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# Unravelling institutional work patterns: Planning offshore wind farms in contested space

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## ABSTRACT

Offshore wind farms (OWF) are considered important for a timely energy transition. However, offshore space is governed by sector-specific institutional frameworks representing various and sometimes conflicting interests. Therefore, institutional change towards improved cooperation and coordination between various stakeholders, their interests and alternative institutional frameworks is necessary. Institutional work is used as an analytical lens to explore patterns resulting from the interplay between different forms of institutional work by actors over time. Data was collected through participatory observation of the Dutch North Sea Dialogues (NSD) and focused on balancing interest in the context of multi-use of OFW. Institutional change in this case relied mostly on a highly subtle interplay between forms of creating and maintaining work that result in incremental changes to existing practices. Sustainability transitions could benefit from institutional harmonization as a pathway to institutional change for improved cross-sectoral coordination and cooperation.

## 1. Introduction

In light of alarming climate change forecasts, there is much pressure on different levels of government to ensure a timely energy transition (Bridge et al., 2013; Jehling et al., 2019; Mignon and Bergek, 2016). Due to its large spatial implications, pursuing energy transition can result in conflicts with alternative users of space and related sectoral and stakeholder interests (Fischhendler et al., 2016; Månsson, 2015; Wüstenhagen et al., 2007). Such conflicts are most pronounced onshore, resulting in many countries venturing out into the sea in search for space for furthering energy transition, particularly through the development of offshore wind farms (OWF) (Bilgili et al., 2011). However, offshore space is also contested with increasing conflicts among users and between users and the environment (Douvere and Ehler, 2009). Planning OWF, therefore, requires coordination and cooperation between policy sectors and stakeholder interests.

Marine spatial planning has recently emerged as an approach for coordinating the planning of competing and sometimes conflicting offshore claims and activities (Ehler, 2018; Kidd and Ellis, 2012; Spijkerboer et al., 2020). However, marine spatial planning emerges in an institutional context with a tradition of sectoral governance for different policy sectors (Douvere, 2008; Ehler, 2018). Moreover, to accommodate energy transition, existing institutional frameworks are adjusted and new (sectoral) frameworks are created (Fuenfschilling and Truffer, 2014; Jehling et al., 2019). For example, countries have been developing institutional frameworks to

accommodate OWF development in the past decade (Fitch-Roy, 2016; Kern et al., 2015; Spijkerboer et al., 2020), thereby reinforcing differences between the energy sector and other policy sectors with distinct institutional frameworks that are often tailored to the sector-specific needs of OWF (Spijkerboer et al., 2020). This multitude of existing and new institutional frameworks causes conflicts and contradictions between various institutions – both formal and informal – and related actors and can hamper the harmonization efforts of cooperation and coordination (Köhler et al., 2019; Seo and Creed, 2002). Therefore, institutional change is necessary for furthering energy transition, particularly offshore.

A growing body of literature presents actors as central to realizing institutional change processes (Battilana, 2006; Dimaggio, 1988; Hargrave and Van De Ven, 2009; Lawrence and Suddaby, 2006; Schmidt, 2008; Seo and Creed, 2002; Zietsma and Lawrence, 2010). Actors' experiences of contradictory and conflicting institutions are often considered to be the roots of such change, since such experiences raise awareness among these actors and triggers their capacity to reflect upon existing institutional frameworks (Seo and Creed, 2002; Battilana & d'Aunno, 2009). However, actors usually operate within a broader field, including other institutional frameworks and actors that can resist proposed changes. As a result, institutional change is often presented as an ongoing struggle between actors who aim to change or disrupt the 'rules of the game' (challengers) and those who benefit from the current constellation (incumbents) (Dimaggio, 1988; Hargrave and Van De Ven, 2009; Lawrence and Suddaby, 2006; Seo and Creed, 2002; Zietsma and Lawrence, 2010).

An increasing number of studies apply institutional theory to the study of energy transitions. This is in line with the call for research into the "evolving rules and norms to address collective energy problems" (Sovacool, 2014a, p. 530), and the focus on the role of institutions in sustainability transitions at various levels of analysis (Fuenfschilling and Truffer, 2014; Köhler et al., 2019; Sovacool, 2014b). However, existing studies that apply institutional theory to energy transition present institutions primarily as structures that enable or constrain certain courses of action by actors. Examples include the role of decentralized and local energy initiatives within institutional contexts (Hess and Lee, 2020; Jehling et al., 2019; Judson et al., 2020), or the macro-level institutional changes that have occurred over long periods (Genus, 2016; Kuzemko et al., 2016; Lockwood et al., 2017). While sometimes mentioning how actors respond to or deal with existing institutional contexts, the results of these studies show broad patterns of past change and current institutional barriers. However, what actors (can) do to effect institutional change and overcome barriers remains understudied, both in energy transition and other sustainability transitions contexts. Moreover, existing research focusses mainly on developments within the energy sector itself and not on (the need for) cross-sectoral harmonization between institutional frameworks aimed at energy and other sectoral frameworks.

We address these gaps by using theory on institutional work as an analytical lens. Institutional work is defined as "the practices of individual and collective actors aimed at creating, maintaining and disrupting institutions" (Lawrence et al., 2011, p52). Specifically, we apply the framework by Zietsma and Lawrence (2010), which distinguishes institutional work aimed at practices (rules and routines) and boundaries (divisions between actors). Each actor individually might use institutional work to further their specific interests, but these seldomly translate directly into institutional change. Rather, it is in the interaction between the institutional work of various involved actors that attempts at institutional change are forwarded or blocked. We add to existing theoretical debates by analyzing patterns formed by the interplay between different forms of institutional work.

This paper aims to explore how actors work at maintaining, disrupting, defending, or creating institutions they face or need to rely on, and the patterns that can be identified as a result of the interplay between these forms of work related to multi-use of OWF in the Dutch North Sea. This case was chosen because the North Sea is a prime area for offshore energy transition in Europe, particularly by means of OWF (WindEurope, 2017). However, unoccupied space is becoming increasingly scarce (Gusatu et al., 2020; Schupp et al., 2019). Multi-use is "the joint use of marine resources in close geographic proximity" (Schupp et al, 2019, p. 165), which can mean both multiple uses in the same space, or multiple uses in close geographic proximity. As such, multi-use can help in achieving more efficient use of offshore resources and space. Examples include combinations of OWF with other forms of ocean energy, marine conservation, fisheries and aquaculture (Schupp et al., 2019). However, despite broad agreement in both practice and literature upon the need for multi-use in OWF, the application of such concepts in practice remains limited (Christie et al., 2014; Onyango et al., 2020; Schupp et al., 2019). This lack of practical application of multi-use in OWF is related to, among others, formal and informal institutional barriers that hamper cross-sectoral cooperation and coordination between actors in practice (Christie et al., 2014; Schupp et al, 2019; Onyango et al 2020). Therefore, the case of multi-use of OWF provides an opportunity for reflecting upon cross-sectoral harmonization between the various institutional frameworks aimed at OWF and other sectors.

