Learning to cook together

An analysis of the role of power in an international transdisciplinary collaboration on food system transformation

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MSc Metropolitan Analysis, Design, and Engineering

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Abstract

There is growing concern that conventional knowledge production insufficiently addresses the complexity of sustainability challenges. Participatory research collaborations between academic actors and non-academic actors, that is, transdisciplinary co-production, are increasingly used to overcome the limits of dominant scientific methods and enhance societal impact. This thesis aims to better understand how power is enacted and experienced in an international transdisciplinary co-production project on food system transformation: FOSTER. It explores power dynamics across context, actor roles and relations, ideas of valid knowledge, collaboration experiences, and project outcomes. Data was collected through participatory observations at the FOSTER summer school and fifteen semi-structured interviews with consortium members in May and June 2025. The findings show that power relations are present, but are layered, nuanced, and varied, and constructed from assumptions, opinions, and institutional structures in FOSTER and its context. Within the project boundaries, consortium members have different degrees of agency to achieve goals, shaped by project requirements and budget allocation set largely by the funding body. Thus, institutional structures can influence which power dynamics are present and how they are expressed. Despite some positive experiences in internal collaborations, the wider project collaboration was marked by uneven academic-practitioner relations. In FOSTER, these power dynamics often left practitioners feeling like research objects rather than knowledge co-producers. Such relations were sustained through dominant ideas about what valid knowledge is and how research should be performed. Therefore, consortium members seem to accept roles that reinforce power differentials. This contributed to group dynamics in which collective action and learning were limited. Ultimately, people perceive the project outcomes as less co-produced and transformative than intended. The findings suggest that changing power relations requires reflexive skills, enabling people to reflect on positions and paradigms influencing collaborations. Future TD collaborations and participatory action research should provide time, space, and flexibility to cultivate such reflexivity, supporting more equitable, transformative TD co-production.

Key words: transdisciplinary research, knowledge co-production, collaborative process, power dynamics, reflexivity, system transformation

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List of Abbreviations

AP	Academic Partner
AAP	Associated Academic Partner
AKIS	Agricultural Knowledge and Innovation System
CDI	Change Driven Initiative
DoA	Description of Action
FOKIS	Food system Oriented Knowledge and Innovation System
FST	Food System Transformation
KIS	Knowledge and Innovation System
TD	Transdisciplinary
WP	Work Package

"What is the beginning? When does your day start? When your alarm goes, or with your first cup of coffee? And then, who or what is beginning? Does the day start you, or do you start the day? There is only a beginning if it is made"

Arthur Nieuwendijk, Verwacht geen applaus (p.142-143)

CHAPTER 1

Introduction

1   Introduction

The current organization of food production, distribution, and consumption exceeds planetary boundaries and does not meet basic human needs for livelihoods (Bornemann & Weiland, 2019). For example, food systems are estimated to contribute about 21 to 37% of total global greenhouse gas emissions (IPCC, 2019), are a primary driver for the unprecedented rates of biodiversity loss, and cause land degradation (IPBES, 2018). Additionally, an estimated 673 million people are undernourished, while around 2.5 billion adults are overweight (FAO et al., 2025; WHO, 2022). Furthermore, food systems are vulnerable to global crises such as climate change and biodiversity loss, yet crucial to human and non-human well-being by contributing to nutrition, health, and the provision of various ecosystem services (Gladek et al., 2017; Leeuwis et al., 2021; Tribaldos, 2023). This combination of food systems being essential for delivering basic human needs, producing unsustainable outcomes, and their current vulnerability demonstrates an urgent need for systemic change (Leeuwis et al., 2021; Patterson et al., 2016; Tribaldos, 2023).

Food systems can be considered as complex socio-ecological systems that consist of multiple interconnected subsystems (Jacobi et al., 2019). Often, the primary focus is on the operational system, also known as the value chain. This consists of agricultural inputs and food production, consumption, waste and recycling and the actors involved in this (Gaitán-Cremaschi et al., 2019; Tribaldos, 2023). Interventions typically target a single stage of the value chain, mainly agriculture, resulting in short-term optimisations and efficiency gains that do not address structural drivers of unsustainability (Patterson et al., 2016; Juri et al., 2024). In addition, little attention is paid to intervening in other subsystems such as research, finance, logistics, and governance, which are of importance for 'whole food system' change (Gaitán-Cremaschi et al., 2019). To address food system challenges, systemic and integral solutions are needed that transcend sectoral silos (Clapp et al., 2018). Achieving sustainable food systems demand structural political, economic, and cultural change to address the power dynamics on multiple levels and scales; this is called food system transformation (Bornemann & Weiland, 2019; Juri et al., 2024; Shaw et al., 2024).

The global need for food system transformation manifests in local contexts (Sonnino, 2016). Until recently, food systems were predominantly framed as rural issues, and food was often neglected in urban planning. However, the urban is increasingly recognised as part of food systems. Amongst others, because of their need to 'feed urban dwellers', urban food production, logistical operations to transport food to and within the city, and growing attention for access to healthy and sustainable food for urban populations (Sonnino, 2016). This recognition has translated into city governments increasingly taking responsibility and playing a role in promoting and enabling (local) food system change through urban food governance (Vara-Sánchez et al., 2021). In this role, specific attention is paid to creating 'spaces of deliberation' (e.g., food policy councils, food partnerships) that connect civil society, public agencies, and the private sector (Moragues-Faus, 2019). The multi-stakeholder approaches are argued to be crucial to identify local problems and context-sensitive solutions, enable integral work across sectors and scales, and create legitimacy and support for interventions (Leeuwis et al., 2021; Moragues-Faus, 2019; Shaw et al., 2024).

Despite their innovative character, such governance approaches are confronted with challenges that hamper their potential to transform food systems. For example, *"increasingly problematic trade-offs and interdependencies within and beyond food systems, difficulties in integrating and aligning responses at different scale levels, conflicting values and interests, and problematic power imbalances"* (Den Boer et al., 2021, p.151). A common response is to then look at academia to advance knowledge, to better understand the nature of these challenges and feed the development and implementation of solutions (Abson et al., 2017). Unfortunately, the growing number of studies on sustainability transformations has not translated into real-world change. This raises concerns about the extent to which dominant scientific approaches, often disciplinary that only use academic knowledge, can foster food system transformation (Meisch, 2024; Kok et al., 2021a). Arguably, similar arguments to the innovative governance approaches can be made for research and innovation. The current challenges in food systems are too complex and exceed the capacity of any single discipline or science alone to solve (Den Boer et al., 2021; Ramaswamy et al., 2024). Consequently, academia is urged to re-evaluate and change their role for society and knowledge generation. This means that research needs to move beyond problem analyses through broadening the scope to solution development and implementation, and explicitly include values, norms, and contexts into research processes (Abson et al., 2017). Doing so requires academia to collaborate with actors with other types of knowledge, expertise, and experiences (Meisch, 2024). These collaborative processes can bridge the divide between science and practice and can co-produce knowledge that advances just and sustainable food system transformation (Meisch, 2024; Ramaswamy et al., 2024; Roux et al., 2021).

Transdisciplinary (TD) research is one of the emerging approaches to such knowledge co-production (Roux et al., 2021). TD research intends to solve real-world problems; integrate knowledges and expertise from multiple academic disciplines with non-academic actors; facilitate cooperation and mutual learning; and produce knowledge that is relevant to both society and science (Arnold, 2021; Chambers et al., 2022). In a similar line of thinking, TD approaches are argued to enhance the legitimacy of research processes and outputs and may stimulate collective learning and reflexivity (Kok et al., 2021a). Ideally, the collaborations are characterized by democratic agenda-setting, empowerment of marginalised communities and stakeholders, and engaging them more fairly throughout the entire research process and decision-making (den Boer et al., 2021; Kok et al., 2021a; Shaw et al., 2024;).

TD research has often been approached as apolitical, meaning that bringing together scientific and non-scientific actors for knowledge development would inherently create an equal process and therefore equal benefits (Chambers et al., 2022; Cummings et al., 2023; de Geus et al., 2023). This overlooks, however, persistent power differentials between actors and knowledge systems leading to inequitable processes and outcomes (Chambers et al., 2022; Cummings et al., 2023; Roux et al., 2021). Academic-practitioner interactions, while described as collaborative and equal, are shaped by 'scarcity, urgency, uncertainty, rule, power or dominance', affecting the cooperation and knowledge outcomes (Arnold, 2022). Furthermore, science, policy, and practice make use of different knowledge types, timeframes, and success criteria, which can be valued differently and lead to the emergence of contrasting or even competing interests that create tensions and resistance to change (Angheloiu et al., 2023; Chambers et al., 2022; Turnhout et al., 2019). Different knowledge systems are characterized by differences in 'practices, aspirations, economic needs, ontologies, and values', making TD collaborations spaces of contestation and negotiation of these differences (Cummings et al., 2023).

The social dynamics between stakeholders shift the attention from the content of food system transformation to the collaborative process. Thus, while the literature increasingly recognises these issues and calls for different, more participatory and power-aware approaches (de Geus et al., 2023), there is still limited understanding of how to perform and manage TD collaborations in practice (Chambers et al., 2022). Therefore, this thesis analyses a TD co-production project about food system transformation: FOSTER.

1.1 Research context: FOSTER

FOSTER is a European-funded TD collaboration (2022-2026) between seventeen organizations from seven European countries. The project's participants have a wide range of expertise, come from different disciplines, and are organizations from academia and practice. FOSTER is a response to a project call that aimed for more inclusive and better-governed food systems in Europe (CORDIS, 2022). FOSTER's rationale is that the current Agricultural Knowledge and Innovation System (AKIS) is too much focused on agricultural knowledge and dominant actors and thus serves vested interests, hampering change towards just and sustainable food system transformation. FOSTER aims to change the current AKIS and develop a basis for a more pluralistic and participatory Food System Oriented Knowledge and Innovation System (FOKIS) (Tsvetkov et al., 2025).

In the project, academics and six change-driven initiatives (CDIs) from practice are collaborating. The CDIs are active in different parts of the food system, from the development of local actions for healthy and inclusive urban food to lobbying for food system change on a national level. These CDIs lack access to the current AKIS, have different knowledge questions and needs, and different expertise to bring into knowledge and innovation systems (KIS). The consortium explores how practitioners and academics can better collaborate and integrate their knowledge and innovations so that it is better suited for practice and can help in promoting food system and KIS change.

In FOSTER, it is thus not per se food system transformation that is studied, but the ways in which inclusive KIS change can be developed for a sustainable food system. Examining how the collaboration unfolds within FOSTER offers an opportunity to explore how different interests, structures, and power relations are enacted in practice, and to what extent they shape the potential for knowledge co-production and transformative outcomes.

1.2 Research objective and questions

The main objective of this thesis is to better understand how power is enacted and experienced in TD collaborations, by analysing the European FOSTER project. Through a power lens, the research aims to understand how collaborative dynamics shape the process of knowledge co-production to contribute to developing more reflexive and power-aware approaches to sustainability transformations. Therefore, the main research question of this study is:

How is power enacted and experienced in an international transdisciplinary knowledge co-production project on food system transformation?

Central to this research question is the role of power in TD co-production. I examine power relations in five elements of TD collaborations: context, roles and relations, collaboration interactions, knowledge, and outcomes (further explained in Chapter 2).

This resulted in the following sub-questions:

1. In what context is the project embedded, and how does this influence the collaboration?
2. What roles and relations do participants have, and how do people relate to each other's roles?
3. How do participants experience the collaborative process of transdisciplinary work?
4. How do participants value and experience that different knowledge types are brought together in the project?
5. What type of impact is generated, and to what extent are these relevant to the actors involved?

1.3   Scientific and societal relevance

While TD is widely promoted for tackling sustainability challenges, its processes are often idealised, and there is limited empirical research on how power is enacted and experienced in collaborations. Analysing FOSTER adds on to contextualised understandings of TD collaboration dynamics. This research contributes to academic debates on the role of science and knowledge in sustainability transformations by generating empirical findings on how power is enacted and experienced within FOSTER. This research also offers a critical perspective on TD collaborations by using a power lens to analyse five elements of TD co-production (context, roles and relations, process, knowledge, and outcomes). In doing so, it provides insights into developing approaches that integrate power analysis into TD research and advances discussions on better understanding how collaboration dynamics can influence the extent to which TD co-production projects meet their content and process objectives.

Furthermore, this research has also social value because it can inform the design and facilitation of more equitable and effective collaborations for sustainability transformations. In the context of food system change, it can help policymakers, funding bodies, and practitioners to recognise and navigate power dynamics. This can help these actors to evaluate and be transparent about their role and contribute to generating more equitable collaborative processes. Beyond food systems, the insights are transferable to other domains where diverse actors must collaborate to address complex challenges.

1.4   Personal note

This thesis is the final assignment to complete my master's programme: Metropolitan Analysis, Design & Engineering. For me, this thesis is strongly related to the mission of the institute where I followed my study program, the AMS Institute. Their mission is *"to accelerate the development of science-based solutions to make cities resilient, regenerative, and just." (AMS Institute, n.d.)*. MADE taught me to work in interdisciplinary teams, engage with practice, and make academic research understandable, tangible, and accessible to society. This programme has highlighted both the value and the challenges of collaboration across different backgrounds and perspectives. My motivation for this thesis partly stems from these experiences: an interest to better understand how multi-stakeholder collaborations are designed and unfold in practice, what their potential is, and how just processes and outcomes can be produced. Therefore, this thesis is relevant for my personal development as a student who is learning to navigate disciplines, stakeholders, and power dynamics in achieving just and sustainable urban futures.

1.5   Reading guide

The next chapter presents the theoretical lens that is applied in this study. It introduces the potential of TD collaborations, the challenges, and therefore the principles that have been developed for engaging with power in TD work. Then it expands on how power is theorized in this thesis through explaining a relational perspective on power through three dimensions of power: power over, power to, and power with. Combined, these aspects form the basis for analysis of the collaborative process in FOSTER. Chapter 3, Methodology, describes the research approach of this study, the data collection and analysis process, a reflection on reliability and validity, and my position as a researcher in this study. Afterwards, a small chapter follows about FOSTER: Chapter 4. It explains the main rationale and structure of FOSTER to better understand the results of the study. Then, the main findings of the research are presented in Chapter 5. A discussion of these findings, limitations to the study, and recommendations for research and practice can be found in Chapter 6. The conclusions of this study are drawn in Chapter 7. This thesis closes off with Chapter 8, a personal reflexive exercise on my research process.

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"Work with what you encounter, whatever it is."

Arthur Nieuwendijk, Verwacht geen applaus (p.153)

CHAPTER 2

Theoretical Framework

2   Theoretical Framework

This chapter constructs the theoretical lens through which this research is performed. To do so, it discusses and defines the key concepts that will be used in the analysis of FOSTER. The chapter starts with introducing the concepts of system change, transformation, and multi-actor collaborations in the context of sustainability challenges (2.1). Then, five elements that should be considered in analysing TD co-production are distilled from the academic literature: context, roles and relations, collaboration interactions, knowledge, and outcomes (2.2). Subsequently, power is defined and operationalised through highlighting three dimensions of power: 'power over', 'power to', and 'power with' (2.3). Making the connection between power dynamics in these elements of TD co-production requires reflexivity (2.4), the interrogation of the position and role of oneself, group dynamics, and how outcomes are co-produced. This chapter ends with a brief synthesis including a visualization of the conceptual model (2.5).

2.1   System transformation through collaboration

To better understand the wider theoretical background from which this thesis looks at TD co-productions for system transformation, it is important to understand what is meant by system change and transformation (2.1.1), and how TD co-productions are conceptualised, discussed, and evaluated in the academic literature in relation to system transformation (2.2.2).

2.1.1   Defining system change

Sustainability challenges can be analysed as products of complex social-ecological systems. These systems involve many different actors, and the interactions and effects of interventions are unpredictable and non-linear (Popa et al., 2015; Voulvoulis et al., 2022). Systems thinking helps to better understand the system that a sustainability problem is embedded in (Kennedy et al., 2018) and how (un)sustainable system outcomes are products of system interactions and patterns (Avelino et al., 2023; Hölscher et al., 2018; Murphy, 2022). A systems analysis can contribute to a better understanding of how components of a system interact, and which trade-offs and synergies exist between proposed interventions in the system (Leeuwis et al., 2021). For example, to address the current negative impacts of the food system (e.g., greenhouse gas emissions, biodiversity loss, poor labour conditions), it is important to look at the structures that cause these emissions, the results of an interplay of biophysical conditions, markets, rules and regulations, behavioural patterns in production and consumption, and norms, values and worldviews (Patterson et al., 2016; Kennedy et al., 2018). From a systems thinking perspective, instead of changing individual elements, such as looking at a single aspect or actor, the system becomes the object of change (Murphy, 2022). *"Such change involves shifting foundational aspects of a given system or organisation, including how purpose is defined [and] what the mindset (or paradigm) of actors in a system is"* (Waddock et al., 2022, p.79). At the same time, it is inherent that it is difficult to fully understand, predict, control, or change systems (Waddock et al., 2022).

Systems encompass a wide range of human and non-human actors whose actions and interactions shape the system in uncertain and unpredictable ways (Leeuwis et al., 2021). The focus of this thesis is the role of human actors such as academics, citizens, policymakers, and businesses. These actors often have diverging values and perspectives underpinning how they frame sustainability problems and solutions (Leeuwis et al., 2021; Popa et al., 2015). In other words: *"at the core of different sustainability challenges lies the problem of managing*

complex social–ecological systems under conditions of uncertainty and plurality of values and perspectives" (Popa et al., 2015; p.46). Achieving meaningful change requires the willingness and capacity of actors to engage with these differences to work towards a collective goal. Actors need to let go of the idea of stability and control and must work towards building resilience and acting for change in a dynamic environment (Leeuwis et al., 2021; Popa et al., 2015). Thus, engaging with questions of sustainability, such as a sustainable food system, requires reflecting on what sustainable system change means and can look like, and developing capacities among actors to bring this into action.

There are multiple ways to conceptualize change for sustainability that stem from different scientific communities (Avelino et al., 2023; Biely & Chakori, 2024; Hölscher et al., 2018). Change can vary from mono-disciplinary, technical, and incremental change to fundamental or radical change. It is this latter type of change that is associated with (system) transformation (Feola, 2015; Blythe et al., 2018; Hölscher et al., 2018). Even though it is increasingly recognized that system transformation is necessary to achieve sustainable system outcomes, what makes system change transformational remains debated (Feola, 2015). The term 'transformation' is increasingly used in mainstream discourse by researchers, policymakers, and businesses (Feola, 2015). However, as the 'radical change' underpinning transformation is often not specifically defined, there is a risk that the term becomes an 'empty signifier'. Blythe et al. (2018) explain this as the concept of transformation is becoming a concept to prescribe and justify interventions that are not necessarily transformative or generating system change. However, through using the term transformation, it seems as if these interventions are 'radical'. In addition, although deciding on a direction for transformation requires all kinds of normative decisions (e.g., value contestations, desired futures for sustainability), it is often presented as *"apolitical, inevitable or universally beneficial"* (Blythe et al., 2018, p.1218), which further risks misuse of the term. This thesis follows the line of thinking of Blythe et al. (2018), who stress the importance to reflect on the different understandings of transformation among actors in collaborations that work towards sustainability transformation.

2.1.2 Multi-actor approaches for transformation

The notion of transformation is increasingly adopted in research approaches like transformational (action) research (Blythe et al., 2018). This stems from a growing concern that conventional modes of knowledge production (academia) insufficiently address the complexity and needs of societal problems (Bandola-Gill et al., 2022). This type of knowledge can be obtained through collective knowledge-making across disciplines and stakeholder groups (Bandola-Gill et al., 2022; Lang et al., 2012). It is argued that by including diverse actors, the problem framing, decisions, actions, and solutions reflect different knowledge types and systems. As a result, the problem analyses and solutions coming from such collaborations are accepted by a wider range of stakeholders than those coming from traditional modes of science and knowledge production (Lang et al., 2012; Brisbois & de Loë, 2015; Brisbois et al., 2018). The concept of TD collaboration can be used to understand how different forms of collaborative knowledge production and participatory processes are organized in the context of sustainability transformations (Popa et al., 2015; Hakkareinen et al., 2021).

In a TD collaboration, research is performed by academics from multiple scientific disciplines and by non-academic actors such as those from business, government, and civil society (Lang et al., 2012; Zonta et al., 2023). TD collaborations aim to deal with normative dimensions of system change and knowledge generation to generate inclusive, adaptive, and equitable processes of

system transformation (Chambers et al., 2022; Brisbois & de Loë, 2015; Hakkarainen et al., 2021). This then requires an expansion of the role of academics from 'observers' to acting and participating in political and normative questions of the collaboration (Blythe et al., 2018). Lang et al. (2012) summarize the main characteristics of TD collaborations as follows: (1) focus on societally relevant problems, (2) foster a process of mutual learning among academic actors from varying disciplines and among academic and non-academic actors, (3) aim to generate knowledge that is solution-oriented, socially robust, and transferable to both academic and societal practice. These characteristics encompass the content of TD collaborations but do not address how interactions between academics and practitioners are navigated. McCabe et al. (2021) did define this by developing three foundational propositions for knowledge co-production between academics and practitioners, which are: *"recognition of knowledge value and complementarity; negotiation of the relationship; and exploitation of different perspectives* (McCabe et al., 2021, p.607). Co-production and TD collaborations share many characteristics, and Polk (2014) combines the two terms into TD co-production to underline the notion of shared knowledge generation between academics and non-academics. Involvement of academic and non-academic actors and a focus on shared knowledge generation are important aspects of FOSTER. Therefore, I will use the term TD co-production to define FOSTER's collaboration in this thesis.

2.1.3   Researching TD co-production

There are three main strands of academic literature on TD co-production. The first strand attempts to define and explore types of TD co-production (e.g., Chambers et al., 2021; Bremer & Meisch, 2017; Bandola-Gill et al., 2022). The second strand analyses collaborative processes and identifies challenges for these collaborations to generate transformative outcomes (e.g., Turnhout et al., 2019; Odume et al., 2021; Freeth & Canglia, 2019). The third strand of research is more normative focuses on how TD co-production processes should be designed and executed and develop principles for co-production (e.g., Ligtermoet et al., 2025; Shaw et al., 2024). In some instances, papers identify both challenges and guiding principles for future TD collaborations (e.g., Polk, 2014), but often this connection is not made. However, identified challenges can feed into the development of certain principles to improve co-production processes. Vice versa, if principles are not considered or adhered to in the process, the collaboration risks running into related challenges. In this thesis, I will mainly look at the last two strands of research and will combine the principles and challenges to identify five key elements to evaluate TD co-production (Section 2.2).

Before discussing specific challenges and principles of TD co-production, it is important to explore overarching tensions in TD collaborations. By analysing the underlying principles of 32 initiatives aimed at co-producing knowledge and action for sustainability transformation, Chambers et al. (2022) identified two key tensions in these collaborations. In each tension, there is a central question underpinning it. The first tension is about: *"Why and how does the initiative contribute to transformation?"* (p.5). This tension illustrates struggles between using co-production to advance desired solutions and making an impact for sustainability, versus facilitating a process to redefine how 'problems' are understood, to foster the TD engagement, mutual learning, and trust. The second tension deals with the question: *"How is decision-making power distributed among actors?"* (p.6). This depicts challenges and negotiations on who gets to decide the direction of the co-production process. Is decision-making dominated by control, in which initiating actors play a dominant role to ensure high quality (academic)

output, or is inclusion prioritized to foster empowerment of a wide range of actors in decision-making processes (Chambers et al., 2022)?

Chambers et al. (2022) conclude that for transformative TD co-production, the purpose is not to choose sides of the tensions, that is, not suppressing nor romanticizing them, but to manage them throughout the collaboration, depending on what is necessary at a given moment in the process. These tensions highlight the balancing act and messy process of bringing together ideas to make a transformative impact in the sustainability realm and achieving a just and power aware process, and how this should be done. Thus, to evaluate TD co-production, aspects on the content and the process of the collaboration need to be integrated (2.2), the role of power dynamics should be made explicit (2.3), and studying this requires taking a reflexive approach (2.4).

2.2 Elements to evaluate TD co-production

Through reviewing literature from both principles for and challenges experienced in TD co-production, I have identified five elements to evaluate TD co-productions: context, roles and relations, knowledge, collaboration interactions, and outcomes. In the following sections, these elements will be further explained.

2.2.1 Context

Ligtermoet et al. (2025) identify context as a critical element to understanding co-production projects, as this shapes the rationale of the project and the setting in which it operates. There are many different forms of TD co-production which vary in how they *"frame and practice co-production and how they pursue and achieve distinct outcomes"* (Chambers et al., 2021, p.984). Chambers et al. (2021) identified four main themes in which the co-production cases differed, illuminating aspects of the context in which they operate. These themes are: (1) the purpose, why actors co-produce; (2) which actors they are aiming to influence (direct or systemic agency); (3) their approach to politics, which relations they aim to change (powerful or the marginalized); and (4) whether the 'desired impact' focuses on knowledge production (content) or building relationships (process) (Chambers et al., 2021). Explaining the context of the collaboration helps to better understand various aspects of the research setting, such as ideas about the problem framing, goals, and motivations for participation (Ligtermoet et al., 2025; Moallemi et al., 2023). In addition, the context involves practical, temporal, and spatial boundaries of the project, the available resources, and how they are distributed among participants (Freeth & Canglia, 2019; Odume et al., 2021).

2.2.2 Roles and relations

A key aspect of working in TD co-production is to engage with plurality. Actors come from diverse backgrounds in which knowledge, values, and goals can vary greatly (Chambers et al., 2022; Cheng & Randall-Parker, 2017; Polk, 2014). These diverse backgrounds can influence the roles that actors have and take in the collaborative process. Evaluating such roles requires an acknowledgement of the subjective and political nature of participating in collaborations. This means an acceptance of a variety of factors that influence the ways in which we view the world and others, and that these are mediated through power relations (Phurisamban et al., 2025; Ligtermoet et al., 2025). Furthermore, TD collaborations diversify the roles of researchers by extending their traditional role as knowledge provider (Minna et al., 2023). For example, Peltola

et al. (2023) found that, when analysing five collaborative governance projects that researchers also acted as knowledge brokers, process designers, capacity builders, and critical researchers. Tensions can arise between the role of the researcher, the design of the research process, and the transformative impact generated (Minna et al., 2023). At the same time, the role of the non-academic actors is important, although less frequently described in academic literature (Hilger et al., 2021). Role reflection and considering actor relations can help understand how trust can be built, conflicts arise, and what the benefits and limitations of a collaboration are (Cheng & Randall-Parker, 2017; Ligtermoet et al., 2025). Therefore, one of the elements to analyse in TD co-production is which actors are involved, how they perceive their role and those of others.

2.2.3 Knowledge

Both in the context and in the roles of actors, the different understandings that actors have about knowledge (production) were mentioned. The role of knowledge is a specific feature of TD co-production because of the notion that we need more than only academic expertise to deal with sustainability challenges and make a transformative impact (Turnhout et al., 2019). Questions about knowledge, or the 'epistemic dimension', focus on assumptions about what valid knowledge is and how it is produced, how research should be conducted, and which research questions need to be asked (Freeth & Canglia, 2019). These questions can be very political because assumptions can vary among participants, and hierarchies between the different knowledge holders exist, which can affect the transformative potential of the outcomes that are produced (Blythe et al., 2018; Laursen et al., 2021; Louder et al., 2020; Turnhout et al., 2019). For example, researchers that come from different disciplines and can have diverging ideas about what research is and how it should be conducted (Freeth & Canglia, 2019). In addition, practitioners can bring in other perspectives on knowledge, types of expertise, and ideas about research that do not necessarily match those of academics (Shaw et al., 2024). Furthermore, integrating these understandings about knowledge and doing research in collaborations and how to co-produce knowledge is another challenge that researchers and practitioners experience (Odume et al., 2021). Therefore, recognizing contributions of and values underpinning different types of knowledge and expertise, and subsequently being able to navigate these differences and combine them in the collaborative process, are defined as important principles for TD co-production (Polk, 2014; Shaw et al., 2024).

