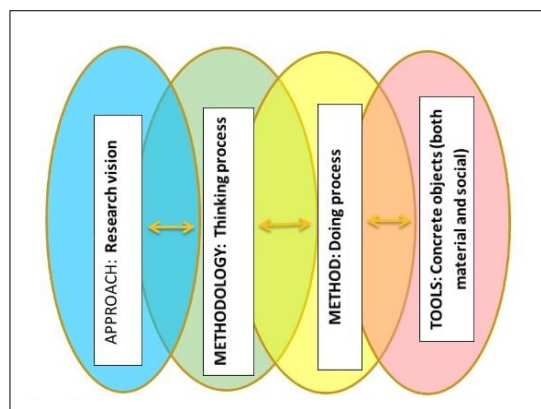


Figure 3: the relationships between the research elements: approach, methodology, methods and tools

The idea was to arrive to a shared understanding of these elements and to see their interconnection (see Table 2). The preparation of this step was an interesting exercise for the WP1 team too. The proposed reflection also aimed at increasing partners' awareness of the variety of items included in each category.

<b>Approach</b>	It explains the aim of the research and the vision that shapes the research. For example, it may present the purpose to explore in depth the processes underlying variety enhancement or market valorisation of products derived from the diversified genetic resources.
<b>Methodology</b>	It refers to the rationale and the philosophical assumptions that underlie any natural, social or human science study. The methodology includes the principles that determine how such tools are deployed and interpreted. In short, it relates to how the reality is approached and analysed. It guides the focus and intent of the research, explains the research questions and justifies the adopted methods. According to the ways approaching reality, for example, it may present the choice to adopt a positivist, constructivist, descriptivist, post-modernist or subjectivist stand, as well as to use quantitative or qualitative data or to adopt participatory processes.
<b>Methods</b>	Technical procedures applied to conduct the research, (i.e. data collection, data analysis and reporting results), according to the methodological choices.
<b>Tools</b>	Items used to implement a method, including software, for analysis and data management.

Table 2: the developed definitions of the research elements - approach, methodology, methods and tools

This set of methodological elements had been designed to be applied to **an ideal frame of research activity**, including:

- **research set up** (problem and goal definition),
- **research operationalisation** (choices related to approach, methodology, methods and tools)
- **assessment of the achievements** of the research work, in relation to the appropriateness and effectiveness of the methodological choices done, and, more in general, in relation to the achievement of the research goals.

This frame was aimed to allow **uncovering partners' attitude** towards each stage, in relation to the methods adopted, as well as the attitudes towards the internal coherence of the research designing and implementation and its evaluation.

Partners were asked to describe a case study, according to the frame, illustrating approaches methodology, methods and tools used.

The analysis done by each partners (translated by the WP1 team in posters, see D. 1.2, see Figure 4) was then discussed collectively by groups of partners in workshop at the 2<sup>nd</sup> annual project meeting (in Bologna, in February 2017). The aim was to encourage partners to reflect on their research experience and their methodological choices from the perspective of the implementation of multi-actor and interdisciplinary and transdisciplinary approaches and highlighting the associated difficulties.



Figure 4: Some of the posters produced by the WP1 team on the basis of information provided by partners

At the workshop, partners were first asked to use the following matrix to discuss each poster:

- ❖ Matrix 1: *After two years of research, what do you think about the choices concerning goals definition, methods, tools and the assessment of achievements?*

	Goals	Methods	Tools	Achievements
Poster 1				
Poster 2				
Poster 3				
Other				

Then, they were asked to evaluate the methodological choices related to the stages of research set up and research operationalisation focussing on the issue of actors' involvement; in particular:

1. to reflect on the form/degree of actors' involvement distinguishing between involvement in thinking and in doing, in relation to the steps of the research process;
2. to evaluate the different steps of the research in terms of actualisation of transdisciplinarity.