Data was collected through participatory observation of the Dutch North Sea Dialogues (NSD) from February until October 2019, during which the 'Negotiators Agreement for the North Sea' was drafted (OFL, 2020a). The NSD were high-level political negotiations between the representatives from various ministries involved in North Sea policy and representatives from various private sector organizations and NGOs that resulted in the presentation of a 'Negotiators Agreement for the North Sea' in February 2020. The final agreement was adopted by the Dutch parliament in January 2021 and will now be implemented through, among others, the Dutch Marine Spatial Plan (Rijksoverheid, 2021). Participatory observation of the NSD provides a unique opportunity to study institutional work in real-time, rather than through retrospective accounts. As Sovacool et al. (2018) highlight, access to the highest levels of politics and policymaking is often restricted, while these insights would be crucial to "revealing the motivations and actions behind policy formation and adoption" (p20). The empirical relevance lies in increasing the understanding of the interplay between various forms of institutional work employed by the actors involved in these high-level political negotiations and how this affects multi-use in OWF. The case and methodology will be further explained in section 3, after explaining the theory in the next section.

## 2. Theory

Energy transition and, more generally, sustainability transition research, traditionally draws on frameworks such as the multi-level perspective and the technological innovation systems approach, which originate from innovation studies and science and technology studies (Köhler et al., 2019; Kungl and Hess, 2021). In the past decade, this literature has been expanded by a range of studies drawing on, among others, institutional theories and policy studies to specifically target the governance of sustainability transitions, with specific attention to the role of power and strategy (Avelino et al., 2016; Köhler et al., 2019; Kungl and Hess, 2021). A central theme throughout these sustainability transitions studies is the tension between changes necessary to forward sustainability transitions (often on the niche-level), and forces of stability and resistance to change (often on the regime level) (Avelino et al., 2016; Fuenfschilling and Truffer, 2014; Geels, 2014; Köhler et al., 2019). The focus on power and politics has led to insights into the struggle between actors that are at the heart of sustainability transitions (Avelino et al., 2016; Avelino and Rotmans, 2009). However, the agency of actors in organizing and hindering institutional change across sectors and levels has received relatively little attention. Notable exceptions do exist, which contribute important insights into the role of actors in bringing about or resisting change. However, these studies often focus on a limited group of actors, such as incumbent actors (Geels, 2014) or institutional entrepreneurs (van Doren et al., 2020), or they focus on specific institutional fields, such as the urban water sector (Fuenfschilling and Truffer, 2016) or the solar industry (Bohnsack et al., 2016). Within transition studies there is a call for more engagement with institutional theories in general, and institutional work specifically, to further unravel the influence of actors in organizing institutional change and stability in the complex multi-actor settings surrounding sustainability transitions (Fuenfschilling and Truffer, 2014; Köhler et al., 2019). Theories on institutional work can provide a more fine-grained analysis of the tension between actors pursuing institutional change and stability. Thus, by using institutional work, we add valuable insights on how actors in their interactions can affect institutional change in sustainability transitions.

A commonly used definition of institutions is "the rules of the game in a society or, more formally […] the humanly devised constraints that shape human interaction" (North, 1990, p3). This paper adheres to the perspective of 'embedded agency' in institutional theory: i.e. while actors are being shaped by their institutional context, institutional change can be brought about by more or less deliberate actions of these actors (Battilana and D'Aunno, 2009; Dimaggio, 1988; Dorado, 2005; Giddens, 1984; Klijn and Koppenjan, 2016; Lawrence and Suddaby, 2006; Seo and Creed, 2002; Thornton et al., 2012).

Within institutional theory, many authors have worked to better grasp the role of actors in institutional change processes (e.g. Battilana and D'Aunno, 2009; Dimaggio, 1988; Lawrence and Suddaby, 2006; Seo and Creed, 2002; Thornton et al., 2012). This paper draws on the notion of 'institutional work', which is a strand of institutional theory focusing on the work done by actors aimed at creating, maintaining or disrupting institutions. Institutional work by various actors can result in (multiple) proto-institutions, which are the "not (yet) widely diffused rules with the potential to become institutionalized" (Helfen and Sydow, 2013, p1079). As such, the analytical lens offered by theories on institutional work can help provide insight into the work done by various actors and the patterns formed by interaction between actors and their work in institutional change processes.

Lawrence and Suddaby (2006) identify three main categories of institutional work: creating, maintaining, and disrupting. *Institutional creation work* refers to the practices applied by actors in forming new institutions or adapting existing ones (Lawrence and Suddaby, 2006). *Maintaining work* refers to the ongoing activities of actors that support, repair, or recreate existing institutions (Lawrence et al., 2009). Maintenance is a continuous process and crucial for upholding existing institutions (Lawrence and Suddaby, 2006). *Disrupting institutional work* relates to actors "attacking or undermining the mechanisms that lead members to comply with institutions" (Lawrence and Suddaby, 2006, p235). Additionally, Maguire and Hardy (2009) distinguish *defending institutional work,* which they define as "the purposive action of individuals and organizations aimed at countering disruptive institutional work" (Maguire and Hardy, 2009, p169). Defending work is different from maintaining work in that it is a direct response to disrupting or creating work, while maintaining work is focused on reproducing and explaining existing routines (Maguire and Hardy, 2009).

Existing research focuses mainly on institutional creation work as performed by institutional entrepreneurs (Lawrence et al., 2013). This is also the case for the studies that do examine sustainability transitions in combination with institutional work (see Bohnsack et al., 2016; van Doren et al., 2020). These studies contribute important insights into how institutional entrepreneurs are important in pursuing institutional change and the strategies they apply in doing so, thereby contributing empirical and theoretical insights to institutional work literature (Bohnsack et al., 2016; Hardy and Maguire, 2008; van Doren et al., 2020). However, this perspective is being criticized for focusing too much on the 'heroic actions' of a few actors to effect institutional change and the conditions required to accommodate them, rather than the continuous work of many actors in many directions (Hardy and Maguire, 2008; Lawrence et al., 2011). This is in line with Beunen and Patterson (2019), who argue that "rather than looking at individual change agents, one has […] to study the interplay between the many actors involved in institutional work" (p24). Zietsma and McKnight (2009) illustrate the importance of examining patterns of institutional work by many actors, but they focus solely on creating work. We will therefore expand on these existing studies, by focusing on the interaction between the maintaining, disrupting, defending, and creating work done by many actors from various policy sectors and the patterns that result from the interaction between their work.

