

# Relational Distance and Transformative Skills in Fields: Wind Energy Generation in Germany and Japan

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**ABSTRACT** Organizational interactions in fields, including their antecedents and consequences, remain under-researched, in particular with regard to relational distance and transformative skills. Through a comparative study of the German and Japanese wind power sectors, we explore the importance of distance among organizational actors and the development of skills. While in the case of Germany a radical increase in wind energy generation can be witnessed, the situation in the field of Japanese wind power remains largely unchanged. We show how different degrees of distance among organizational actors in these two countries result in the different development of skills that stimulate transformation in the field of energy generation. More precisely, we illustrate the pivotal role of distant challengers with their transformative skills for the successful conversion of already established field structures. Our study contributes to field theory by elaborating on the understanding of the evolution of relational distance, thereby grasping the dynamic interplay between the diversity of actors and their skill formation within a certain strategic action field.

**KEYWORDS** energy transformation, institutional theory, qualitative comparative analysis, strategic action fields, wind energy

**ACCEPTED BY** Senior Editor Stephan Manning

## INTRODUCTION

Fields are not only a central level of analysis, but also an important concept for management and organization, in particular neo-institutional theory (Reay & Hinings, 2005; Wooten & Hoffman, 2008; Zietsma, Groenewegen, Logue, & Hinings, 2017). Despite abundant research on this topic, questions concerning ‘features that bind a field together and govern field interactions’ remain under-examined (Hinings, Logue, & Zietsma, 2017: 170). Given different field-level conditions, one needs to develop a perspective ‘that includes actors and relations,

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power structures and also the materiality of fields as embedded in governance and inter-organizational and organizational structures' (Hinings et al., 2017: 190). The motivation of this article, therefore, is to specify the relationships and dynamics of different field elements and thus contribute to the understanding of field structuring. In this regard, energy generation seems to be an exemplifying field with considerable dynamics over the last decades, largely accelerated by regional crises and global discussions on the sustainable production of energy; a field that can also be used to elaborate theory.

Considering the importance of the energy issue and dynamics of the field, this article focuses on corporate action in the field of generating renewable energy, which has grown rapidly across the globe, and the further expansion of and reliance upon which is a pressing global issue (Marquis, Jackson, & Li, 2015). Since not only global and regional but also national, and even local contexts play an important part in this, these actions and, hence, the development and conditions of the field may vary significantly (Wood et al., 2020).

Changes in governance and relations in the field of energy generation can be examined effectively by comparing countries over time. Insights gained from such a comparison may help to elaborate the theory of fields with regard not only to the recursive interplay between structure and agency but also to capturing the relational dynamics and changes among organizational actors and their more or less transformative skills. By including these aspects neglected so far and thereby tracing and explaining transformation over time, we contribute to the discussion on inter- and intra-field dynamics (Zietsma et al., 2017).

In this study, we compare the fields of wind power generation in Japan and Germany over a long period of time, with a particular focus on the last decade. The Fukushima disaster of 2011 was a potential triggering event, opening up new opportunity structures for managing energy transformation worldwide. Japan, the very country that witnessed the disaster, drastically reduced its reliance on the nuclear source and increased solar energy generation, but – as it seems – only for a short period of time. And the diffusion of wind power – and even discourse about a transformation in that direction – still leaves much to be desired in that country. By contrast, in Germany, where nuclear energy was challenged much earlier, the Fukushima disaster only accelerated the transformation towards renewable energy in general and wind power in particular. In this article, we will explain this counterintuitive impact of the Fukushima catastrophe on wind energy transformation in the two countries by mapping the complex field structures, events, and actions with a particular focus on wind energy generation.

Since our primary focus is on the conditions of field transformation (Hinings et al., 2017), we draw on theoretical insights from the strategic action field (SAF) approach (Fligstein, 1999; Fligstein & McAdam, 2012), which is sensitive to history and considers structural as well as agentic aspects and their recursive interplay. SAFs are social orders that embrace organizations interacting with

each other in awareness of legitimate rules and the actions of others in the field (Fligstein & McAdam, 2012). The SAF approach consequently embraces the way that not only rules but also resources condition the organizational actors' interactions or practices, while it also ensures that actors maintain or alter such rules and resources as structures through more or less collective action enabled by the necessary skills that induce cooperation.