To do that, the following second matrix was used:



- ❖ *Matrix 2: How do you evaluate these methodological choices (goals definition, methods, tools) and the achievements according to the issue of actors' involvement and transdisciplinary approach?*

	Goals	Methods	Tools	Achievements
Multi-actors involvement in thinking				
Multi-actors involvement in doing				
Further thoughts on transdisciplinarity				

This exercise allowed eliciting some first important elements for conducting multi-actor research on agrobiodiversity issues, especially with regard to the differences of the methodological approaches of natural and social science disciplines and to the possibilities and difficulties associated to their combination. Another issue, whose importance was shared among participants, was the iterative nature of the research process and the related need for / possibility of reformulation of research questions or methodological choices to take into account unexpected results or other aspects that can emerge during the process.

### *Exploring multi-actor, participatory and transdisciplinary character of research*

The effort to analyse the articulation, variety and interconnection of the methodological choices, leading to the awareness of the specificities of multi-actor and transdisciplinary approaches, was followed by a deeper reflection on the meanings and implications of the implementation of these approaches.

Partners were encouraged to analyse more in-depth the aspects discussed at Bologna meeting. To that end, each of them was asked to fill in a table aimed at evaluating the involvement in the research stages of the different kinds of actors, the types of resources mobilised (different knowledge resources and other material and immaterial resources used in each phase) as well as the different methods used (see Figure 5).

On the basis of the related results and the previous information from the case studies, the WP1 team elaborated schemes showing the relations among the different actors involved in the research activities, the methods utilized by each actor, as well as the knowledge and other resources utilized. The partners were then asked to check, complete and validate the schemes.