This paper builds upon the conceptualization by Zietsma and Lawrence (2010) of institutional work as an interplay between practice work and boundary work. Practices are 'shared routines' and practice work refers to "actors' efforts to affect the recognition and acceptance of sets of routines" (Zietsma and Lawrence, 2010, p190) towards maintaining, disrupting, defending, or creating practices. Boundaries are the "distinctions among people and groups" (p190) that result in "unequal access to and unequal distribution of resources (material and nonmaterial) and social opportunities" (Lamont and Molnár, 2002 in Zietsma and Lawrence, 2010, p192). Boundary work, therefore, refers to actors working towards maintaining, disrupting, defending, or creating these boundaries. Zietsma and Lawrence (2010) emphasize the recursive relationship between boundaries and practices, with "boundaries delimiting sets of

legitimate practices, and practices supporting particular group boundaries" (p193). Table 1 provides an overview of types of boundary and practice work related to actors' efforts at maintaining, disrupting and defending, and creating institutions.

The concept of power has received increasing attention in sustainability transition studies over the past decade (Avelino et al., 2016; Köhler et al., 2019; Meadowcroft, 2011). Avelino and Wittmayer (2016) call for increased attention to shifting power dimensions in the context of institutional change. While the importance of power has been acknowledged in institutional work literature, there is a lack of empirical research on how this relationship plays out in practice (Beunen and Patterson, 2019; Lawrence et al., 2013). Zietsma and Lawrence (2010) do not explicitly include the role of power in the recursive relationship between boundary and practice work, but the distinction between boundary and practice work does allow for increased sensitivity to such power relations. Battilana (2006) argues that actors' access to financial, legal, and intellectual resources is affected by power relations and social positions. Moreover, the "relative influence of institutional pressures on different types of actors" (Lawrence and Suddaby, 2006, p238) varies due to their access to such resources. For example, actors with control over key decision-processes may experience less influence of institutional pressure compared to actors who have no control over such processes (Battilana, 2006; Dorado, 2005; Lawrence and Suddaby, 2006). By also including boundary work, the (shift in) access of actors to resources and opportunities is explicitly taken into account in our analysis.

## 3. Methodology

### 3.1. Research design

Given the exploratory nature of this study, we have applied a single case study approach (Yin, 2014) focused on acquiring in-depth insights into forms of institutional work used by actors and the patterns that result from their interaction in the case of the Dutch North Sea Dialogues (NSD, *Noordzeeoverleg*). The primary source of data collection is nine months of participatory observation of the NSD by the first author, resulting in longitudinal data regarding the process of coming to a 'Negotiators Agreement for the North Sea' (OFL, 2020a). The NSD is a unique case, providing an opportunity for longitudinal data collection on the institutional work of high-level public and private sector actors, in a context where they are directly interacting with each other. The NSD can be seen as a consciously created collaborative transition arena, with an independent chair and supporting staff, as well as a mandate to try and come to an agreement. As such, this research also fits with the call for more engagement with real-world actors and real-time studies in sustainability transition research (Köhler et al., 2019; Murto et al., 2020). The case will be explained below, followed by specification of the methods of data collection and analysis.

### 3.2. The case of the NSD

In the years prior to the NSD, the Dutch government focused strongly on developing the offshore wind energy sector and accompanying policies. This is comparable to many European countries that have focused on developing formal institutions regarding the allocation of the seabed, permit procedures, grid connection and procedures for financial settlement for OWF in the past decade (Fitch-Roy, 2016). The NSD started in February 2019 with the goal of better balancing various interests at sea in response to the high OWF targets laid down in the Dutch National Climate Agreement (Government of the Netherlands, 2019). NSD corresponds with the Dutch tradition of consensus-building, in which various public and private stakeholders participate in negotiations, often resulting in 'deals' or 'agreements' (Smink et al., 2015). The NSD included representatives from sector branch organizations for the domains of energy (both fossil and offshore wind energy), electricity grids, fisheries, nature, and ports, as well various responsible ministries (Ministry of Infrastructure and Water Management, Ministry of Economic Affairs and Climate Policy, Ministry of Agriculture, Nature and Food Quality). These sector branch organizations kept in contact with their diverse members within the sector and were always aware of the fact that their members needed to consent to the North Sea Agreement as well before they could sign on behalf of their sector. As such, in our study the term actor can be considers representative of and refers to sectors such as energy, fisheries, nature, or governmental ministries that were represented by these organizations during the negotiations[1].

The main negotiation process took place between February 2019 and October 2019. During this period representatives from all involved parties met on a regular basis, face-to-face on twenty separate occasions to draft a 'Negotiators Agreement for the North Sea' (OFL, 2020a). Meetings usually lasted between 3 and 6 h, but also included a two-day conference. The Negotiators Agreement was presented in February 2020. Following this presentation, in the period until June 2020 the agreement was finalized with minor changes to the content (OFL, 2020b)[2]. In this paper, the provisions in the agreement are presented as a set of proto-institutions because, at the time of writing in 2020, implementation of the agreement was only just starting.

Despite discussions covering a broader range of topics, this paper explores institutional work done by actors as they were trying to create, maintain, disrupt or defend rules regarding multi-use of OWF during the NSD. It is important to remark that it is *not* the rules

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[1] Energy (EBN, NOGEPA, TenneT, NWEA), fisheries (Visserbond, VisNed), NGOs (Stichting de Noordzee, WWF, Greenpeace, Natuur & Milieu, Vogelbescherming) and ports (Port of Rotterdam) (OFL, 2020a)

[2] All representatives agreed upon the negotiator's agreement in February 2020. All involved parties except the fisheries sector signed the agreement in July 2020 (OFL, 2020b). The fisheries sector did not sign the agreement because of opposition in part of their constituency. The agreement was adopted by Dutch parliament in January 2021. At the moment of writing, parties are looking for ways to incorporate the fisheries sector in the follow-up trajectory.