The recursive relation between structure and agency, however, has not been fully addressed, either conceptually by the SAF approach (Fligstein & McAdam, 2012) or empirically in research on field transformation (Furnari, 2018). More specifically, changes in terms of actors' relations and skills seem to be underemphasized among the theoretical categories applied at the intersection of SAF and energy transformation (Kungl & Hess, 2021). However, relations among actors and changes regarding these relations are central to the governance of those fields and influence the actors' status and possibilities (Hinings et al., 2017). By bringing together the ideas of SAF and those of relational perspectives (Boschma, 2005; Ibert & Müller, 2015; Knoben & Oerlemans, 2006), we attempt to theorize 'what exactly has been changing within a field and how change takes place' (Hinings et al., 2017: 187). In particular, we will illustrate the importance of long-term evolution of the distance among incumbents and challengers concerning cognitive-normative templates and resource access (Ibert, 2010; Ibert & Müller, 2015).

In existing SAF-based studies, field transformation has been associated with the interplay of incumbents, challengers, and what are somewhat mysteriously known as 'governance units'. However, given the nested nature of intra- and inter-field relations as a part of field governance (Hinings et al., 2017) and their dynamics, simplifying actors' categories into one of these may not suffice. Although such categorization may certainly be necessary and its operationalization as a bipolar continuum (rather than a binary code) self-evident, it would be even more helpful to embrace the long-term interplay between organizational actors by recognizing the relational distance between them as well as the transformative skills they are able to mobilize in processes of major technological or social change. The development of transformative skills is influenced by relational distances but, in turn, enables organizational actors to influence relational distances, so, for instance, aligning the cognitive-normative templates, resource usage, and respective practices among the actors involved. Importantly, the skills may be used to either accelerate or block the transformation.

A theory elaboration along these lines would allow us to contribute to the discussion on inter- and intra-field dynamics (Zietsma et al., 2017) and to pay more attention to the recursive interplay between agency and structure, as well as to embrace the dynamic interplay between the diversity of actors and their skill development in relation to the long-term development of wind energy generation in Germany and Japan. By comparing these two cases, we show that change in the German field of wind energy generation is indeed transformational. Challengers

have exercised transformative skills in a collective manner across a broad range of private and public actors and over quite a long period of time. By contrast, little change has occurred in Japan. Japanese wind energy generation continues to be dominated by the incumbents, who have hardly mobilized transformative skills with regard to integrating the practices of persuading actors (Green, 2004; Hoffman, 1999; Patala, Korpivaara, Jalkala, Kuitunen, & Soppe, 2019; Powell, Oberg, Korff, & Oelberger, 2016; Suddaby & Greenwood, 2005), creating benefits for (Hitt, Ireland, Sirmon, & Trahms, 2011), and building coalitions with the relevant actors (Fligstein, 2001; Maguire, Hardy, & Lawrence, 2004; Powell et al., 2016).

The next section explicates our theoretical background, particularly concerning the SAF approach and neo-institutional theory more broadly. Methodological explanations are then given for comparative qualitative research on the German and Japanese fields. The findings section presents ‘cross-case patterns’ (Eisenhardt, 1989: 540) from the two countries and fleshes out and discusses the research’s theoretical implications, which deal with the role of and interplay between relational distance and transformative skills.

## THEORETICAL BACKGROUND

In neo-institutional theory, the ‘organizational field’ (DiMaggio & Powell, 1983) is both an empirical phenomenon (like an industry or sector) and a central level of analysis (Hinings et al., 2017; Zietsma et al., 2017). The organizational field is defined as a ‘community of organizations that partakes of a common meaning system and whose participants interact more frequently and fatefully with one another than with actors outside the field’ (Scott, 2013: 56). Such fields were understood formerly as being driven by rather ‘peaceful’ isomorphic pressure derived from field structures (DiMaggio & Powell, 1983). Moreover, the homogeneity among their actors had been overemphasized for a long time (Hinings et al., 2017). However, in relation to the foundational works of neo-institutionalism, further developed approaches emphasize the importance of heterogeneity among actors as well as strategic agency, power, interests, and struggles that result in political interactions among actors (e.g., often based upon DiMaggio, 1988; Hinings et al., 2017; Lawrence & Suddaby, 2006; Seo & Creed, 2002). From its inception, the SAF approach, on which we will concentrate in what follows, has focused on the political interactions of actors with different cognitive-normative templates and resource endowments (Fligstein, 1999; Fligstein & McAdam, 2012).