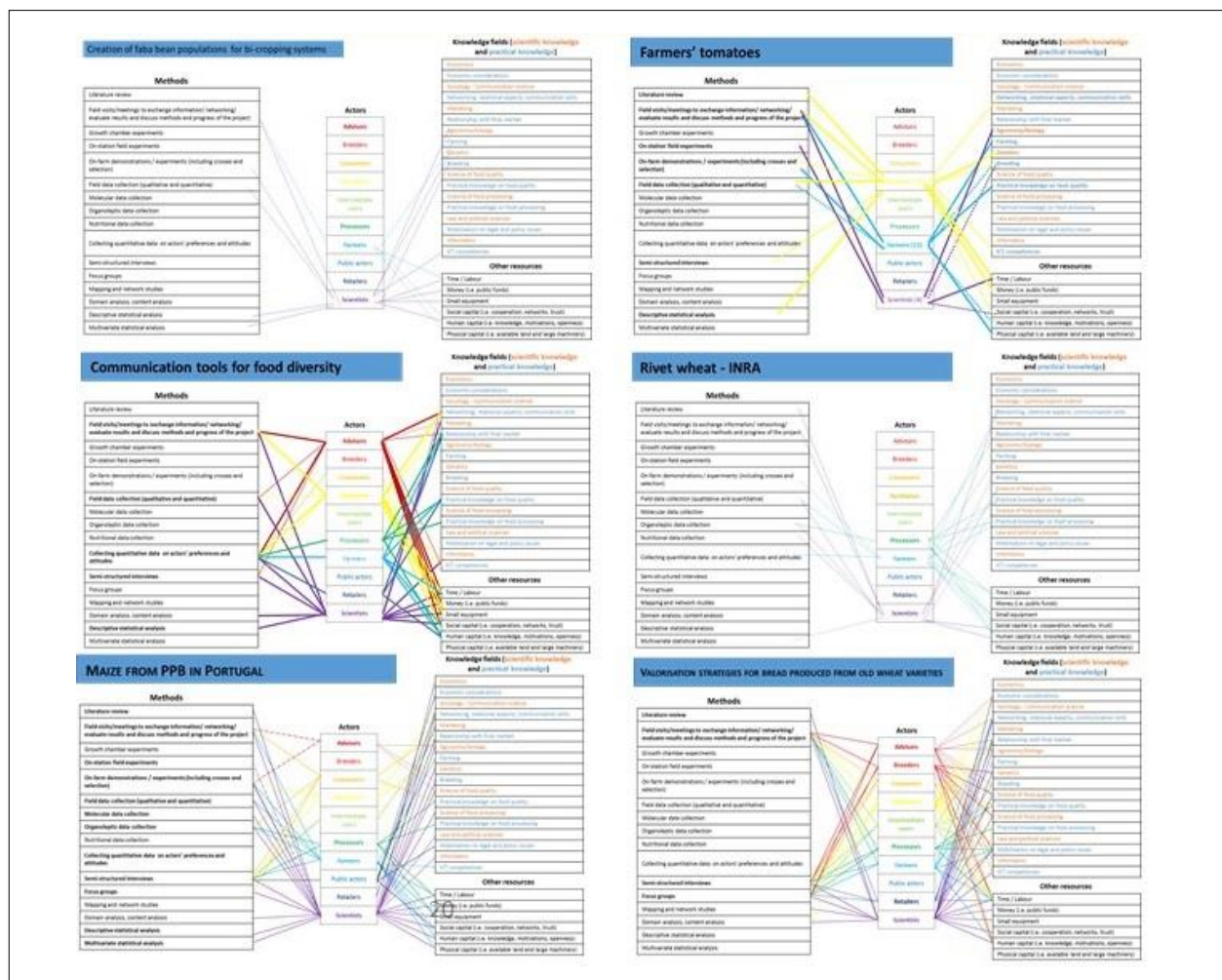


Figure 5: Some of the schemes showing connections among actors, methods and resources

This further exercise was very effective in visualising the features of the approaches adopted and the variety of situations existing in the research experience, thereby stimulating partners' awareness rising further.

Together, the analyses of the data from the tables and the schemes provided evidence of the variety of ways to implement a multi-actor approach, in terms of number and type of actors involved, the forms and level of involvement, the variety of fields of knowledge involved and actors' relations with resources and methods used. This variety depends on the diverse research questions and the related methodological solutions - methodologies, methods and tools - that the research settings may require. These conditions and, thus, the more or less inclusive character of the research as well as the transdisciplinary character it can assume, may evolve in the course of the research. The speed of this evolution during the research process depends on a large range of internal and external factors, making a progressively higher involvement of actors in some cases more possible than in other cases. The dynamic character of research also emerged when considering, in the iterative process of research, the need for reformulation of / definition of new research questions, because of unexpected results or other aspects that can emerge during the process, or the need for adjustments due to other changes within the group of actors involved.



This work of reflection constituted, more specifically, the work developed by the WP1 team in Task 1.2, which led to the production of a toolkit aimed at providing practical advices as well as five practical examples to illustrate the variety of ways to operationalise a multi-actor approach (see Booklet #1 “*Toolkit to foster multi-actor research in agrobiodiversity*”). A detailed description of this work is included in D1.2.

This first analysis conducted on the material provided by partners also led to identify general building blocks, such as: common will, common vocabulary, trust, transparency, facilitation, resources and adapted distribution of the work.

A significant achievement of this work is the recognition (or confirmation) of the weight of specificity or, in other words, of the inappropriateness of a unique research model (*one-size-fits-all*). More in general, this is the main achievement about multi-actor approach: every multi-actor research may have its own approach, adapted to the local context, because of the need to take into consideration specific crop traits, agro-ecological elements and socio-cultural factors.



### *Building an overarching framework*

Identifying shared key concepts and exploring and defining research approaches and methodological aspects constituted important steps towards the design, through an interactive and iterative work with partners, of **an overarching conceptual-methodological framework** for a holistic, multi-actor approach suited for participatory research (the objective of T 1.3).

Based on all the reflections developed over the DIVERSIFOOD project, this overarching framework was conceived as referring to a **comprehensive, integrated, democratic and collaborative, as well as reflexive approach**.

The *comprehensive* nature refers to the need to include all relevant knowledge fields needed to take into account all the involved dimensions. These knowledge fields can concern plant features, soil management, breeding, food quality technology, marketing, economics, communication, legislation, politics and ethics. The *integrated* nature refers to the need to combine these different knowledge fields and associated methods. Hence, an **interdisciplinary approach** is important. Various research methods of the natural and social sciences can be used. The integration among these different knowledge fields and methods is important to catch the interdependence of the various aspects involved, thereby optimising the result of the research process. However, depending on the research question, more or less knowledge fields and methods may be mobilized and integrated. When the research question deals with a specific, technical aspect of the production process (e.g. improving cross-pollination of a crop), a few knowledge fields are needed. A different situation occurs in case of a question that involves various elements of the local system (such as, for example, introducing a new farm product on the market, which requires optimising a complex interplay between production and marketing-communication practices). In this case, multiple knowledge fields may be needed to face technical, institutional, socio-cultural, economic and, even, legal aspects.

