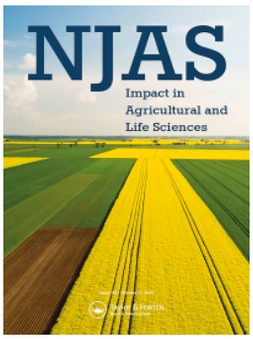

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Participation and co-theorising: How stakeholder interests and scientific outputs clash in the Horizon 2020 multi-actor approach

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ABSTRACT

The multi-actor approach in the EU's Horizon 2020 program has seen use across a large number of research projects. However, there remain questions about the extent and depth of participation that is achieved in these research projects, and how it may enable joint production of scientific theory next to readily applicable practical knowledge. This article aims to explore the latter question by focusing on the potential of such co-theorising, understood as the involvement of stakeholders in producing scientific outputs. We analyse how researchers involved in this research project view the participation of stakeholders, how they deal with tensions in participation, and how these tensions are resolved. Through 17 semi-structured interviews with researchers involved in the project's Living Labs we show that there are tensions between the interests of stakeholders, the project requirements and research interests. The findings indicate that a focus on including the stakeholders in theorising comes at a cost of practical relevance to the stakeholder. To safeguard the practical relevance of participation, researchers choose to exclude discussion on theory and theoretical concepts from the living labs. This is despite an initial belief that co-theorising and the further participation of stakeholders in producing scientific outputs holds merit. Hence, researchers purposefully prioritize practical relevance to stakeholders, thereby reducing the potential for co-theorising. The fact that theories already need to be defined in a proposal stage and project's limit scope for redefinition of core concepts, make that advancing theory together with stakeholders is not well accommodated for in Horizon 2020. This also bears relevance for the Horizon Europe program which follows a similar approach.

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1. Introduction

The participation of citizens, laypeople, or stakeholders in research processes is increasingly common in the development of scientific knowledge. The co-creation of knowledge and innovations is often described as a key aspect of solving complex, or "wicked" problems (Hakkarainen et al., 2022). This approach has also become commonplace in projects financed by the European Commission. For example, the European Innovation Partnership for Agricultural Productivity and Sustainability supports this approach, indicating that from now on: "Knowledge is co-created between practice, scientists, advisers, enterprises, NGOs, etc" (EIP-AGRI, 2017, p. 3).

Such knowledge co-creation is part of a multifaceted yet cohesive effort to integrate diverse knowledges and integrated approaches in knowledge development, aimed at addressing the "grand challenges" of our time (Caniglia et al., 2020). It is commonly described as a move away from disciplinary, linear and hierarchical modes of knowledge production to a socially distributed, transdisciplinary and application-oriented mode of knowledge production (Jahn et al., 2012; Nowotny, 2003). This resonates with a broader call for democratising science, where innovation becomes a shared practice between multiple actors and stakeholders, involving their concerns, knowledge, experiences and practices (Ingram et al., 2020). This development has seen increased popularity in agricultural science since at least the late 80s with Chambers (1989) frequently cited as the starting point of a broader involvement of diverse knowledges in agricultural research (Neef & Neubert, 2011).

However, there are varying views on the potential of participatory research and the required extent of participation (Basco-Carrera et al., 2017; Doudaki & Carpentier, 2021). There are also recurring critiques and debates over what level of participation should be reached (Mobjörk, 2010). The levels or intensity of citizen and stakeholder participation desired, or required, have been recognized in the participation ladder (Arnstein, 1969). This highlights the different forms that participation can take, from non-participation and manipulation, through consultation, to full citizen control and partnership (Arnstein, 1969; Galende Sánchez & Sorman, 2021). These different levels of participation can also be recognized in the multi-actor projects that make up Horizon 2020 research projects in rural areas, which forms the context for this research, where we study one of these research projects. Multi-actor approaches fit within a broader European research funding context, where research projects are encouraged, if not required, to include diverse actors in

the process of co-creating demand-focused knowledge (Slavova et al., 2023). Considering the intensity and depth of participation, Feo et al. (2022) describe participation in these projects as centred around events, with short moments of participation.

On a more fundamental level, there are running debates about the forms and desired outcomes of participation. While authors discuss the value of involving a diversity of knowledges, there are different views on what this diversity means for the participatory process (Doudaki & Carpentier, 2021; Dunlap et al., 2021; Koskinen, 2014). The common approach in multi-actor research projects is that a diversity of knowledges is valuable in that it can strengthen scientific knowledge and legitimise the outputs of the research process, and increase its applicability in practice (Adamsone-Fiskovica & Grivins, 2022). This has however been critiqued as limiting participation to involvement in research methods and analytical tools, as it does not fundamentally question concepts and theories underpinning the projects (Felt et al., 2012; Hakkarainen et al., 2022). In response, other authors have called for the involvement of stakeholders in the production of scientific knowledge and outputs such as scientific articles and the development or advancement of scientific theory (Arribas Lozano, 2018; Caretta & Pérez, 2019). This goes beyond the forms of participation common to Horizon 2020 research projects, where participation usually does not extend beyond participation in data gathering and implementation of project results in practice (Caretta & Pérez, 2019; Feo et al., 2022).