2.2.4 Collaboration interactions

Collaboration interactions encompass both the procedures for collaborating as well as the relations and dynamics resulting from agenda-setting and decision-making processes, and language use (Freeth & Canglia, 2019; Odume et al., 2021). Hence, how the actors work towards achieving the project goals and how the different actors and structures relate to each other in these processes, that is, governing the collaboration (Ligtermoet et al., 2025). This goes beyond stating that there are different perspectives but means that questions about how these different perspectives are heard and incorporated in the project become central (Blythe et al., 2018; Laursen et al., 2021; Louder et al., 2020). Achieving a shared language and giving space to diverse perspectives in which different actors are heard and recognized is a common struggle in collaborations (Brisbois et al., 2018; Hakkareinen et al., 2021). Chambers et al. (2022) and Lazurko et al. (2025) describe different ways of navigating the differences. These are about decentring dominant perspectives, which means that actors with dominant perspectives need to create space for other voices to be heard. In addition, marginalized perspectives need

support to empower actors. Further, exploring plural perspectives is important to advance mutual understanding without promoting a particular frame. Lastly, the practice of navigating conflicting perspectives and weaving different perspectives together means that the actors involved need to engage with questions about how decision-making on the direction and outcomes of the project takes place and thus which perspectives are supported, integrated, and used and why (Chambers et al., 2022; Lazurko et al., 2025).

2.2.4 Outcomes

The final critical element of TD co-production is about how knowledge production processes and results can be used to generate transformative change in projects and society: the collaborative outcomes (Polk, 2014; Hakkareinen et al., 2021). Outcomes of TD co-production can be epistemic (e.g., empirical evidence, developing theories) or non-epistemic (e.g., relationship building, learning) (Polk, 2014). Even though TD co-production carries potential to produce meaningful, usable, and transformative outcomes for academia, policy, and practice compared to traditional modes of knowledge production, there is up to date, little evidence that TD co-productions fulfil this potential (Turnhout et al., 2019; Polk, 2014). This is explained by that these projects do not engage sufficiently with the actors' diverging preferences or needs for project outcomes (Turnhout et al., 2019). Moaellemi et al. (2023) also found that co-production projects will likely not reach their goals if they do not make the desired change specific or if they do not address and deal with the (systemic) barriers hampering this change to take place.

Schneider et al. (2019) identified three different types of impact that TD co-production can generate: (1) knowledge promotion, (2) social learning for collective action, and (3) competence building. In relation to social learning, Lazurko et al. (2025) argue that through exposure to differences between actors as well as reflecting on their individual position, actors can develop a new perspective. Thus, engaging in co-production processes requires learning in different domains: cognitive (e.g., new knowledge or skills), epistemic (e.g., ways of knowing), normative (e.g., changes in norms and values), and relational (e.g., relationship building) (Ligtermoet et al., 2025; Schneider et al., 2019). However, these learning processes are often characterised by 'misunderstandings, disagreements, tensions and power' (Roux et al., 2017), and therefore the notion of mutual learning and what it implies needs to be facilitated throughout the collaboration. Both Schneider et al. (2019) and Chambers et al. (2022) found that the co-production cases that they analysed had different approaches towards impact generation. Some focused more on the content, some on the process, and others combined different mechanisms. The main implication is not to choose which impact mechanism is better, but to determine in which situation and combination they might be most effective (Schneider et al., 2019).

2.2.5 Overview of elements of TD co-production

Table 1 below summarizes the key elements of TD co-production that were constructed from academic literature on principles for developing TD co-production and challenges experienced in TD co-production.

Table 1 *Overview of the five elements to evaluate TD co-production.*

Element	TD co-production principle	Challenge dimension, an inability to…	Sources
Context	Clearly delineating the setting and purpose of the collaboration.	Address practical and structural factors affecting scope of content and participatory nature of collaboration. *Examples are lack of available time, budget, human resources, spaces, how the project was designed, co-production intentions about the quality and degree of participation, and the wider system context that the collaboration is embedded in.*	Chambers et al. (2021) Freeth & Canglia (2020) Ligtermoet et al. (2025) Moallemi et al. (2023) Odume et al. (2021)
Roles and relations	Making explicit who is engaged in the project and what their relations are.	Engage with a diverse group of actors and make their roles, responsibilities, and relations explicit. *Examples are interpersonal tensions and lack of skill to manage those, lacking participatory diversity and not incorporating different/diverging views.*	Chambers et al. (2022) Cheng & Randall-Parker (2017) Hilger et al. (2021) Lazurko et al. (2025) Ligtermoet et al. (2025) Minna et al. (2023) Phurisamban et al. (2025) Peltola et al. (2023) Polk (2015)
Knowledge	Acknowledging diverse knowledge types and integrating them.	Deal with different ideas about research, what is valid knowledge and how to integrate the diverse knowledge forms. *Examples are following traditional, dominant modes of knowledge production and/or not recognizing other knowledge types, not addressing different views on what valid research and knowledge is.*	Freeth & Canglia, 2019) Laursen et al. (2021) Louder et al. (2020) Odume et al. (2021) Polk (2015) Shaw et al. (2024) Turnhout et al. (2019)
Collaboration interactions	Creating a collaborative process that actively engages with explicit and implicit power dynamics.	Create a high quality and degree of participation and deal with the political dimensions and power relations of the collaboration (e.g. decision-making, agenda-setting, language use). Decentre dominant actors, support marginalized actors, bring together the different frames (that can be conflicting) to foster a mutual understanding of each other. *Examples are a dominance of particular actors, not making power dynamics explicit and considering ways to break through certain power structures, shying away from conflicts or tensions, little collaborative decision-making.*	Chambers et al. (2022) Brisbois et al. (2019) Freeth & Canglia (2020) Hakkarainen et al. (2021) Lazurko et al. (2025) Ligtermoet et al. (2025) Odume et al. (2021)

		Generate transformative outputs and outcomes which are relevant for different actors within and outside of collaboration. Establishing mutual learning processes and reflexivity.	Chambers et al. (2022) Lazurko et al. (2025) Ligtermoet et al. (2025) Moallemi et al. (2023) Polk (2015) Roux et al. (2017) Schneider et al. (2019) Turnhout et al. (2019)
Outcomes	Generating impact both on the content and the process.	*Examples are not achieving desired goals and societal impact as desired, no individual nor collective learnings, little space for reflection and evaluation and improving the process (adaptive capacity) and therefore perpetuating the status quo.*	

Note. Each element is connected to the TD co-production principle and challenges (including examples) it was based on. The last column shows the references used.

2.3   Power dynamics in collaborations

TD collaborations face all kinds of asymmetries in terms of access to resources, legitimacy of knowledge, agenda-setting, and decision-making (McIlwain et al., 2024), which need to be addressed and made explicit to achieve more effective and equitable collaborations (Brisbois & de Loë, 2015). However, often such power dynamics are not addressed, and the collaborative process is depoliticized (Turnhout et al., 2019). Depoliticization in this context means that *"rational and scientific arguments […] evoke universalized ideas of what is 'the best' solution. This discourse ignores political differences between participants, including positions, interests, and beliefs"* (Turnhout et al., 2019, p.16). Power dynamics are not always directly visible but deeply influence funding structures, who is invited, whose voices are heard, what issues are prioritized, how problems are framed, how solutions are constructed, and who benefits (or not) (Brisbois & de Loë, 2015; Ligtermoet et al., 2025; McIlwain et al., 2024).

Power theories exemplify that power dynamics do not only exist within the interactions between participants and are shaped by the larger context that a system or collaboration is embedded in (Emerson et al., 2012). Although power is often perceived and explained as a negative force, it can also be used in a positive manner. For example, to empower actors or as a form of resistance against the status quo (Avelino, 2021). In brief, power is a complex and context dependent concept with multiple meanings, and approaches to study it (Avelino et al., 2023; Hougaard, 2015; Fritz & Meinherz, 2020). Therefore, it is necessary to explain how power is defined and which elements of it are studied in this thesis.

2.3.1   Defining power

Despite debates on its definition, contemporary power theories generally agree that power is a relational force (Avelino et al., 2023). Relational means that power is perceived as a type of causation in which *"the behaviour of actor A at least partially causes a change in the behaviour of actor B"* (Baldwin, 2013, p.274) and therefore power is produced and/or exercised through interactions. It is not held by a single actor, but it is always part of a relationship between two or more actors (Baldwin, 2013; Fritz & Meinherz, 2020). In this context, behaviour means more than direct actions, it also encompasses beliefs, attitudes, preferences, and emotions et cetera (Baldwin, 2013). The relational perspective further considers that power is not a 'zero sum game' in which individual actors hold power and therefore other actors are 'powerless' (Fritz & Meinherz, 2020). Power can be shared and created by actors because it is embedded in relations and discourses (Fritz & Meinherz, 2020; Kok et al., 2021b).

Academic debates on power can be very theoretical, in which definitions are contested (Avelino et al., 2023; Kok et al., 2021b). Often, such contestations highlight characteristics and dual meanings that power can have (de Geus et al., 2023). The duality of the contestations means that power can be a 'negative force' of coercion and domination and a 'positive force' that enables actors to have the capacity to act (Gaventa, 2006; Avelino et al., 2023). The purpose of reviewing the contestations in academic literature is not to pick a side or to 'solve' them; it can be used as an entry point to view power as dialectic (Avelino, 2021; Avelino et al., 2023). This means that different or even opposite interpretations of power (relations) are explored, and that opposing interpretations can be true at the same time. Then, different dimensions of power can co-exist and influence each other (Avelino, 2021; Kok et al., 2021b). This conceptualises power as multidimensional, context-dependent, and variable over time rather than a 'stable product of interactions' (Avelino, 2021). Therefore, in this thesis, power is defined as *"the (in)capacity of actors to mobilize means to achieve ends"* (Avelino et al., 2023, p.4). It is not the capacity of a single actor, but of multiple actors, demonstrating the relational aspect of power. The notion of '(in)capacity' points at power as being constraining and enabling at the same time (dialectic character), and 'achieve ends' to stress that power is goal-oriented (Avelino et al., 2023).

In the context of a TD collaboration, it is important to make power analyses practical, understandable, and fit to the context. Therefore, I follow the line of reasoning of Avelino et al. (2023), to develop a 'power language' in the context of social change that is simplified but still incorporates and accounts for the complexity and multidimensionality of power. The purpose of this 'language' is to make it more accessible to non-experts, as well as to stimulate discussions about power and take it out of the taboo sphere. Ideally, this will generate a rich picture of the different interpretations of and experiences that people have with power (de Geus et al., 2023). Therefore, Avelino et al. (2023) propose to analyse power from three dimensions: 'power over', 'power to', and 'power with'. This is based on Allen's (1998) theorization of power, that stems from feminist studies and highlights the relational, dialectic, and dynamic character of power. Brief definitions of the three dimensions are: (1) 'power over', an asymmetrical relationship between actors, producing barriers for participation or achieving goals, (2) 'power to', the capacity and intentional actions of actors to achieve certain outcomes and (3) 'power with', the ability of a group to act towards collective outcomes in which collaboration or empowerment becomes a goal in itself (Avelino et al., 2023; de Geus et al., 2023). Different authors have brought this theory into the realm of environmental politics, social change, and participation (Avelino et al., 2023; McCabe et al., 2021; Fritz & Meinherz, 2020; Partzsch, 2016), which will be used to explore these different dimensions of power and how they are articulated in collaborative processes.

2.3.2   Power over

Of the three dimensions, 'power over' is most extensively discussed and theorized in academic literature. 'Power over' entails the ways in which actors can constrain and dominate the availability of choices to other actors, discourses, and structures (Allen, 1998; Fritz & Meinherz, 2020). Embedded in the definition are asymmetric relations and notions of domination and coercion. However, it can take non-coercive forms, meaning that there does not need to be explicit violence or authority involved. Further, 'power over' can be diffused and unconsciously developed through all kinds of norms, values, and ideas about relations between actors (Avelino et al., 2023). In other words, 'power over' can be exercised in multiple ways with various degrees of transparency and visibility of conflict.

Scholars have used different terms to describe these types of 'power over'. Generally, they stem from the same theoretical backgrounds and therefore their definitions are quite similar. Lukes (2005) describes them as the three faces of power, and Gaventa (2006) uses the terms visible, hidden, and invisible to describe the different forms of 'power over'. In this thesis, I will use the terms resource, structural, and normative power as used by Fritz & Binder (2020), Kareem et al. (2022), and McCabe et al. (2021).

Resource power is a quite 'visible' form of power in decision-making processes in which conflicts or contestations are openly debated and negotiated (Fritz & Meinherz, 2020; McCabe et al., 2021). Because of diverging interests, actors mobilize different kinds of resources such as finance, knowledge, authority, and charisma to 'win' the argument in decision-making (McCabe et al., 2021). McIlwain et al. (2024) name human resources (time, staff), responsibility, accountability, and creating trust and competition around leadership as ways to exercise resource power. The purpose is that powerful actors can directly influence actions or outcomes for the less powerful actors due to a difference in access or ability to mobilize resources (Fritz & Meinherz, 2020). An example of resource power in TD collaborations is that of researchers who often have the authority as project leaders (for example, because they have experience in proposal writing or content-specific expertise) and therefore can decide on project scope and activities. Besides their authority, they often also have more financial and time resources to execute this work compared to practitioners and thus can exercise decision-making power (Fritz & Binder, 2020).

Structural power entails processes of nondecision-making through, for example, agenda-setting, goal setting, knowledge use and production, and decisions on stakeholder in- and exclusion (Brisbois et al., 2018; Fritz & Meinherz, 2020; McCabe et al., 2021; McIlwain et al., 2024). This means that exercising 'power over' is not only about winning and losing conflicts. Structural power considers whether actors can prevent conflicts from taking place. In addition, it can be yielded through removing non-aligned issues from the agenda and turn them into non-decisions and presenting them as 'apolitical', although it favours certain interests over others (Brisbois & de Loë, 2015; Fritz & Meinherz, 2020; McCabe et al., 2021). Structural power can take many different forms. Fritz & Binder (2020) provide examples in which funding bodies exercise structural power over the participants of the collaborations through determining the rules of resource allocations. Researchers exert structural power over practitioners by deciding when to include or exclude them (e.g., during data collection) based on the researchers' authority and legitimacy. Practitioners can exercise structural power by being able to shape what data researchers can and cannot collect in the field, and practitioners can decide to withdraw from collaborating when disagreeing with the course of the project (Fritz & Binder, 2020; Kareem et al., 2022).

Lastly, **normative power** occurs through determining dominant ideas, values, accepted truths, and knowledge about desirable developments (Brisbois et al., 2018; Friz & Binder, 2020). Exercising normative power is a subtle and covert process through altering what other actors think they want, making actors accept their role and position in an interaction or relation through processes of normalisation (e.g., acting for the 'common good') (Fritz & Meinherz, 2020; McCabe et al.,2021). The 'controlled party' will accept the status quo despite that it is actually not in their interest (Brisbois & de Loë, 2015; McCabe et al., 2021). As a result, conflict becomes latent because actors believe there is no difference between interests (McCabe et al., 2021). McCabe et al. (2021) identified instances of normative power when practitioners described their role and position in providing data to researchers, and thus

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have a supporting role towards academics in the project. Practitioners normalized this role by arguing that they are not researchers or do not have the time or expertise to conduct research. In this way, practitioners dismissed the value of their own expertise and perspective (McCabe et al., 2021). Furthermore, Brisbois & de Loë (2015) identified that normative power can be exercised through establishing and accepting hegemonic worldviews or economic structures that are present in the wider societal context. This can entail a bias towards capitalism, meaning that actors agree on solutions that legitimize a market logic. For example, normalising the idea that the actor with the most stakes in the status quo has the most power to influence the collaboration. Normative power can be used to resist the status quo by establishing a counter discourse. Nevertheless, often those actors that have a dominant role in exercising normative power are also most successful in exerting resource and structural power, which can limit the abilities of other actors to resist through exercising normative power (Brisbois & de Loë, 2015).

2.3.3   Power to

'Power to' is about the capacity that individual actors can use to form and shape processes despite other actors wielding power over them (Allen, 1998; Fritz & Meinherz, 2020). These are intentional actions to mobilize resources to achieve a particular goal and can take shape in forms of resistance and empowerment (Fritz & Meinherz, 2020; Avelino et al., 2023). 'Power to' is often used interchangeably with empowerment and describes the ways in which actors retain power, despite their subordination to another actor. However, *'power to'* is more than empowerment despite coercion. Allen (1998) makes it explicit that resistance is also a form of *'power to'*, in which an actor can attain a particular end with the purpose of resisting domination or control, that is, 'power over'. This demonstrates how different dimensions of power are entangled and influence each other (Fritz & Meinherz, 2020). Friz & Meinherz (2020) illustrate 'power to' in TD collaborations as the ways in which researchers can emancipate themselves after receiving funding and decide and shape the project towards their research interests. Further, practitioners can build capacity within and beyond the scope of the collaboration by applying academic research outcomes in their daily work or proposing certain research directions to the researchers that are of interest to them (Fritz & Meinherz, 2020). Avelino et al. (2023) provides examples of 'power to' from actors in social innovation in energy transitions, who often mobilized theoretical and practical knowledge from members, or generated new knowledge through conducting research, which gave them more leverage in political debates.

2.3.4   Power with

'Power with' refers to the capacity to collectively learn and act (Fritz & Meinherz, 2020). This notion of power implies power sharing, joint power (Avelino et al., 2023). 'Power with' can be related to Arendt's (2002) definition of power, in which power is not owned by individual actors but is always a capacity of a group. This means that when actors are 'in power', they are actually being empowered by a group of people to act on behalf of them (Arendt, 2002, in Avelino et al., 2023). Co-action and empowerment are both the conditions for 'power with', and the goal in itself (Avelino et al., 2023; de Geus et al., 2023). 'Power with' is about finding agreements that are not intentionally meant to serve individual actors' interests but a common interest. Therefore, through learning processes, a group of actors actively seek what they have in common and collective strength (Fritz & Meinherz, 2020). 'Power with' does not mean that individuals do not have (self) interests anymore, but their power is only enacted through acting to reach a shared end (Avelino et al., 2023). Examples of 'power with' in TD collaborations

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are co-production of results, co-creation of collaborative processes, and acting together to implement the outcomes and the co-produced knowledge of the project (Fritz & Meinherz, 2020).

2.4   Reflexivity for power-aware TD co-production

The main argument made so far is that TD collaborations for sustainability transformations do not generate impact by default and are inherently political. Therefore, power dynamics need to be recognized (Chambers et al., 2022; Popa et al., 2015; Turnhout et al., 2019). It is important to note that dealing with plurality and power does not mean that all conflicts and tensions need to be eliminated. The purpose is *"to learn to 'stay with the trouble' of difference and discomfort of things"* (Chambers et al, 2022, p.3; Lazurko et al., 2025). However, there is little empirical evidence on how to navigate differences, conflicts, and manage power asymmetries to purposefully shift values and mindsets, which is necessary for system transformation (Brisbois & de Loë, 2015; Chambers et al., 2022). In response to this research gap, there are increasing calls for individual and collective reflexivity. Reflexivity is a capacity that can make power dynamics explicit. Therefore, reflexivity can enable actors to deal with challenges in TD co-production and engage with and shift power dynamics (Brisbois & de Loë, 2015; Hakkarainen et al., 2021; Popa et al., 2015;).

Reflexivity is a process of meta-level reflection: it entails reflecting on patterns and structures that influence your thinking and actions (Ide & Beddoe, 2023). In general, definitions of reflexivity share that it is an active process of self-reflection and learning (Ligtermoet et al., 2025; Sol et al., 2017). Sol et al. (2017, p.1388) combined various definitions and define reflexivity as: *"reorienting and making the meaning of one's beliefs and experiences explicit by assessing and articulating the new significance and meaning of this"*. Being reflexive is strongly associated with the notion of agency because it is a capacity to critically think about one's role and position in a broader context and consider diverse ways of understanding, valuing, and interpreting framings of problems and solutions. Subsequently, actors can generate change or exert power (Rodríguez et al., 2013; Sol et al., 2017).

Two strands of literature on reflexivity that are of relevance for this study are reflexivity from a qualitative research perspective (Ide & Beddoe, 2023) and reflexive governance that stems from environmental governance and socio-ecological change literature (Feindt & Weiland, 2018). The former discusses in what ways researchers critically evaluate their role and position (e.g., preconceptions, values, interests, circumstances) in the development and execution of their research. This is associated with the notion of situated and context-dependent knowledge, which is articulated in researchers' positionality statements in ethnographic and feminist studies (Ide & Beddoe, 2023). The latter, reflexive governance, grew from the concern that to adequately deal with sustainability challenges and bring about transformative change, governance mechanisms needed to change and embrace normativity and reflect on underlying assumptions, institutional arrangements, and practices (Feindt & Weiland, 2018; Van Leeuwen et al., 2024). Here, actors are asked to reflect on their core assumptions, values, and beliefs that affect the direction of change (content) as well as the collaborative process in governance (Feindt & Weiland, 2018). A reflexive process consists of three steps: (1) a trigger that enables (2) reflection and learning, and (3) an ability to then change the situation (Van Leeuwen et al., 2024). To co-produce meaningful outcomes and change asks for a critical reflexive capacity by all participants in the collaboration regarding their own position and role(s) and the interactions they have with others (Brisbois & de Loë, 2015; Lazurko et al., 2025; Ligtermoet et al., 2025).

Both interpretations of reflexivity are incorporated in the methodological approach of this study. The definition of reflexive governance is the point of departure for how data is collected and analysed. In analysing TD co-production, it can contribute to a better understanding of and how people reflect on their role and position in the collaboration dynamics, if learning takes place, and based on those reflections if people have or use the capacity to shift interactions and relations in FOSTER. Elements of reflexivity from qualitative research will be incorporated through reflections on my positionality as a researcher (Chapter 3) and in a final reflection chapter on the research process (Chapter 8).

2.5   Conceptual model

The first sections of this theoretical chapter described the argument that TD co-production is a suitable approach to achieve sustainable system transformation. However, just bringing academics and practitioners together will not immediately generate transformative outcomes as desired nor create meaningful collaborative processes. In this thesis, the rationale is that power dynamics (analysed through three dimensions of power: over, to, and with) influence the collaboration and its ability to contribute to system transformation or not. Further, this theoretical chapter has provided insight into different elements of TD co-production and their challenges, and a conceptualization of power to analyse the collaboration. A visualization of the different concepts and how they are analysed in this thesis can be found in Figure 1 below.
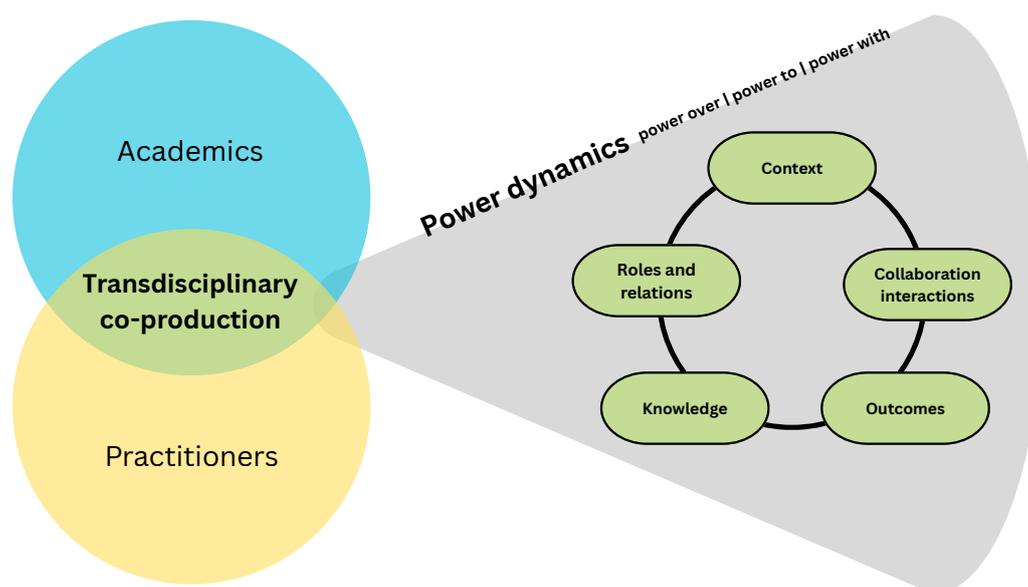
Figure 1 *Conceptual model showing the different concepts used to analyse the TD co-production process in this thesis.*

TD co-production exists (at least) out of academics and practitioners who are brought together in a collaborative project (blue circle for academics, yellow circle for practitioners, green for the meeting space 'TD co-production'). To better understand the collaborative process in TD co-productions that work towards system transformation, five elements of these collaborations need to be examined (indicated in the five green oval shapes in the grey triangle). These elements are: the context that the project is embedded in, from participant selection and project goals up to the societal context; the roles of and relations between participants; assumptions about knowledge, such as what valid knowledge and research is according to participants; the

collaboration interactions, how the collaborative process is designed and executed; and the (type of) outcomes the collaboration is generating. These elements are interconnected, indicated by the black lines between them, but there is no hierarchy or ordering. These elements need to be made explicit, discussed, and negotiated among the participants of the collaboration. As discussed before, power dynamics (grey shape) influence these processes. Therefore, the role of power dynamics will be explored in an evaluation of the TD co-production elements in FOSTER.

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"Free yourself through research and analysis. This is the practice of gaining insight into what you contribute and how comfortable you are in doing so. [...] It is the ability to continually adapt constructively and empathetically to ever-changing circumstances."

Arthur Nieuwendijk, Verwacht geen applaus (p.170)

CHAPTER 3

Methodology

3   Methodology

This chapter will guide and explain the methodological approach of this study. This means an explanation of the research philosophy and a detailed description of the data collection and analysis procedures. Furthermore, it describes how research trustworthiness was managed and how ethical considerations were incorporated during the research process. The chapter ends with a positionality statement in which I expand on my personal identity, values, and experiences and how these have affected this study.

3.1   Research approach and design

This study followed an abductive approach, where both theories and collected data informed the development of the research (Clark et al., 2021). The initial research plan stemmed from observations and conversations with researchers engaged in the FOSTER project. Parallel to this process, I went back and forth between the literature and collected empirical data. The purpose of this iterative process was to refine theories and strengthen interpretations through collecting more empirical data. This approach moves beyond explaining data and helps to achieve a deeper understanding of the data and phenomenon under study (Alvesson & Sköldberg, 2018). Abductive approaches help to deal with the limitations of both inductive and deductive research, where either theory is formed based on empirical data or theories are tested through collecting empirical data (Alvesson & Sköldberg, 2018; Clark et al., 2021).

The epistemological position of this study, that is, what is seen as acceptable knowledge (Clark et al., 2021), is interpretivist. This research tradition acknowledges that data and facts are constructions or the results of interpretation, because the researcher needs to do something with the data to make it meaningful (Alvesson & Sköldberg, 2018; Clark et al., 2021). It has strong foundations in social sciences, as it provides a lens for understanding experiences of social action. Interpretivist research does not aim to fully explain situations but rather tries to better understand them and to discover how people understand situations (subjective experiences) and how this can be interpreted (Clark et al., 2021). This study focused on better understanding the collaborative process and power dynamics in a transdisciplinary co-production: FOSTER. It deals with questions regarding subjective experiences of the dynamics between participants and between participants and structurers (project context, societal context) in the collaboration.

Moreover, the epistemological position is underpinned by beliefs about the nature of the human world. This means that aspects like politics, ideologies, and social conventions permeate research in different ways. How and the extent of this 'permeation' is what the ontological position in research describes (Alvesson & Sköldberg, 2018; Clark et al., 2021). The ontological stance determines how a researcher defines reality in the study. For this research, this was chosen to be constructionism. Constructionists argue that social phenomena and their meanings are continuously created by social actors: reality is socially constructed (Alvesson & Sköldberg, 2018; Clark et al., 2021). Therefore, *"knowledge cannot be separated from the knower"* (Steedman, 1991, in Alvesson & Sköldberg, 2018, p.10). Thus, the means through which people attempt to understand the world around them are also constructed by them and are in a constant process of change (Clark et al., 2018). The focus of this research is on the collaborative dynamics viewed through a lens of power theory. These topics are created through interactions and generated by the actors involved. Therefore, a constructionist approach was selected. To obtain an in-depth overview of the project context and how different participants experienced transdisciplinary co-production in FOSTER, data was collected using multiple qualitative research methods:

literature analysis, participatory observations, and interviews. These methods will be further explained in the remainder of this chapter.