To develop diversified food systems, based on mobilisation of all available resources and meeting the needs of local and regional actors, the research has to be really **multi-actor** and adopt **collaborative methods** to create **democratic conditions** enabling multiple local actors and researchers to work together as partners in context-specific processes. Together, they can formulate the research question based on the specific needs, conduct the research by adopting the most appropriate methodology, discuss results and formulate further steps, often in an iterative way. This shows another fundamental feature of democratic and inclusive research, **transdisciplinarity**, which allows valorising the different types of knowledge - such as scientific and experiential knowledge -, thereby contributing to the comprehensive, integrated approach.

Over time, this multi-actor, collaborative research may need internal re-arrangement. As already said, this can be due to the development of new research questions or due to internal and external factors that can emerge during the process. Furthermore, there is the aspect of the effectiveness of the research. All these aspects show the importance of **monitoring and reflexivity**. A continuous critical evaluation of the research process is needed, in relation to its internal social dynamics and effectiveness of the research methods used and its achievements. This can help to manage the process fruitfully and coherently, in relation to its guiding principles and the commitment to contribute to generate change in food systems, that is to play a **transformative role**.

The main components of this overarching framework were proposed for a first discussion to the partners at the 3<sup>rd</sup> annual meeting in Vienna, in March 2018. They were asked to reflect on their experience in the DIVERSIFOOD research activities focusing on the main four aspects identified for the multi-actor research approach:

- participation and democracy;
- inter- and trans-disciplinarity;
- multi-dimensionality and systemic approach;
- reflexivity and potential transformative role.

The following scheme (Figure 6) and related meanings constituted the starting point for the discussion, which took place in a first phase individually and then in groups. It illustrated the four components of the approach and the research process. For this last, the solid arrows showed the implementation of the process through the sequence of stages, while the dotted arrows showed the adjustments made to overcome deficiencies emerged in the course of the process.

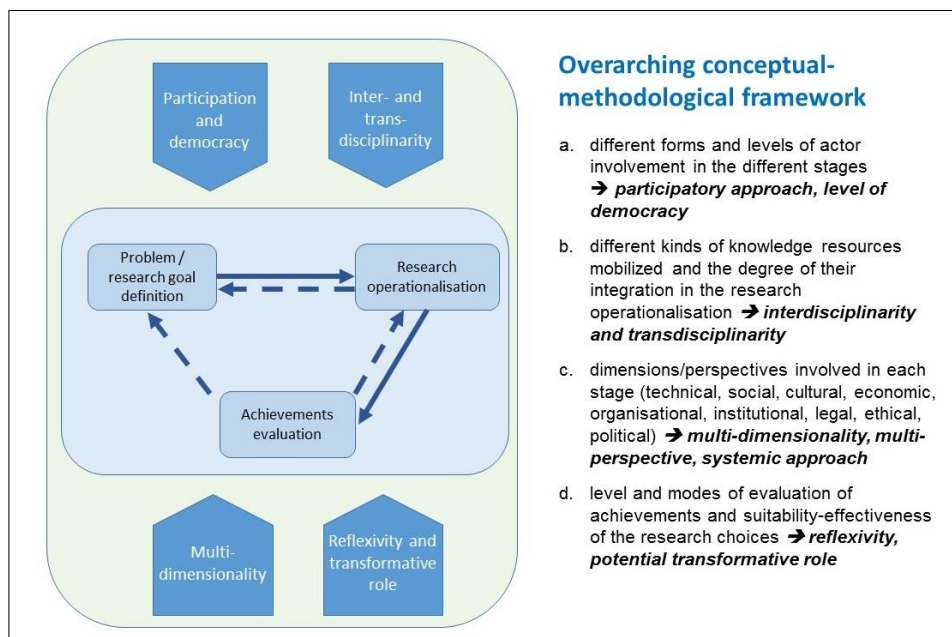


Figure 6: The first draft of the overarching framework presented and discussed at the 3<sup>rd</sup> AM in Vienna in March 2018.