These tensions between what participation is desired, what contributions participants can make and how researchers deal with tensions between desired participation and other needs of the research project are the principal interests of this study (Schikowitz, 2020). In this study, we set out how the participation and inclusion of stakeholders takes place in the context of a Horizon-funded research project. Particularly, we discuss the potential of co-theorising as a way to further integrate stakeholders in the production of scientific outputs in the research project and question the extent to which this opening up of research is achieved in the participatory project. While there are a good number of case studies focused on how participatory research is done, and how it can be improved, there are relatively few studies that analyse how researchers deal with the tensions that participatory research brings, especially concerning the development of theoretical concepts and broader theories through integrating diverse knowledges (Felt et al., 2016; Schikowitz, 2020; Slavova et al., 2023), and this is the gap the study addresses and where the study makes a novel contribution. This leads us to the research question of: *How are tensions between project needs, stakeholder needs, and co-theorising resolved by researchers, and what is the relevance and potential of co-theorising in participatory research for Horizon 2020 research projects in agriculture and rural areas?*

The focus of this research are the practices of researchers, how researchers work with the requirements of participatory research and how they deal with the tensions that they encounter in co-theorising with stakeholders. Specifically, this study took place in a H2020 research in action (RIA) project utilising a multi-actor approach (MAA) in the form of living labs. Our paper is structured in the following way. In Chapter 2 we provide a theoretical background for our analysis. Following this, we introduce our case and the methods we used in Chapter 3 before presenting the findings in Chapter 4 and discussing and concluding the research in Chapter 5.

2. Theoretical framework

We start our theoretical framework with an exploration of the tensions in participatory processes and how these tensions relate to the potential for co-theorising.

2.1. Levels of participation

Considering the participation ladder, and the diversity of approaches that are classified as forms of participatory research (Fleming et al., 2021), there is a need to clarify and specify the forms of participation studied in this article. Participation can take several forms, although with the central aim of actively involving stakeholders in the research process. Participation is often limited to the collection of data, but would ideally form more meaningful participation where stakeholders have a say in decision-making (Caretta & Pérez, 2019). To clarify participatory methods in this case study, the participation we speak of in our research was a form of participation as a research method, where stakeholders were engaged to provide and produce knowledge, but where they were not involved in all phases of the research process. To some authors this is already an imperfect participatory process, as the stakeholders cannot influence the research process beforehand and are also not involved in broader decision-making (Basco-Carrera et al., 2017; Jahn et al., 2012; Renn, 2021).

Participation can take different forms, moving towards full citizen control in the case of collaborative or co-productive processes (Arnstein, 1969; Basco-Carrera et al., 2017). However, this is not to say that participation is only meaningful when stakeholders have decision-making powers in the research project. Several authors indicate that meaningful participation can occur even in processes that at first sight seem to be low on the participation ladder (Neef & Neubert, 2011). For research, this means that participation is somewhere on a spectrum, between linear, science-driven knowledge production and more inter- and trans-disciplinary research, which is oriented towards

application (Ingram et al., 2018). To place research at either end of this spectrum is too general and simplistic, as research projects often contain elements of both models, where it is more accurate to speak of a blend between these archetypes (Ingram et al., 2018; Neef & Neubert, 2011).

While not all participation is created equal, there can be no direct ranking of the value of a research project based on how participatory it is. Rather, participation needs to be meaningful to stakeholders, through providing them a right to be heard and a possibility to contribute to setting research objectives and steering research outcomes (Nesheim et al., 2021). Providing meaningful participation through involving stakeholders in decision-making can however be in tension with other objectives of a participatory research project (Schikowitz, 2020). Increased stakeholder say can be in tension with the production of scientific knowledge, and funder requirements do not always allow stakeholders to be involved in setting out the project goals and aims (Feo et al., 2022; Fieldsend et al., 2021). In the next section we will go deeper into these tensions.

2.2. Tensions in participation

There is an inherent tension between the production of scientific knowledge and the socially relevant knowledge that is expected to be built in the process of participatory research (Brandt et al., 2013; Felt et al., 2016; Schikowitz, 2020). In a specific scenario for participatory research, there might be an open epistemic arena where different knowledges are valued, which leads to shared outputs, but for scientific research, these outputs need to be refined. Experiences, knowledge and reflections are translated into a scientific form that is valued following scientific standards (Felt et al., 2016; Schikowitz, 2020). A question that remains is to what extent scientific outputs should drive the process, as the same authors describe the tension between these outputs and other achievements in participatory research (Felt et al., 2016; Schikowitz, 2020). Felt et al. (2016) for example describe several tensions: the promise of radical change to science while retaining legitimacy within science, tensions between generalisation and local relevance, and between developing broad knowledge and expertise while retaining distinctions between science and society.

These tensions to participatory research are dealt with in different ways, depending on the participatory project. Schikowitz (2020) mentions that there remains doubt about the actual transformation of knowledge production, with the opening up of research being limited. In light of the aforementioned tensions, initiatives for opening up knowledge production often fall back on rather conventional scientific outcomes. Scientific relevance prevails over societal relevance, and limits the potential of participatory research. In

response, several authors take the view that scientific outputs might need to become a secondary aim in participatory research, as societal relevance and stakeholder interests need to be given priority (Brandt et al., 2013; Schikowitz, 2020).