Researcher's reflexivity

The interpretivist and constructivist approach allows for critical research; science cannot be a value-free exercise and therefore needs reflexivity (Clark et al., 2021). My values, preferences, and inclinations influence the entire research process. There are different uses of reflexivity in academic literature. These commonly address the complex relation between knowledge production processes and the various contexts of such processes, for example, the influence of the knowledge producer (Alvesson & Sköldberg, 2018). According to Alvesson & Sköldberg (2019), there are two main elements of reflexive research: careful interpretation and reflection. The former means that all references to empirical data are results of interpretation, and careful attention should be paid to how these interpretations are made and based on, for example, which theoretical assumption and language is used and why. The latter highlights the need for inwards reflection, in which it is evaluated how the background of the researcher, the research community and society have shaped the decisions and lens of what is researched and how this is interpreted (Alvesson & Sköldberg, 2018). These elements are carefully considered throughout the research process, and therefore I have added a positionality statement and a researcher reflection chapter at the end of this thesis (Chapter 8). This chapter is based on reflections that have shaped my perspective and stance towards the research process and outcomes.

3.2   Data collection

In this study, qualitative data was obtained through desk research, participatory observations, informal conversations, and semi-structured interviews that were conducted between May 2025 and June 2025. This section explains the data collection process.

3.2.1   Desk research

Desk research was performed to identify the state of academic and grey literature on frames of food system transformation, multi-actor collaborations, power dynamics, and reflexivity. This exploratory search was mainly performed through Google Scholar for academic literature and Google for identifying grey literature. Keywords that were used in the search can be found in Table 2 below.

Table 2 *The five themes and their related keywords used for literature search queries.*

Theme	Keywords used to build search queries for the themes
System	Food systems, systems thinking, critical theory, critical systems thinking
Change	Transformation, transition, system change, social change
Reflexivity	Reflexivity, reflection, positionality, reflexive governance,
Collaborative process	Collaboration, collaborative governance, co-production, transdisciplinary collaboration, interdisciplinary collaboration
Power	Power dynamics, politicization, politics, power relations

Besides individual search queries, the snowballing method was used to identify relevant papers to review that were not found through the search queries. Further, FOSTER's proposal and published deliverables were read to obtain a better understanding of the topics discussed and the themes that are researched within the project.

3.2.2 Fieldwork at the summer school

Field work consisted of participatory observations during FOSTER's summer school from 19 to 22 May 2025 in Sopron, Hungary. Participants from all work packages, the CDIs, and invited external experts were present. Everyone was invited to participate in all sessions, and both academics and practitioners hosted sessions on their work and learning questions in FOSTER and the topic of food system transformation. This involved plenary sessions hosted by academics, sessions hosted by the CDIs, and location visits connected to the work of the Hungarian CDI. The schedule and the corresponding responsibilities for project partners can be found in Appendix A. I was both a researcher and a participant of the summer school and chose participatory observations as the method to collect data during the summer school (Farid, 2022).

The purpose of the field visit was to engage in the project, to better understand what FOSTER is about, the work that people do in FOSTER, and how they interact with each other. Fieldwork often makes it easier to get in touch with people (Clark et al., 2021). At the summer school, contact was made with participants with different roles in FOSTER through informal conversations. Observations aimed at obtaining a broad view of the situation and behaviours of FOSTER's participants, which enriched and guided the content of the subsequent semi-structured interviews and allowed for better understanding of FOSTER as well as of the interviewees' responses (Section 3.2.3). Moreover, group dynamics were observed aimed at better understanding interpersonal dynamics. These observations functioned as triangulation to see how interviewees experienced the collaboration and what I observed during the summer school.

During observations, I took notes of what people said (language) and did (behaviour), and I had informal conversations with individual participants of the summer school to gain insights into their opinions, experiences, and reflections on FOSTER and the transdisciplinary co-production. The combination of observations and conversations further aided my reflections on similarities and differences between what was discussed during the formal sessions and outside of them. Lastly, I took notes of my personal reflections and insights. I wrote this down in a separate document to keep track of interpretations and observations.

3.2.3 Semi-structured interviews

Semi-structured interviews were held to gain a deeper understanding of beliefs, opinions, behaviour, and experiences of the interviewee in relation to the phenomenon that is researched (Azam, 2022). This fits well with the aim of this research to gain an understanding of which different perspectives of food system transformation exist and are negotiated within FOSTER. The goal of the interviews was to enrich the field notes from the summer school and to gain a deeper understanding about motivations, experiences, and reflections of participants' positions and roles and the collaborative process in FOSTER. The semi-structured format allowed for more freedom and flexibility during the interviews than structured interviews without compromising too much on replicability and reliability, which are more a concern with unstructured interviews (Azam, 2022; Clark et al., 2021). This created space to adjust questions or the order of questions to the flow of the conversation, whilst still using the same terminology in the interviews (Clark et al., 2021).

The preparation of the interviews consisted of multiple steps. First, based on the theoretical framework, a list of interview questions was developed per element of TD co-production

(Chapter 2), and the topic list can be found in Appendix B. Subsequently, these questions were grouped and categorised into a topic list that fitted the different types of questions to ensure that all concepts were asked about and matched the flow of the interview. The findings from the participatory observations allowed for an evaluation of the interview questions and topics to get to a final topic list. The participants were asked to respond from the perspective of the role that their organization has in FOSTER. Whenever they shared an opinion that they were not sure of whether it was shared amongst their colleagues who were also part of FOSTER, they were asked to specify this.

To increase the validity of the interview questions, whether the questions asked could generate findings that were related to the aspects under analysis (Chapter 2), one trial interview was performed with a researcher from FOSTER. This helped in practicing with the interview dynamics, validating the topic list, and exploring the types of answers that could be obtained from the questions. The data that was collected in this interview was neither analysed nor used in the results of this research.

In April and May, informal conversations were held with different researchers and representatives from CDIs in FOSTER to get to know each other, explain a bit more about the aims of my study, and to learn from the work that academics and non-academics were doing within FOSTER. To plan these conversations, contact was made via email. At the end of such introductory conversations, I scheduled the in-depth interviews for after the summer school. Semi-structured interviews were conducted between May 21st and June 11th, 2025. Participants were selected based on their role within FOSTER, in which the goal was to reach as much diversity as possible in terms of organizations that are part of FOSTER, and diversity in the roles that people have. Therefore, I wanted to interview at least one person per CDI, their Academic Partner (AP), and one person per work package, also known as Associated Academic Partners (AAP). From these requirements, I compiled a list of nineteen potential interviewees. Because I did not have the time to have short introductory meetings with everyone that I wanted to interview, I sent out an email with an interview request. Eventually, fifteen semi-structured interviews were conducted with seven AAPs, three APs, and five CDIs (see Chapter 4 for an explanation of these actors). Due to the limited availability of interviewees, two interviews were already conducted during the summer school.

Twelve interviews were recorded with Microsoft Teams because they took place online, and three interviews were recorded with the 'My Recorder' application on my phone, as these were conducted in person. If the native language of the interviewees was Dutch, the interviews were conducted in Dutch (three interviews). The other interviews were performed in English. All interviews were transcribed immediately through Trint (transcription software) on the same day of the interview. The interviews lasted between 45 minutes and 1.5 hours. Appendix C provides an overview of all the interviews that were conducted. After the first five interviews were performed, I evaluated the results to see whether I gathered the type of data I intended to and skipped, added, or adjusted some questions but the overarching content and topics of the interviews remained the same.

3

3.2   Data analysis

The interview transcripts and observational notes were uploaded and analysed in Atlas.ti. This is a program developed to analyse large amounts of qualitative data through a coding process. Even though it is recommended that multiple coders are involved in the coding process to prevent bias, this was not possible because of the assignment of the individual master's thesis. Coding was done in multiple rounds to deal with this bias and performed inductively and deductively (Alvesson & Sköldberg, 2018). This allows new themes to emerge from the collected data itself (inductive), whilst guiding the process in exploring the themes and concepts that arose from the theory discussed in Chapter 2 (deductive).

To familiarise myself with the data and obtain a thorough overview of all the collected data, I listened to the interview recordings and reviewed the interview transcripts (in Trint) to edit the mistakes that the software made. Then, the coding procedure started with open coding in which codes were created based on the qualitative data itself, with no specific guiding themes (952 codes). Subsequently, deductive coding was performed to go over the important themes and concepts and explore to what extent these were present in the collected data. Then, through axial coding, these codes were compared, deleted, added, and grouped into overarching codes, resulting in 64 codes. The codes were grouped into main themes, so called selective coding, with the purpose of identifying patterns and relations between the data to answer the sub-questions of this study. This resulted in seventeen themes that have been categorised into the four main concepts of transdisciplinary collaborations: context, roles and positions, collaborative process and knowledge, and outcomes (explained in Chapter 2). In Appendix D, a code tree can be found in which the sections, themes, codes, and number of underlying subcodes are presented. Lastly, these coded findings were analysed in the context of power through evaluating whether the findings could be linked and/or grouped to the concepts of 'power over', 'power to', and 'power with'.

3.3   Trustworthiness

I took a couple of measures to deal with a few methodological limitations and create a trustworthy research process. These concern the immersion and communication about the context, triangulation of results, and researcher reflexivity.

First, due to only analysing a single transdisciplinary collaboration process, FOSTER, there might be some issues with generalizability. In addition, the choice of FOSTER was not informed by the research design of a case study. The selection of a case needs to be carefully considered and explained. However, choosing to study FOSTER was mainly done from a practical point of view, as one of my supervisors is working as an academic researcher in the project. This allowed me to easily get in touch with FOSTER's participants and have access to documentation. To conduct research about FOSTER that is academically relevant with results that can be generalised, I spent quite some time immersing myself in the project and getting a rich and diverse understanding of what the FOSTER project entailed and what it meant to be part of the project during the first three months of my thesis. This involved reaching out and talking to many participants of FOSTER and being present at various project meetings during the development of this research. Participating at the summer school was another way to better understand the context of FOSTER and how people related to each other besides collecting data through participatory observations. Subsequently, I described the context of FOSTER in this thesis in a separate chapter (Chapter 4) for readers to understand it.

Additionally, I attempted to do triangulation to enhance the validity of the research findings. Observations from the summer school were a way to check what people shared during interviews, and FOSTER deliverables and other research findings further informed the data interpretation process. In addition, because of the involvement of one supervisor in the project since the beginning of FOSTER, I could check with her certain expressions from participants. Lastly, during the entire research process, I was in touch with both of my supervisors to evaluate my research plans, procedures, and findings to develop a thesis that is academically sound and credible.

Lastly, I have incorporated aspects of reflexivity in my own research process. This means adding a positionality statement to this methodology chapter and a reflection chapter at the end of this thesis (Chapter 8). To keep track of my attitudes, insights and learnings, I kept track of a reflection document. I wrote down reflections during each research stage, in particular, after the summer school and interviews, and how I felt that I related to the participants and my findings. Through doing this, I hope to be as transparent as possible about the influence of my values and interests and how these could have shaped the research design and interpretation of the results.

3.4   Ethical considerations

Ethical considerations guided the research design and practices, particularly related to the participants of this study, and to adhere to ethical principles of conducting research according to the guidelines of my study program. For social research, an important part of the ethical considerations is about the researcher's responsibility to protect the rights of the participants and/or communities involved in the study (Clark et al., 2021). This means that I ensured voluntary and informed participation in this study and communicated this to all participants. In addition, I communicated as transparently as possible about the entire research process through documenting the research process in this thesis.

In this study, there was a relatively low risk of harm to the participants. The participants were not part of a vulnerable group (e.g., children, people, or groups with mental or physical impairments) and due to the nature of FOSTER, the participants were aware of what academic research entails and what it means to be a participant in research. Nevertheless, all participants still needed to be clearly informed about the research process and what their participation would entail. Therefore, all participants (summer school and interviewees) of this study received an informed consent form in which it was asked whether they agreed that their data was collected, used, and analysed for this study. For the summer school, participants received a consent form about the participatory observations upon arrival on the first day of the summer school. For the semi-structured interviews, a similar consent form was sent out to them before the start of each interview and briefly reiterated before the interviews started. The consent form informed the participants about what participation in this study entailed and the way in which their (personal) data would be processed and managed. In these forms, it was further specified that participation was voluntary and that they had a right to withdraw their consent at any time without any consequences. The consent forms used in this study and detailed information on data collection, processing, and storage can be found in Appendix E. All participants from the summer school and all interviewees signed the informed consent form.

Personal data of all the interviewees and those observed have been treated confidentially. This means that in this thesis, there are no references to names, genders, countries of residence,

organisations, or the specific roles they have in FOSTER. However, as the background of the participants is relevant in this research, for example, to explore differences and similarities in experiences between researchers and practitioners, the participants have been informed that they are referred to in this research through their generic role in FOSTER. There are three roles that are identified in FOSTER that correspond to the different roles and activities that participants have and do. These are: Change Driven Initiative (CDI), Academic Partner (AP), and Associated Academic Partner (AAP). Detailed information about what these roles mean in FOSTER can be found in Chapter 4. To refer to a specific interview, I added a number (chronological order) to their role. For example, the first interview I performed with an AAP is referred to as AAP1, and the last interview I did with a CDI is referred to as CDI5. An overview of how I refer to each interview can be found in Appendix C. The findings from the summer school were presented in a similar manner and, when possible, connected to an interviewee code (e.g., AAP1, AP2). As many of FOSTER's participants and thus interviewees were present at the summer school, references to the summer school were made quite generic to reduce the chances of identification of participants. Furthermore, interviewees were referred to with the pronouns they/them. Quotes from interviews that were conducted in Dutch were translated into English. This is not mentioned in the text to maintain the confidentiality of the interviewees' identities.

The transcription software that I used, Trint, was carefully chosen because this is software that WUR employees are allowed to use and is ISO27001 certified. This means the AI used in their software is trained externally, and the data that a user uploads to Trint is only accessible to them (Trint, 2022). After termination of the subscription (June 18, 2025), all data was deleted from Trint. This means that (personal) information that was shared during interviews was only accessed and used by me, the researcher, and not any of Trint's employees, nor for training their AI.

3.5   Positionality statement

I am a Dutch woman, white, master student. I have received high quality education and have had the privilege to grow up in an upper middle-class family, of which both of my parents and my sister also have an academic background. Further, my social circle is mainly composed of similar people. Therefore, I have not experienced or have not been exposed to any fundamental injustices in my life. Not having such lived experiences has impacted the ways in which I can only attempt to understand the realities of those who do face this daily. Not needing to worry about basic needs means that I have benefited from all kinds of power relations and structures present in society and am biased and privileged in many ways.

Another important bias that I should be aware of is my cultural background and how this affects my interpretations of the data. FOSTER is an international project in which people come from countries with very different cultures and relations between academics and practice that I am used or have been exposed to. For example, the Netherlands is known for 'flat' hierarchies, and the Dutch can be quite direct in their feedback and reflections, which I am used to and asked interviewees to do. In addition, I have little knowledge about the different countries and cultures present within FOSTER and have not engaged with people from very different backgrounds than mine a lot in my life. This is very important to be aware of because it could result in mainly understanding those people who come from a similar (cultural) background and not being able to properly interpret the reflections from people coming from different countries.

Because my thesis is about a collaboration between academics and practitioners, the fact that I am being taught to become an academic researcher might affect how participants view my role in this process, as someone who is also 'from academia' with little to no professional experience. Personally, I have conflicting feelings about this. Throughout my BSc and MSc programs, I have engaged with critical theories as political ecology and learned to see interconnections and the multidimensionality of environmental and social processes and flows. Further, I have learned to question my assumptions and reflect on power relations, whose interests are served, whose are not, and why? These lessons and insights have truly affected how I view and relate to the world and are of importance to me. At the same time, I felt out of place as a student in the academic system. Often, I felt stuck in the theories and methods that I learned, the need to read so many papers, of which I had many questions about what they were really contributing to pressing issues as the climate crisis and social inequalities. Even though I truly value research, I strongly believe that the way we are taught how to become academics has flaws and can be quite detached from 'reality'. Navigating these tensions, feelings of discomfort, and daring to talk about power relations are skills that I am still learning and developing, also throughout this thesis process.

3

"'If I follow a path I don't get there. If I do not follow a path I won't get their either.'

Someone asked Yumen: 'This issue is keeping my up all night, I give it all my attention, and I still cannot get a grip on it.

Yumen replied: 'Your path is in your desperation'."

Arthur Nieuwendijk, Verwacht geen applaus (p.102)

CHAPTER 4

FOSTER

4   FOSTER

This chapter explains the background of FOSTER: the project aims, consortium members and roles, how it is structured, and the funding distribution. European projects are organised in a specific way and use specific language in how the work is organised and divided. These aspects will also be explained in this chapter. Most information about FOSTER in this chapter is derived from the 'Description of Action' (DoA) document and adjusted based on project meetings and conversations with participants (DoA, 2021). In European funded projects, the DoA describes how a project will be carried out after the grant agreement is signed. Thus, it is a description of how the FOSTER consortium argues to reach its objectives.

The FOSTER consortium consists of eighteen organisations from different disciplinary backgrounds such as citizen science, sociology, humanities, food systems, and agriculture. Further, various research institutes are involved (universities and other types of research organisations) as well as small- and medium-sized enterprises and foundations. The consortium members (organisations) come from seven different countries: Germany, Hungary, the Netherlands, Portugal, Serbia, Spain, and the United Kingdom. The DoA states that this diversity of actors can make use of this broad existing knowledge base, and they can generate new insights through integrating knowledge from theoretical and practical contexts.

Project objective

The main goal of FOSTER is *"to gain insight into how knowledge and innovation systems (KIS) can be adapted, made more inclusive and better governed to transform Europe's food system outcomes for health, enterprise and the environment."* (DoA, 2021, p.2). The objective consists of three main elements: KIS change, inclusivity and good governance and food system transformation which, are elaborated, explained, and operationalised within the DoA. The premise is that the existing Agricultural Knowledge and Innovation System (AKIS) is focused too much on agricultural production and serves dominant interests rather than those of actors who are less organised or marginalised. In addition, it is argued to be dominated by traditional knowledge providers like science. It is argued that these are the main drivers that AKIS is unable to address the challenges of creating sustainable and healthy food systems in Europe. Therefore, the KIS needs to shift towards an integrative food system perspective: Food System Oriented Knowledge and Innovation System (FOKIS) that incorporates diverse perspectives with particular attention to recognition and inclusion of multiple knowledge types. The new KIS structure needs *"an engaged and empowered stakeholder community that actively collaborates in the governance of FST from an integrated food systems perspective."* (DoA, 2021, p.2). The knowledge that will inform the structure of FOKIS is what will be co-produced within FOSTER.

Consortium roles

Within FOSTER, a differentiation is made between three different types of roles: Associated Academic Partners (AAPs), Academic Partners (APs), and Change-Driven Initiatives (CDIs). This division was not specified as clearly in the DoA but developed during of the project. The list below briefly describes each role:

- AAPs: eight research organisations that have a major responsibility for meeting the project's objectives (further explained in the next section).
- APs: five research organisations. The academic partners work closely with the CDIs and an external partner in a so-called 'triangle collaboration' (referring to three different

types of actors in the collaboration). Two of the APs are also AAPs in the consortium.

- CDIs: six case studies that are working in practice on food system transformation. Through collaborating in FOSTER, CDIs and academics aim to understand how science and R&I policy can help the CDIs to achieve their ambitions for food system transformation and identify barriers and facilitators in their collaboration.

Structure and activities

To streamline the structure and collaboration, Horizon Europe projects are divided into different, but interrelated, work packages (WPs). Each WP is responsible for a selection of tasks and outputs of the project. FOSTER is divided into six WPs. The WPs are about the: (1) development of a science-based information platform about the food system; (2) FOSTER Academy (organises the yearly summer schools); (3) collaboration with CDIs (including evaluation); (4) research & innovation governance towards FOKIS; (5) making impact through communicating (in)tangible outcomes beyond the consortium; and (6) overall management and scientific coordination. The consortium members work closely together within their WPs. Despite this separation, the WPs are interrelated which creates space for co-learning and co-creation. During the project, members will collectively meet through kick-off and closing conferences, as well as annual internally organised 'summer schools' and 'expert panels'.

Collaboration

In the explanation of the WP activities and responsibilities, some intentions of the collaborative process are described. It is argued that FOSTER will develop a FOSTER Platform that links activities of scientists and citizens through foresight processes. Further, the FOSTER academy aims that consortium members will co-contribute and co-learn through inter- and transdisciplinary teaching and learning. The CDIs will be analysed with the purpose to learn from and with them. Through co-creation processes between CDIs, science partners, and other stakeholders, the CDIs will be able to advance their missions of being drivers of food system transformation. The activities among the different project partners are described as interdisciplinary, transdisciplinary experimentation and co-creation. However, these collaborative forms are not defined or explained how they are operationalised with and among consortium members.

Funding background

FOSTER is funded through Horizon Europe, a research and innovation funding program from the European Union for the period from 2021 to 2027. A large variety of research projects (many of which are related to climate change and the United Nations' sustainable development goals) and collaborations can be funded under Horizon Europe (European Commission, n.d. a). Within Horizon Europe, there are different types of funding schemes. FOSTER is a Research and Innovation Action. This is a funding scheme that is specifically aimed at knowledge generation and/or innovations development (European Commission, n.d. b). In FOSTER's project call it was written that a multi-actor approach was mandatory (European Commission, 2022). The European Commission defines the multi-actor approach as *"a form of Research & Innovation that is interactive, transdisciplinary and responsible"*. This means that proposals had to incorporate co-creative processes over the whole course of the project, and the outcomes should be implementable for practice (European Commission, n.d. c).

The DoA also contains a section on budget and personnel allocation. Around 65 percent of the total budget is allocated to personnel costs, and the rest is for the summer school, events, travel costs et cetera. Most of the personnel costs are allocated to the research organisations

involved in the proposal writing (mainly AAPs), followed by the research organisations that were not involved in the proposal (mainly APs) and CDIs who have received similar amounts. A summary of the budget and personnel (person-month, PM) allocation is provided in Table 3 below.

Table 3 *Budget and person-month allocation in FOSTER.*

	Description	Distribution	%
Project budget (€)	Total project budget (EUR)	€5,063,631.25	100
	Research institutions involved in proposal writing (mainly AAPs)	€3,891,856.25	76.9
	Research institutions not involved in proposal writing (mainly APs)	€486,500	9.6
	Budget practice (CDIs)	€685,275	13.5
Person-Month (#)	Total PM	588,5	100
	PM major research institutions	429	72.9
	PM minor research institutions	71	12.1
	PM practice	88.5	15

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"Connection cannot exist on your own terms. It can only exist if you can relate freely to the uncertainty that characterizes reciprocal relationships. To experience connection, you must be able to both trust and take responsibility."

Arthur Nieuwendijk, Verwacht geen applaus (p.75)

CHAPTER 5

Results

5   Results

This chapter presents the findings obtained from the participatory observations at the FOSTER summer school and semi-structured interviews performed with consortium members: seven AAPs, three APs and five CDIs. The purpose of this chapter is to illustrate the findings of nuanced differences within and between roles that people have and take in the project and to analyse this through a power lens. Before presenting these findings, there are two aspects: (1) nuances about the presented academic-practitioner dichotomy, and (2) the extent to which consortium members would openly express a reflexive attitude.

First, it is important to note that consortium members are grouped into the formal roles that correspond with how they are grouped in FOSTER: AAPs, APs, and CDIs. This allows for understanding parts of the background of consortium members without compromising confidentiality. In addition, there is a division made between academics and practitioners. 'Academics' refer to AAPs, and the 'practitioners' refer to CDIs and AP1 (as AP1 shared they identified more with a practitioner than an academic). These were also the two groups that interviewees often referred to when reflecting on collaboration dynamics. Despite this created and expressed dichotomy, 'academics' and 'practitioners' are not homogeneous groups. There is diversity within these groups in how people experience the collaboration and explain the dynamics that they observe. Even though nuances are shown, the results simultaneously use framing of the dichotomy, which needs to be kept in mind in reading the results.

In addition, across the results, it was found that consortium members responded to reflection questions in varying ways. Some consortium members immediately shared their experiences reflexively and positioned their role in the collaborative dynamics in positive and negative ways. In other instances, however, reflections shared focused on negative experiences in which frequently 'the other' (e.g., academic or practitioner) was causing the friction. In a few cases, people reflected predominantly in a positive manner on the collaborative process, which was not necessarily in line with reflections from other consortium members. In short, people reflected in different ways and with varying degrees of reflexivity. Such differences influence the ways in which power dynamics were experienced and could be identified.

Reading guide

This chapter is divided into sections according to the main elements of TD co-production as presented in the Theoretical Framework (Chapter 2). These elements are **context**, **roles and relations**, **collaboration interactions**, **knowledge**, and **outcomes**. However, many findings related to ideas and experiences about knowledge were entangled in results about the other elements. Therefore, to avoid repetition, there is no separate section about knowledge. In each section, the findings are analysed and connected to power dimensions: **'power to'**, **'power over'**, and **'power with'**. The chapter starts with reflections on roles and relations in FOSTER (5.1), followed by a section discussing the context of the project (5.2). Next, the more detailed experiences of interactions in the collaboration are presented (5.3). Then, the reflections on the (expected) outcomes and learnings are shared (5.4). The chapter closes off with an overview of the main ways in which power is enacted and experienced throughout FOSTER (5.5).

5.1 Roles and relations

During the interviews, interviewees were asked to describe their role and position within FOSTER and reflect on the collaborative process. Many interviewees shared their reflections about the roles and positions that they saw others take or receive. It should be noted that these roles are not always roles that consortium members are satisfied with. For example, some might have wished to be less of a 'data collector' or 'research object', but the consortium members experienced that this was how the roles unfolded in FOSTER, which was also visible at the summer school. The findings presented in this section are thus a combination of self-ascribed and prescribed roles by others that consortium members observe or experience (5.1.1). Further, this section explains how people described relations (5.1.2) between each other and the roles that they felt uncomfortable or unsure about (5.1.3).

5.1.1 Prescribed and self-ascribed roles

Associated Academic Partners (AAP)

AAPs recognised that they had been the ones who **collected data** from the CDIs. This implies something about both their own role and the role that they have created for the CDIs, a **research object**: *"I have quite a strong feeling that we really have forced the CDIs into being research objects"* (AAP1). In some cases, being data collectors was shared as a critical reflection on the collaboration dynamics and traditional methods that were used (e.g., interviews, focus groups). CDI4 described these dynamics between CDIs and AAPs as CDIs receiving requests from academics to participate in all kinds of research activities. Then, the AAPs 'collect data', and are not actively participating because, for example, they are the interviewers (CDI4). In some cases, this role of the AAPs was presented as a given and not problematised. For example, AAP6 shared: *"But we observe how they [CDIs] work, how they aim to transform, how they are proceeding with it, we observe that. Then we try to use this experience for the future transformation"*. The role was recognised by APs who noticed that the AAPs ask many questions, which were difficult to answer, and it made them feel uncomfortable in meetings. AP1 sensed that the priority of the researchers is to collect data, and therefore, they are interested in CDIs. Academics tend to forget the impact of their research on the CDIs and, in particular, the increased workload for the CDIs (AP1). Through positioning themselves as the 'researcher' who researches the 'research object' (CDI), AAPs create a relationship in which they exercise 'power over', in which CDIs need to take a role to meet the AAPs' needs. It is unclear whether this is caused by a social norm about who is in charge in the TD co-production (normative power) or mainly created by a resource imbalance.

Another role was recognised by many AAPs because of their responsibilities for the work packages: a **coordinator of activities** in FOSTER. In this process, the steering group plays a significant role. Everyone needs to report to the steering group what they are doing, when, and why. Besides the coordination of the project, AAPs related to CDIs as coordinators. AAPs are the ones initiating the activities (e.g., hosting workshops, asking CDIs to fill in surveys). AAP5 reflects on this as *"I have a feeling that most, not most, but quite a lot of the interactions that the CDIs have with FOSTER are just things that they need to do for FOSTER."* Hence, in a way, the AAPs are organising the work that the CDIs need to do in FOSTER. And similarly, AAP1 describes the dynamics between the AAPs and the CDIs as follows: *"We [academics] put our own working processes very central. And therefore, they [CDIs] come when we ask them to come"*. The coordination role enables AAPs to exert resource power ('power over'). Due to their expertise and experience in similar projects, they are in charge of decision-making processes.