**Table 1**

Forms of boundary and practice work based on Zietsma and Lawrence (2010) and Lawrence and Suddaby (2006). Variables marked with [1] were added by the authors of this paper during the analysis.

| Form of institutional work | Boundary work | Practice work |
| --- | --- | --- |
| Maintaining | Maintaining boundaries | Maintaining practices |
| | Controlling membership | Strong regulatory framework and discipline |
| | Co-opting potential boundary challengers | Educating |
| | Protect autonomy | Maintaining solidarity |
| | | Deterring |
| Disrupting | Disrupting boundaries | Disrupting practices |
| | Challenging the boundary | Reframing practices as illegitimate |
| | Mobilizing connected actors | Reframing insiders as illegitimate |
| | Forming networks of outsiders | Questioning existing practices[1] |
| | | Questioning solutions[1] |
| Defending | Defending boundaries | Defending practices |
| | Mobilizing co-opted actors | Delegitimizing challengers and their framing |
| | Activating boundary enforcement | Directly defending the practice |
| | Making symbolic incursions | Curbing expectations[1] |
| Creating | Creating boundaries | Creating new practices |
| | Bounding spaces for experimentation | Agenda-setting[1] |
| | Establishing cross-boundary connections | Defining |
| | Assigning responsibilities[1] | Constructing possible solutions |
| | Connecting with potential adopters and critics | Creating narratives |
| | Constructing identities | Theorizing practices |
| | | Removing barriers to adoption |
| | | Conditioning solutions[1] |
| | | Promoting legitimacy of new practices |

that structured the NSD that are of interest in this paper or how actors were involved in establishing the NSD.

### 3.3. Data collection and analysis

Data was collected through participatory observation of the main negotiation process from February 2019 until October 2019. Observational methods are uniquely suited to gaining insight into what actors actually do in a real-life context, rather than what they say they did (Morgan et al., 2017; Robson, 2005). Observational methods limit bias arising from deficiencies in memory and social desirability in answers when compared to retrospective methods such as interviews (Morgan et al., 2017; Robson, 2005). Simultaneously, participatory observation requires increased sensitivity to the role of the researcher in the process, since observations are influenced by the presence of the researcher and what the researcher chooses to record (Morgan et al., 2017; Robson, 2005).

During the first and last meeting of the NSD attended by the researcher, the position of the researcher as both observer and staff-member for the NSD was explained. The first author was one of the five members of the NSD staff, responsible for preparing the meetings, drafting discussion documents, and drafting the agreement itself and, as such, was immersed in the process taking an active role in the preparation of the agreement. There was no conflict between the role of staff member and researcher, because the prime interest of the NSD staff was to facilitate the negotiation process and potential drafting of an agreement. The prime interest of the researcher was to study the content and process of the negotiations in coming to such an agreement. As a staff member, the researcher was involved in working the input of the various parties into an agreement in a manner that was thought to be viable for all involved parties. The manners in which responses by parties were dealt with by the staff may have influenced subsequent responses of parties and must be taken into account in the analysis. Therefore, the raw data also includes notes from staff meetings and informal communication with other staff members, as well as their reflections on the process. Throughout data collection and analysis, peer debriefing was used, where regular discussions within the author team were held to reflect on experiences and findings. This has contributed to limiting potential 'insider's bias' where normalization of the context may limit the capacity of the insider-researcher to critically reflect upon the process (Greene, 2014).

The level of pre-structure to the observation was low, thereby allowing for a complete account that reflects the complexity of the process and that is sensitive to the context (Robson, 2005). Raw data were collected in the form of field notes and observations that were jotted down during each NSD meeting, as well as the general running of affairs in between meetings in the period between February 2019 and October 2019. This also includes informal communication between the staff and stakeholders that were part of the NSD, external stakeholders, and internal communication within the staff team. Thereby, both empirical evidence and experiential understanding of relevant topics were collected (Robson, 2005). The raw data cover the discussion of various topics and progress on the agreement over time, including input and discussions regarding proposed changes by various actors. This data is complemented by documents including meeting agendas, and minutes of the NSD meetings that were created by a third party, which function as a secondary source of data used for triangulation (Robson, 2005). Additionally, the researcher also observed an additional meeting in December and the presentation of the agreement in February and maintained regular contact with a key stakeholder regarding the general running of affairs in the meantime. This data was synthesized and organized into a chronological storyline of the process that allowed for subsequent analysis (Robson, 2005). Throughout the storyline, cross-references to the raw data were included as an audit trail for verification purposes (Greene, 2014).

The storyline formed the basis for multiple rounds of coding in the qualitative data analysis software Atlas.ti. The first round was more inductive, focusing on the main topics related to OWF that were discussed throughout the process. Subsequently, the sections related to multi-use were coded using a second round of directed coding based on Table 1. The main categories of e.g. 'maintaining practices', or 'creating boundaries' functioned as code families in Atlast.ti, and included codes such as 'educating', respectively 'assigning responsibilities'. A pattern was identified when there is an interplay of various forms of institutional work, various actors, or various topics over time. Co-occurrence tables and the query tool were used to identify and analyze combinations of actors and forms of institutional work they employed regarding various topics concerning multi-use. Lists of quotes were exported to Excel and color-coded to further explore and validate these patterns over time.

## 4. Results

This section presents the results regarding institutional work performed by various actors to effect institutional change multi-use of OWF. First, the dominant patterns in practice work will be discussed, followed by boundary work and mixed forms of practice and boundary work.

### 4.1. Practice work

With regards to practice work, the results show that during the NSD actors focused primarily on maintaining and creating practices, while disrupting and defending work were less prominent. There is one important pattern related solely to maintaining practices which will be discussed first, followed by an elaboration of the patterns that result from the interplay of maintaining and creating practices.

#### 4.1.1. Maintaining practices
Incumbents used active maintaining work to ensure key practices were continued. This was mainly done by routinely referring to existing practices such as plot-decisions and tenders as laid down in the Dutch Offshore Wind Energy Act, and targets set in the Paris Agreement and Dutch Climate Agreement. References to these existing frameworks were also used to educate other parties on certain core values of the current system (e.g. the need for fast and affordable development of OWF). Additionally, maintaining work was also a subtle consequence of all actors, including challengers, being susceptible to this maintaining work, as they had previously been involved or had accepted the outcomes of recently developed frameworks for OWF. As a consequence, there were no attempts to actively disrupt these frameworks. As such, both active maintaining work by incumbents and the acceptance of such maintaining work by challengers together created a pattern reinforcing the status of these existing practices. For example, the Dutch Climate Agreement includes provisions regarding cost-reductions to be achieved by the offshore wind energy sector. These provisions are often referred to by incumbents in a routine manner as well as in educating other parties. Thereby, core values of the current system such as cost-effective OWF development are maintained, while simultaneously limiting creating work that would infringe upon these values. Moreover, existing frameworks were strengthened by the fact that both incumbents and challengers frame the development of proto-institutions in relation to these maintained practices. For example, new practices such as the area-passport which will be discussed below, are framed in relation to the existing and actively maintain instrument of plot-decisions. This pattern of maintaining work by incumbents and the acceptance of these maintained practices by other actors is termed *collaborative stage-setting*.