This can also be linked to the occasional ambivalence to scientific theories and knowledge in certain areas of participatory research. Scientific theories are sometimes described as having no real use to participants in the process, lacking utility and only finding meaning within specific networks of shared understandings (Gergen & Gergen, 2008). Other authors share the view that stakeholders might not find meaning in the scientific process of developing theories (Djenontin & Meadow, 2018). The risk is that overly broad and general theories do not fit the complex realities on the ground, while foregoing theories completely risks losing out on a consolidation of knowledge that emerges from the involvement of broader actors in research processes (Schlüter et al., 2022).

In response there is the view that we need to craft different scientific theories that do find relevance with stakeholders. Friedman and Rogers (2009) set out that "*good theory*" provides accessible and useful tools for practitioners, academics, and other actors/participants alike. In this, they respond to the earlier-mentioned ambivalence to theory by stating that good theory helps to co-create shared knowledge on the causal conditions of the social world, knowledge that is in essence theoretical. Discussing theory can then provide a way for research participants and researchers alike to come to a shared understanding and to understand their social reality better (Genat, 2009). To these authors, the aims of scientific theory in participation are to enable research participants to interpret the world in new ways, to understand their social reality and to have local knowledge participate in theory-building (Friedman & Rogers, 2009; Málovics et al., 2021). This connects to the idea of socially robust knowledge that we set out, where socially relevant scientific knowledge is developed through the participation of stakeholders (Nowotny, 2003). In an ideal scenario of participatory research, it might then be assumed that tensions between practical relevance and scientific relevance are limited, as the knowledge that is produced is relevant to both.

2.3. Participation in producing scientific outputs

In producing relevant knowledge through participatory research, there is a need to consider the process of producing scientific outputs. In this research we define this as the process of coming to scientific outputs such as scientific articles and reports. Schlüter et al. (2022) mention that by involving more actors, such as in a multi-actor process, theorising becomes

a more collaborative and deliberative learning process that involves a wider diversity of actors. Relevant to this notion is the question of who becomes involved in the production of scientific outputs and how different actors are involved. Interesting in this light is the notion of co-theorising (which includes a level of epistemic accountability to the different actors involved in the participatory process) (Caretta & Pérez, 2019; Huebner et al., 2017).

The role of the researcher in theorising can be distinguished between outside observers or as embedded in the system they seek to observe, with the latter being more common for participatory research (Schlüter et al., 2022). However, while participatory research will often mean that the researcher is more embedded in the system they are observing, the relation between researcher and research subjects will still vary between participatory research projects. Co-theorising in this light can take different forms, where the epistemic accountability to stakeholders is the primary element, but where different approaches can keep the researcher accountable to the researched community (Caretta & Pérez, 2019; Huebner et al., 2017). Depending on the community involved in the participatory process, this might involve simply verifying the results but can also include a deeper involvement of the researched community in the analysis and production of scientific outputs (Caretta & Pérez, 2019).

Participatory methodologies in the production of scientific outputs can improve the overall study validity (Caretta & Pérez, 2019). This does not mean that participants necessarily need to agree with the outcomes of the analysis, but that they are in a position to dissent from the researchers' analysis and that this dissent has the potential to influence the analysis. The importance of moving participation to the production of scientific outputs is that this enriches the process of knowledge production (Arribas Lozano, 2018). It allows for increased reflection, allows for a de-centring of the role of the researcher and allows for a greater role of stakeholder knowledges in the production of scientific knowledge (Arribas Lozano, 2018).

Vital to the potential of co-theorising are however the researchers who lead the participatory research projects and who shape the process of participation. In this research, the analysis is focused on how researchers in a Horizon 2020 MAA project view the potential of co-theorising and how co-theorising might take shape in practice in the context of such a research project. In analysing this, we focus on how researchers deal with existing tensions and dynamics in the participatory process, and seek to understand how to make participation more meaningful to stakeholders.