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Then AAPs (AAP1, AAP2, AAP3, AAP7) focused on the role of the academics to do the conceptual work, **manage the content** of FOSTER, and produce papers. AAP2 highlighted the difference between the theoretical work that the academics do and the practical orientation of the CDIS: "*the interest of some of the academics is more to produce papers. The interest of the CDIs is to really go on with their work.*" (AAP2). AAP3 argued that because academics are responsible for most of the deliverables, it ideally reduces a burden on the CDIs to write academic reports which are not in their interest (AAP3). By being the content managers, some AAPs observe a dynamic between them and the CDIs in which they **teach,** and the CDIs can learn from them. The academics all have an expertise related to the work package that they are in (AAP2, AAP3, AAP7). AAP3 reflected on the first summer school where they observed: "*I mean, when I remember the first summer school… It was just presenting and discussing scientific concepts, and what is the role of CDIs there? I mean, just listening to what the scientists say and explain.*" Some AAPs observed that this changed over time, such as AAP7 recognising the active role that CDIs had during the last summer school. However, AAP7 shared that they did note that this did not really bring the analytical depth as desired. This reveals an idea that the AAPs can teach the CDIs to think academically and to learn about the academic concepts that are of importance in FOSTER. Thus, academics continue with roles that they are used to having: the one with (very specific) knowledge and expertise, and a great interest in a particular field of knowledge. Therefore, they are responsible for teaching and explaining it to others. The role is empowering for the academics ('power to') because they can mobilise their expertise to reach their main interest: doing research in their field of expertise with the CDIs as case studies. This links to a power differential between AAPs and CDIs. AAPs exercise 'power over' through structural power in deciding what is on the research agenda and how this should be approached. The degree to which this is resisted among academics and CDIs indicates either structural power, or when it is accepted and/or normalised, normative power, in which dominant ideas about who carries 'valid' knowledge prevail.

AAPs ascribed themselves a role as **facilitators to create a space where science and practice meet**. "*I think they're [CDIs] quite active [in FOSTER], but we make them active. We should find a way to share their experience. Sometimes it is challenging really. It can be challenging to engage them. They should see what is in it for them, what they benefit from this, you know?*" (AAP6). The quote exemplifies how the AAP feels responsible for activating the CDIs and showing them why FOSTER is relevant to them (exercising 'power over'). A different interpretation of this facilitator role was shared by AAP1: "*I see a role for science and us as a research institute to better understand such initiatives and to help them to focus. We can be a sounding board for these kinds of initiatives. This sounds like we are the only ones with expertise and wisdom. But this is not the case, we can only be a sounding board if we take this role very seriously to create equal partnerships, I find that very important.*" (AAP1). Here, the AAP reflexively looks at their role as a research institute and challenges the dominant idea of academia as the only carrier of valid knowledge (i.e., challenging normative power). Through engaging with practice, they can increase their 'power to', and might, if shared interests are developed, contribute to exercising 'power with'. However, the CDIs did not mention that they perceived AAPs as being a facilitator for science and practice interactions and joint partnerships. This indicates that a role to enable 'power with' for AAPs was not, per se, experienced by other consortium members.

Academic partners (APs)

The APs ascribe themselves, and are described by CDIs, as a partner in FOSTER with a **supporting role** towards the CDIs. The work of the APs needs to feed into the needs and wants of the CDIs, and this is a collaborative effort. *"Our role is about the development and execution of the tasks [we have in FOSTER], of course, and providing resources [...] everything more or less revolves around the CDIs, and our role is supporting these processes"*. (AP2). In addition, AP3 notes that they try to discuss with the CDIs what questions they have and how these questions can feed into relevant research and outcomes that are of use to the CDIs to get closer to the goals they wish to reach. This refers to the supporting role and the recognition that APs have a particular **theoretical expertise** to bring in, which can help the CDIs to progress. Using their expertise can enable APs' 'power to' and opportunities to exercise resource power ('power over'). APs further mentioned that it was important to them that the work they do in FOSTER is aligned with the core activities of their organisation. For example, AP2 shared that they want to continue moving forward to stimulate sustainable practices across the value chain, and in the collaboration in FOSTER, they are working on topics that match with their day-to-day work and that of the CDI (AP2). AP3 argued that APs have a role to **bring together science and practice:** *"What I really enjoy is working with practice and seeing how we progress. That is why I joined FOSTER, and I am driven by connecting science with practice."* (AP3). These reflections on their role, and that they are supported by CDIs, are an indication that in the relation between APs and CDIs, 'power with' is enabled through working towards a collectively developed and reaching their shared goals beyond individual interests.

Change-driven initiatives (CDIs)

The key role that the CDIs ascribe to themselves is that of being 'the one that does the **practical work**', which contrasts with the theoretical and conceptual role that researchers have in FOSTER. The CDIs focused a lot on their day-to-day activities for their organisations, a similar response to the questions about their motivations to join FOSTER ('power to'). Whereas the AAPs mention this aspect explicitly, it was to varying degrees made clear in CDIs' responses. On the one hand, CDI5 touched upon this role in response to what they bring to FOSTER: *"Well, I think it's our experience in the first place. I mean, our story. [...] I don't want to sound like this is a bad thing. But we are not so structured in this kind of sense, like, you know methods and theory. I mean, it's like everyday life, which is very flexible, volatile, changing and things."*. CDI1 one on the other hand, was quite explicit: *"We are not there to provide expertise, I think or skills. We are there to practically try changing things."*. These examples demonstrate that 'power over' is exercised through normative power, as these CDIs seemingly believe they do not have the knowledge or expertise to share with the academics in FOSTER.

CDIs felt pushed in the role of a '**student'**, being educated by the researchers. They did not mention instances or a (clear) role for them in FOSTER to teach academics. CDI2 describes: *"I think in the case of FOSTER there are meaningful things going on. And we try to be more like a sponge [absorbing information] because of our role."*. For CDI3, the position of a 'student' felt less comfortable: *"I sometimes feel like I am in a classroom, and I need to be quiet and listen [...] sometimes I feel like some people think 'we will explain you what the world looks like' [...] and then I just stop listening."* (CDI3). Closely related to this role is the notion of feeling like a **research object** who needs to provide data but is, for the rest, a **passive actor and mainly informed** but not an active participant (AP1, CDI4, CDI3). CDI4 shared: *"We feel a bit like we are being observed. They are doing research on us. [...] And so, it's not my role there to help them"*. For CDI5, the common interactions between CDIs and AAPs were as follows: *"So,*

I mean, we have good communication, but I cannot say we have much influence on what they are doing. So usually they are requesting something, you know, either feedback or some information from us." (CDI5). This was underpinned by CDI3, who concluded that the activities that they did for or with the academics were not really of interest to their work as CDI (CDI3). Lastly, in instances when CDIs would be given a more active role in meetings or activities, they were explicitly told what they need to do and what to prepare (CDI1), indicating that how and in what ways CDIs participate is demarcated by academics. These relations between AAPs and CDIs reinforces dominant norms about relations between academics and practitioners, influenced by ideas about who has valid knowledge or expertise (normative power). In many instances, CDIs feel forced to take a 'complying' role, as a student or someone from whom data is collected. CDIs experience that they are constrained in their role and have to follow the demands of the academics, and have little influence on what is being done. This points out that AAPs exercise structural power ('power over').

An overview of the different self-ascribed and prescribed roles per type of project partner (AAP, AP, CDI) can be found in Figure 2 below.
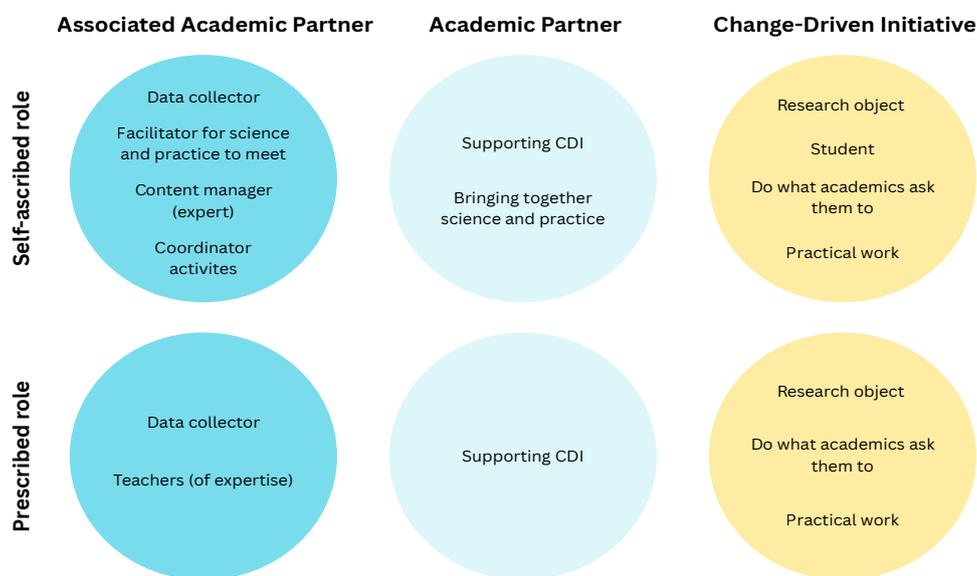

Figure 2 *Self-ascribed and prescribed roles that the three different types of consortium members (AAP, AP, CDI) have in FOSTER.*

5.1.2 Describing relations

In many instances, people described the relation that they had with others in FOSTER as very **practical**. It consists of *"being together, following up what is going on, active participation. [...] I don't think there is nothing new here. It's just like a basic European project"* (CDI2) and *"And so we are, in the day to day, saying, OK, so you do that. OK, I do this."* (CDI4). During meetings, people update each other, discuss what needs to be done, and then tasks are divided. This practical relationship is about ticking off tasks of a to-do list. In some instances, this had a negative connotation, in which meetings were experienced as redundant: *"I must admit, I sometimes see this at meetings, and well, then you're invited and then I think, what is this about? A lot of information, and then it is over, ticked off. At least, that's how I experience it sometimes."* (AP3). Similarly, AAP7 shared, in reflection about collaborating with other WPs, that they saw various degrees of active and passive collaboration among AAPs. In addition,

they noted: *"the degree in which you collaborate as opposed to discuss something and agree who's going to do what. Is that a collaboration or is that just agreeing who's going to do what?"* (AAP7). These notions of practical work relations are examples of the extent to which project partners on an individual level mobilise resources to meet their own interests ('power to'). Further, this is linked to the ability to exercise 'power over' in the form of resource power, as during the meetings people can discuss who will do what, and that the one with the right resources (knowledge, expertise, time et cetera) will perform the task.

Furthermore, as presented in Section 5.1.1, receiving the budget was an important driver to join the FOSTER consortium. Related to this is the experience that relations in FOSTER were experienced as **transactional**, mostly by academics. *"Everybody is working on projects, collecting money to finance their activities. [...] So, the collaboration is that we get money"* (AP1). This transactional relationship was also experienced by AAP1. They argued: *"not all CDIs want to be a research object; they also see an opportunity to do something 'fun' with EU money. These are a bit of the two extremes in which we [university] want something of them [CDI], and for us, the easiest thing we can give them is money, and then they can do something whatever they like."* (AAP1). These examples demonstrate that consortium members can be quite focused on reaching their individual interests. Receiving funding through FOSTER enables consortium members' 'power to'. To illustrate, AP3 observed that gaining budget through EU projects is an important source of income for CDIs, but that this generates a tension. *"In essence, this is also what FOSTER is about: a change in the instruments, and that they [CDIs] cannot access them. But now they are making use of an instrument because Horizon [subsidy program] is an instrument, they enter it, receive money for the work that they do. And if that stops, they will need a new source of income to continue".* In addition, the example shows that AP3 argued that they understood that gaining financial resources is an important driver to participate in FOSTER. Nevertheless, they stressed not to forget considering what a meaningful collaboration entails for academia and practice ('power with'), beyond individual interests.

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Then, there are instances in which people experience an **unbalanced or hierarchical relation** in the collaboration between consortium members. This is less about what is transferred in the relation (e.g., tasks, money) but whether the relation is experienced as balanced. There are indications of structural and normative power ('power over') due to varying degrees of resistance and acceptance of these relations and how people justify them. Some academics wonder how they can be useful to CDIs, and *"not knowing if they can ever be"* (AAP5). In addition, through collecting feedback, AAP7 discovered that CDIs experience that the knowledge power resides with academics, which is perceived as unbalanced and wrong, or that some organisations do much less than others, which generates an unequal burden of work onto some partners (AP3). AP1 reflected that they feel that what the CDIs need to give to the academics and what they receive in return (monetary) is out of balance, and that this adds on to the unbalanced relationship (AP1). CDI4 shared: *"Sometimes I feel that I am being seen as something different. [...] But maybe it's just a sensation, but I feel that there are these preconceived rules. Very defined. 'You are a practitioner; I am an academic researcher.'"* (CDI4). Such sentiments hint at an implicit hierarchy experienced in the roles in the project. Besides the hierarchical relation that people experience, AAP6 and CDI5 stressed that they believe that everyone is equal in the collaboration, everyone is a partner, and there are no dominant voices. Hence, there are diverse ideas about the roles and relations between CDIs and AAPs and the extent to which they are framed as 'in balance' or 'hierarchical'.

5.1.3 Uncomfortable roles

There were a couple of roles that people struggled with. In a more general sense, the role of the AP was not so 'straightforward' (CDI2, CDI4, AP3). In the 'triangle' collaboration, the CDIs shared that they had to think about academic knowledge questions they had. Then, the CDI, AP, and external partner had to co-develop ways in which academic expertise could create added value to the CDIs their daily work and vice versa which was not always easy to identify. In addition, consortium members struggled with who has which role and needs to take responsibility for what within teams (AAP5). For example, AAP5 argued that they believed that the APs know their CDIs quite well and that usually there are quite good collaborations. But for the AAPs, it is more of a challenge to do something useful for all the CDIs because they don't know their contexts well enough. *"We are really trying to use the space that we have to do something useful. But it is difficult from this perspective of EU level work package lead or coordination."* (AAP5.) Then, one of the APs believed they operate more as a CDI than an AP, and therefore sometimes felt uncomfortable with the activities that they needed to do (AP1). AAP2 expressed that they believed that the clear distinctions between academics and practitioners were negatively affecting the dynamics between consortium members. First, they expressed that there are multiple (disciplinary) approaches to doing science, hinting at the value of interdisciplinary work. Second, they stated: *"I think it's very dangerous also to divide the academic partners versus CDIs because in the CDI we have a lot of academics. We even had dissertations already."* In this quotation, AAP2 makes it explicit that there are many people with research backgrounds active in CDIs and thus in FOSTER. Therefore, they argued that making a distinction is wrong because CDIs also have academic knowledge to share. A CDI expressed that, even though they wished it to be different, because of their academic background, they could operate better in the academic environment and obtain easier access to funding and academic knowledge than others (CDI4). This shows that in the project structure or wider context, there is a norm that valuable knowledge to share is academic (normative power) and an implicit hierarchy in who can access funding and why (structural power exercised by funding bodies).

5.2   Project context

When interviewees reflected on the proposal writing phase and on the design of the FOSTER project, they referred to various practical and structural conditions that influenced the scope and direction of the project as well as the dynamics between consortium members. This section provides an overview of the context of the project, the collaborative conditions that shaped project from the start. These are the project boundaries in terms of the consortium members, their motivation to join, and the proposal writing process (5.2.1). Then, some insights related to the concepts and objectives of FOSTER: food system transformation and the role of academia in it (5.2.2). Lastly, there were three types of structural conditions mentioned: practicalities, politics of research, and budget allocation (5.2.3).

5.2.1   Project boundaries: consortium members and proposal writing

Motivation to join

The development of the consortium took place through existing networks. The consortium partners who participated in writing the proposal often already collaborated before FOSTER. The partners who initiated responding to the project call **invited** others to participate in FOSTER. As AAP3 stated, *"there is always an overlap of people in these projects"*. An explanation for this was shared by AAP4, who argued that the topic of the project call was quite complex, meaning that not a lot of organisations wanted to join, and they had to write it in a short timeframe (AAP4). AAP2 noted that they remembered it was difficult to find CDIs to participate. AP1 said that they, as academic partners in FOSTER, were requested to invite a CDI and chose an organisation with whom they were already in touch with (AP1). Generally, organisations joined because of **trust in the pre-existing relationship** (e.g., AAP2, AP2, CDI1, CDI2, CDI4, CDI5). Project members further expressed that they saw opportunities to intensify pre-existing relationships in FOSTER (CDI1, CDI2, AP1, AP2). Sometimes interviewees shared they were invited because of their professional expertise which could be a valuable contribution to FOSTER (AAP1, CDI4, AAP7). For example, CDI4 expressed: *"we did a good job in [another project] and they were interested in what we were doing and some of the partners knew us, and they suggested to contact us."*. Those who were in the position to invite others to FOSTER, could enable their 'power to'. They made use of their own resources (i.e., network) to invite organisations that were aligned with their interests. In addition, it could hint at 'power with', in which inviting others is purposefully done to achieve the collective consortium goal, such as getting the project funding and working on the transformation from AKIS to FOKIS.

Besides the invitation, for some organisations, FOSTER was perceived as an opportunity to share experiences and knowledge across borders and contexts in the (EU) food system (AP2, AAP6, CDI5). Another aspect was that EU projects are good **funding opportunities** for both research institutions as well as CDIs (CDI1, CDI3, AAP2). The budget enables project members to focus on aspects that they already wanted to work on but previously lacked the capacity or budget. Now, for the duration of FOSTER, they have more capacity work on it (AP1, CDI1), indicating that their 'power to' is enabled through receiving funding. Lastly, AAP1 mentioned explicitly that the project call was interesting to them because of the **action research approach**: *"What triggered me the most from the project call, [...] was about engaging citizens [...] and we [AAP] need to open the doors of science [to other groups]. I saw an opportunity to reflect on the things we do and do it differently"*. The interest in action research implies a wish for 'power with' in the project. In sum, the primary motivations to join seem to be related to the invitation, network development, and funding, and less about the content of the project.

Heterogeneity in the project

Why the CDIs and APs were chosen, and specifically why the heterogeneity among them was accepted, was a common unknown amongst interviewees. For example, AAP7 said: *"[…] the people who made the selection left [refers to individual participants who stopped working for FOSTER]. So, you know, the history went with them, and we ended up with what we had."* (AAP7). Other interviewees confirmed this by stating that they do not really understand why this group of CDIs was selected or asked to participate in FOSTER (AAP2, AAP4).

Both CDIs (CDI2, CDI3, CDI4) and AAPs (AAP1, AAP2, AAP4, AAP7) explicitly mentioned the large variety among CDIs and the challenge to find common ground. AAP7 described the commonalities between the CDIs as: *"Well, something in common is that they're all being driven by… a non-academic approach. But that means that the number of different approaches is… about as many as the CDIs."* CDI4 described their similarities as that all CDIs are *"intermediary structures between science, policy and citizens"* in need of a system for knowledge, innovation, and funding. Further, mostly AAPs shared that among CDIs, there is a lot of variety in terms of expertise in complexity theory and food systems thinking. These are central concepts and approaches used in the rationale and activities in FOSTER. The interviewees argued that they had the idea that for some organisations, there was little to learn, whereas for others, FOSTER was the first time they learned about it (AAP1; AAP2; AAP7, CDI3). This was identified as one of the reasons why it was challenging to find common ground among them and get the mutual learning going (AAP7, CDI3).

Proposal writing

CDI2 and AP3 both addressed that most of the activities in FOSTER were predetermined in the proposal, mainly written by AAPs, and that there was not a lot that you could change. Thus, AAPs could exercise 'power over' through resource and structural power because they had influence on decision-making for the proposal and agenda-setting in FOSTER. In addition, the proposal writing and responding to the project call is a form of increasing resources that enable 'power to' of the academics involved, through which they can put their interests in the project agenda. APs and the CDIs did not share reflections on the proposal writing process during the interviews. AAP7 argued that the proposal writing was much more of a scientific activity, written in academic language and geared towards meeting the requirements of the funding body, the European Commission (EC), who holds decision-making power to either accept or reject the proposal. *"I've written countless proposals. Sometimes you win, sometimes you don't. But they're all written in the same sort of language because that's what the reviewers need. It's a research project that implies there's an academic angle to it"* (AAP7). AAP7 further recognised that, in that respect, there was little input from CDIs or non-academic partners to the proposal because they are less experienced in writing them. The lack of co-creation was problematised by other interviewees. AAP4 argued: *"You can write a wonderful proposal just using the literature. But this is a very academic approach to participatory research."* (AAP4). Additionally, AAP1 argued, *"our tendency is that we want to design the project proposal. And then we push the CDIs in our corset instead of them pushing us in their corset and telling us what they would need from the academic lens, to add something to what they are doing."* (AAP1). These comments demonstrate that the process was perceived as academics choosing how they would like to see the collaboration and what activities they would perform with the CDIs. AAP5 reflected that this lack of co-creation now remained visible in the tasks that they must complete in the project: *"even the way that our tasks of our own work package were defined. […] it's just pretty much that we are studying them [CDIs], you know, and we invited*

*them to focus groups and we did interviews [...], but it was quite extractive" (*AAP5). This implies that some AAPs recognised that they exercised structural power and perhaps normative power ('power over') over the CDIs through determining the roles and the language used in FOSTER, and that 'power with' was lacking.

5.2.2   Project goals, language and roles in food system transformation

Project goals

A sentiment that was shared across different partners was that FOSTER is a complex, abstract, and challenging project, of which the goal and purpose was difficult to explain (AAP1, AAP6, AP3, CDI2, CDI5). As AAP1 stated: *"FOSTER is a very layered project. Uhm, that is actually a different word to say that it is quite difficult to explain what it does [laughs]."* (AAP1).

When people described the objectives of FOSTER, they stayed close to the language used in the FOSTER proposal and during the summer school: evolving from the European AKIS to FOKIS and transforming food system outcomes and adapting the activities (Chapter 4). This was called a **'double transformation'**: to transform both the food system and the knowledge and innovation system (AAP1, AAP5, CDI4). For CDI4, this transformation would mean start building a new KIS for the CDIs or creating entry points for CDIs to access to the current AKIS. According to them, the objective of FOSTER is essentially about challenging a power differential between CDIs and research: *"I think we are in an imbalance of power because researchers and academics are in the system, which is the research and innovation system, and we [CDIs] are creating these intermediary structures. And I've been struggling with it all my career and there is no budget for it."* (CDI4). CDI3 hoped to decentre or challenge the assumption of the dominant role of academic knowledge in system change and described this as: *"[...] not everything is predominantly dependent on academic knowledge. And it is not the case that if you inject something [knowledge], it will change everything"* (CDI3). For AAPs, APs, and CDIs, the development of **policy recommendations** was argued to be quite important to start KIS change. It could bridge the gap between practice and (EU) policy making, who decide on policies about innovation and the food system (AAP1, AAP3, AP1, AP3, CDI4). In addition, consortium members shared that they wished to **teach or learn about (food) systems thinking** in FOSTER. Academics intended to teach about their methods and approaches to the CDIs with the purpose for the CDIs to make more impact in their daily work: *"this is the chance to give these CDIs knowledge and the interaction with researchers and research to be able to expand to a certain extent so that they can really make a change."* (AAP2). CDIs experienced that FOSTER was mainly a place to learn about food systems thinking. For example: *"So I also think that the goal was to also overcome these mental boundaries that we have about what is food system transformation and what is the food system" (CDI5).*

A process related goal, which was addressed by academics in FOSTER, was a desire to learn about doing **TD work** (AAP1, AAP5). For them, the process goal was central in FOSTER. They were interested in it because they already were asking related questions in their work about *"democratisation of science and to open up for parties outside of science"* (AAP1).

Project language: food system transformation

Questions about what needs to change in the current food system resulted into responses with umbrella terms as 'sustainability', 'people, planet, profit' and 'food quality and security', 'justice', 'improving food environments', and 'holistic perspective'. Hence, people seemed to agree that the food system needs to become more sustainable, that there should be enough food

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for everyone, of good quality and healthy (AAP1, AAP2, CDI1, CDI3, CDI4, AP2, AP3). Another aspect that was frequently addressed was the unequal distribution of power in the food system. Interviewees mentioned the lack of inclusivity and democratisation and stressed the need for social justice in access to food and livelihood improvements for those working in the food system (AAP1, AAP2, CDI4, CDI5, AP3). AAP1 and AAP2 argued that there would be an important role to play for politics and policy because they can mediate power relations. CDI3 added *"we need to challenge those in a position of power because they are dominating the food system, also in terms of knowledge and innovation development. And a dominance of certain actors creates a dominant type of policies and outcomes that are produced"* (CDI3). It was difficult to identify what interviewees meant by 'transformation', such as which structures and behaviours would have to change locally and globally and how this would be brought into practice. Some interviewees mentioned that changes would come from many different actors, and a wide range of solutions would be embraced to arrive at integral and locally embedded approaches (AP3, CDI2, CDI3). *"Many different flowers [innovations/solutions] need to flourish. There are many ways to reach a sustainable and new balance in the food system"* (AP3). Although these comments indicate a value for diversity, they **do not discuss the political dimension** of transforming food systems, that is, how the diversity should be navigated and negotiated.

Role of academia and CDIs in transformation

Academics reflected on how they perceive their role, or the role of academia, in engaging with food system transformation. AAP2 and AAP3 argued that it was not their role to *"do the transformation process but rather facilitate it"* and to *"inform practice"*. For AAP7, it was about helping people to better understand what food system transformation can mean, to learn to deal with the complexity of food system transformation. AP3 and AAP1 reflected that academia is good at analysing problems and developing tools to do so, but that they need to change their role from 'injecting knowledge' towards really listening and participating with practice to actively work on the solutions and system transformation they propose. This means making space for other types of knowledge and expertise, and valuing them equally. *"We do research on transition processes without really participating in them. [...] We [academics] find ourselves so important in our own research. Our hypothesis, our research method, our impact factor. [...]. Whereas I find it is such an enriching experience not to be in a leading position [refers to other projects]."* (AAP1). Similarly, AAP5 took a critical perspective towards how the academic system hampered TD work that they desire to do: *"[...] by this needing to publish, job insecurity, not really having long-term perspectives, just the hierarchical structure of it, quantifying everything, the way that funding structures don't make space for transdisciplinarity, how only academic output is valued, how teaching is also not valued enough and all of these kind of many things."* (AAP5).

The role of academia was further discussed regarding how academia could engage with normative discussions and advocacy, especially in relation to practice, where advocacy is more common. Tensions about this were sometimes experienced in FOSTER. For AAP2 and AAP7, there are risks in engaging too much with advocacy; this would put the objectivity of science at risk. AAP7 argued that for some CDIs, this advocacy role made them less open to other directions of change. In addition, AAP2 found it difficult to collaborate with such consortium members because they would have a particular 'agenda' or actions in mind, which did not always align with the interests of the academics: *"They are simply activists. [...] And even in the project team or the consortium, there are some who are just 'I want to do that instead of just think ahead and think about the consequences'."* (AAP2). AAP2 explains this opinion of activists

as people who are 'anti' all kinds of different things, instead of trying to bring about positive change and acting differently to change the system. Taking normative stances was sometimes made equivalent to advocacy and rigidity in opinions.

On the other end of the spectrum, academics recognised a need to engage with normative dimensions of research. AAP1 argued: *"Academia is good at saying that things are urgent, that there are problems that need to be tackled: the problem analysis. However, we then do not dare to engage with normative discussions to choose or prioritise solutions. Then we need to say we choose this, and not that. For academics this is way more difficult."* (AAP1). AAP5 added that for them normativity does not only occur when developing solutions, but also in problem analyses, there are normative dimensions which should be recognised: *"Because to me, the normativity and sustainability in the food system applied to the agri-food system as that the current system is dysfunctional. [...] And even that diagnosis, many colleagues don't agree with because they think maybe, yes, things can be improved. But the level of dysfunctionality that they diagnose in the current system is much smaller compared to what I would diagnose."* (AAP5). For CDIs, the normative dimension is much more embedded in their day-to-day work; they diagnosed a problem in the food system and started their organisation to solve the issue. As CDI2 phrases it: *"To be honest, I haven't been able to find anything else that's more worth my time. And I stay, and the people stay for some reason. So, there are elements of really believing in the possibility of this dream of having this utopian transformation"* (CDI2).