#### 4.1.2. Interplay between creating and maintaining practices
Creating work in the case of the NSD cannot be seen in isolation from maintaining work, because the maintained practices discussed above form the benchmark for other forms of institutional work. Most notably, during the NSD there was an interplay between maintaining and creating practices. One pattern of creating and maintaining work that can be observed in the NSD is termed *collaborative coercion.* This pattern is characterized by the creation of new proto-institutions that also include conditions that safeguard core values of existing maintained practices. Collaborative coercion can be observed in cases where both incumbents and challengers support a general principle but have conflicting ideas regarding the operationalization of this principle. During the NSD, both incumbents and challengers supported the general principle of multi-use, and both used 'creating work: agenda-setting' to ensure that multi-use was discussed during the NSD. However, as soon as the consequences of these ideas for proto-institutions became clearer, incumbents could be observed to use maintaining work with a focus on educating other parties on core values of the existing system. For example, incumbents started referring to the target of keeping the societal cost of energy transition low, as well as referring to cost-reduction targets set for the offshore wind energy sector in the climate agreement. However, in light of the agreement upon the general principle of multi-use and continuous creating work by challengers, incumbents were to a certain degree coerced into accepting the development of proto-institutions to further multi-use. As a result, incumbents could be observed to shift from maintaining towards a subtle form of creating work, with the aim of conditioning proto-institutions to ensure that developing proto-institutions were in line with certain core values of the current system.

A good example of this pattern of collaborative coercion is the proto-institution of the 'area-passport'. The North Sea Agreement includes a provision stating that the government will make an inventory of characteristics of current and potential future uses of an area prior to plot-decisions, and that these characteristics need to be considered when designing future plot-decisions for OWFs. This so-called 'area-passport' is a proto-institution that forms a basis for multi-use by ensuring that various existing and potential future interests are taken into account. In line with the concerns of incumbents, the area-passport also ensures that potential multi-use options are known prior to the tender, which allows the developers of offshore wind farms to include associated risks and costs in their bids. Moreover, the same chapter in the agreement also includes provisions with additional conditions, by stating that choices related to

different forms of multi-use will always have to be balanced against their effects on the electricity supply of the OWF and the cost-reduction targets set in the Dutch climate agreement. As such, incumbents are coerced into accepting proto-institutions that forms a basis for multi-use, despite disagreement upon the operationalization of these principles. The fact that coercion is successful in this case appears to be related to the incumbent's initial support for the general principle of multi-use. However, through continuous creating work by both challengers and incumbents, this proto-institution has been collaboratively adapted to ensure that certain core-values of existing institutional practices are maintained.

Another good example of collaborative coercion is the development of proto-institutions that prohibit bottom trawling fisheries. Initially, the fisheries sector applied creating work to develop institutions that would allow this type of fisheries in OWF. The NGOs and wind sector increasingly worked to maintain and strengthen the current framework that bottom trawling within OWF is not allowed. The argument of risks and associated costs of this activity for OWF was prominent in this discussion. Eventually, the fisheries sector also began to express doubts related to the risks for fisherman when using the currents techniques for bottom trawling within the boundaries of OWF as they are currently designed. This led to the provision that in the short term, with the use of current techniques bottom trawling within windfarms is not an option, but that technical innovation may lead to changes in this regard. As such, coercion by other parties led the fisheries to reconsider their position on this issue, and opt for including conditions to ensure that the prohibition for bottom trawling in OWF can be reconsidered in the future.

A second pattern that can be identified as a result of the interplay between maintaining and creating work is termed *'abstracting new practices'*. This pattern is characterized by proto-institutions that are much more abstract than the initial ideas that were suggested for operationalizing multi-use and is primarily used by incumbents. This pattern can be observed when incumbents do not agree with a suggested proto-institution but do not want to use power to force their will. An example is the idea by challengers to prescribe so-called 'beauty contests' in tenders to incentivize innovation with regards to multi-use (e.g. the most fisheries-friendly or nature-friendly windfarm). As this would limit incumbents in how to interpret the existing general institutional frameworks such as the Offshore Wind Energy Act, they initially started using maintaining work (primarily educating and deterring). However, under the pressure of creating work by challengers, they shifted to a subtle form of 'creating work: theorizing', thereby endorsing some form of change while simultaneously limiting the effect of these changes on existing practices. Incumbents suggested small adjustments to statements regarding this beauty contest on multiple occasions over time - such as a broader formulation of the purpose (integrated development, rather than nature or fisheries friendly), or the suggestion to leave out the word 'tender'. This leaves the provision much more abstract in the eventual agreement, which now reads that the government will study which (tender) instruments can be used to improve integrated development of OWF. In this manner, incumbents often succeeded in moving these ideas in a more abstract, process-oriented direction that offers much room for interpretation in the future. Rather than a proto-institution that provides a mechanism for incentivizing multi-use, a more ambiguous statement is created that encourages a process that might lead to mechanisms for incentivizing multi-use in the future.

A third pattern focusing primarily on creating and maintaining work is called '*convergence by coalition*' and refers to a strategy where parties use creating work to connect their ideas to other proto-institutions that were being developed. This strategy was applied by both challengers and incumbents. For example, multi-use in the form of nature development in OWF might limit other, often more intensive, forms of multi-use like fisheries. Therefore, the idea of nature development which was promoted primarily by NGOs, was also supported by the OWF developers who perceive more intensive forms of multi-use as a greater risk to their unhindered operationalization of OWFs compared to nature development. This support further strengthened the ideas surrounding proto-institutions related to nature development. Another example is that NGOs in some cases supported incumbents' narratives regarding cost-efficiency because this argument appeared to be effective in limiting more intensive forms of multi-use such as bottom-trawling fisheries. As such, convergence occurred by coalition forming on ideas that could be vehicles that also benefit different actors' interests; i.e. various actors showed convergence over proto-institutions as these could unite their respective interests.