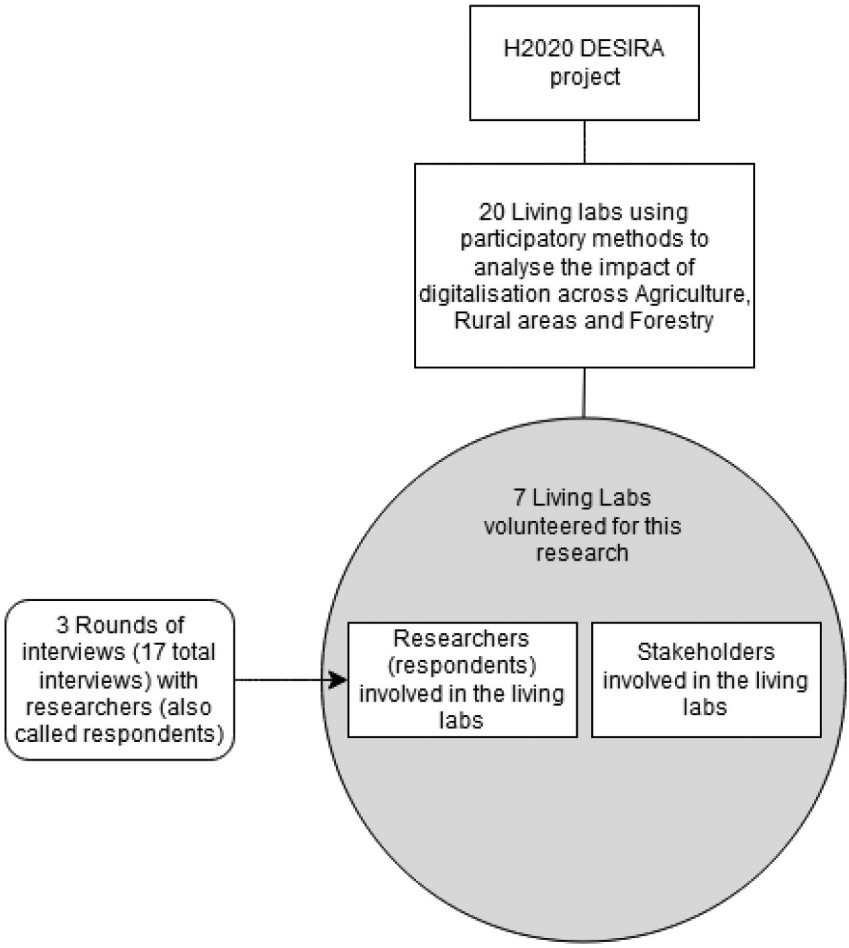

Figure 1. A schematic overview of the structure of this research.

3. Methods

In this methods section we provide an overview of the case study and the methods used in this research. To avoid confusion, the definitions we use in the methods, results and discussion are the following: *respondent and researcher* refers to the researchers involved in our research, who lead the living labs. *Living labs* are the framework for participatory activities used in this project, which in turn involve *stakeholders*. A schematic overview of the project is provided in Figure 1.

Table 1. The themes of the living labs involved in this research.

Netherlands	To help organise short food supply initiatives through digital platforms
Latvia	Developing innovative support systems for the traceability and marketability of beef cattle meat
Italy	Improve communication for land management between citizens, stakeholders, and public administration through digital tools
Spain	Using digitalisation to help reduce the risk of forest fires and for effective firefighting
France (two living labs)	1) To improve the digitalisation of the wine sector, and 2) to use digital technology to contribute to innovations for the agroecological transition
Scotland	To find appropriate pathways for equitable and beneficial digitalisation for crofting communities
Belgium	To understand the impact of digital farm-based monitoring of emissions in the intensive livestock farming sector

3.1. Case study approach

The case we study in this article is based on a participatory process that took place in a Horizon 2020 project (H2020DESIRA). This project aimed to help understand the social and economic impacts of digitalisation on agriculture, forestry, and rural areas, with digitalisation understood as the use and uptake of digital technologies (for specific examples see Table 1) The Horizon 2020 DESIRA project was a research-in-action (RIA) project, utilising a multi-actor approach (MAA) by involving 20 living labs in different European countries. To clarify, this means that the project was focused on a combination of research and participatory activities, where stakeholders from different backgrounds were involved in living labs. Living labs are used to describe user-centred, open innovation processes with significant co-innovation (Gamache et al., 2020). Particular to living labs is the place-based and "real-life focus" of these co-creation processes, focusing on a particular community or group of users, although this does not need to be exclusive to living labs (Toffolini et al., 2021).

The participatory elements of the research project were limited to focus groups and workshops. Stakeholders were not involved in the early stages of the research project, partially because of structural limitations of project proposal writing. Several of the living labs were part of longer-running initiatives and communities. Other research has pointed out that this can lead the community to have an increased say in the process of participation (Felt et al., 2016). However, these communities were also not necessarily involved in other phases of the project, such as developing the research proposal or evaluating the resulting knowledge (Jahn et al., 2012). The workshops and focus groups had as a goal to understand the impact and potential future impact of digital technologies in the specific contexts of the living labs (see Table 1 below). The specific participatory activities that took place in these living labs were to first provide an overview of how stakeholders viewed the current socio-economic impact of digital technologies. For this

workshop a specific framework (described in Metta et al., 2022) was used in the workshop to have stakeholders discuss the positive and negative impacts of digitalisation in their specific contexts. This framework also formed part of the co-theorising exercises that we describe in our work, where the intention was to have stakeholders further develop this framework.

Following this first workshop, a second and third workshop was held to discuss potential future scenarios for digitalisation, using the framework described in Duckett et al. (2022). This framework focuses on Societal, Technological, Economic, Environmental and Political (STEEP) drivers of change (Hunt et al., 2012). In the workshops, stakeholders were invited to both determine the drivers of change and to use these drivers to develop multiple potential future scenarios for digital technologies in their living labs.

These participatory activities formed a structure for this research, as interviews were held before and after the participatory activities with seven of the 20 living labs that took part in the research project. For the interviews we invited researchers to discuss both the participatory exercises and the potential to extend this participation to forms of co-theorising (where stakeholders are further involved in producing the scientific outputs of the participatory research process). These seven living labs each formed a specific case study focused on some aspect of the digitalisation of agriculture, forestry, and rural areas. Table 1 presents the different living labs.

3.2. Research methods

We approached our research process as a form of action research, aiming to develop a process that would build on the theoretical concepts developed in the project while also studying the process of participation itself. This follows the view of action research as collaborative problem-solving while also aiming to generate new knowledge (Coghlan, 2011). We (as authors LD and DV) opted to start this process with workshops and interviews involving the researchers active in the seven living labs. These workshops and interviews ran throughout the participatory phases of the research project to gain insight in how theoretical concepts of the conceptual framework were used by partners in the project. Most of the data in this research is based on the interviews, workshops took place between rounds of interviews to connect back to the researchers leading the living labs.

Table 2. Interviews per round of interviews per country.