Thus, especially among academics, there are different interpretations and ideas about what the role of academia is in food system transformation, and to what extent academia should engage with normative questions. There is debate over what the role should be of academia, in which multiple forms of 'power over' can be at play. The language or discourse varies between 'academic neutrality' and 'knowledge producer and/or facilitator' to 'participating in transformation' and 'needing to engage with normative dimensions'. These are both defended and opposed. In relation to which roles and relations were experienced in FOSTER, there is a dominant discourse that of the former, and the latter ideas are mainly forms of resistance to the status quo, indicating that there is normative power present. Structural power is also present in which, due to the dominant discourse, the presence of or active debate to discuss alternative roles for academia are constrained.

5.2.3 Structural conditions

Practical issues

One of the main practical issues is related to capacity in terms of funding, hours, availability of people, and personnel changes: *"I think that quite some of the frictions that I see are also due to capacity problems. So just that if we had more time for things, we could also solve these things in a way that everyone is happier with"* (AAP5). This experience of AAP5 refers to the limited capacity in their organisation as well as what they perceived in FOSTER as a whole. The moments that there was more capacity, they tried to join forces (indicating 'power with'), and it went well, but often they did not have the capacity to continue it (AAP5). AAP2 confirmed this and related the changes in people, at both the CDIs and the research institutions, to the long duration of the project. A few interviewees mentioned that due to not being engaged in FOSTER from the beginning, they found some questions a bit difficult to answer. Partly because they were not there and could not share their experiences about the process, and because they were still catching up on earlier activities (AP2, CDI3). This indicates that loss of knowledge and expertise

occurs due to personnel changes. The capacity problems also affected WP collaborations and caused some friction over the years. AAP2 argued that not all partners in the project met the agreements of the collaboration which were made in the beginning. Therefore, the AAP's work and activities were constrained. A lack of capacity can thus mean a lack of resources to mobilise ('power to') for these consortium members, because they have reduced capacities to achieve their goals in FOSTER.

Another practical issue that influenced the collaborative process was the physical distance between consortium members (AP3 and AAP7). *"I think that is also missing. Just the interactions between people. Seeing each other in person, interactions, and building relationships is different than doing this via online meetings. [...] Times are changing to more online work, and that also creates more distance in multiple ways"* (AP3). AAP7 experienced a similar challenge when trying to reach out to CDIs to gather their input. Because CDIs are not in the same location as their WP team, it is always more difficult to get people engaged than when you can meet in person and see each other frequently (AAP7). These are examples of practical challenges that can affect the collaborative attitude of people, and thus roles and relations, in the project.

Budget allocation

Consortium members recognised differences in funding between consortium members and, in particular, a large gap between CDIs and academic institutions in the project. An AP stated: *"to be honest, the money they gave us, for us, it is okay. Because we are not [refers to a CDI]. They [CDI] get so little money, and they've been working so much."* (AP1). A similar sentiment was expressed by an AAP when reflecting on the work and activities that they perform in FOSTER for the CDIs: *"The big thing that they [CDIs] all know is that we [academics] are paid to do this because it's our job and they are not. They're all there basically in their voluntary time."* (AAP7). CDIs, however, did not mention this specifically besides as a motivation to join FOSTER (CDI1, CDI2, CDI4).

The difference in hours and budget between the CDIs and the academics was mentioned as an explanation for the CDIs having less influence on the content of FOSTER: *"we must be realistic. CDIs have little PM [person month] in this project. Therefore, they have little opportunity to be part of discussion on the content of the project."* (AAP4). The decisions on the budget and available hours per organisation in FOSTER were described as an interplay between the funding body (EU Horizon) and the members of the steering group who wrote the proposal (AAP4, AAP1, AAP3). AAP1 and AAP3 described how all partners were asked how many staff hours they had available for the project, and then it was calculated who would get which amount. This resulted in much of the budget ending up at the academic institutions. AAP3 justified this process by arguing that, because FOSTER is a Research & Innovation Action, research is a central component and thus, for budget allocation: *"I mean, it's not that an initiative is not allowed to get more money. I mean it is a question of what they are doing in the project. And as we must write scientific papers and stuff, I mean, there is more budget, higher personnel resources on the research performers and universities compared to the initiatives"* (AAP3).

The budget allocation introduces an additional influential actor: the funding body. The funding body is exercising resource and structural power by being responsible for deciding over budget allocation among consortium members and affecting the 'power to' of consortium members. Funding distribution further influences how consortium members relate and rationalise their roles and relations through the project requirements determined in the project call. Academics

were predominantly responsible for writing the proposal because of their experience and expertise in working with EU project structures (resource power). Thus, receiving funding is a form of empowerment to all consortium members, but simultaneously generates power differentials and dependency relations between consortium members and the funding body. This process is normalised as it being part of any EU (research) project that academics receive a bit more budget because 'research costs more money to do' and 'this is what the EU wants us to do', which could be a form of normative power in which conflict becomes latent.

Politics of research

AP1 experienced that now that they have done more European projects, they start to better understand the dynamics between research institutions and practitioners, and therefore what they need to do to get the funding. This indicates that working in an EU project has a political character, in which different rules and roles are predetermined. In addition, CDI3 would really like to share their knowledge and expertise, but they argue: *"But we are never asked to do this. I also don't think that that is a question that is asked to FOSTER by the European Commission or the European whatsoever. So that is a bit of a point of tension, I think."* (CDI3). The degree to which CDIs can reach their goals and share their expertise to change the KIS is hampered by the requirements of the funding body (structural power). AAP4 added that how funding is organised, creates a political process: *"Research has become unbelievable competitive also from the financial point of view if you want to do your own research you have to find your money [...] as a senior researcher you are not supposed to do research anymore, but to find the money for the research, I mean, you become more or less a politician than a researcher. [...] In my opinion, it is completely wrong. And this is diminishing the quality of the research"* (AAP4). The finding shows that some consortium members resist the idea that competition is 'normal' ('power to') and try to exercise resource and structural power to resist how money is distributed and incentivising changing attitudes from competition to collaboration. Nevertheless, competition and politics to receive funding is the status quo in the wider context, indicating that normative power prevails in project structures.

Within FOSTER, consortium members mention that they experienced similar 'political games' in determining roles and activities in the project. AAP2 mentioned that they believed that, especially in the beginning of FOSTER, *"we were often kicked out of this game [engaging with CDIs], and there was not good management of the whole stuff."* (AAP2). There is a certain degree of protectionism about what every work package should do and is responsible for, and who should get what amount of budget for research activities. AAP4 called it 'politics of research'. When asking them what that meant in FOSTER, they believed that many academics have become very protective about their research interest and want to ensure that these are met because their department has received money for it. *"This is obviously understandable. But you cannot imagine some furious arguments that happened in the past among scholars."* (AAP4). This creates an atmosphere of competition rather than collaboration. In FOSTER, the competition amongst WPs was identified by the project officers from the EU. They urged the consortium to improve collaborations between WPs (AAP4). Eventually, this has led in an improvement in the collaboration between some work packages but not for all (AAP1, AAP4, AAP5). Here, the funding body exercised resource power over the consortium members because it could set the requirements that the consortium needs to adhere to.

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5.3   Collaboration interactions

This section starts with the positive experiences that consortium members shared in how they felt about other consortium members or the collaborative work that went well, which identifies where 'power with' occurs in FOSTER (5.3.1). It is followed by a section about how academics and CDIs experience that they have different needs and ways of working in the collaboration (5.3.2). These are not equally represented in the collaborative process, in which some consortium members' needs and ways of working are prioritised over or receive more space than others. Furthermore, the consortium members experience that there are 'two different worlds' (academia and practice) that cannot really meet or do not know how to meet in FOSTER. Therefore, co-creation is argued to be lacking or absent. These dynamics are explored in the section about what the collaboration then looks like in FOSTER, for example, agenda setting, who needs to adjust, and who decides about terminology (5.3.3).

5.3.1   Positive experiences

Overall, consortium members shared a positive sentiment when talking about each other. They find **everyone generally nice**, and that this already helps a lot in making the project a pleasant experience (AAP4, AAP7, AP1, AP3, CDI2, CDI3, CDI4). However, the positive sentiment sometimes felt like a way to make some of the critique that interviewees had on the project and the collaboration more 'palatable' or as a strategy not to sound too negative. For example, AP1 shared: *"So as a summary, it is really exciting, however, it doesn't really help us on a daily basis, but you know we met nice people."* And CDI2 discussed that it is of great value that people are friendly and have good intentions in FOSTER: "*to be honest, the elements of having nice people, people willing to do something good, although limitations exist in visions and perspectives, and the goal is so complex and abstract, the people are nice and I really think this is very important in a project."* (CDI2). Further, multiple interviewees said that they did not experience differences in contributions between consortium members of FOSTER (AAP6, AP2, CDI5). To illustrate, AAP6 expressed they were very satisfied with the project: *"But within the project I didn't have any negative experiences of communication, of collaboration. I think all experiences can learn you something and, to me it's all positives still".* For these interviewees, when asking about what makes the project so positive, they did not really specify or give any examples, which made it difficult to understand the dynamics that were experienced as pleasant in FOSTER.

Consortium members experienced mostly positive dynamics with the **collaborations that existed before FOSTER started or that they worked most intensively with**. Then, people generally had a clear shared understanding of why it would be valuable for both parties to cooperate with each other (AAP4, CDI5). Generally, the 'triangle collaborations' between the AP, CDI, and an external partner or the internal collaborations in which people collaborate with their close colleagues in their own institute were valued most. In these 'internal collaborations', people are quite well aligned, they know what to expect, and they are regularly in contact with each other (AAP1, AAP5, AP3, CDI1). In the triangle collaborations consortium members seem to enjoy the way in which science and practice can meet on an equal level, and to integrate theoretical and practical approaches and explore how this can generate added value (AAP1, AP3). AAP5 describes it as: "*Of course, we are an academic institution and so our main tasks are mainly regarding research, and their [CDI] tasks are about implementing stuff [...]. And so, by teaming up with them [...] it's really nice how we can join forces and do both, like do research while changing things*.". In another triangle collaboration, a similar positive

experience was addressed by CDI3: "*In our case it is going well, and as far I can judge, I did not do all the projects myself, but the collaboration takes place at an equal level. The academics know something, we know something, and together we can make something more out of it" (CDI3).* These are examples of situations in which consortium members express how 'power with' occurs in FOSTER as people experience an equal collaboration and joint action.

Some interviewees mentioned that people have really grown towards a **better understanding of each other** and letting theory and practice meet with each other over the course of the project. CDI5 stated: "*I think now we understand each other much better, academia, I mean the universities, and us the CDIs. So, I think that's a good start for practical, you know, action to be taken in the future." (CDI5).* AAP2 hinted to this when talking about a session that they hosted in which both academics and CDIs had an active role and were co-creating. AP3 mentioned that they recognised a positive development in FOSTER during the last summer school: "*How the CDIs summarised and shared their insights, which was really good. I wouldn't be able to do the research better, you know. […] We really seem to understand each other in our communication now" (AP3).* These are experiences of people who have seen growth and improvements in the collaboration over time in FOSTER.

5.3.2 Different needs and practices between academia and practice

Conceptualising transformation versus doing it (theory-practice gap)
Because of the roles that the academics and CDIs have in the project, they have varying needs and tasks to fulfil. For academics, AAP1 describes: "*So it is our [academics] role to think about it and to really figure it out. It is brainwork, very conceptual. FOSTER is a very conceptual project" (AAP1).* The need of academics is related to understanding theories and seeing how these theories and concepts unfold in practice and then they can publish scientific articles about this. The CDIs perceived the academic research in FOSTER as labelling and categorising the CDIs according to a concept such as 'food system transformation', which were results that CDIs were not interested in. CDIs have more practical questions, want to increase their visibility, and wanted to get access to and make use of the KIS in their work (CDI4). The gap between what academics wants to and what the CDIs are interested in came up in multiple interviews. The academics want to use theories and categorise the work of the CDIs into concepts, and the CDIs who do not want to spend too much time on conceptualisations, because it is time-consuming and not useful for their activities (AP1, CDI3, CDI4, CDI5). When CDI4 reflected on the summer school they addressed that what is interesting for academics and how this did not meet their immediate interests*: "And it's like, OK, yes. It's always interesting to reflect on these things. But is it the most important thing now?" (CDI4).*

More specifically, AAP7 expressed that they were not sure if CDIs needed all the methodologies that FOSTER provides them: "*so it's a real problem, you know; it's [FOSTER] the most challenging project I've ever worked on because of everything I've been saying. I don't think it's bad or I should give up and all that sort of stuff, but it needs such a different approach than I have to offer" (AAP7).* This was a sentiment that was shared across CDIs. They liked the methodologies, "*they're interesting" (*CDI4) but most CDIs articulated that they will probably not really use them, or most of them, after FOSTER (CDI1, CDI3, CDI4, CDI5). Furthermore, CDIs addressed that they need to fill in questionnaires about meta-level interactions in FOSTER, in which they, as practitioners, were not really interested. This indicates a sentiment that not all activities in FOSTER are relevant to the CDIs. Another CDI shared: "*I wouldn't say this*

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[FOSTER] is all the time very useful for us. It is very theoretical, it is interesting, but these topics are revisited all the time, so this is not really what we would need" (CDI1).

Besides the challenge of dealing with diverse needs and interests, the way in which academics and CDIs talk about each other's work can create tensions. For CDI3, overcoming the academia-practice dichotomy *"starts with a better understanding of each other's worlds" (CDI3)*. However, during the interviews and at the summer school, it sometimes felt that both parties might not really want to see each other's needs, understand each other's life worlds, or do not try to see what an added value of theoretical and practical approaches to food system transformation could be, and if and how these approaches can join forces. AP1 gave an example of when they were invited to provide input for an activity, but in the end mainly had to listen to the decisions that the academics made, and their input was not heard: *"[person] does not want to know or doesn't like to be bothered with, you know, reality"* (AP1). Moreover, AP1 shared that the theories and methods they are being taught by AAPs do not align with their work: *"I can't tell you that I was getting anything other than, you know, the [academic] team was feeling that they would like to share, and it was interesting. However, I'm not going ever using it, I'm not planning to"* (AP1). Here, it becomes clear that academia and 'reality', practice, are seen as two different things that cannot really meet, and for CDIs, it feels that academics want to share expertise regardless of the needs of their 'audience'. From an academic perspective, AAP7 argued that FOSTER is largely about *"to improve our academic knowledge by better understanding of the non-academic knowledge. But I'm finding it hard to do that last bit. I mean, well, a lot of the ideas of the CDIs are not rocket science, if you know what I mean. They're very obvious things to do and they're being done effectively, and they've been done well. It doesn't need an academic analysis of that as such"* (AAP7). Here, it becomes clear that academics sometimes do not know what it means to better understand non-academic knowledge types. In addition, during a conversation at the summer school, an AAP critiqued a CDI for using a particular approach that is, according to them, not useful to work on transformation. In contrast, for the CDI this is a valuable and legitimate approach. CDI4 reflected on the gap and an inability to really understand each other as follows: *"And I can see when we meet with all the work packages that there is a huge distance between the academics and the CDIs. And that should not be like that. And they [academics] are trying because there are these learning papers. But if we don't create a space for co-creation, it doesn't work if you just say, what do you need? I don't need anything, you know? [...] We need to sit down together and reflect together. But the summer school seemed a bit like objects of research, like the CDIs were answering questions. But we were not reflecting together on common needs."* (CDI4). This shows a recognition that it takes a lot of time, space, and collaboration to develop a shared project vision, activities, and outcomes (i.e., the challenge to create situations of 'power with').

These examples illustrate if and how consortium members experience a gap between academia and practitioners. Often, the examples were more detailed explanations about how roles and relations, as discussed in Section 5.1 (Roles and relations), are enacted. Structural and normative power are exercised that limit the 'power to' of CDIs. Academics and CDIs both speak about 'us' and 'them' when talking about their own 'group' versus the other. This creates a dichotomy that leaves little space to observe nuances and variations among the consortium members within the collaboration. It does not recognise the varying opinions about the desired collaborative dynamics and how consortium members are exercising and experiencing them in practice. The dichotomy might further exacerbate an unbalanced dynamic between academics and CDIs in the project (normative power).

Timelines and pace of work

In a more practical sense, there was the challenge that timelines and the pace of work can be quite different between academics and practice. This is about different periods in the year when people are busy, and then there is a mismatch in availability for meetings or to work on the project (AP3). However, it is also about the pace of work and how work processes are organised. For example, writing the proposal follows an academic approach as a lot is about writing and going back and forth about language use, figures, and concepts (AAP1). The academic approach is slower-paced than how practitioners work. *"Working with [scientific] knowledge is difficult. It makes you slow. You need to substantiate everything, whereas sometimes you just want to act on your gut feeling. [to work fast] you should not knock on the door of academia." (AAP1)*. The idea that academia is much slower than practice was experienced by CDI3: *"This delaying factor can be quite frustrating. I fill in a form in fall 2024, and the results only come in spring 2025. When I filled in the form, I had a question, or a knowledge need that I shared, but when we received the follow-up, (a) I do not know anymore what I wrote down, and (b) probably it is already solved because I cannot wait so long."* (CDI3). In sum, it is about a difference in attempting to gather an attempt of a complete picture of a situation versus working with sufficient information to continue to the next step. Thus, there needs to be some mutual awareness about each other's agendas, the pace of work, and what can be delivered in a certain timeframe by every partner. The different timelines and work paces can thus influence if and how 'power with' can occur in the project.

Little use or understanding of CDIs' expertise

Some CDIs highlighted that their expertise was not incorporated into FOSTER. The work that academics do can be quite different from the CDIs' realities. For example, CDI2 argued for a need for other types of communication and for peer learning, which they have a lot of experience with. They continued: *"It is unfortunate that we couldn't have a more central role in trying to build a small communication system that is more distributed, for peer learning across the consortium."* (CDI2). In addition, CDI4 believed that they could have contributed a lot to how to generate a co-creative setting: *"I think if we had created the spaces, I could have helped them to design the process so it's not them, us [...] This means hosting different workshops with different stakeholders reflect on the problems that these CDIs are having now, integrate these problems, [...] reflect together on what research and innovation is needed for us. And that didn't happen in FOSTER."* (CDI4). CDI3 stated that they would have really liked to share more about their approach. There was an instance in which, due to a coincidence, others learned more about their approach. Together the CDI and an academic tried to create a formal space to host a session on this topic. But this turned out not to be possible. *"That really was an unpleasant process. Because I thought, finally there is bottom-up input [...] we are really happy with this approach and I really like to share our knowledge about it, but there is no space to do so."* (CDI3). This indicates a limited 'power to', but also how structural power is exercised by AAPs who determine which activities take place and when.

Sometimes an academic was surprised by the capacities of different CDIs: *"I learned a lot from the CDIs that if you give them a set of methodologies without linking them too much, without giving them pre-structures, they are really able to make use of that. And in very different ways. I think that was really a learning."* (AAP2). This implies an assumption that academic methodologies are complex, or practitioners are insufficiently skilled to use them (normative power), but that through FOSTER, they were challenged in this assumption by CDIs demonstrating their skills and capacities ('power to'). In other instances, academics felt a bit

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uncomfortable when they would give CDIs a more leading role and argued for the need for a clear purpose when CDIs would be leading activities, not only with the purpose 'changing roles' (AAP7). Thus, there is a certain degree of discomfort when stepping back and giving the CDIs more central space to organise or letting them do things independently. At the same time, there is a recognition that currently the approach still does not give the CDIs a lot of benefits. *"And even, you know, at project meetings, it's again and again the academics asking, OK, what do you do? And the CDI is again saying, we do this, and we do that, and then okay, yeah. The concepts that they're being taught. I'm not sure how useful they are for their daily work"* (AAP5).

Losing each other in conceptual language

Another aspect challenging the collaborative process is related to conceptual language. For academics, it is important to be specific about the terminology for scientific purposes. Moreover, it stems from the idea that to reach mutual understanding, you need to be clear about the definitions of the concepts used in the project. AAP7 summarised the challenge as follows: *"And you know, getting that sort of language stuff going. And I don't mean the challenge with the English language, the challenge with the concept language was what the different CDIs have a different ability, or interest, or acceptance of."* (AAP7). The notion of focusing on detailed interpretations of academic concepts through many elaborate discussions, also during summer schools, was perceived by CDIs as irrelevant to their interests (CDI1, CDI3). CDI3 shared that even though they found it important to be clear what you mean and to define what you are working on, for them, it is not too important to really think through all kinds of specific phrasings when defining concepts: *"the idea about what we want to transform the outcomes of the system. That was fine I think, quite nice. And we wanted to adapt the activities of the system. [sighs] and here we are again ending up at terminology. [...] Well, I don't think it really matters. At least, personally, I don't really mind what you call it; it is connected anyways."* (CDI3). A focus on activities that mainly meet the needs of a few consortium members is a product of how 'power over' and 'power to' are exercised to achieve the AAPs' goals.

Even if the same terms are used, it does not mean that everyone understands what they mean. CDI3 provided an example of the term AKIS: *"And the whole time they [academics] were talking about AKIS, and I did not know anything about this [...]. We took 1.5 years to find out that we spoke about the same word, but with two very different interpretations. And it took a long time until we found out.".* Later in the interview, the CDI recognised that they could have brought it up earlier to check whether their interpretation of AKIS was matching those of the academics, and to ask clarifying questions. Important to note in this instance, the EU has defined what AKIS is as part of the Common Agricultural Policy. Thus, within the scope of the project it is important to understand this definition. Hence, it is recognised that there is a shared responsibility to know whether people are understanding concepts and their definition in the same way.

5.3.3   What collaboration looks like in FOSTER

Academics dominating agenda-setting

At the summer school, consortium members reflected anonymously that they would have liked to see more interactive sessions and more exchanges among different project partners, because people like to be engaged and not to be 'forced' in a listening role. However, agenda-setting and the design of the group meetings are generally done by academics (structural power, 'power

over'). CDI3 stated about the summer school: *"Well, the agenda is of course not determined by the CDIs... We all had to give a presentation or host a session about a particular topic, but we did not choose these topics."* (CDI3). And when asking for some clarifications about this, they added*: "[...] it is a bit the teacher who decides what the homework will be for the pupils. Right? I mean, a bit, at least."* (CDI3). CDI3 did not experience a lot of freedom or the space to bring in their own topics; the agenda was already pre-determined by academics.

For AP1, CDI3, and CDI4, there is an issue that some of their interests are simply not prioritised on the agenda, and they could not influence it, indicating limited 'power to'. CDI3 said: *"I would really like to exchange knowledge with another CDI. We discovered that we have knowledge that they are interested in. [...] And then if we could organise a session, we could also invite an academic to this process to evaluate it, for example, to analyse what type of knowledge is shared. Because that is different from the traditional knowledge shared in AKIS. But now it [FOSTER] is still very top-down, people do not really listen to our knowledge needs."* (CDI3). Further, AP1 argued that based on the position that they and CDIs have in the project, they would find it strange if they were asked to set the agenda, which is not what the relationship between them and academics is. CDIs are being studied; thus, they are not determining the direction or coordination of the project (AP1), which can be an expression of how normative power influences the dominant CDI-academic relations in FOSTER. CDI4 added that it is not only being allowed and enabled to influence the agenda ('power to'). Moreover, how and when this is asked is what makes it difficult for CDIs to become part of it (CDI4), which is illustrative for different ways in which structural power can be enacted. For example, when academics gather input, consortium members usually receive an email and CDI4 expressed: *"the problem is that they [academics] tried, because they send us an email to say: 'What are your needs?'. But with an email... Maybe with a conversation, like the one we are having now, reflecting, then these things come up, but you are in the middle of a lot of work and it's like: 'oh pff, I don't know, what are my needs?', you know."* (CDI4).

Needing to adjust to the academic context

Mostly CDIs feel the need to adapt to the conceptual academic language on food system transformation in FOSTER. Academics framed this as 'growth' (AAP2, AP3). AP1 gave an example that they observed at the summer school: *"And yesterday, [academic] was saying, you know, that, oh, the CDI has been really, they didn't really understand, but in the three years, they've been like this [makes a movement with arms of steep growth]. Because all the CDIs learned how to behave."* (AP1). They further shared in the interview: *"[Refers to one CDI] are the best, I tell you. They know all the passwords, how to talk and react, and they are extremely enthusiastic."* (AP1). The quotes reflect the experience that CDIs need learn how to **fit into an academic mall**, and if they do so, they are recognised and valued by the academics. A confirmation of this sentiment was given by AAP2: *"they [CDIs] really started to be ready to make use of some methodologies or knowledge coming from others, and that they know where to find that"*. Such observations, about the incorporation of theories and methods by the CDIs, were not expressed by CDIs themselves. The notion that academics had to learn about such methodologies was not made. CDIs seem to be appreciated when they express themselves in an academic manner and adjust to the academic context. However, people did not always feel comfortable, as they believed they needed to use academic language. AP1 expressed: *"maybe I'm not the best person to interview."* and referred to someone from their organisation that had a more academic background *"they should have been here because they have, you know, a dual... face or mind or whatever, she is partly this type. They are doing not only the research*

but is also doing the practice." (AP1). AAP7 referred to feedback that they received from the CDIs: *"A lot of the feedback from the CDIs was saying that, you know, we can't expect these academics to, you get us to do everything they want us to do sort of thing, you know, and because they're not used to working in that sort of environment and feel threatened and all the rest of it."* (AAP7). In short, if doing collaborative research with academics means that CDIs must work like academics, CDIs do not want to do the research. Adding to that, some CDIs have negative associations with it, such as research being too difficult for them, or it makes them feel uncomfortable. These ideas perpetuate dominant relations between academia and practice, indicating the presence of normative power.

The ownership over terminology was made explicit by AAP4: *"In the specific case of FOSTER, there were researchers who, in some way, told us what citizen science is. According to FOSTER, you know, because since then they say, come on, we should change this, we should change that. [...] this is typical academic, I mean, universities are made like this. There are reasons they are made like this, good reasons, I would say. But it was the same process of changing, you know, we have the CDIs, but there are no citizens in the CDIs. What's the problem? Let's change from citizen to change-driven, you know, and the CDIs will be there [in FOSTER]"* (AAP4). Thus, academics could decide which terms were used with which interpretations, and adjust them when the initial definition did not work out in practice. This resides on the idea that academics have a better understanding of certain concepts and can decide what the right or wrong interpretation is. In this case, normative power and resource power are present. Normalising what is acceptable language and relations has consequences for how academics can use their expertise to define concepts (resource power) or if this should be a shared activity ('power with'). This was indirectly addressed by AAP7: *"Well, I mean, up to a point, you know, I had several long conversations with [CDI]. Whether they left those conversations having said to themselves, oh, I see what [AAP7] is getting at, or whether they left those conversations saying to themselves [AAP7] is quite wrong. I don't know, but I fear it's the latter, because [CDI] is very entrenched in their view."* (AAP7). CDIs might be entrenched in their views; a similar argument could be made for academics who are convinced that they carry the expertise and knowledge that the CDIs need to adopt. AAP5 further unpacked this argument and connected it to belief systems and what is believed to be valuable knowledge, hinting that normative power is exercised: *"So I think it's really that in the heads of a lot of academics, even the ones who are participating in transdisciplinary projects, because they were trained that way for decades, often. So, it's still that strongly in there, even if they say yes, transdisciplinarity is great. But in their head and in their hearts is still this belief that academic knowledge is the only true knowledge, that academics are wise and have the expertise, and they need to teach and tell everyone outside there the truth about the world."* (AAP5).

How to perform collaborative research
Interviewees shared reflections on how academics and practitioners had different approaches and interpretations of doing research and that these were misaligned and not combined or integrated, limiting the ability to a create collaborative (TD) research process. CDI3 referred to the different approaches to conducting research and addressing knowledge gaps that they (practice) have compared to how academics would approach it. When they asked researchers to provide feedback on research they conducted, they received all kinds of methodological questions, such as: 'have you transcribed it, or did you code the interviews?'. *"I know that when you want to do research, it takes time if you want to do it properly, thoroughly. Thoroughness is necessary because there is a goal to write research articles. But it takes a long time [...] I*

understand that. But on the other side, academics need to understand that the questions that we have… well that it is actually quite difficult. To come up with questions that do not need an immediate answer but can be researched" (CDI3). For AAP7, there is a difference between what consortium members can understand in terms of doing research, methods, and theories. When asking about whether there was sufficient clarity about what the project is about and whether there is a shared agreement, they stated: *"the academics understand what I'm banging all about because they understand not only the language but also the delivery method. They're used to it. So, has it landed with the non-academics? Not so well."* (AAP7). This reflects a recognition that there are differences in approaches and methods that academics and CDIs use in their work and that there is little exchange between them in FOSTER. For AAP2, this meant: *"You have to filter information and knowledge quite carefully before you work with the ground, I would say. Because these people do not, it's not that they do not understand you, but it's completely not useful for them sometimes. And this kind of unfiltered knowledge often leads to resistance. 'This is academic knowledge. We don't want that.' In fact, it could be quite relevant for them, but it needs to be packaged in a way that makes it interesting for them. And that worked quite well with some of the CDIs." (AAP2).* The academic argues that the knowledge is not per se useful for practice, but the issue is the way in which it is communicated with practice.