The results of the workshop showed a general agreement on the significance of the four components and pointed out positive elements as well as difficulties and challenges associated to their implementation. Among the difficulties, the building of trust and creating an inclusive atmosphere to allow open communication and effective collaboration were considered as crucial elements. Also developing a common language was considered important to improve inclusion and mutual understanding. The negative aspects were attributed in particular to the mismatch between the needs of the real processes and the timing and objectives of the projects. In fact, for all the components of the framework, it was stressed that among the main limiting factors are the short duration of the projects compared to the slowness that characterises the real processes, crucial in case of multi-actor initiatives, and the lack of support once the project is finished. A more detailed analysis of these results is reported in D 1.4.

The overarching framework was re-presented at the last meeting, in Seville, in January 2019, together with the results of the evaluation made in Vienna. After having presented the entire process of collaborative reflection developed over the course of the project, and thus made all aware of the path made, the partners were invited to a final discussion, in order to validate the general framework and provide the last inputs to finalise it. The discussion was indeed very useful to gather insights to refine the framework. Partners were also asked to leave some individual remarks and hints about the general structure of the framework and each components, especially to help to identify critical aspects and produce some recommendations.

## Result of the process of collaborative reflection and co-definition

### *A proven concept for a holistic, multi-actor approach suited for participatory research*

Based on the discussion and the remarks and suggestions gathered from partners, the structure of the overarching framework was refined, leading to a scheme underlining the dynamism in the features of the holistic, multi-actor research approach defined within the DIVERSIFOOD project (Figure 7).

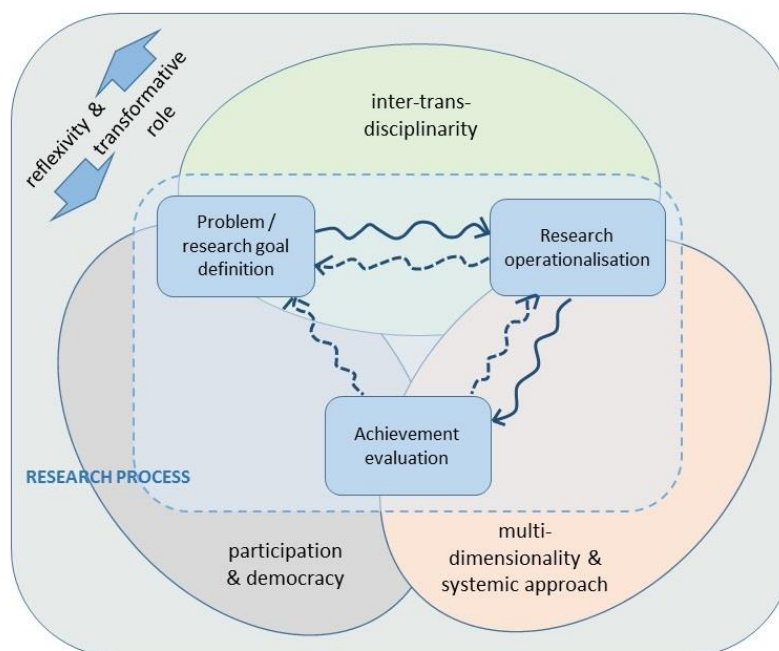


Figure 7: The final version of the overarching framework developed after input collected during the 4<sup>th</sup> AM in Seville in January 2019.

Starting from the general principle of **active involvement of all the actors** that directly or indirectly are involved in the supply chain of biodiverse products, from seeds and fields to market and consumption, this research approach builds on the articulation of these four components, their diversified manifestations and their mutual reinforcement. These components shape the three main stages of the research process - *problem and research goal definition*, *research operationalisation* and *evaluation of achievements*. In turn, these stages are conceived as not having a linear flow, as conditioned by interactions among actors and according to the iterative nature of the process, thereby providing the possibility of adjustments in the course of the process (this is why in the scheme arrows have a wavy pattern and there are dotted arrows going in the opposite direction to the search flow).