Round of interviews	Belgium	Latvia	Spain	Scotland	Italy	Netherlands	France
1	X	X	X			X	X
2	X	X		X	X	X	
3	X	X		X	X (twice)	X	X
Pseudonym used in findings	R*Belgium	R*Lat	R*Spain	R*Scot	R*Italy	R*NL	R*France

17 interviews were held with the researchers, distributed over 3 rounds of interviews. Interview questions are provided in Annex 1. Participation by respondents varied throughout the project, as researchers were not always able to join interviews. We provide an overview of which living labs joined which round of interviews in Table 2 below. The interview R3Italy was held twice, with two different researchers. Interviews for the Belgian living lab were also a self-reflexive exercise, as this living lab was led by the first two authors (DV and LD). The same interview questions used for the other interviews were used for these reflective interviews, following the view that this improves the reflexivity of us as researchers (Olmos-Vega et al., 2023).

Throughout the research and fieldwork, interviews were transcribed and analysed using Nvivo14. Inductive coding was used to form a broad categorisation of the incoming data and for a first broad analysis. Following this analysis and with the framework we set out in the theoretical framework we developed the list of codes provided in annex 2 to code and analyse the data a second time. Both lists of codes are presented in Annex 2. In the findings, respondents are indicated with the round of interviewing (1–3) and their respective country, as shown in the bottom row of Table 2.

4. Findings

4.1. Tensions in extending participation

This research has the aim to study the potential of including stakeholders in co-theorising in a participatory research process. In this findings chapter, we set out how researchers make participation happen, the tensions in participation and describe the potential to broaden participatory activities. These findings are specific to the context of European research projects in rural and agricultural areas. This provides an account of the different views on participation in MAA projects and shows the potential and impact of the participation of stakeholders in this context. To remind the reader, in this article, we use data collected during a participatory project, where we interviewed researchers who led participatory activities.

We start by describing the view of many of the researchers in our research, who hold to the notion that participation in research needs to be extended. This can be seen as a normative aim for participation, where participation itself is seen as a normative good that should be furthered. This can for example be seen in the description of R3Scot, who indicates that they would like to include stakeholders in the development of scientific theories and outputs:

> So yeah, there are certain theories that are very questionable, aren't they? And if you actually had input from your research participants, they might just pull it apart. How would that go in the academic community? It might call into question just how academic knowledge is produced. But I think we are moving towards a more responsible way of how that knowledge is produced anyway, which is exactly what you are doing here. I don't know what the answer is to that, it could pull a few things apart, but make those theories a bit more authentic and useful in the real world as well. Hopefully.

This quote indicates a notion that participation does not go far enough in current forms of research, showing a desire to allow stakeholders to question the theories and outputs produced through participatory research. R3France provides support for this view on participation when describing the potential to build on current forms of participation in research projects.

> I do not know if I can say more than I said, I am not sure. I am convinced that collective action is the way to solve problems and to connect people. I do not know if living labs are the structure, but the way to develop participatory theory, yes, I am sure. It could be living labs, or it could be communities, it could be commons, it could be a lot of things, but participatory theory is a great and powerful way to work and to apply research. That is for sure.

These two quotes indicate a theme that came up throughout the research, where there is a general belief that stakeholders need to be further included in the research project, including the potential to co-theorise. This also includes the belief that current forms of participation in the research project do not go far enough, that participation is not yet complete. Participatory activities in the type of project that we studied (Horizon research projects in agriculture and rural areas) are often limited to singular events, with limited interaction between researchers and stakeholders or between stakeholders themselves, which R3Italy also noted:

> So if we think that we had three workshops in three years, let's say, they also forget what we did last time and it's too far away. We do all this work in the middle but they don't follow that. So they just see people who arrive three times in three years and who tell you something. I am not sure if they connected the information and they were, because they are not aware of the theory part.

This is a general limitation on the participation of stakeholders in our project (and in similar Horizon projects), where participation remains limited to events such as workshops or focus groups, with considerable time in between events. It also indicates that despite the desire to further participation, there is a general understanding that this is not yet achievable (or at least, is too difficult to achieve within the current project context). Effectively, this means that despite the aim to extend participation and despite the view that participation is a normative aim to work towards, researchers describe that participation is sometimes relatively minimal in practice. R1Lat for example

describes the challenges of getting stakeholders to participate in the first place:

> But most of them, even if you are very keen. . . you can engage a couple of them, but the others you constantly have to motivate and say, yeah you need to do this, it is very important [. . .]. And I think everybody gets tired at the end, but you are constantly speaking about how awesome, not really overselling, but you have to say that there is a value in it, but still this value is very elusive. [. . .] And this is not the first time where we see this challenge, where really you are struggling to retain the interest of your [. . .] participants. You are trying to put concepts that are very highly academic in nature, well to translate them to participants, and then to translate them back.

This is in effect the general view on participation across the interviews we held, where despite viewing participation as something to strive for, researchers also view this as a struggle. The aim of extending participation is limited by the reality of the participatory events, with frustrations about the difficulty of keeping stakeholders engaged. This limits the potential to include stakeholders in co-theorising and in the production of research outputs (reports and scientific outputs). Additionally, because of the limited time spent with stakeholders, researchers are also careful in the activities they select for participation, where the act of co-theorising is seen as providing little benefit to stakeholders, as R1Spain and R2NL describe below:

> R1Spain: Terms and concepts are difficult to translate, [so] we did not discuss them with stakeholders, and I think that is not what we expected from them. I do not know if that was different for other living labs. We tend to be very respectful with the time of stakeholders because normally they do not win anything by coming to our workshops, or very little. Right?