The 'how' of doing collaborative research was identified as a challenge in FOSTER. CDI4 shared: *"It's not co-creation. I mean, there is validation by us, but not co-creation. They create the deliverable, and then we validate it. And we give them the data, and the work is going from one table to the other, but we are not creating it together. And that makes a difference if you want to get a good result."* (CDI4) and *"these needs were identified by CDIs alone, so that the knowledge of them was not integrated there"*. This refers to a moment when the CDIs were asked for input, but the academics were only listening and observing, which is again no co-creation but data collection. In an ideal situation, AAP4 stated that with co-production, *"all the participants will have to bring their knowledge. [...] not only their opinions but their knowledge to the table. Then, their knowledge will challenge the knowledge of the scholars"* (AAP4). Such processes should be navigated through open communication practices (CDI5, AP3). AP3 shared: *"You exchange and communicate a lot. [...] I mean, everyone is changing or needs to change. And then you need to ask questions about how you view each other and what you want or desire to get out of a collaboration."* (AP3).

These experiences of collaboration interactions in FOSTER point out a relation between normative power and other types of power. There is a prevailing norm that, in its current form, academic research cannot and does not meet with practice (normative power). Subsequently, consortium members who fit best in the frame of who can produce knowledge, or how you should adjust to the academic frame, can also best mobilise resources to attain their individual ends ('power to'). In terms of 'power with', there are few indications for shared knowledge generation, as the focus is on validation rather than co-creation between academics and CDIs. Even though some CDIs do see potential for their skillsets to be better used in the collaboration, there is little space for them to do so (lacking 'power to'), and they are constrained through structural power exercised by AAPs.

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5.4 Outcomes: impact and lessons learned

When asking about what outcomes FOSTER is generating, when it would be a success to the interviewees, or what lessons they had learned, interviewees often found it challenging to answer such questions. This section starts with how consortium members reflect of the impact of FOSTER and the relevance of the products that are delivered in FOSTER (5.4.1). This is followed by a discussion of aspects that interviewees argued were causing a lack of impact generation and relevance for them (5.4.2) and lastly reflections about whether and how individual and collective learning took place within FOSTER (5.4.3).

5.4.1 Impact generation and outputs

Impact of the project

Consortium members shared that **the relationships** built over the duration of the project were important impacts. CDIs and academics recognised that they were all working on generating a different future and positive change, and through FOSTER, they established or deepened their connection with each other or other actors in the food system, forming a basis for future collaborations (AAP1, AAP2, AAP3, AAP4, AP3, CDI1, CDI2, CDI4, CDI5). These outcomes related to relations and network generations are an example of 'power with'.

The project will finish in 2026, so at the time of writing, there is still one year to completion. AP2 shared positive expectations about the impact of FOSTER: *"And I think that it will bring very good positive outcomes at the end of the project. And we already achieved a lot of amazing outcomes, and it will go in that direction, definitely."* (AP2). However, generally, the expected impact was perceived as quite **uncertain or unclear** (AAP5, AAP7). This was often related to experiencing difficulties of grasping the content, especially the concept of KIS (AAP1, AAP6, AAP7, CDI2, CDI3, CDI5) or the lack of clarity on the content in general that is studied in FOSTER (AP3). For AAP5, this was the case because of the structure: *"But the reality is, I think that that was pretty much clear from the start that it [FOSTER] won't achieve these ambitions, an EU project can't achieve these ambitions. So, I don't have that many expectations there in terms of it really."* (AAP5). For CDI3, this had to do with the larger goal, to change the European AKIS to a FOKIS, which was too vague to them in terms of who they would be targeting and would have to change; that was something that they did not know (CID3). Others hinted that any goals related to transformation would not be achieved due to the complexity and uncertainty of transformations (AAP5, AAP6, CDI1, CDI2). CDI1 expressed: *"I think FOSTER is for sure contributing to this transformation because it's about transformation. I would be cautious, not overestimate our impact […] it's very hard to predict how we can influence the food system, but we can start working on making an impact."* (CDI1). Consortium members did hope that FOSTER could be meaningful in transforming people's mindsets and beliefs within and beyond the consortium. If this would continue after the project ended, it could create space for larger changes (CDI2, AAP5, AAP6). AP1 shared: *"There are so many people with so many interests, so the success is already that the money is paid. [laughs]. […] It is very difficult to tell you whether FOSTER can really be influential or successful."* (AP1). These different interests became clear when consortium members shared what they were happy with or would like to see as an outcome. Then they started describing outputs related to their expertise and thus the topics of the WPs (AAP1, AAP7, AAP6) or the daily activities of the CDIs (AP1, CDI1, CDI3, CDI5) and not related to the goals of AKIS to FOKIS or inclusivity and TD work.

Impact and relevance of the products

The responsibility for delivering the tangible outputs (such as deliverables) lies with the AAPs. The requirements for them are set by the funding scheme, which means doing research and drafting reports. AAP3 explained this as one of the reasons why research and practice are not always well aligned: *"Whatever they do as CDI, that's not what the research is about and that is not what's the commission expects. And that's always, yeah, I think that is something what you always must keep in mind if you work on such a project"* (AAP3). During the summer school, the issue of who is responsible for deliverables (learning papers that were less 'academic') sparked discussion. CDI3 argued: *"If learning papers are really practical, then we are willing to contribute. But no fuzzing over methodological issues or if we have to read through all the academic procedures"* (CDI3). CDI4 made a similar point in which they did see the purpose of writing a paper with academics, to reflect and write down learnings that are relevant to them. Unfortunately, they discovered that the current paper drafts were still very theoretical and therefore irrelevant to them. In general, the project deliverables were perceived as not really in the interest of the CDIs, at least not in the way that they are written now. AP1 shared: *"I was opening this policy recommendation document, 134 pages. [swears] I have no time, I have no capacity, I have no mind, and I have no intention. [...] Why 130 pages? I'm not reading it."* (AP1). With such concerns, practitioners ignore some project outputs because they are not useful to them ('power to'). They argue that academics perform work that is too distanced from the CDIs' work, which reinforces a prevailing norm (normative power) about what research entails, 'too theoretical', as there is no clear resistance to changing this norm.

Besides the notion by CDIs that the type of reports is not in the interest of everyone, AAPs did recognise that the impact of the products that the project requires to deliver might not really bring about system transformation. Generating more knowledge is ideally a contribution to generating momentum for a larger transformation to take place, but the written papers, either a deliverable or a scientific paper were not described as impactful (AAP2, AAP3, AAP4, CDI3). Even though some AAPs shared concerns about the limited impact of the outputs, they do it because they are requested by the funding body to do so. This shows that the funding body influences the outcomes and impact that the project can deliver through resource power. ('power over').

5.4.2 Barriers to making an impact

A common concern related to the outcomes and impact was the integration of the work that had been done so far, and making it coherent and relevant to consortium members and beyond. *"It is very often the case in these work packages, each work package is written by a particular specialist who is really interested in doing their stuff. And they sort of can begin to fire off and do their stuff"* (AAP7). Of course, there is independent work, and academics can make use of their expertise, but it should be connected. AAP6 shared *"it's the work in the work packages which is all interconnected. It's not like we should work separately in our work packages. [...] So, it is very important, and it is important to find a way to make it collaborative."* (AAP6). For AAP5, this had been a challenge: *"it's really difficult to achieve this coordination between the work packages, because the working packages often are working quite just independently on their tasks"* (AAP5).

During the summer school, multiple people wished for more mixing and integration of the work of CDIs, APs, and other academics. During the interviews, researchers brought in a desire for better collaborations between WPs: *"I miss coherence also to how our work package relates*

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to other work packages because I think their work is also very relevant to us. But it is not coordinated [...] I would really like to connect our work to other work of academics and CDIs, especially at a local level, and that is just not working out now" (AAP1). CDI4 mentioned the lack of integration among academic and practitioner work*: "because there is so much freedom, it's like they [academics] are going in one direction, and the CDIs are going in another direction and sometimes they observe us."* (CDI4). AP3 recognised something similar when comparing FOSTER with their experiences from other European projects and concluded that they really missed the coherence in FOSTER, for example, through having clear but collectively developed roles and responsibilities (AP3).

For academics, outputs like scientific papers are of relevance to their work (AAP3, AAP7), and the collaboration with practice would increase their legitimacy due to a better understanding of practice (AAP1). These are examples of how FOSTER can empower academic consortium members ('power to'). Although for AAP5 it was a project in which they struggled to find their role and do the type of academic work that they desire to do: *"it's so crazy, just so many partners. You can't really do useful work there. [...] For a long time, I was kind of, where is the research in FOSTER? Like we've been working on the project for almost three years now, and we're just working on completing tasks and writing deliverables."* (AAP5). Academics shared concerns that reaching sufficient scientific generalisability, drawing up conclusions and recommendations that are academically sound, will be a challenging process (AAP1, AAP2, AP3). AAP1 argued: *"You don't want to say that you do a project of 6 million euros to keep six CDIs alive. You know, that is, we cannot do that. No, it needs to be a concept realisation about the type of interactions around these types of organisations"* (AAP1). AP3 expressed it was sometimes difficult to balance the direct needs and wishes from the CDIs and the bigger picture of producing knowledge to change the KIS: *"I mean, we have six CDIs, that is not a lot to gather information from. I mean, we should also consider other aspects beyond their interests"* (AP3). These concerns highlight a tension between individual and collective interests, and academic versus practice interests for the project outcomes. This does not mean that the CDIs' interests or concerns should not be incorporated, but that the AP wanted to incorporate more and diverse perspectives in the project deliverables. Overall, concerns related to integration and generalisability of the results might be an indication that, because the coherence between CDIs is not always clear, academics have not mobilised their resources (yet) to achieve the type of results they wish to achieve ('power to').

5.4.3   Individual and collective learning

Absence of a mutual learning process
Getting to a shared or mutual learning process is experienced as quite a tough process, and there are **different ideas and expectations about who should learn about what in FOSTER**. Such ideas are related to assumptions about roles and positions in the project shape how structural and normative power are enacted. The roles create relations in which one-way learning is dominant and uphold ideas about what consortium members could learn from. For example, AAP4 critiqued the way in which activities were framed in FOSTER and the language that was used for it that it would hamper mutual learning: *"[...] so when you start with the wrong naming you know words are quite important it is difficult to... 'okay let's invite the people to the summer school.' But 'Why should I go to school?'"* (AAP4). In addition, they shared an experience that in the beginning of FOSTER: *"initially there was a group of people named the knowledge partners, and we had [...] big discussions about it. How can you work*

together with people that are supposed to participate if you are the knowledge partner, who are they then?" (AAP4). Similarly, AAP5 argued that for them it had been challenging to bring across the message*, "it was a huge point of disagreement",* that it is not the CDIs who are the ones that need to learn from the academics, but that FOSTER should *create "learning spaces for everyone in the project, also for the academics."* (AAP5). These examples indicate how academics did resist dominant roles and relations ('power to') and tried to make changes in the project through opening discussions in which academics could exercise resource power over each other. Similarly, CDI3 expressed this as a challenge. For them, sometimes some academics had an 'air' over them *"we have developed these theories, we know how it works, and you [CDIs] have something to learn from us and the other way around learning does not take place"* (CDI3). Further, AP3 experienced that when discussions took place, they would mostly 'scratch the surface' of the issue. In this process, they observed that this created: *"a distance between different participants, with academics teaching and the rest who needs to listen"* (AP3), which underpins the sentiment that mutual learning, especially a learning attitude from the academic side, is lacking.

CDIs expressed as a wish for mutual learning among CDIs (CDI3, CDI4, CDI5), but this is not facilitated or evaluated to determine whether learning needs match the expertise of consortium members in the project. CDI3 argued *"it is not actively asked what we would like to learn from other CDIs. I could come up with a few ideas what I could share or offer to other partners, but I cannot really guess if the other parties want or need this."* (CDI3). They further expressed that the focus is so much on the idea that everyone should learn from each other, but then you really need to search for it when it does not happen spontaneously *"and then I think, maybe we should just leave it and not be forced to 'learn'."* Alternatively, CDI3 expressed that this process could be facilitated by academics, which points out a suggestion for how 'power with' could occur. *"Academics could play a role in this. 'I see that this club [CDI] is struggling with that, and we see that they [other CDI] found an answer to this. You need to exchange with each other on this topic, because there you can learn from each other'."* (CDI3).

The idea that FOSTER should generate mutual learning but that this has not been very effective yet is recognised by academics who provided less critique to the academic system during the interviews. Explanations for what made it difficult to learn, were often dependent on ideas about who carries knowledge, who should to something with the knowledge and who coordinates processes and what the purpose and value of academic research can be for CDIs. AAP7 found it difficult to get to mutual learning and knowledge co-production. *"I kept trying to make the point it's two-way learning. It's also the academic approach learning from the non-academic approach [...] but the answer is: not a lot."* (AAP7). AAP2 found this aspect difficult when they tried to co-create and work with the CDIs. *"Then we noticed it is quite complicated to tell them and that the CDIs then tell [academic* consortium member*] what to do makes no sense"* (AAP2). Challenging their own roles or changing roles and consequently learn from CDIs was not frequently observed or mentioned. Even though a wish for mutuality was stressed, it was difficult for AAPs to identify what mutual learning means for them because they still felt responsible for coordination or to do academic analyses. This is embedded in an idea that they are responsible for knowledge production and sharing in FOSTER (normative power).

Lessons learned

There was a variety of responses in what people said about what they had learned so far in FOSTER. Either interviewees argued that they *"learned a lot"* (AAP3) or *"I learned from all*

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project members" (AAP6) about food system transformation or perspectives beyond their scientific discipline. However, those interviewees did not specify what it was specifically what they learned, or a specific learning experience that they remembered. Others shared that they had a very difficult time to identify what they had learned or could learn from others: *"I find it very hard to know what I have learned"* (AAP7), *"No, I don't really know what I could learn from others"* (CDI3) as well as some concerns with the use of the word 'learning', then they desired to call it 'gaining insights', or 'trying to understand' (AP2, AAP7). Important to note is that the people who said that they did not learn a lot often added a more nuanced perspective to this. This can be interpreted as adhering to dominant norms and not wanting to challenge particular norms or practices in the project, which could be an outcome of normative power. Sometimes interviewees experienced that there were not a lot of opportunities (e.g., due to very few interactions, little common ground in their activities) to find out what people could learn from each other (CDI3). In other instances, it was because interviewees believed that their role was to share their expertise and therefore, they would not learn a lot about that (AAP7). At the same time, they argued that it was difficult to phrase their learnings because they found FOSTER a difficult project: *"I mean, what I have learned is I wouldn't have designed it like that. [...] I learnt about how difficult it is to impart a concept on a community that either doesn't need it or doesn't see the purpose of it"* (AAP7).

Regarding learnings on the collaborative process, AAPs expressed that they learned about the challenges of TD collaborations (AAP1, AAP5). AAP5 reflected that even though they were already aware that TD work requires a transformation in the academic system, they learned more about how deeply rooted the structures, cultures, belief systems, and values that are preventing and opposing TD work are, also in FOSTER (AAP5). AAP4 shared that it was difficult to make an impact and generate learnings in FOSTER due to a *"strong academic control"* on certain parts of the project. AAP1, however, experienced through FOSTER, they have been experimenting with a different role for science and saw value in *"opening the doors of science"*. *"We can confirm that it was not easy to collaborate, but that there are ways of working which can be beneficial for both parties. [...] an equal relation with other actors is good for us [academia]."* (AAP1). But they still want to better understand: *"how to organise an equal collaboration from which you both benefit. I don't know yet how you do this"* (AAP1). AAP7 argued that they do not have the appropriate skills to deal with the academic-CDI dynamics and that perhaps there is a misalignment with the project needs and their tasks in FOSTER (AAP7). They learned to recognise power in the collaboration and that it is present in the dynamics, even when it is not intentionally used. Even though they gained this awareness, they expressed not knowing what to do about it: *"if I know something, and you don't... How on earth do I express our relationship without saying, I know it, and you don't? [...] what would be disappointing is if the power relationship in the project has affected its delivery"* (AAP7).

Thus, most learnings were about food systems thinking and not really about the collaborative process or how FOSTER challenged the dominant KIS. This could be an indication that meeting individual interests is prevailing ('power to') instead of focusing on developing shared goals or exploring the ways in which consortium members could learn from each other and act jointly ('power with'). The few learnings that were related to the process are about an increased awareness about the challenges of TD collaborations, but the lack of personal skills or tools to overcome this within the project, and therefore the status quo is accepted.

Learning through feedback

Lessons learned are further about how **feedback** is incorporated in the project. AAP4 experienced in a couple of instances that feedback or agreements on changes were not incorporated. They thought that there was an agreement reached about a change in the project to improve the relation between academics and CDIs and make it more participatory (change in the language, more collaborative attitudes). However, these changes were not incorporated in future activities or other directions were pursued in which co-creation was still not taking place (AAP4). In addition, CDI3 had the idea that they regularly were asked for and provided feedback, but they were not told what would be done with the gathered feedback. They did think that people tried to listen, but then easily slipped back into old patterns, and then there is no accountability if behaviour is not changed (CDI3). AAP5 summarised these dynamics as*: "I think a lot of this feedback is not only coming from us, but also from others, the CDIs. So, for example, feedback is about more interactive formats and not these academics teaching to the CDI. It's being repeated and repeated, and I think there are small openings. [...] But it's also a lot of it is like fighting against windmills. So, it's like saying the same thing again and again and it not getting through."* (AAP5). These are examples of how consortium members attempt to 'resist' the status quo in FOSTER and can exercise 'power to'. However, the impact is limited as it has not generated the change they had wished to see. This points at the presence of structural power that constrains making an impact.

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5.5   Overview of power dimensions in FOSTER

Table 4 below gives an aggregated overview of how different dimensions of power are expressed in FOSTER, as presented in the previous sections of this chapter.

Table 4 *Aggregated overview of the power dimensions and how they are exercised in FOSTER.*

Dimension	Type	Exercised as...
Power over	**a. Resource power**	Academics can prioritise their interests and ways of working (e.g., language use, how research is performed) because of their assigned coordination role and experience in EU projects.
		Unequal distribution of resources (money, time, personnel) in benefit of academics.
		Funding body pays so consortium members need to adhere to their requirements.
		Practical work relations in which tasks are distributed based on available resources.
	b. Structural power	Academics responsible for agenda-setting, who to invite, priority-setting, needs/interest collection, which expertise to use, language/concepts/methods, incorporation of feedback.
		Funding body determines project requirements and therefore operating space of consortium members.
		Practitioners can decide what information they provide to academics.
	c. Normative power	Perception that a fair and equal process is taking place, no conflict.
		Perception that academia is neutral and/or advocacy hampers progress.
		Perception that academia is too difficult for practitioners.
		Perception that academic and practitioner approaches are too different and cannot directly feed into/understand each other.
		Perception that academics know how research should be done and what valid knowledge is and that CDIs need to adjust.
Power to	**a. Empowerment**	Academics enhance legitimacy through working with practice.
		An academic background helps to make best use of resources available in FOSTER.
		Individual interests are prioritised when resources are mobilised in the project (e.g., money, knowledge, 'data').
		Practitioners gain knowledge/experience in working with methodologies.
		Practitioners mobilise their expertise independent of academics.
	b. Resistance	Academics challenge each other on what their role is in the project (e.g., through resisting particular language use, lobbying for more participatory processes) and challenging the status quo of academic system.
		Consortium members challenge academic neutrality.
		Practitioners challenge academic language and approaches.
Power with	**a. Join action**	A shift in collaborative approach from competition to collaboration (between two WPs).
		The project contributes to relationship building which allows consortium members to extend their network for future partnerships.
		Triangle collaboration experienced as joining forces.
	b. Joint learning	Consortium members experienced that they learned to communicate with each other and improved their understandings of each other's contexts.

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"[When you publicly share your intention] you are both the student and the teacher. The answer lies within you, and somewhere along the way, you will feel that it is right, that these are the words that suit you."

Arthur Nieuwendijk, Verwacht geen applaus (p.115)

CHAPTER 6

Discussion

6   Discussion

In this thesis, the international TD co-production project FOSTER was analysed through a power lens. The main research question that this study aimed to answer was: *"How is power enacted and experienced in an (international) transdisciplinary co-production project on food system transformation?"*. Through participatory observations at the project's summer school and fifteen interviews with consortium members from academia (AAPs and APs) and practice (CDIs), reflections and experiences about the project collaboration were collected. In this chapter, I will reflect on the main findings through comparing them with findings from academic literature (6.1) and evaluate the value of using the analytical framework on power in TD co-production (6.2). Then, I will address the main limitations of this thesis (6.3) and close off with recommendations for participants of TD co-production, funding bodies and policymakers, and future research (6.4).

6.1.1   Main findings and interpretations

The main findings of this thesis highlight how power dynamics are present within the collaboration and can be grouped in four key findings. Firstly, institutional structures and context in which TD co-production operates are influencing power relations in the project. For example, structural conditions related to funding and academia affect the degree to which co-production could take place in FOSTER and affect the 'power to' of consortium members. Secondly, despite occurrences of resistance to the relations between academia and practitioners, these roles and relations persisted. Thirdly, retreating in 'traditional' roles seem to be related to dominant norms about what valid knowledge is and how research should be conducted in FOSTER. These norms prioritise academic actors and their approaches over those of practitioners. Lastly, the results point attention to limited expressions of reflexive attitudes amongst consortium members. These findings will be further explained and interpreted by using academic literature.

6.1.1   Structural conditions define the operating space of co-production

This study found that the context of TD co-production clearly sets the boundaries of the collaborative process. The project requirements are set by the funding body, and those involved in proposal writing have influence over who is invited to the collaboration (and when). This is in line with findings from academic literature. For example, Fritz & Binder (2020) and Harris & Lyon (2014) found that funding bodies exercise 'power over' through setting the conditions for the design of the project, resource allocation, and the evaluation criteria.

The funding body exercises structural power through the distribution of financial resources and, therefore, the time that each organisation can invest, and thus affects the 'power to' of individual consortium members in FOSTER. Moreover, Cronin et al. (2024) found, in analysing two European funded co-production projects, that project requirements can create 'multiplier' effects in present and future collaborations. Although this thesis found that it is important to be experienced in knowing how to respond to the project calls of funding bodies, there were no specific findings on how this also affects other (EU) TD co-production projects. Cronin et al. (2024) explain that it results in collaborations initiated by similar actors that tap into their existing networks. The core actors, who write the proposal, can decide who to include or exclude, or how the invitation process will be structured (Cronin et al., 2024). This reproduces and strengthens power relations, because in future collaborations, a similar group of core actors

will respond because they are gaining expertise and reputation ('power to'). Power dynamics can help to better understand the interrelatedness and multilevel dynamics between agents and structures of power and how they can be reproduced within TD co-production.

Further, in FOSTER, most financial resources ended up at organisations that conventionally receive more funding: academic institutions. The uneven budget distribution is explained by arguments as 'doing research is more costly than practitioner work' and 'academics have more responsibilities in the project and require more funding'. Such explanations define research as an 'academic process' and therefore researcher roles are for academics. In contrast, TD co-production requires a shared responsibility for research that is also informed and performed by practitioners. At the same time, there were academics who resisted such ideas and desired more equal distribution of funding and roles in FOSTER. They argued that the dominant mindsets and institutional structures hampered them to change this status quo. These interactions between the role of funding bodies (institutional structures) and the roles and relations that participants of TD co-production take are also found in academic literature. Thompson et al. (2017) show that participants in TD co-production can experience internal conflicts related to a tension between carrying out a new research approach based on different values, whilst operating within traditional research structures that support and reinforce 'old' research approaches. The study clarifies that participants in TD co-production struggle with tensions between desiring to do TD work but feeling limited in the time and space that their daily activities provide for. The lack of institutional adaptation (e.g., funding structures) affects actors' perspective of the process and their perceived capacity to take part in TD collaborations (Thompson et al., 2017). Sokolova et al. (2025) argue that institutional structures (e.g., funding, academic system) can hamper transformative ambitions of projects through, for example, 'restricted modes of engagement' and 'limited project time'. As changing institutional structures is a long-term process, it is important to identify spaces of agency for more equitable TD co-production and transformative change within and despite constraining structures (Sokolova et al., 2025).

6.1.2   Traditional roles persist

The roles and relations became a central component in analysing the dynamics between consortium members in FOSTER. Insights on the collaborative dynamics could often be linked to certain roles that people took or received, and how they related to other actors in this role. In many critical reflections, provided by the consortium members, the uneven and hierarchical relation between academics and practitioners was addressed. Academics lead, collect data, and set the agenda (expressions of resource and structural power), and CDIs follow to meet the requirements set by academics and the funding body. Other studies have found similar role patterns and power differences between academics and practitioners in TD co-production as in FOSTER. Hilger et al. (2021) found that in TD co-production and transformative research, researchers took up most roles. Due to funding structures, researchers are more responsible for the success and outcomes of the collaboration, and non-academic actors experienced the need to take on roles and fulfil expectations assigned to them by others (Hilger et al., 2021). In the case of De La Rosa et al. (2025), the non-academic actors appreciated the roles that researchers had in the collaboration, but some non-academics shared concerns about the intentions. The notion of questioning people's intentions was not found in this thesis.

Even though consortium members identified moments of resistance to the roles and relations in the collaboration, the academic dominance persisted. TD co-production requires academic actors to recognise plurality and move beyond the traditional role of 'reflective scientists'

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(Wittmayer & Schäpke, 2014). However, participation in collaborative projects often do not meet co-production standards, and the persistence of old roles and relations have been found in other studies. For example, findings from De La Rosa et al. (2025) indicate that power inequalities produce dynamics in which researchers prioritised their own goals of data collection for their research over collective action. Main drivers for this were pressures related to doing academic work, such as workload and a need to publish. Other explanations were the inability to translate the theoretical ideas about TD co-production and knowledge diversity into day-to-day practices and a lack of communication skills to talk about and change the uneven power relations between actors in the collaboration (De La Rosa et al., 2025).

The unclarity and dissatisfaction of roles and relations between actors in FOSTER can be explained by a lack of a clear and transparent deliberation of who should take which roles and why. Knickel et al. (2023) found that roles needed for actors in TD collaboration deviate from roles that actors assume and take, which are in line with the traditional roles (e.g., academics as knowledge provider and practitioner as research object). The difference in required, assumed, and acted roles produce power dynamics. Nevertheless, little attention is paid to clarifying roles, responsibilities, and expectations that create problems in the collaborative process (Knickel et al., 2023). Wittmayer & Schäpke (2014) identified a similar pattern that if stakeholders' roles are ill-defined, this can generate conflicts in interests and understandings of each other and the collaborative process. This does not mean that every stakeholder has one single role; stakeholders can have multiple roles in the same project. Their findings demonstrate that TD collaborations require careful consideration of which roles suit a particular context best, and how roles can be complementary within and between individuals (Wittmayer & Schäpke, 2014).

It should be noted that there were instances in which consortium members described the collaboration as co-action ('power with'). This was mainly experienced in internal collaborations (e.g., within organisations or triangles), which comprised smaller groups with less heterogeneity. It was argued that in these collaborations, people could spend more time on developing shared goals and building personal relations with each other, and often shared the same language and (work) culture. In addition, the role of academia was recognised by both academics and practitioners as 'supportive' in these collaborations. This could be an explanation for the shared experiences of spending time on working through differences and less focus on only pursuing one's own interests.

6.1.3   Dominant knowledge and research paradigms

The results of this thesis show that collaboration dynamics in FOSTER predominantly evolved from assumptions about each other's work and roles. Consortium members shared a belief that their worlds (academia and practice) could not understand each other, and in some instances, they were perceived as incommensurable. More specifically, the assumptions are about what valid knowledge is, who can do research, and what different actors had to contribute to the project and why. The findings indicate that ideas about academics as knowledge holders and CDIs as sharers of their practical experiences, and not as researchers, strongly reinforce an epistemic hierarchy (normative power). In line with these findings, Knickel et al. (2023) found that the epistemic differences between academic and practice partners are an important explanation for the challenges experienced in TD collaborations. The different backgrounds and ways of working between academic and non-academic actors can generate valuable insights about each other and the topic addressed in the collaboration, but it can also create conflicts (Knickel et al., 2023).