The forms and the level of actor involvement in the different research stages - **participation and democracy in research activity** - affect the possibility of actors to really contribute to the research process through their specific perspective, in terms of interests and needs, and the resources they can share. These resources may include knowledge, but also other material and immaterial resources, such as experience, time, labour, small equipment and physical capitals (land, large machinery), networks of relationships, attitude to cooperate, trust, motivations, etc.). This facet of the research approach thus has a significant empowering potential, opening



the possibility to create democratic conditions for the research conducted. Although the level of actor involvement can vary in relation to the kind of investigations needed in a certain research or even in the single stages (as we also will see dealing with the mobilisation of different knowledges), an inclusive and collaborative approach, like that developed in DIVERSIFOOD, demands an effort for the greatest active involvement of actors.

Dealing with agrobiodiversity issues and promotion of diversity in food systems requires to take into consideration the variety of dimensions that are involved in actors' activities. In any research stage there are some specific aspects on which to focus, but also others aspects and dynamics are often involved. It is thus necessary to be able to catch the role played by each of these dimensions, related to ecological, technical-technological, organisational, social, cultural, ethical, economic, legal aspects and dynamics. It is also necessary to be able to catch the existing interdependencies, by combining these various dimensions through an integrated approach. This is the meaning of the need for a **multi-dimensional and systemic approach**.

Understanding all the dynamics underlying agrobiodiversity enhancement in a multi-actor environment and taking into consideration multiple areas of action/influence requires combining different forms and sources of knowledge. This implies to find ways for a fruitful integration of and dialogue between different disciplines and fields of knowledge, such as natural and social science disciplines, and related conceptual and methodological toolboxes. As well, there is a need for enabling conditions for an operational integration of different types of knowledge and know-how, such as scientific, codified knowledge and contextual, experiential knowledge. This significantly affects the design and functioning of the research process, implying in principle the adoption of **inter-disciplinary and trans-disciplinary approaches** at any stage. In the reality of a research project, the full implementation of these approaches depends on the type of research goal and, thus, the more or less specialist nature of research. Moreover, it follows the development of the research process, providing chances for greater involvement of multiple kinds of knowledge (and related actors) in successive phases, when the research may enter into broader applications of the innovation.

Inherent to this multi-actor, collaborative research, as we said, is the openness to redesigning the entire research or parts of it according to the emergence of new needs within the network of the involved actors or in relation to unsatisfactory effectiveness of the research. Similar to action research, multi-actor research is a research deeply embedded in the activities and processes of the involved actors, and these aspects are crucial and closely linked to the maintenance of collaborative relationships around the research and coherence in its management. A continuous monitoring and, through this, a critical evaluation of the research process - the internal dynamics and the intermediate and final achievements, in relation to the methodological choices and the ultimate research goals - play a key role here. Together, these elements of evaluation allow developing a high level of **reflexivity**, both internally and externally (as shown in the scheme in Figure 8). It helps to manage the research activity fruitfully and to keep it consistent with its main guiding principles - research democracy, decentralised and community-driven research, and commitment to contribute, by investigating the conditions to embed diversity in food systems, to improving the ecological and societal resilience of food systems. This last component is instrumental to the **transformative role** of the research activity.

The four components, as said above, are closely integrated. Active participation of multiple actors leads to the presence of multiple perspectives and knowledge resources, showing the importance to adopt multidimensional and inter-/trans-disciplinary approaches. They all can stimulate and enforce each other. All together, these three components are related to



reflexivity: a high degree of reflexivity is often associated with the critical thinking that develops in a collaborative, multi-actor environment, where different knowledges are mobilised to face complex problems through an integrated approach. This shared reflexivity also underpins, in practical terms, and motivates the pursuing of common goals of change, and a transformative role at large.

This overarching framework aims at supporting consistent research design and more informed implementation of a comprehensive and integrated multi-actor approach when dealing with agrobiodiversity issues. Its implementation however demands to take into account the **specificities of the real situations**. Within the specific contexts, it is necessary to respect needs and times, and adopt the needed flexibility, through willingness to change. This allows entering a logic of **adaptive co-management** of research.

On the whole, this informs **a different research approach, socially-embedded and transformative in its mission**. Applied to agrobiodiversity issues, it is able to create synergies among all the involved actors and associated resources, thereby reinforcing the common effort to support the transition to more resilient, equal and healthy food systems.