> R2NL: And you have to consider the stakeholders that you work with, right? Because if you're working with a group of academics, yeah those might find this interesting. But in the end, you do want a workshop that provides something to the people who are there. So you don't want to tire people with [academic] terminology. Because they will wonder what use it is to them when they return to work the next day.

While it is positive to tailor activities to the needs of stakeholders, as activities should be useful to stakeholders, we do find it an interesting element of this project that there was a general fear of stakeholders giving up on the participatory activities, especially concerning "academic activities". The view of our interviewees was that involving stakeholders in co-theorising would mean that stakeholders lose interest and stop showing up at the participatory events. This seems to indicate that the project is balancing on the edge of being useful to stakeholders, as additional participatory activities need to be carefully weighed against the risk of stakeholders ending their participation. In this case that meant that despite the appeal of stakeholders participating

in more theoretical reflection, researchers generally saw this as something that would not be of value to stakeholders, as R1Belgium describes:

> You do the workshops to provide maximal value to your participants, of course with your research in mind. But you may already be happy that they take part, so you do not want to burden them, to make them think about these concepts and to ask for their opinion. [. . .] And I think to myself, how much useful feedback would you get? With people who don't know anything about these theories.

These findings show the reality of our attempt at furthering participation in a project context. Interesting in these reflections is both the feeling that the project activities can easily alienate stakeholders, where they stop showing up to activities, and the notion that participatory project activities might not be in the direct interest of stakeholders. Researchers seem to indicate that the participatory activities in the research project are on the edge of relevance to the stakeholder, which leads us to the question of why the research project does not directly cater to stakeholder interests.

4.2. Tensions in the participatory research project

To provide an answer to the tensions around participation, we have to turn to existing tensions in this style of project, which connect to the pan-European nature of these research projects and to the different needs that co-exist in the research project (funder requirements, researcher interests and stakeholder interests). In the project itself, the different living labs (20 countries in this case) need to come to shared results, with comparable findings across Europe. In this research, this shared aim was to understand the impacts of digitalisation in rural areas, agriculture and forestry across Europe. To compare the member states that are involved, a systematic and broader view of digital technologies was used across the project. However, data from our interviews indicate that these generalisations often clashed with the reality of stakeholders, who sometimes did not see the relevance of digital technologies and other times were more interested in a solution to a specific problem (rather than discussing the impact of digital technologies) or wanted to discuss things that were irrelevant to the research project (but that might be relevant to the local stakeholders). This is for example indicated by R2NL, who describes the relatively low importance of digital technologies:

> See, the point is [. . .] the game changers here are on the social, on community building. [. . .] and the discussion is not about the game changers, but it's about how to create a community that is motivated, where producers and consumers are part of a shared system.

A similar sentiment is shared by other researchers, who set out that the project focus was not shared by their stakeholders. Stakeholders did not necessarily see the relevance of discussing the impact of digital technologies on their communities. This is not to say that this digital impact is wholly irrelevant, but that to stakeholders there were often more pressing matters, which needed to be put aside because the overarching project focus demands a focus on digitalisation and the impacts of this digitalisation, as R2Lat describes:

> That is a tricky thing, because well, I could say it was very central, but then I have to keep in mind that we were constantly pushing them back to talk about digital, and in general I think they would not have been talking about digitalisation but what they would have been talking about would have been, the ability to pay, about shifts in diets where they feel threatened by various new interpretations of what is good and what is bad. They would have probably talked about how to make a product that is the highest value, that can be sold for the highest price. So I would not say that digitalisation is on top of their mind. And that is quite interesting.

This creates one of the tensions that complicate both participation in the project as well as the potential to extend this participation. Co-theorising in the project risks furthering the alienation of stakeholders, who might already not be interested in the project aims. There is an element of irrelevance to stakeholders built into the project due to the project aim and requirements. To seek an overarching theory that can be used by all living labs requires theoretical concepts that can be used in a variety of contexts and across different socio-technical circumstances. The concepts are not adapted to the local context and local needs, their fit needs to be universal, rather than specific for each of the cases. The use of these theoretical concepts and frames is questioned, where R2NL describes the following:

> And I wonder how much use this is to you? Because of course, we take the concepts into account when we prepare the workshops, but you don't want to bring those up during the workshop because you just want a good conversation. So you are constantly balancing between getting results that are useful to the project and on the other hand providing something meaningful to the people who give their time to you.

As an intermittent conclusion, we see that despite the aim of furthering participation and the positive view of co-theorising, this broadening of participation is not achieved in the living labs. The reasons for this are that stakeholder interests do not always align with the living labs or with researcher interests, where project requirements play a central role in this. This is further complicated by the fact that participation can also be in tension with the production of scientific outputs, as we will show in the next subsection.