A fourth pattern is called *convergence by compromise.* This pattern occurred mainly between two challengers that used creation work for opposite purposes, while incumbents did not have a strong opinion on the matter. For example, NGOs worked at creating rules that limited fisheries with specific types of passive gear, while the fisheries sector worked at creating rules that would explicitly allow this same type of fisheries. While there was some disruption work involved, both these actors mainly used creating work, by suggesting adaptations to paragraphs that would favor their perspective. Incumbents in the meantime kept a relatively neutral position; i.e. they mostly refrained from taking positions or making decisions, unless the negotiating actors would come to some kind of compromise. Convergence, therefore, was allowed if a compromise was reached. In the agreement, this resulted in neither explicit allowance nor explicit prohibition of this type of fisheries; rather it was decided that it should depend on the local circumstances as part of the analysis for area-passports.

### 4.2. Boundary work

Parties were more involved in practice work compared to boundary work when looking at the issue of multi-use. Only two clear examples of boundary work were identified, the first focusing on maintaining boundaries and the second on creating boundaries. It is important to mention that the NSD itself is a result of boundary disruption in the preceding period. An example of this disrupted boundary is that in reports leading up to the NSD, actors were quoted who presented government decision making after consultation phases as a 'black box' and actors requested the government to form the NSD in a joint letter (OFL, 2018). Another example is that the Dutch parliament seriously discussed the option of installing a so-called 'North Sea Commissioner'. Such a commissioner would be an independent public figure responsible for the governance of the North Sea and execution of North Sea policy; i.e. overseeing and coordinating policy development across actors and governmental departments (House of Representatives of The Netherlands, 2018).

As such, at the start of the NSD the boundaries surrounding North Sea governance and the role of actors therein were already challenged. The NSD itself can be seen as the result of boundary work allowing for challengers to enter into a governing arena with incumbents to discuss current and future policies. However, in the negotiations during the NSD, boundary work did not seem to be the priority with two notable exceptions which will be discussed below.

### 4.2.1. Maintaining boundaries

Maintaining boundaries was solely performed by incumbents and primarily took the form of 'protecting autonomy' and 'controlling membership' in a pattern termed *protectionism*. First, incumbents sometimes delayed the sharing of information because they first had to consult in line with existing bureaucratic rules and routines. This resulted in a subtle form of maintaining boundaries because it implicitly illustrated the position of the NSD relative to these existing bureaucratic systems and essentially reinforced the position of incumbents (in this case governmental organizations). A second form of maintaining boundaries is done by incumbents protecting their sole influence over specific aspects of the process of OWF development. For example, the wind sector worked to maintain sole responsibility for the design of OWFs after the tender is won, without infringement by other parties and interests. The third manner in which incumbents maintain boundaries is by deterring responsibility for other aspects of multi-use, for example by clarifying that they are not responsible for the space in between turbines where potential multi-use needs to take place. While challengers occasionally could be observed to attempt creating boundaries through assigning responsibilities, incumbents implied that multi-use is the responsibility of 'other parties'. The pattern of protectionism is a result of reoccurring maintaining of boundaries by incumbents aimed at the policy level (positioning the NSD in relation to existing bureaucratic systems), and the project level (maintain responsibilities for OWF projects while deterring responsibilities for multi-use). The pattern of protectionism could be observed particularly for those boundaries that were in line with the values that were maintained in the pattern of collaborative stage-setting, such as cost- and risk-reduction or achieving the targets for OWF set in the climate agreement.

### 4.2.2. Creating boundaries

Both incumbents and challengers jointly redefined their future relationship regarding the governance of the North Sea, in a pattern which is termed *collaborative boundary creation*. There was a high level of agreement between parties that a new manner of cooperation and participation was necessary regarding North Sea policy. While there was much discussion regarding the exact form this was to take, the boundary creation work resulted in the rule that there will be a form of 'permanent NSD' that will discuss developments that infringe upon the North Sea Agreement. The fact that some actors, particularly incumbents, were not necessarily in favor of the idea of a North Sea Commissioner as they considered this a too strong infringement on existing boundaries helped to create support for the idea of a permanent NSD as a more favorable option. While the discussion regarding the permanent NSD was broader than just multi-use, the permanent NSD did provide a solution for issues related to multi-use particularly in the interplay between boundary and practice work, which will be discussed in the next section. While boundary work was relatively limited during the NSD in many regards, the creation of the proto-institution of a permanent NSD can be considered an important institutional change regarding boundaries, which departs from traditional ways of governing the sea.

### 4.3. Interplay of practice and boundary work

This section discusses four patterns related to combinations of boundary and practice work. The first pattern is called *'confronting practice work with boundary work'* and follows from the interplay between creating work by challengers and boundary work by other actors. Challengers feared that more general (abstract) statements that covered their interests would not receive follow-up in policy-development regarding multi-use and it would be outside of their influence in the future. In essence, these challengers were concerned about future boundaries and their ability in the future to create leverage. However, rather than working on boundaries, they strove for a detailed representation of their interests by working to include statements related to their interests throughout the agreement; i.e. they refrained to a form of precautionary creating of practices. For example, NGOs suggested including specifications related to nature protection and development in almost every general rule regarding multi-use. To some extent, this work resulted in additional safeguards, such as the provision regarding the ecological capacity of the North Sea in paragraphs about new activities such as marine energy and mariculture. Simultaneously, incumbents and the NSD staff used boundary work to limit such precautionary practice work, by referring to the proto-institution of a permanent NSD, which provides parties with the opportunities to be involved in the future interpretation of the agreement.

Second, a pattern can be identified where primarily the government used both maintaining boundaries and maintaining practices to block ideas for institutional change, which can be called *powerplay*. A prime example where the government succeeded in blocking change was related to an ongoing revision of the offshore wind energy act at the start of the NSD. Multiple parties, including challengers but even some incumbents (albeit for different reasons), whished for this revision to be halted to enable the incorporation of relevant aspects of the agreement in this revision. For the challengers, this was mainly related to incentivizing multi-use (e.g. nature development in OWF or fisheries-friendly windfarms). The topic was discussed in the NSD multiple times, with parties using work particularly aimed at practices (e.g. explicitly including mechanisms for encouraging innovation with regards to multi-use in the revision of the Offshore Wind Energy Act), but also at boundaries with the chairman of the NSD sending a letter to the minister of Economic Affairs to request the revision to be halted. The government responded by focusing on maintaining work, including 'educating' and 'protecting autonomy' (e.g. referring to the need for this Act to achieve targets set in the Climate Agreement), but also some boundary defending work (stating that this is not a discussion for the NSD). In this case, the government used institutional work aimed at maintaining both boundaries and practices to block ideas that encouraged multi-use using this Act. It is important to notice in

the above example, that the government also held the power to use this pattern effectively.