Furthermore, knowledge hierarchies have also been identified between academic disciplines in collaborations for sustainability transformations. For example, Mabon et al. (2022) argue that different disciplines can compete for influence over project scope and activities, which can generate power differences between academic disciplines. They found that the academic arguments stemming from technical or economic rationales frequently outweighed arguments from other disciplines such as ecology (Mabon et al., 2022). This can be an explanation for academics who resist dominant narratives and hierarchical modes of collaborations, could not change the collaborative process substantially in FOSTER. In addition, Butcher et al. (2025) argue that systemic barriers within academia create power differences in collaborative research but that academic actors can become 'emancipatory actors' to enable change in collaborative practices and relations. They argue that scholars need to actively reflect on which power relations are challenged, and which persisted in the collaboration. For example, if ideas of 'academic neutrality' or 'non-participant observation' prevail, the power dynamics that these can create are not challenged. Reflections on such values, which also can vary amongst research paradigms, can inspire actions to change the academic system and facilitate discussions about whether it is truly possible to conduct research from different values such as 'solidarity' or 'allyship' (Butcher et al., 2025).

Lastly, the acceptance of knowledge hierarchies between consortium members perpetuates the status quo of a KIS that does not incorporate heterogeneous perspectives and knowledge types. However, this is what FOSTER aims to transform in the current KIS. This finding indicates that the problem that the project aims to solve seems to be present within the project dynamics. This is in line with Horcea-Milcu et al. (2024), who highlight that creating epistemically diverse knowledge systems requires critical reflections on what knowledge (co-)production means and how it is enacted in transformative research. The usual ways of knowledge production are a result of power dynamics and systems that drive the sustainability problems that TD research aims to solve (Horcea-Milcu et al., 2024). The need to break with power dynamics within projects to achieve and enact their aspired transformative outcomes is also found by Nyssa et al. (2024) in the context of conservation research and practice. They argue that institutionalised power dynamics (normative power) are products of 'epistemic cultures' which are difficult to shift. Breaking through knowledge hierarchies is argued to be a driver for institutional change and demands "*an expansion of knowledge production practices, reevaluating how one values diverse professional experiences, and reconsidering who is recognised as authoritative*" (ibid., p.6). Enabling diversity of knowledge types in collaborations requires that there is time, space, and skilled facilitation for participants to openly discuss and transform how they think about knowledge production (Nyssa et al., 2024).

6.1.4   Reflexivity to improve collaboration dynamics

FOSTER's consortium members seem to have retreated into predominantly traditional roles and relations rather than transformative, that is, incorporating multiple knowledge types and practitioners' roles also involve leading or teaching. Currently, academics do the research they need to do, and CDIs receive some money to continue their work for the duration of the project and share their 'data' with academics. These patterns can also be linked to the notion of reflexivity. Reflexivity in terms of considering one's own (power) position in relation to others and managing to have constructive conversations about this, was not expressed a lot amongst consortium members. Those who did recognised that there was a lack of space, time, and capacity to truly develop reflexive attitudes within the consortium to talk about and deal

with power dynamics in the project. As discussed in this thesis, power differentials in TD co-production are argued to be layered and need to be made explicit and worked on throughout the entire research process (De La Rosa et al., 2025). The plural nature of TD co-production can make power dynamics more visible, but the co-production process gains depth and relevance when participants can take reflexive attitudes and reflect on their experiences collectively (De La Rosa et al., 2025). Therefore, promoting and prioritising reflexivity or the development of reflexive practices could be an approach to improve the collaboration in FOSTER.

Further, the outcomes of FOSTER are not perceived as transformative as desired, nor relevant, especially to CDIs. In addition, mutual learning could not be identified in many instances, illustrating a limited presence of 'power with' in the project (e.g., co-production, co-action, and co-learning). As discussed in previous sections, TD co-production means that academic approaches and epistemic cultures need to change. This asks for (1) reflecting on the relationship between the researcher and the researched, (2) examining underlying ideas about knowledge and values, and (3) approaches that prioritise outcomes related to learning processes rather than project outputs related to the topic of the collaboration (Horcea-Milcu et al., 2024; Wittmayer & Schäpke, 2014). In evaluating the process of TD co-production cases, Chambers et al. (2021) found that reflexive capacity was a crucial component to ensure that academics would not dominate and research outputs were not biased by the political agendas of non-academic partners. Furthermore, a lack of reflexivity amongst participants was related to little learning within collaborations (Knickel et al., 2023). The reflexive approach requires a recognition that every person involved *"has only a partial view of the broader web of interactions in which it is embedded"* (Harding, 1993 in De La Rosa et al., 2025). Exploring such inner dimensions of collaborative knowledge production is argued to be an important element of dealing with the complexity and unpredictability of transformative change (Horcea-Milcu et al., 2024). Prioritising the collaborative process and learning might enable more transformative outcomes to be produced. The findings of this thesis underpin a need for reflexive approaches to overcome power differentials and achieve the co-production goals.

6.2   Contributions of the analytical framework

The focus on the elements of TD co-production (context, roles and relations, collaboration interactions, knowledge, and outcomes) provided a direction and focus to the data collection for this study. Studies on TD co-production that analyse power dynamics often evaluate the TD co-production per 'phase' of the collaboration, meaning proposal writing, collaboration, and dissemination (e.g., Fritz & Meinherz, 2020; Kareem et al., 2022). Although these phases add the temporal dimension and can show how power dynamics can evolve over time, they do not help in understanding which aspects of the TD collaboration can be evaluated. Because most frameworks from the literature did not fit my research scope, I decided to construct my own analytical framework by identifying five elements to evaluate the collaborative process in TD co-production projects. Although beyond the scope of this study, these elements can be analysed throughout every phase of the co-production process, allowing for temporal analysis. In addition, because the collaboration context is one of the five elements, this analytical framework can enhance contextual understandings of TD collaborations and thus be applied to other TD projects as well.

Analysing how power operated throughout the different elements improved the understanding of how the different elements are interrelated (see Figure 3 on the next page). Even though in the theoretical framework, no hierarchy was made between the different elements (Figure 3, left), the findings of this thesis help to better understand how they are (hierarchically) related. The ways in which power operates contributed to identifying a nested hierarchy between context, knowledge, collaboration interactions, and roles and relations, which together produce outcomes that can be relevant and lead to transformation or not (Figure 3, right).
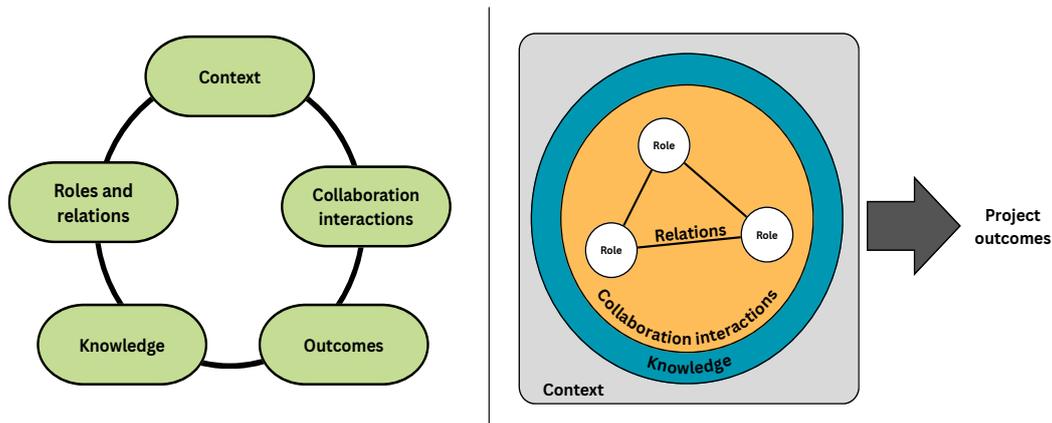

Figure 3 *The evolvement of the understanding of the interrelatedness between the elements of co-production resulting from the findings of this thesis. Left: the relations between the elements from the Theoretical Framework, connected but without hierarchy. Right: the identified nested hierarchy of these five elements resulting from the data analysis.*

The combination of these TD co-production elements and a power analysis enhanced the understanding of the varied roles of and relations between consortium members. It has shown the layered nature of power dynamics. Power differentials are not merely a product of constraints in material resources, but also of language and paradigms that permeate the collaboration. The power analysis helped to better understand where friction and acceptance were experienced in FOSTER and especially helped to interpret these patterns.

FOSTER is an international collaboration involving seven European countries. The analytical framework used in this study did not incorporate the role of cultural differences in FOSTER, which might have affected both the methodology and the interpretation of the results. Cultural differences can influence how consortium members evaluate collaborative processes, as well as how they behaved in the summer school and responded to interview questions. For example, (knowledge) hierarchies between academia and practice and hierarchies within organisations can be different, creating 'cultural codes and behavioural norms' that one must be aware of during the collaboration (Fritz & Binder, 2020). The notion of reflection or providing feedback to how a process is going, speaking about a superior, or how academic and practice knowledge are valued and ranked, are all aspects that can be culturally determined as well. In addition, framings of food systems, and what a sustainable system is, can be culturally determined (Jehlička et al., 2020), which can influence the framing of the problem and solution and thus the purpose and outcomes of the project. Furthermore, as English was, for most people, just like for myself, not their mother tongue, the language gap could have hampered the ability of people to express themselves and especially to share nuances and feelings. In addition, my interpretations stem from a Dutch, western European background that might not align, or would be interpreted differently by someone with a background that better understands

the cultural context where other consortium members are from. Lastly, there can be power differences between countries and cultures such as, differences between Western and Eastern Europe, that might have affected (people's experiences of) the collaborative process (Jehlička et al., 2020). Thus, these different aspects related to culture could be alternative explanations for the identified power dynamics and require a culturally appropriate evaluation and action. Although important to consider, performing an analysis that incorporated culture did not fit within the scope of this study.

6.3 Methodological limitations

There are a few limitations that have influenced the findings that are important to discuss before drawing up conclusions of this study. These limitations are about the interviewees, an interview topic that I did not address, the academic-practitioner dichotomy, and the degree to which I was able to use a reflexive approach throughout my thesis.

I have mainly interviewed people in leading positions in FOSTER. For the CDIs, this made sense because these people often had the most hours dedicated to the project or were a point of contact and were therefore actively engaged in the project. A similar argument can be made for the interviews conducted with three APs. For the AAPs, however, I spoke with work package leaders who predominantly have a coordinating role. The WP leaders are often academic researchers in higher rankings of academia with a lot of expertise in the subject matter and/or European projects. In FOSTER, most of them had been involved in the proposal writing and the selection of consortium members, and therefore had an important role in influencing the direction of the project and in deciding on the co-production efforts within FOSTER. At the same time, these are people who did not always have a lot of hours dedicated to the project, because they were coordinating in multiple projects, and therefore collaborate mainly on the level of coordination, and less on the practical work. In every WP, however, other academic researchers (often early career researchers) are involved who do the practical execution of the research work. Consequently, these researchers might have more insights into the day-to-day collaborative dynamics and therefore observe and experience the group dynamics differently. The results of the interviewed AAPs were already quite diverse in terms of how they reflected on the collaborative process, and the extent to which they observed power differences amongst consortium members. The experiences of the other researchers could have added more depth to my results. It could have especially aided the collection of diverse experiences among academics and the relations that exist between academics and how they perceive each other in the project. Due to time constraints, I decided not to interview them. Instead, I chose for diversity in WPs and organisations (i.e., trying to interview at least one member of every organisation and WP) to obtain a rich understanding of the differences between consortium members. To still get some insights in the experiences of the academics doing the practical execution of the research work, I spoke with a few of them in the beginning of my thesis, to get to know FOSTER, and during the summer school. This provided me with more contextual information and aided my interpretations of the results. Nevertheless, this limitation should be considered regarding the validity and generalisability of the results of this research.

Moreover, the collaboration in FOSTER has evolved from the context that it is embedded in and the individuals that are involved in the project. These individuals have created a specific group dynamic that most likely would have unfolded differently under different conditions and with different people, affecting the generalisability of the results of this thesis. Despite the context dependence, there are multiple insights that can be transferred to other settings. For example,

some of the conditions and interactions are also found in other situations, and results from this study can be used to improve TD co-production processes (Section 6.1). Then, characteristics as (1) the complexity of the topic that is studied (food system transformation and KIS transformation), (2) the involvement of actors coming from different knowledge backgrounds, and (3) power differentials in relations between individual actors and the structures they are embedded in, are common characteristics of collaborations on sustainability transformation. Therefore, although the results are context dependent, it is likely that the findings of this thesis can also be applied to better understand other TD co-productions or collaborations that share similar characteristics.

In addition, I asked interviewees about their perspectives on food system transformation. I hoped to gain an understanding the values underlying these perspectives, to further explore the normative and political dimensions of the content of FOSTER, and how this was articulated in the collaboration. However, I did not obtain these types of results. This can be explained by the nature of the questions that might not have been sufficiently specific. Further, throughout the interviews, I realised that the content of FOSTER was quite abstract and conceptual and there was only a shared conceptual framework to define food system transformation, but not what this would entail in practice. This means that it might be the case that interviewees found it difficult to answer such questions. Eventually, I shifted the focus of my study to exploring the power relations within the collaboration. From that perspective, it would have been more relevant to ask the interviewees about how they would describe the type of collaboration in FOSTER and compare that to what is written in the proposal. This could have allowed for a more profound analysis of the extent to which TD co-production is taking place in FOSTER, whether ambitions are being met, and the role of power dynamics in achieving TD co-production. However, this was an insight that I gained during the research process. Because I prioritised consistency within my data collection process, I wanted to ask similar questions and address the same topics during each interview. Therefore, I decided not to substantially change my interview approach or topic list.

As described in the introduction of the results chapter, the academic-practitioner dichotomy has been a red thread throughout the findings. However, it is important to stress that individual experiences between and within these groups shared during the interviews are quite diverse. The dichotomy does not allow for the nuanced interpretations and reflections of consortium members. Moreover, I might, unintentionally, have perpetuated this dichotomy when introducing my thesis topic to the interviewees (i.e., learning about experiences on how academics and practitioners collaborate in FOSTER), in asking interviewees whether experienced differences in working within their own team and with other CDIs or academics, and in how I refer to academics or practitioners as two distinct groups throughout this thesis. This mainly happened out of practical considerations. Even though I have tried to present the richness in reflections from all interviewed consortium members and highlight the diversity also within groups, there remains to be a focus on the academic-practitioner relationship in the power analysis. Further, many CDIs in FOSTER have an academic background, and there are academic researchers who have more experience in applied research or even worked in practice, and arguably do not fit well in the dichotomy. Through using the academic-practitioner dichotomy in my thesis, there is a risk that I grouped people into 'categories' that they might not feel comfortable with because the dominant perspective is not in line with their opinions and experiences. Further, it might not do sufficient justice to the nuanced and complex nature of collaboration dynamics and presents the groups as fixed entities, whereas findings show that their 'boundaries' are

much more blurred. Nevertheless, the findings do demonstrate that the focus on differences and assumptions about the 'other group' are quite prevalent in FOSTER. Through the power analysis, this type of language use could be linked to articulations of structural and normative power. This further underpins the need for reflexive approaches that question dominant assumptions about oneself and the 'other' in TD co-production. The findings of this thesis can thus contribute to initiating discussions about challenging dichotomies to provide space for more plural interpretations.

Even though I attempted to adopt a reflexive approach within my thesis, it turned out to be very difficult to fit into a six-month thesis. I tried to get to know as many people as possible, read many documents about FOSTER, and participated in the summer school to understand the project context well and to learn how FOSTER had developed over time. Immersing in a project context, however, such as getting to know the different consortium members who work from a distance and are from different countries, requires time that did not fit into the scope of this study. In addition, to be reflexive, there needs to be trust and a reciprocal relationship between those involved in the interaction, which also requires time to develop and execute. Therefore, I believe that in the role of an external MSc student evaluating FOSTER and the short timeframe that I had, I tried to gather as much of reflections as possible. However, I could not report my findings back to FOSTER's consortium members within the scope of my thesis to stimulate reflexive discussion. In other words, reflexive research approaches require long-term involvement, facilitation skills, and reciprocity that I could not provide in my research scope. To deal with this limitation, I have attempted to integrate my individual reflexivity within this study through writing a positionality statement and taking notes throughout the research process about my personal experiences and reflections, which can be found in the last chapter of this thesis (Chapter 8).

6.4   Recommendations

6.4.1   TD co-production participants

1. Time and space must be reserved to talk about power differentials within the project. This further requires the involvement of skilled facilitators to organise these discussions throughout the duration of the project. There needs to be transparency on expectations and wishes, on how and why the collaborative process will be organised, and on which roles and responsibilities are necessary for participants to take.

2. TD co-production requires processes of reflection, continuous adaptation, dealing with uncertainty, and learning to see connections and relations across scales. Therefore, it is important to incorporate such characteristics of systems thinking and complexity in the development of projects, and therefore in people's attitudes towards transformation. This means that TD co-production participants will need a curious attitude, awareness of complex systems thinking, and a willingness to learn. In addition, they need to create space together for experimentation, failure, and inefficiencies to allow for uncertain and unpredictable actions and outcomes to emerge.

3. TD co-production participants need to prioritise the collaborative process when determining the project goals and outcomes. It is not implied that doing so will result in removing power differences or conflict, but it will create space for how to deal with power dynamics in interpersonal communication. Subsequently, when open and transparent communication and relations develop, there is space to talk about how

the content of the project contains values and political dimensions and to reflect and negotiate what would make the content of the collaboration transformative.

4. On a practical level, projects can consider equal representation in numbers (academia and practice), allow for smaller group sizes, more in-person meetings, and relationship building. Furthermore, mechanisms should be embedded that deal with discontinuity and changing people in the project. When people leave and new people enter, knowledge and experience can be lost in the transfer process. This is, of course, an inevitable process, and the loss of knowledge or experiences cannot be fully eliminated. However, it is recommended that project members prioritise relationship building, especially when many people change, and reserve time and space for the transfer of knowledge and experiences. Tackling such practical issues can be an important factor for the degree to which co-production can effectively take place.

6.4.2 Funding bodies and policymakers

1. It is recommended that funding bodies embed collaborative process evaluation criteria into project calls that require TD co-production and allow for more long term and flexible funding that fits the complexity of the problem and system approach of such projects. For example, besides the project deliverables related to the content of the project, there should be project outputs that promote and focus on evaluation and learning, (experiences of) capacity and tool development for navigating diverse perspectives, and specific requirements in which there are different outputs that are of relevance to academic and non-academic actors involved.

2. Because funding bodies determine the project requirements, they can shape the TD co-production purpose and outcomes. This means that if they prioritise TD collaborations, they should take responsibility for providing structural support for more equitable and transformative TD co-production processes. For example, throughout the entire TD co-production process (from proposal writing up to dissemination), they should allocate or free up time and budget for professional facilitators and/or access and use knowledge and tools to promote the development of reflexive capacities, skill-sharing, and capacity-building to navigate power dynamics, and discuss and negotiate the normative dimensions of the TD co-production project.

3. To achieve more equitable TD co-production processes, the distribution of resources should be more equal. This means that a substantial fraction of the budget should be allocated to non-academic actors, enabling them to have more capacity (i.e., time and personnel) to actively shape and participate in the project.

4. Funding bodies can be (local) governments, and funding structures can be determined by policies. Therefore, policymakers play a role in developing the conditions that enable or hamper TD co-production. Policies need to allow for adaptive and flexible funding and project structures. Then, actors can experiment with more inclusive forms of proposal writing, funding schemes, and participatory approaches. Thus, local governments will have to develop reflexive capacities to evaluate their role and influence and that of those participating in a project and learn to work systemically and focus on long term processes.

5. Lessons learned from the evaluation of TD co-production in FOSTER can also be applied to other contexts. The results of this study demonstrate the layered nature

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of power dynamics and that ideas about knowledge and research (epistemological questions) play an important role. Valuing and including diverse knowledge types and knowledge holders, co-create problem analyses and locally implementable solutions with these actors are important characteristics of projects working on system change for sustainability. For example, in urban contexts, the complexity of local sustainability challenges such as climate mitigation and adaptation strategies, the energy transition, and urban greening requires shifting the status quo from top-down policymaking to participatory approaches that include diverse (marginalised) actors. The inclusion of different actor groups will inevitably bring about power relations. Therefore, the need for local and value-sensitive approaches to manage plurality and achieve transformative change can be transferred to other contexts.

6.4.3 Future research

1. The findings of this study have shown the complex nature of TD co-production and the importance of contextual factors and relationship building to gather in-depth findings of collaboration dynamics. Doing research about a project that is ongoing, and the researcher has not been involved in from the start, limits researchers from fully immersing in the context and building relations with project participants. The results have shown that it is valuable to better understand how power relations and group dynamics can evolve during the collaboration. In addition, it is relevant to evaluate how project goals relate to the project outcomes, and the extent to which transformative outcomes are achieved through the collaboration. These are aspects that require an immersion and long-term engagement in TD collaboration by TD co-production evaluators. Therefore, it is recommended that future research should analyse TD co-production through longitudinal studies and participatory action research.

2. Some of the practical issues that were experienced in FOSTER were about the physical distance between consortium members (hampering communication and active participation) and the rather 'intangible' goal of FOSTER (KIS change). Therefore, future research should focus on how collaborative dynamics unfold in TD co-production for sustainability transformation in other settings. These settings should then be more locally embedded and work on more tangible aspects of food system transformation. For example, urban living labs can be an approach that involve stakeholders from academic and non-academic backgrounds to look at complex challenges such as food system transformation, which provide space to experiment and take place in a local (urban) context.

3. This research has further shown the need for a better understanding of how reflexive capacities can be developed in TD co-production with the purpose to make power dynamics explicit and challenge them for more equitable partnerships. Future research on reflexivity in TD co-production can aid understanding the role of reflexive conversations and attitudes on collaboration dynamics and outcomes. Focusing on reflexivity also prioritises evaluating how learning occurs in TD co-production. This type of research requires using experimental methods and participatory approaches such as 'reflection labs' (Von Unger et al., 2022), autoethnography, and living labs (Knickel et al., 2023).

4. The importance of how different understandings of (valid) knowledge and research are valued in the TD collaborative process was underpinned by this thesis. In FOSTER, it seemed to influence how consortium members perceived their role and position within FOSTER, whether they normalised this or not, and whether they experienced the collaboration as 'co-produced' or not. Processes of normalisation regarding ideas about knowledge can be linked to normative power. Therefore, it is recommended that future (empirical) studies focus on evaluating how different knowledge paradigms are included and navigated in TD co-production. This can simultaneously aid understandings of how normative power operates within TD co-production and, more specifically, within academic and practitioner communities.

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"How can you practice to pay attention to what is going on, without losing yourself in it? How do you increase your ability to resist being carried away because of your circumstances? Attention is crucial."

Arthur Nieuwendijk, Verwacht geen applaus (p.162)

CHAPTER 7

Conclusions

7   Conclusions

This thesis aimed to better understand how power unfolds in TD co-production. The main research question was: *"How is power enacted and experienced in an international transdisciplinary co-production project on food system transformation?"*. Results demonstrate that using a power lens helps to better understand the layered, nuanced, and varied assumptions, opinions, and structures that exist in FOSTER and affect the collaborative process.

The context determines the boundaries of the project, in particular, how existing networks are used for inviting consortium members, the financial resources that are available to organisations involved, and the personnel capacity of each consortium member to work in the project. These are important resources that individuals can mobilise to achieve their goals (power to), but produce a power imbalance between the consortium members. Furthermore, the requirements set by the funding body do not create sufficient space for co-production, and uneven academic-practitioner relations prevail. Hence, despite the funding body formally requesting TD collaborations, the institutional structures are not (yet) adapted to create conditions in which these collaborations establish more equitable collaboration interactions.

Within the project boundaries, consortium members have different degrees of agency to achieve individual and project goals. Role reflections between academics and CDIs were central in how people experienced the collaborative process and outcomes of FOSTER. The relation between academics and practitioners was often perceived as hierarchical. Academics and practitioners argued that they were working in different worlds that they could not reconcile. In FOSTER, this resulted in perpetuating the traditional role patterns and conforming to dominant ideas about what valid knowledge is and how research should be performed. Thus, patterns that TD co-production projects would ideally aim to break with persist. This means that structural power ('power over') is exercised between academics to maintain the status quo in academic knowledge production. Academics who tried to resist the status quo found that they could not break through the dominant views and practices. Between academics and CDIs, this is mainly articulated through normative power, in which differences and incommensurability between the two groups are normalised as different interests. Therefore, consortium members seem to accept roles that strengthen power differentials.

This contributed to group dynamics in which power with, that is, collective action and learning, is not frequently experienced in the consortium. In a few instances, consortium members shared exemplary moments of joint action, especially when they were collaborating in smaller groups (triangles). Then they knew what each consortium member could contribute, had space for collective goal setting, and in these cases, people came from the same country (and generally they spoke the same language). A mutual understanding of one's limitations and each other's value formed a bridge across the academic-practitioner gap. However, for the project as a whole, individual interests seem to prevail. This created a 'practical' orientation to a collaboration that should be about a collective reflection on how relations between dominant and marginalised perspectives in KIS can be challenged and changed. Ultimately, people do not perceive that the project outcomes are as co-produced nor as transformative as the project goals prescribe.

Thus, the findings of this thesis indicate that different forms of power, especially 'power over', are constraining opportunities for empowerment of FOSTER's consortium members ('power to'). Changing power relations will thus take place within constraining structures. This requires participants in TD co-production to develop reflexive skills that enable people to individually

and collectively reflect on their position and paradigms that affect the collaboration. Although limitations in this study's methodological approach exist, this power analysis has aided to disentangle different layers of peoples' experiences of the collaboration in FOSTER. The results of this thesis inform future TD collaborations and participatory action research to provide time and space to the development of reflexive capacities and to better understand how power-awareness can contribute to transformative TD co-production.

Tensions and power dynamics are inherent to (TD) collaborations, but skilfully embracing, navigating, and negotiating them can generate more equitable collaboration dynamics. Then, TD co-production participants can start to enact the change that their collaborative approach prescribes. Bringing together diverse perspectives is sowing seeds, doing it with power awareness and reflexivity is taking care of the seedlings and letting them grow into healthy plants. With good care, outcomes contributing to system transformation can be harvested.

7

"Your awareness is the basis of growth and development. Only if you are aware of this, you can learn from your mistakes and you can live your life to the fullest, because living is learning. You learn the most from your mistakes. Even though you strive to do the things you do as good as possible, it is more important that you feel free to make mistakes."

Arthur Nieuwendijk, Verwacht geen applaus (p.143)

CHAPTER 8

Reflections on the Research Process

8   Reflections on the Research Process

There are three overarching themes that became clear throughout my reflections on my research process: (1) expectations and assumptions about groups and roles, (2) performing role-confirming behaviour, and (3) what it truly means to be reflexive. During my research process, I found myself inhabiting a position in which I was the 'researcher' while the consortium members were the 'research subjects'. I experienced navigating some of the roles that were identified in FOSTER, within my own research process. Interestingly, my core reflections echo the main findings of my thesis. In this chapter, I further unpack each theme through sharing my experiences and lessons learned and connect them to broader collaboration dynamics and knowledge co-production processes.

Role ambiguity

My research process confronted me with tensions between roles and groups, particularly the academic-practitioner dichotomy. As I conducted my research, I positioned myself as the 'academic researcher' (of course, while recognising I was still a student and still learning), assumptions and expectations about me emerged. These assumptions did originate solely from me, but I also heard them from consortium members who brought their own preconceptions about 'the academic'.

Frequently, people shared multiple (potentially conflicting) narratives when speaking about academics. On one hand, the academic was imagined as the expert, someone who had specialised knowledge to contribute and could provide insights of real value. On the other hand, there was a sense of fatigue or sometimes even frustration with this image of the academic. Academics were perceived as overly theoretical, dominating discussions, and sometimes unaware of the realities that practitioners face. This created a sort of *role ambiguity*: academics were supposed to be knowledgeable and share their expertise, yet they were also expected to step out of the 'ivory tower' and be humble, curious, and willing to listen, to give more space to other voices and expertise. Although I do believe that these two roles can be more complementary than they are framed right now, I did feel a tension between them throughout my research process. The ambiguity, produced by conflicting assumptions, deepened my understanding of how the collaborative dynamics in FOSTER unfolded.