4.3. Further tensions and strategies to make participation happen

We will start describing the strategies that researchers use to make participation happen while also introducing the final tension in the participatory project, which is the tension between participation and achieving scientific outputs. This is described by R3NL:

> If you would focus on a scientific contribution you would need to be much stricter with how to do the workshops. To keep it methodologically sound. [. . .] But if you [. . .] want it to be useful, well we finally said, we do what we need to do for [the project], but we add other elements. So we do what needs to be done and then we move to [. . .] the practical questions that are not scientifically interesting. It's just interesting for the people in the living lab. [. . .] Because we have often come to interview people, to make them fill in a survey. [. . .] Whereas if you want to give them something, you have to allow people to nag and whine about things. But you get it, it's not of interest to science.

This quote links the three concerns of the research project and separates them at the same time. Scientific activities are of interest to the researcher, but with the caveat that these limit the participatory potential of the workshop. The researcher decides to forego scientific interests to focus on the needs of the stakeholders. Equally, project activities are necessary, but are not actually what meets the stakeholder interests. The project forms the reason for holding the workshop but does not meet the needs of the stakeholders, so additional activities are required to meet these needs. Participation is achieved but is separate from other aims of the project. The practical requests of stakeholders might be too simple or too off-topic to be useful for the project. At the same time, topics that hold scientific relevance might be of no interest to the stakeholder, as R3Scot also indicates:

> So [. . .] you can explain it to a certain extent and maybe talk about, 'Okay, so digitalisation is a sort of process of making something digital. But digital is also more societal and all that'. Then you can sort of see their eyes glazing over. We're going too far in this academic direction now and we have to remember not to do that too much.

These are then the three activities that are in tension during the participation of stakeholders in the project. Stakeholder interests do not necessarily align with project requirements, and the scientific elements seem to alienate stakeholders and disrupt the participatory process, as the two quotes above indicate. To solve these tensions, or to work around these tensions, researchers use varying strategies to align the different needs in the participatory project. One example is described by R3NL, who describes how activities are reoriented to provide maximal value to stakeholders:

> This is a living lab where we have done a lot already, with this group of people. And usually, you just take if you're doing research, you request a lot from those people. So what we decided to do now [. . .] was that this was a chance to give

> something back. To connect to the questions that are there and couple those to the project needs. So yeah, we could have chosen to go more theory-heavy, but we actually went the opposite way.

This quote, by indicating a history with the same stakeholders, indicates how priorities shift between different activities where stakeholders and researchers meet. Whereas some activities were research-oriented, where the aim was to collect data, the activities within the current project are shifted to provide more value to stakeholders, but this reduces the scientific relevance and also limits the project activities to the essentials for funder requirements.

The same is also described by other interviewees, who describe how activities that are in tension with the needs of stakeholders need to be limited in the participatory activities. This approach makes the process of gathering knowledge from participants as efficient as possible, to reduce the time they spend on activities that are required for the project or that are used to gather data for research activities. This allows more time to be spent on the participatory activities that are relevant to stakeholders (discussing community concerns, meeting and networking with other stakeholders, etc.). This could be recognised in the quote from R3NL above, who describes how they execute project activities before moving on to the "real" participatory activities. R3Belgium describes this approach in relation to the project activities and to what is required from the stakeholders:

> R3Belgium: We just don't have a lot of time, you don't want to overburden people with things that they, strictly speaking, do not need. So we do work from a perspective of what we need to take from them, from the group, how can we do that as efficiently as possible.
>
> Interviewer: How can we efficiently extract information?
>
> R3Belgium: Yes, I do think that we take that as our starting point, and not from any ill intentions. [. . .] But from a perspective of; we will bother those people as little as possible and not demand any more of their time than necessary.

This is a compromise between seeking participation that produces tangible outputs to stakeholders, while still producing knowledge that is useful to the project and that helps build scientific theories and concepts. It is a realisation that the knowledge of stakeholders is impressive, and that knowledge can be developed in collaboration with stakeholders, but this does not translate to furthering their participation in co-theorising or in producing research outputs directly. It indicates that despite the appeal of extending participation, most stakeholders in these projects want to limit their participation to what is directly relevant to them.

The tensions between project needs, stakeholder needs, and scientific relevance are reduced by allowing the participatory activities to focus on stakeholder needs, while researchers take the results from these activities to

refine into project and scientific outputs. The reality then is, in our project, that tension is resolved by separation. Participation happens but is separated from theoretical concepts and from project activities. Knowledge production happens, but the refinement of the knowledge into concrete outputs is the domain of the researcher. These outputs are seen to offer relatively little value to the stakeholder in question.

5. Discussion and conclusion

In the results, we have indicated how participation functions in MAA projects, have described the potential of co-theorising and have set out how different tensions affect the participatory project. The clear limitation of this research is that we did not directly engage with stakeholders in this reflection, which provides a one-sided view of participation in this research project. In our discussion, we begin with a reflection on participation in general and discuss tensions in participation before discussing what this means for the potential of co-theorising in this form of research project. We finish the discussion and conclusion by setting out what our findings mean for future participatory research projects.

5.1. Fear of stakeholders ending their participation

As our first point of discussion, we want to analyse the recurring concern that stakeholders might end their participation. This concern is partially linked to the tensions in participation that we set out in the findings. There was a tension between the practical needs of stakeholders, the need for project results, and the scientific outputs of the project. The balance between these tensions was of constant concern to the researchers and requires a shaping of participatory activities to address all needs, with researchers being careful of stakeholder interests, where they seek to shape activities around stakeholder interests (following Schikowitz, 2020). The researchers' fear of stakeholders ending their participation indicates that a focus on including the stakeholders in theorising was seen to come at a cost of practical relevance to the stakeholder. To safeguard the practical relevance of participation, researchers choose to exclude discussion on theory and theoretical concepts from the living lab. This was despite an initial belief that co-theorising and the further participation of stakeholders in producing scientific outputs holds merit.