A third pattern is called *'abstracting solutions in time'* and is the result of an interplay between maintaining work by incumbents and creating work in the form of agenda-setting by challengers. An example is the difficulty in gaining (affordable) insurance for co-users that want to operate within windfarms, such as the fisheries sector. Incumbents applied maintaining and defending strategies with regards to this topic throughout the NSD, for example stating that these insurance issues are negligible compared to insurance of the OWF themselves, as well as stating that it is not a collective responsibility but rather the individual responsibility of the co-user. Through creation work in the form of agenda-setting the issue kept returning in debates, but mostly as a side-note. There were some instances where ideas for solutions were debated (e.g. options for collective insurance). However, since the insurance issue was marginal compared to other issues that were debated in the NSD it would not 'make or break' the agreement. As a result, the issue was moved in time, with the agreement including a provision that states that "the question whether multi-use and passage through OWFs can be facilitated by a form of collective insurance will be debated in the [permanent] NSD". Noticeable was the consistent use of deterring by incumbents, while challengers did not push the issue beyond agenda setting. As a result, issues were pushed back in time and eventually were shifted to the permanent NSD.

A fourth pattern that was identified is called *'boundary dodging'*, and is characterized by the fact that discussions in the NSD kept focusing on practices, often disregarding boundary issues. This can primarily be observed for topics where there were problems related to boundaries, but debates in the NSD constantly returned to extending (details of) practices. For example, debates kept returning to extending the passage for larger ships in OWF and whether there should be free passage or passage through specific areas, or how to optimize nature-enhanced building in windfarms. While defining these practices was important, the practices were often less disputed than the boundary. Returning to the example of passage for ships through OWF, there was already a pilot in place at the start of the NSD and the fact that there would be an extension of practices in this regard was relatively clear. However, who is responsible for executing and paying for these changes was a major issue, but this was barely discussed in the NSD. Some challengers were trying to create boundaries and assign such responsibilities, but this never went beyond agenda setting. These boundary-issues were often ignored and, at best, were shifted to the future by means of referring them to the permanent NSD, which illustrates that these boundary issues were dodged during the NSD.

## 5. Conclusion and discussion

Using the analytical lens of institutional work, various patterns were uncovered in actors' work to effect institutional change for multi-use OWF. As also mentioned in Table 2, the interaction between creating and maintaining work was dominant in the patterns that could be found in the case of the NSD. The maintained practices and boundaries, and the core values they represent, provide a fallback for incumbents in conditioning or abstracting creating work by other actors that would infringe upon these core values. This corroborates insights by Van Doren et al. (2020) on institutional creating work by market-based institutional entrepreneurs that maintain conventional paradigms. The importance of maintaining work as the benchmark for creating work indicates that institutional change is more incremental rather than wholesale during the NSD. In the case of the NSD, institutional change barely occurred on the

**Table 2**
Patterns of institutional work related to multi-use OWF.

| | Pattern | Dominant type(s) of institutional work | Description |
|---|---|---|---|
| Practice work | Collaborative stage-setting | Maintaining | Active maintaining of existing frameworks by incumbents and acceptance thereof by challengers. |
| | Collaborative coercion | Creating and maintaining | Agreement upon general principle but disputes over operationalization, which results in the development of proto-institutions that contain conditions safeguarding core values of the existing framework |
| | Abstracting new practices | Creating and maintaining | Abstracted and more process-oriented proto-institutions as a result of multiple instances of subtle 'creating work' by incumbents over time aimed at increasing the ambiguity of the proto-institution. |
| | Convergence by coalition | Creating and maintaining | Strengthening of ideas for proto-institutions because this idea supports different actors' interests - albeit for different reasons - thereby leading to convergence. |
| | Convergence by compromise | Creating and maintaining | Incumbents providing challengers with the opportunity to find a compromise or do nothing. |
| Boundary work | Protectionism | Maintaining work | Incumbents using various form of maintaining boundaries to ensure challengers do not gain influence over 'their' domain, while holding off responsibilities for other interests. |
| | Collaborative boundary creation | Creating work | Joint search for solutions regarding future cooperation and coordination between actors. |
| Interplay of practice and boundary work | Confronting practice work with boundary work | Creating | Actors responding to precautionary practice work by ensuring influence through extended boundaries. |
| | Powerplay | Maintaining | Incumbents using power over practices and boundaries to block changes. |
| | Abstracting solutions in time | Creating | Incumbents deter creating work by challengers after which the only solution is to use boundary work to keep the issue on the agenda in the future |
| | Boundary dodging | Creating | Constant return to creating practices to avoid debates regarding associated boundaries. |

level of broader institutional frameworks. Instead, the work of actors was focused primarily on the level of practices that could be used or adapted within the context of these broader frameworks. This is also reflected in the relative lack of boundary work.

The relative lack of boundary work does not mean boundaries were not disputed per sé. Instead, they were mostly avoided (see e.g. the pattern of '*boundary dodging*'). A notable exception is the pattern of '*collaborative boundary creating*' which led to the proto-institution of the 'permanent NSD'. This change in the governance arrangement for the North Sea is the most prominent result of boundary creating work during the NSD. The permanent NSD potentially makes boundaries more permeable in the future, by creating joint responsibility for the development and implementation of rules related to multi-use, OWF, and broader North Sea policy. However, to some degree, the permanent NSD can also be seen as a way of shifting discussions on boundary work towards a moment in the future. As the NSD itself was the result of the disruption of existing (sectoral) boundaries by creating an arena in which to discuss conflicting perspectives, we can conclude that the argument of Zietsma and Lawrence (2010) that disputed practices but intact boundaries are the starting point for cycles of institutional change need not apply. In the case of the NSD the practices were largely intact at the start and some were even strengthened by maintaining work throughout the NSD. Therefore, this paper suggests that breached boundaries can also be a starting point for institutional change.

The relative lack of boundary work resonates with the subtle role of power as influencing institutional work by various actors within the NSD. The reluctance to demarcate new boundaries related to specific issues (as opposed to the more general creating of the permanent NSD at a higher level of abstraction) appears to be related to how parties perceived the role of the NSD. While the challengers perceived the NSD as a possibility to come to agreement on specific issues and policies for the future, incumbents perceived the NSD more as an instrument for participation. Previously established agreements and existing power relations allowed incumbents to rely heavily on maintaining work, also when pursuing creating work. Existing power relations, thereby, influenced the patterns of institutional work that emerged. While power is considered a contextual factor in institutional work, the results from this paper suggest that power needs more explicit consideration as a variable in institutional work (also Beunen and Patterson, 2019; Lawrence et al., 2013).