From this, I learned the importance of transparency and clarity around roles and relations and not leave it to the implicit assumptions about each other in collaborative settings. This goes hand in hand with the importance of reciprocity, mutually giving and receiving. To achieve this, one must genuinely engage with the perspectives of others, not only to validate them but also to expand and reshape your own perspective.

Role-confirming behaviour

During interviews, I encountered another challenge: being grouped with 'academics' whenever participants reflected on the collaboration. For instance, when interviewees commented that academics used abstract or conceptual language, they expressed it directly as 'something that you do', rather than speaking about what 'they [academics] do'. Suddenly, I felt that I was made co-responsible for the behaviour of a 'group'. Specifically, the behaviour that people found challenging to deal with in the collaboration.

This made me uncomfortable. First, I resisted being positioned as part of the problem. I knew that the shared reflections also contained generalisations, because I have seen that academia

is far more diverse than these statements sometimes seemed to indicate. Furthermore, I often felt alienated from traditional academic approaches myself (as described in my positionality statement in Chapter 3). Yet, despite this discomfort, I came to recognise that I too was performing role-confirming behaviour. I used academic jargon, asked theoretically framed questions, and thus reinforced patterns that had marked me as an 'academic'.

This tension revealed the gap between my aspirations and the actual trajectory of my thesis. I had hoped to pursue a participatory, co-created process that was equally meaningful for practitioners and academics. Unfortunately, multiple constraints such as limited time (6-month thesis), lack of skills or capacities, and the specific requirements for my master's thesis that focuses on the academic output, pushed me toward a more traditional model of research.

It resulted in a project that became less collaborative than I had initially hoped for. It became largely conformed to the dominant academic norms. I learned how difficult it is to resist internalised (academic) patterns. This is articulated in, for example, a focus on producing 'good results' rather than a 'shared exploration' of the collaboration. I noticed a form of 'greediness' in myself as a researcher. With a research question in mind, I was sometimes pulled towards prioritising data that confirmed my expectations. In these moments, my own interests overshadowed those of my interviewees. Even though I could recognise this and consider it when analysing the data and writing up my results, it did make me feel uncomfortable. It showed me the limitations of a very individual research process. Especially because my topic was about collaboration and power dynamics, doing most of my analysis alone felt contradictory. I am convinced the research would have been richer and more impactful if I would have experimented with more interactive forms that engaged consortium members in the research design, data collection (e.g., group sessions on reflexivity), and analysis.

What it means to be reflexive
This leads me to the third theme: reflexivity. My reflections increasingly revolved around how people relate to each other and their environment. At first, I understood reflexivity as an internal process; I had to examine and question my assumptions, behaviours, and decisions. Over time, however, I realised that reflexivity is always about how one relates to others: how assumptions shape interactions, how others frame you, and how you, in turn, interpret them. This means that reflexivity must also be done together with others, to change roles, relations, and the related power dynamics.

Reflexivity is engaging in a process of meta-communication, and I do think that it has this 'elitist' connotation. The outcomes of reflections are hard to measure, and if you do not do anything with them, I do understand that for some people it is 'too meta' and a potential waste of their time, as it keeps them from doing the work they need to do. However, if we want to change unbalanced relations, reflexivity must occur with and between all participants in the collaboration. This inevitably produces tensions and maybe even conflict because you are confronted with your own biases, and (unintended) consequences of your behaviour. Yet it is precisely in such discomfort that learning becomes possible.

For me, an important lesson is that reflexivity is not about achieving a smooth and perfect process but about embracing tensions and imperfections. Research, collaboration, and knowledge co-production are inherently messy. By recognising this messiness and staying curious, toward oneself and others, we can create openings for genuine dialogue and change.

8
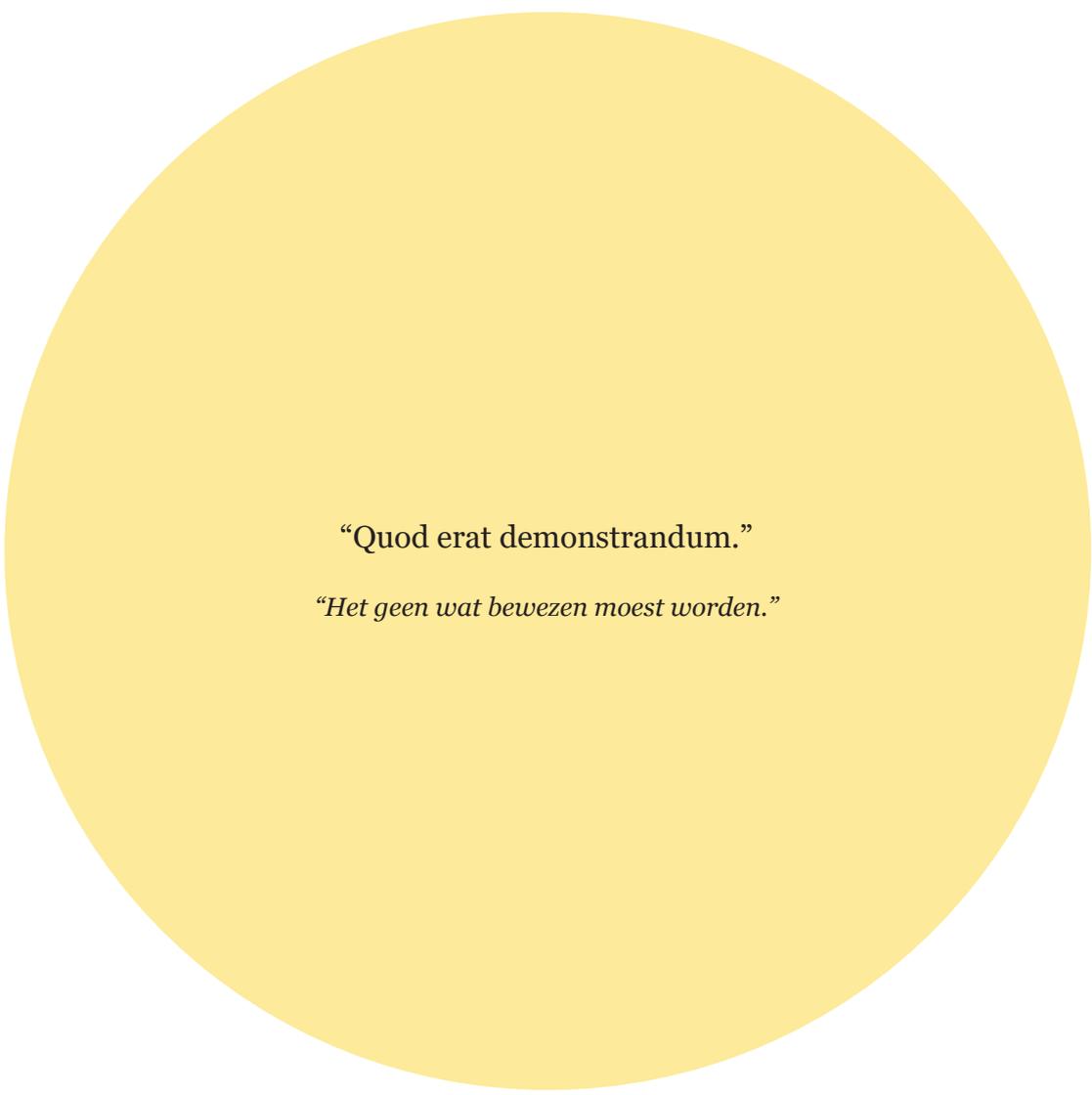
"Quod erat demonstrandum."

"Het geen wat bewezen moest worden."

CHAPTER 9

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Appendix

Appendix

Appendix A

Schedule and activities of summer school

Summer School 3 Objectives:

Establish mutual learning, shared language, and use of concepts, in particular:

1. Reflect how CDI partners are approaching food system transformation;
2. Identify points of alignment between FOSTER and CDIs; and
3. Explore how CDIs can enhance their processes of transformation with learnings from each other.

FOSTER summer school agenda (+/- 45 participants)

Monday 19 May 2025 - evening
Participants arrive

Tuesday 20 May 2025
Purpose of Day 1 is to setup the intention of the summer school, do a recap of the material from the webinar, and hear from all FOSTER partners on their progress and activities to ensure a level field of understand across all participants before the activities of Day 2.

Time	Topic	Chair	Content and Notes
0900	Welcome and introductions to the FOSTER summer school Plenary	WP2	Welcome and introduction: Going through the agenda and the purpose of the summer school (i.e. the 'running thread' of transformation)
0915	Introduction to food systems transformation and the FOSTER context Discussion in plenary	WP2	Refresher on the food system transformation concepts from earlier events and alignment with the FOSTER goals: • Reminding key concepts from the May 8 webinar • The value of clarity in what, why, how, and timeline of transformation given the various worldviews and frames • Reminder of the tools and insights from earlier summer schools • What we are trying to transform through the existence of FOSTER
1030	Coffee		
1100	FOSTER Updates Plenary presentations	All WPs	10-minute updates by each work package lead, and representatives of CDIs and APs on perspectives, progress, and forward planning
1300	Lunch		

Time	Topic	Chair	Content and Notes
1400	Introduction to field trip	CDI	Field trip to locations in and around Sopron to local producers (including beekeeping, vegetable producers, goat farms), businesses (bakeries), and potentially retailers and caterers.
1800	Return to hotel		
1930	Dinner		

Wednesday 21 May 2025

Purpose of Day 2 is to hear from all CDIs and APs on their transformation experience through the exploration of give guiding themes emerging from the earlier activities of the summer schools and the RMA. The setup is designed to elicit responses from partners, with a particular focus on the CDIs and APs, to take the analysis up to transformation in the food system, as related to the FOSTER context.

Time	Topic	Chair	Content and Notes
0915	Question 1: 'What' needs to be transformed?	CDI & WP1	CDI to lead the responses and discussions around the 'what' they are trying to transform in the food system.
1015	Question 2: How are you trying to achieve your transformation, given the barriers of past efforts?	CDI, CDI, WP5	CDIs to lead the responses and discussions around how the transformation is being achieved and recognizing the barriers to this effort.
1115	Coffee		
1130	Question 3: How are you connecting with policy and policymakers in your contexts?	CDI & WP4	CDI to lead the responses and discussions around how policies are being responded to, how policymakers are being connected with, and reflecting on everyone's place in the landscape of EU policy.
1230	Lunch		
1330	Question 4: How are you using food systems thinking and insights on multiple knowledges in your transformation process?	AP, CDI, WP2	CDI and AP to lead the responses and discussions on how food systems thinking is being used in the transformation process and reflections on type and directionality of knowledge exchange in the process.
1430	Question 5: How is trust best engendered (developed) and possible mistrust between actors being handled in the transformation process?	AP, CDI, WP3	CDI and AP to lead the responses and discussions on how trust/mistrust between food systems actors is being handled as part of the transformation process.
1530	Coffee		
1545	Discussion	WP1 & WP2	Plenary discussion on the resulting insights across all thematic questions for the food system transformation and FOSTER objectives.
1700	Close		Free time
1930	Dinner		Out of Hotel [TBC]

Thursday 22 May 2024

Purpose of Day 3 is to bring together the learnings thus far and connect with earlier discussions on the framings and concepts of food system transformation and recognize the value of the multiplicity of perspectives and worldviews to achieve the FOSTER objectives. There is a reflection on the contribution to the journey towards FOKIS and space to make progress on the writing papers.

Time	Topic	Chair	Content and Notes
0900	Reflections and Discussions	WP3 & WP2	- Reflections on previous day on the key themes and areas of transformation from the CDI activities. - Circle back to earlier discussions of food systems framing and concepts. - Learnings across the questions and all related FOSTER activities across WPs
1000	AKIS to FOKIS	WP4	Governance recommendations for the AKIS to FOKIS journey in FOSTER
1100	Coffee		
1130	Building on the Summer School to address core FOSTER questions	WP1 & WP2	- To what degree are we meeting FOSTER objectives? - Summary of next steps for FOSTER and where we are going (e.g. focus of next summer school) - Closing messages of summer school.
1230	Close and Lunch		
1330	Learning Paper Writing Session for writing paper teams (session 1)	WP2	- Catch-up on progress and content of each learning paper - Writeshop for learning papers
1730	Depart		

Friday 23 May 2024 (proposed)

0900	Learning Paper Writing Session for writing paper teams (session 2)	WP2	- Catch-up on progress and content of each learning paper - Writeshop for learning papers
1200	Depart		

Appendix B

Interview topics

Goal: Understanding how plural perspectives are handled in FOSTER: How do actors deal with different definitions and perspectives? Is there room for pluralism in collaboration?

Food system transformation
- How would you define the food system?
- How would you describe the knowledge & innovation (K&I) system?
- What is the most important transformation that needs to happen in the food system, and why (according to your organisation – values, priorities, challenges.)
- What role does your organisation play in this transformation? (e.g., the role of science / policy / civil society / farming, etc.)
- What role does FOSTER play in that change? (What problem does FOSTER aim to address?)
  - Is there consensus on this vision? Does everyone agree?
  - How can you tell – where do you notice agreement or disagreement?

Role and Position in FOSTER
- Why did your organisation join the FOSTER project?
- What is your role or responsibility within FOSTER?
- What is your organisational goal in being part of FOSTER?

Collaboration & Interaction
- Who do you collaborate with in FOSTER – and who not? Why?
  - How would you describe the relationships within FOSTER?
- How does collaboration happen in practice? (E.g., in communication, decision-making, setting agendas.)
  - Whose voices are most dominant in the process?
  - Which voices are less present or heard?
- How are differences, conflicts, or disagreements handled?
  - What types of knowledge are considered or used in the process?
  - Is there space for diversity – and how is that ensured?
- How do you personally experience the collaboration in FOSTER? (+ and -)

Outcomes
- What has FOSTER achieved so far, in your view?
  - Are these outcomes relevant to your organisation?
  - Are they relevant for the broader transformation of the food system?
  - In your view, when would FOSTER be considered a success?
- Who benefits from the outcomes of FOSTER – and why?
- Would you consider FOSTER to be a transformative project? Why or why not?
- What have you learned through FOSTER – and from whom?

Reflection
- How does your personal or professional background shape how you work in FOSTER and how you view food system transformation? [positionality]
- What is the most valuable thing you have collectively achieved in FOSTER? (Has your knowledge or perspective changed through this process – and do you see this happening for others?)
- System change starts with individual, deep change, what do you do/your organization within FOSTER?

Appendix C
Interview overview

Table C1 *List of all the interviewees including the code, duration of the interview and interview date.*

| Number	Interviewee code	Duration (hh:mm:ss)	Date (dd-mm-yyyy)
1	CDI 1	00:50:19	21-05-2025
2	AP 1	01:06:41	22-05-2025
3	AAP 1	01:10:27	27-05-2025
4	AAP 2	00:57:16	28-05-2025
5	AAP 3	00:55:12	28-05-2025
6	CDI 2	00:57:58	30-05-2025
7	AP 2	00:47:54	03-06-2025
8	CDI 3	01:29:50	03-06-2025
9	AAP 4	00:54:29	04-06-2025
10	AAP 5	01:41:29	04-06-2025
11	AAP 6	01:03:20	05-06-2025
12	CDI 4	01:10:41	06-06-2025
13	CDI 5	00:57:46	06-06-2025
14	AAP 7	01:10:51	10-06-2025
15	AP 3	00:56:38	11-06-2025
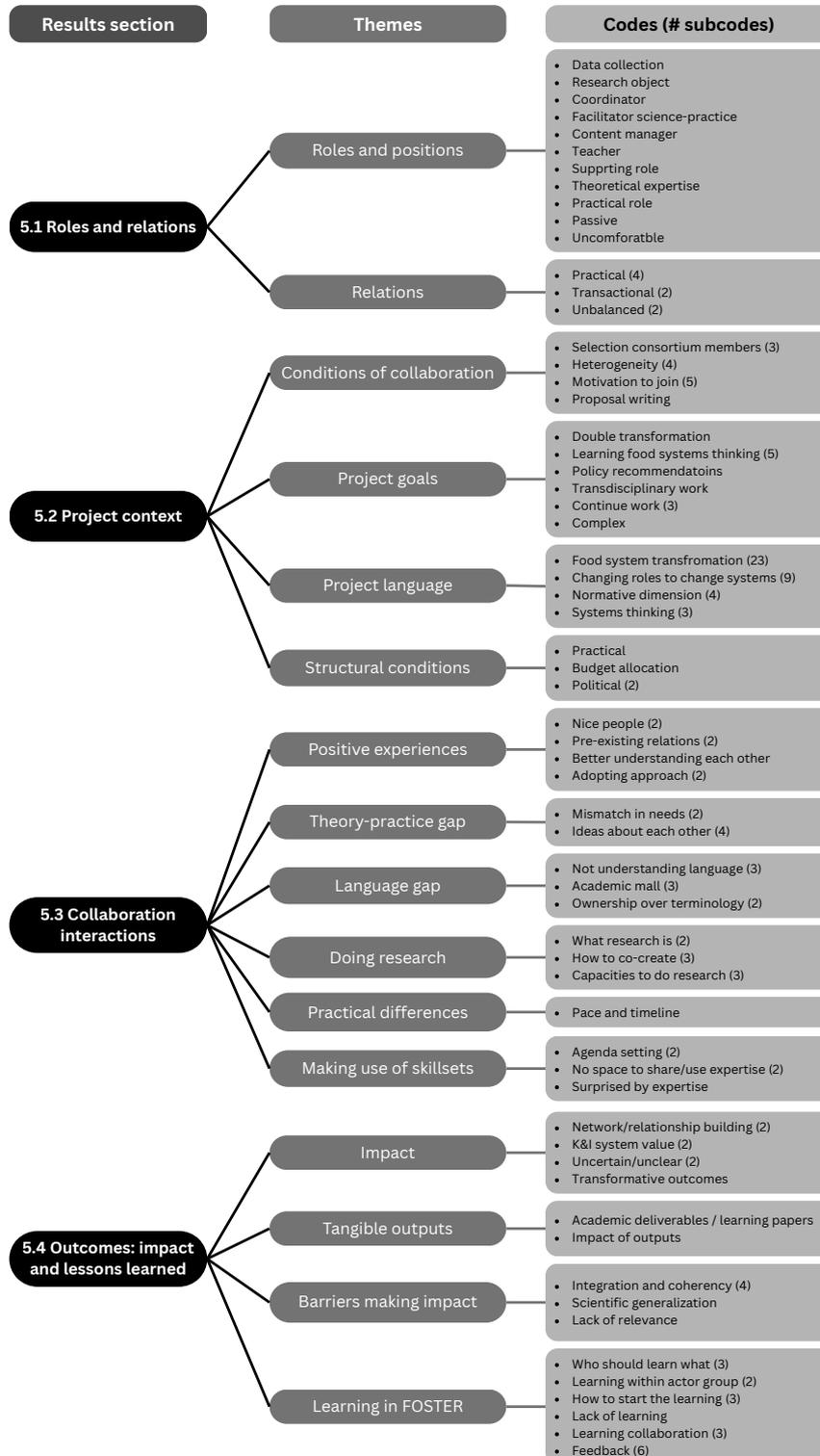
Figure D1 *Code tree showing how different sections of the results chapter are related to the identified themes from the interviews and their underlying codes (and number of subcodes).*

Appendix E
Data management plan

Consent form for observations MSc thesis Madzy Korte

The purpose of this form is to request consent to be included in the observations conducted by Madzy Korte during the FOSTER summer school. This is part of her master thesis from Wageningen University & Research (WUR) and Technical University Delft (TUD), The Netherlands. The student is supervised by Karin Peters and Else Giesbers from WUR. The purpose of this study is to better understand how participants of FOSTER collaborate and reflect on their role and perspective on food system transformation. If you have any questions or wish to have more information you can contact Madzy Korte

Please tick the boxes below and sign the form when you have read, understood and agreed with the statements on how the data will be collected, processed and published.

1. I have received sufficient information about this study and understand my role in it.

2. I understand that being included in this study is completely voluntary. There is no explicit or implicit coercion whatsoever to participate.

3. I understand that giving consent means being included in the observations of and conversations with the student during the summer school from 20 until 22 May 2025 in Sopron.

4. I allow the student to take notes of sessions or conversations between the student and me during the summer school. It is clear to me that I am fully entitled to withdraw from this study.

5. I have been given the explicit guarantee that the student will not identify me by name or professional role in publications and that my confidentiality remains secure.

6. I understand expressions shared during the summer school might be used in this thesis as quotes. The student will only use a number, generic role in FOSTER (WP, AP, CDI) and/or country of residence as identifiers.

7. I give permission that the notes from the observations can be used in (scientific) publications by the student or her supervisor Else Giesbers.

8. I give permission that the results of this study can be made publicly available, and in particular the thesis repositories of WUR and TUD.

9. I have carefully read and fully understood the points and statements of this form. All my questions were answered to my satisfaction, and I voluntarily agree that through my participation in the summer school I also take part in this study.

Participant's name　　　　　　　　Participant's signature　　　　　　　　Date

_____　　_____　　_____

Student's name　　　　　　　　　Student's signature　　　　　　　　　Date

_____　　_____　　_____

Consent form for interviews MSc thesis Madzy Korte

The purpose of this form is to request consent to participate in an interview conducted by Madzy Korte (MSc student). This is part of her master thesis from Wageningen University & Research (WUR) and Technical University Delft (TUD), The Netherlands. The student is supervised by Karin Peters and Else Giesbers from WUR. The purpose of this study is to better understand how participants of FOSTER collaborate and reflect on their role and perspective on food system transformation. If you have any questions or wish to have more information you can contact Madzy Korte

Please tick the boxes below and sign the form when you have read, understood and agreed with the statements on how the data will be collected, processed and published.

1. I have received sufficient information about this study and understand my role in it.

2. I understand that my participation in this study is completely voluntary. There is no explicit or implicit coercion whatsoever to participate.

3. I understand that my participation involves partaking in an interview. The interview will last approximately 60 minutes. I allow the researcher(s) to take notes during the interview.

4. I allow the interview to be recorded by audio/video tape. It is clear to me that in case I do not want the interview to be taped I can express this and the request will be fulfilled.

5. I have the right not to answer questions. Any time during the interview, I have the right to withdraw and ask that the data collected prior to withdrawal will be deleted.

6. I have been given the explicit guarantee that the researcher will not identify me by name or professional role in any reports using information obtained from this interview, that my confidentiality as a participant in this study remains secure.

7. I understand that the answers that I give to questions might be used in this thesis as quotes. The student will only use a number, generic role in FOSTER (WP, AP, CDI) and/or country of residence as identifiers.

8. I give permission that the data collected in the interview can be used in (scientific) publications by the student or her supervisor Else Giesbers.

9. I give permission that the results of this study can be made publicly available, and in particular the thesis repositories of WUR and TUD.

10. I have carefully read and fully understood the points and statements of this form. All my questions were answered to my satisfaction, and I voluntarily agree to participate in this study.

Participant's name   Participant's signature   Date

_____   _____   _____

Student's name   Student's signature   Date

_____   _____   _____

Information about MSc thesis of Madzy Korte

You are being invited to participate in a research study in the context of a MSc thesis on diverse understandings of food system transformation and collaborations from February 2025 until July 2025. This study is being done by **Madzy Korte**, a **master student in Metropolitan Analysis, Design & Engineering**. This is a study program from **Wageningen University & Research (WUR)** and **Technical University Delft (TUD)**. The supervisors of this thesis are **Else Giesbers** and **Karin Peeters**, both from Wageningen University. Else Giesbers is also participating in FOSTER.

The purpose of this research study is to better understand how participants of FOSTER are collaborating and reflecting on their role and perspective on food system transformation within FOSTER.

You are asked to participate in this research because you are also part of FOSTER and therefore you have experiences in collaboration in a project on food system transformation which is important for this research. There are two options for participation that you will sign separate consent forms for. Your participation in this study will take form in an interview of approximately 60 minutes via Microsoft Teams or in person. In addition, the student will also participate in the FOSTER summer school from 20 until 22 May 2025 in Sopron, Hungary. During the summer school she will take notes of what is discussed and she might ask you for your reflections on the sessions.

The data will be collected, processed and analysed in order to complete a MSc thesis and will eventually be published on thesis repositories from WUR and TUD. It could be that the data will also be used by the student or her supervisor (Else Giesbers) for future (scientific) publications.

On the next page you can find further details about the type of data that will be collected and processed and how it will be ensured that it is handled with care and confidentiality.

Your participation in this study is entirely voluntary, and you can withdraw at any time. You are free to omit any questions.

If you have any questions, you can always reach out to the student conducting this research Madzy Korte . You can also contact the student's thesis supervisors Else Giesbers or Karin Peters

Information about data collection, processing and publishing

How will my data be collected?

The interview will be video- or audio-taped and afterwards this will be transcribed for analysis. The interviewer (Madzy Korte) will take notes during the interview.

During the summer school, the student (Madzy Korte) will take notes during the sessions on what is being discussed and might ask you afterwards for your reflections and insights. These field notes will be written out and processed for analysis after the summer school.

What data will be collected?
- General personal details: name, email address (to contact you), signature (consent form) and profession
- Personal details in the context of FOSTER: Role in FOSTER, country, educational background
- An video/audio recording of your answers / student's notes from your answers and expressions.
- Your opinions and experiences of working on FOSTER (see topics of the interview in the introduction statement of this document)
  - When we talk about the collaborative process it may be possible that you mention other participants' names, I will not write this personal information down in the transcription/field notes. I will do this by referring to them under one of the categories: Work Package member (WP), Academic Partner (AP), Change Driven Initiative (CDI) or by the country of residence or a number.

The student will keep your personal information (information about who you are) confidential. Only the student and her supervisors from Wageningen University & Research can see this information. The student will be the only one who will have access to the original recordings.

Data storage and processing

The following personal data: name, email address, signature, profession and specific role in FOSTER will be removed from the field notes (summer school notes) and the interview transcripts as soon as the data is prepared for analysis. This information will be stored in a separate file for the reference of the student and will be destroyed immediately after the completion of her thesis.

Data storage

These above stated personal details as well as the signed consent forms will be temporarily stored in a separate file and folder for reference of the student. The data will be stored on the One Drive of Wageningen University & Research that is connected to the student her personal account. After the completion of this thesis the files containing the personal data (including recordings) that refer to a name or profession will be destroyed. The other files, interview transcripts, field notes and the final thesis will be securely stored at a professional OneDrive from WUR from her supervisor and the student herself.

Data processing

In the field notes and interview transcripts you will be identified with a unique ID, a 'role category' (WP, AP, CDI) and country. The purpose is this that there is some contextual information informing the research but outside of FOSTER the chances that your answers will lead to you to be identified are low. The interview transcripts or field notes will not be part

of the final thesis document, but the analyzed data (from transcripts and field notes) will be presented in the results chapter of this thesis. This means that there might be quotes from you used in this chapter in which you are referred to as your unique ID, 'role category' and/or country but that these identifiers will not be combined if your identity can then be traced, to ensure confidentiality.

Because of the context of FOSTER it could be the case other participants of FOSTER can identify you when reading the results section because they have similar insights and knowledge about FOSTER and most likely have also collaborated with you in the project. In addition, because there is quite some publicly available information about FOSTER it could also be that if people read about FOSTER or know you personally are or have participated in FOSTER in the past, they might be able to identify you or your organization. This is something that the student actively aims to avert and will present the data in such a manner that it cannot lead back to you.

Publication of results

The student will present the results in her master thesis but there are possibilities that the results and/or data will also be used in future (scientific) publications by the student or her supervisor Else Giesbers. These are the only two individuals who will potentially publish any results based on the data collected for this thesis.

The Education and Examination Regulations of the student's study program state that that the thesis needs be published and become publicly available online. In particular, it will be published on the thesis repositories of Technical University of Delft (TUD) and Wageningen University & Research (WUR). In addition, it will be published on Openresearch.amsterdam an open access digital knowledge platform from the municipality of Amsterdam as the student's study program is also associated with this platform. By signing the consent form you accept that the final thesis document will be publicly available so that it can be used for educational purposes or future research. When handing in my thesis the student also accepts that her final thesis might be used exclusively during the thesis course for future students of my study program. If you wish that my thesis is not used during future courses, then please let the student know.