This leads us to question why the concept of co-theorising was seen as irrelevant to stakeholders. As seen in several of the living labs, the over-arching project aims did not always fit the context of the stakeholders, as happens when topics related to digital impacts defined at the proposal stage of the project are brought to a local context where these topics are not relevant. At the same time, the project needs universal, cross-European

results, despite the realisation that these results might not be universally true across living labs, situated in different countries and contexts (echoing Klerkx et al., 2017). This is in agreement with the tensions described by Felt et al. (2016), where generalisable results are demanded despite the realisation that locally specific knowledge is needed (echoing Berthet et al., 2016).

5.2. Separation rather than furthering participation

We also showed how researchers in this project dealt with tensions between the participation of stakeholders, scientific interests, and the project needs. Previous authors have described the tensions between the varying needs of people active in participatory research processes (Felt et al., 2016; Schikowitz, 2020). Participation is often a name put on processes where diverse knowledges are still seen as data to be collected, to be used in the production of scientific knowledge (Boogaard, 2021; Latulippe & Klenk, 2020). Interestingly, our findings indicate that researchers in this research did not necessarily fall back on scientific relevance over other forms of relevance in response to these tensions, which is contrary to some of the findings of other authors (Felt et al., 2016; Schikowitz, 2020). Rather, the strategies taken by researchers in these projects varied, with several researchers indicating the prioritisation of relevance to stakeholders over the production of scientifically relevant outcomes or the requirements of the project.

Slavova et al. (2023) analysed multi-actor projects specifically and indicated the tensions in these projects, where project and stakeholder needs can clash. What we saw in our study is that researchers combined forms of participation to achieve different needs. We observed an approach that several researchers took, to limit the time spent on aspects that were seen to alienate stakeholders. This is especially true for project requirements such as scientific outputs, where stakeholder participation was minimised to achieve the needed results. This reduced participation on co-theorising had the aim to get the "real" participation going, which addresses the stakeholder practical needs. This indicates a problem both with the project requirements of scientific outputs and with the notion of co-theorising, as researchers view both as hindrances to participation rather than as elements of the participatory project. Our results indicate that one compromise is to separate stakeholder needs from the mandatory project activities. This fits with the analysis of Slavova et al. (2023) that compromises are constantly made to keep the multi-actor project functioning. Researchers thus "ascend and descend the participation ladder" during the project; there is no specific level of participation that is achieved throughout the project, but rather varying levels of participation depending on the activity and the aims of the researcher (Arnstein, 1969; Galende Sánchez & Sorman, 2021).

In the next and concluding section, we discuss the implications of these findings for future participatory research and for the potential of co-theorising.

5.3. Implications for future participation and co-theorising

Our study has indicated the various challenges and tensions in participatory research in a Horizon 2020 MAA project and its repercussions on involving stakeholders in the construction of theories and theoretical concepts. This, to an extent, is specific to the structure of the investigated research project, which is limited in time and scale to four years with participation being limited to events (Feo et al., 2022). Without participation in setting the project direction after the proposal stage, there is little use in co-theorising, as our findings also showed. It can also be questioned whether the living labs in this research were used as co-experimental spaces, which would set them apart from earlier participatory exercises (Potters et al., 2022; Toffolini et al., 2021). In our research the living lab seemed to align more with classical participatory spaces based on stakeholder consultation events, instead of being real living labs that function as a co-experimental space. It is also be possible that different forms of co-theorising might be more successful than what we described in our research. As we described in the section 3.1, stakeholders were involved in scenario development exercises. It is likely that a co-theorising exercise that results in a scientific publication on specific scenario's developed by stakeholders might be more easily successful than what we described in our case. In our case, co-theorising was focused on the concepts and theories used in the living labs, which might be less interesting to stakeholders. Also, for several living labs the topic of digitalisation was of little interest, which provided few avenues to start co-theorising. There is the possibility that co-theorising would be of more interest to stakeholders when the living lab topic is more closely aligned with their interests (as would be the case when the stakeholders are directly involved in setting this topic) (echoing Numans et al., 2019). This is a limitation of the project structure of the Horizon 2020 projects in question as well as its successor Horizon Europe (see also Shortall and Meredith, 2025).

This also indicates that deepening participation is more beneficial at the start of the process than in any other part of the project. Before deepening participation in the data gathering or in co-theorising, it makes more sense to include stakeholders in the project design (following Caretta & Pérez, 2019). The question that remains is whether the research project in its current form allows for this approach to joint theory building, as these projects are restricted in time, deal with a large number of partners and

actors, and their structure does not easily allow participation at early stages of the project (as also observed by Cronin et al., 2022; Klerkx et al., 2017; Shortall and Meredith, 2025). A start could be made by taking a different approach to theories used in the research project. Currently, this often takes shape through a project framework developed at the start of the project, often already determined at proposal stage, with little change to this framework during the project. Our research calls into question this rather deductive approach, as there is limited connection to the reality in the living labs. An achievable step towards creating the potential for co-theorising might be to develop project theories more inductively based on the outcomes of the participatory research in different countries and contexts, which would also most likely more closely connect to stakeholder needs.

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