The lack of boundary work also relates to our finding that outright conflict was less prominent than some existing studies would suggest (e.g. Seo and Creed, 2002; Zietsma and Lawrence, 2010). Disrupting and defending work play only a marginal role and even when actors' attempts disrupted other actors creating work, this did not manifest in the form of conflict. Instead, forms of maintaining work, abstracting issues, or shifting discussions to the future were more popular strategies. This lack of outright conflict is also reflected in the variables that were added to the framework in Table 1 during the analysis, which are generally used to capture more subtle attempts at disrupting and defending work (e.g. questioning solutions rather than presenting them as illegitimate).

Two important discussion points stand out when reflecting on this study. First, among the likely consequences for a lack of conflict and boundary work was the set-up of the NSD. The NSD provided an arena for core stakeholders to jointly search for solutions to issues such as multi-use and to come to some form of agreement. Outright conflict can prevent such a joint search and hence, coming to any form of agreement. The case of the NSD shows that it was of pivotal importance to create an environment that supported mutual trust and a shared sense of responsibility for coming to an agreement. This highlights the role of more informal aspects of institutional work that come forward in an in-depth exploration of the interplay between institutional works of various actors. Whereas the existing framework of Zietsma and Lawrence (2010) is largely focused on work aimed at formal rules, our study shows that it is important to also take into account the informal 'play of the game'. This 'play of the game' is related to creating trust between parties where disagreement on content and the interpretation of certain practices is allowed, but in a context that allows for further debate about these issues in the future. Following this line of argumentation, it can be concluded that the informal aspects of institutional work were also crucial to institutional change in the NSD case. Based on these insights, we call for institutional research in sustainability transitions, and energy transitions specifically, to explicitly focus on the informal 'play of the game', because such approaches can, for example, add to existing studies on the struggles and opportunities for decentralized and local energy initiatives (e.g. Hess and Lee, 2020; Jehling et al., 2019; Judson et al., 2020).

A second discussion point involves the unique character of the NSD as an arena in which to discuss issues that are largely novel and remain subject to a certain degree of pioneering. The development of institutional frameworks to guide energy transition, and sustainability transitions more generally, constitute an ongoing process that is, at least to a degree, subject to a process of learning-by-doing (Van Poeck et al., 2020). Our study shows that pursuing multi-use is a process of pioneering within a context of formal institutions not designed for such a pursuit (e.g. sectoral institutions for OWF). Incumbents realize some form of coordination is needed if they are to swiftly pursue the deployment of OFW. Challengers realize that outright resistance to OFW is futile and thus also embrace this need. None of these actors, however, currently has a clear picture of the potential shape of the formal institutional framework that needs to be developed for multi-use. Our results suggest that actors are exploring possibilities for advancing their interests in relation to other actors, rather than knowing exactly how they would like these interests to be represented in formal rules. In this context, it is hardly surprising to conclude that processes of institutional change are not driven by outright conflict or center on disruption. Instead, the uncertainty the actors are faced with calls for more incremental, subtle, and prudent applications and patterns of institutional work in energy transition contexts. As such, the NSD currently manifests itself mostly as adjusting and formulating practices within the context of the institutional frameworks that are there. Essentially, actors seek 'institutional space' that exists within the frameworks through small adjustments, new interpretations, and novel practices, while simultaneously creating the space for such discussions to continue in the future.

The NSD is arguably a case that is distinct from the type of cases previously targeted in literature on institutional work. Nevertheless, the NSD might not be completely unique, since the wide societal quest for sustainability shows more examples where novel technologies and practices need to be integrated into space and society. Energy transition serves as a clear example, with many novel institutional designs and frameworks emerging surrounding e.g. local energy initiatives (Judson et al., 2020) or the transition to

low-carbon housing (van Doren et al., 2020). Other examples, such as the transition of our food system (Smith, 2006), the pursuit of a circular economy (Schulz et al., 2019), or climate adaptation (Tompkins et al., 2010) are similarly showing a need for institutional change. The kind of pioneering processes in which institutional change is pursued in highly uncertain contexts that we encountered in the case of the NSD, therefore, might be of broader relevance to sustainability transitions.

We suggest developing institutional work theory from a perspective of pursuing cross-sectoral institutional harmonization, particularly when applying it as an analytical lens for studying institutional change processes in the context of sustainability transitions. An important point for consideration is how uncertainty, complexity, and the multitude of issues and actors that are involved in sustainability transitions might significantly reduce a clear distinction between challengers and incumbents. Moreover, we follow Beunen and Patterson (2019) in their suggestion that intentionality in institutional work is not as articulated as often suggested, particularly when using it for studying complex environmental governance issues. In highly uncertain environments, the explorative and incremental process of learning-by-doing might ask for a more nuanced perspective on why and how actors apply certain forms of institutional work (see van Doren et al., 2020). While institutional work theory can be beneficial to understanding institutional change processes that are needed for sustainability transitions, the case of the NSD also challenges us to rethink its current scope.

While participatory observation of the NSD provides useful insights into real-time patterns of interaction between actors pursuing institutional change, the NSD is a clearly demarcated process with a set group of actors that interacted over a longer period of time. While this provides a clear scope for the research, it also leads to limitations. Developments that occurred in related arenas that were not discussed in the NSD, were not taken into account in our analysis. Nor were we able, as of yet, to gain insight into actual institutional changes as a result of this process. When looking at sustainability transitions frameworks such as the multi-level perspective, it will be interesting to further explore how the NSD continues to shape policy discussion regarding the North Sea at various levels and in various related fields in the future. Moreover, while participatory observation provides unique insights into real-time interaction and the content of debates between actors, retrospective methods such as interviews could provide additional insights regarding how actors reflect upon and experience a process such as the NSD. We recommend further application of institutional work, particularly using the distinction between boundary and practice work, to other sustainability transition cases in different country settings to further explore and expand the patterns we identify in this paper.

In line with these observations, rather than taking conflict as the basis for institutional change, this paper calls for research into processes of institutional harmonization (see also Spijkerboer et al., 2019). Institutional harmonization can be conceptualized as the process through which actors improve cooperation and coordination between competing or alternative institutional frameworks, taking into account both the formal boundaries and practices and the informal 'play of the game'. As such, the term institutional harmonization can be useful in searching for pathways towards cross-sectoral institutional change in sustainability transitions. This could be particularly beneficial to the various sustainability transitions that the world is currently facing, with the complex web of interrelated actors and interests that lie at their heart.

## Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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