### SAF: Rules and Resources

Strategic agency, interests, and power were addressed explicitly in subsequent works in neo-institutional theory, including those labeled ‘institutional change’

(Seo & Creed, 2002), ‘institutional work’ (Hempel, Lawrence, & Tracy, 2017; Lawrence & Suddaby, 2006), and ‘institutional logic’ (Thornton, Ocasio, & Lounsbury, 2012). The SAF approach’s insights into political interactions have been reflected on in the subsequent development of neo-institutional theory. By the same token, insights into the necessity of structures to be enacted and eventually transformed by the structuration-informed approaches of neo-institutional analysis (e.g., Lawrence, Leca, & Zilber, 2013; Lawrence & Suddaby, 2006; Owen-Smith & Powell, 2008; Powell et al., 2016) have also been reflected on in the SAF approach (Fligstein & McAdam, 2012). Anthony Giddens (1984: 1) defined structures as ‘rules and resources recursively implicated in social reproduction’. Structures thereby enable, guide, and restrain – but do not determine – action in general and the position-practices of organizational actors in the field in particular. According to Hinings et al. (2017), these aspects, with a focus on (inter-) organizational relations, constitute the field governance, which can be seen ‘as the formal mechanisms that enable or constrain field activity and dynamics (...)’ (175). However, ‘not to privilege infrastructure over agency in our theorizing, (...) “[we] need to consider the permanent recursive and dialectical interaction” that we observe between actors and institutional infrastructure’ (190).

At a superficial level, neo-institutional theory and the SAF approach have converged regarding this aspect. However, as Furnari (2018) points out, neither neo-institutional theorists nor the SAF approach has systematically addressed the interlinkage between field structures, positions within the field, and actors’ political interactions. Instead, despite a reference to the practice theories of Bourdieu (1984) and Giddens (1984), who both conceive the interplay of structure and agency as a duality rather than a dualism, the emphasis tends to be on one or the other. One reason is that most of the existing research relies on ‘single case studies’ that focus on ‘one type of field structure at a time’ (Furnari, 2018: 325). Given the varying conditions among fields and in different countries, we need to ‘theorize field differences and, as a result, understand better their role in the institutional dynamics of change’ (Hinings et al., 2017: 191). Therefore, it could be argued, a comparative approach with significantly different structural compositions – regarding actor positions, relationships, practices, events, and structures – and an eye for developmental processes over time – would be key to overcoming this weakness.

*Resources* and *rules* are central to Giddens’ (1984) conceptualization and nicely supplement the Bourdieusian (Bourdieu, 1984) concept of structure in field theory. Resources include allocative and authoritative moments and provide actors with the opportunity to use such resources in order to achieve their purposes, in particular, if the resource usage is in line with prevailing rules. As in Giddens’ (1984) structuration theory, the SAF approach not only adequately embraces the way that rules and resources condition action; it also considers – not unlike Bourdieu, who emphasizes the position of actors – how more or less powerful actors – challengers – enact, reproduce, and eventually transform these structures. The

SAF approach indicates that such field transformation depends on the actors' intra- and inter-field positions as well as on organizational capacities and social skills to enact and eventually transform field structures.

Collective action, in particular, will aim at either such a transformation (Kjeldgaard, Askegaard, Rasmussen, & Østergaard, 2017; Siméant-Germanos, 2021; Welch & Yates, 2018) or the maintenance of the field (Fligstein, 2013; Owen-Smith & Powell, 2008). One example of attempts to organize for collective action are social movements that seek to influence, among other things, a focal field's boundary definition and resource allocation (Diani, 2013). Thereby, some actors may be positioned in more than one field, with several relationships spanning different fields, thereby constituting inter-field dynamics, in particular when fields are proximate and interdependent (Fligstein & McAdam, 2012). This includes business or market relationships, for example, between suppliers and producers, but also nonmarket, political relationships, for example, between firms and governments as well as social movements or nongovernmental organizations (NGOs). The actors are, therefore, not only influenced in their decisions and practices by their direct exchange partners within the same field, but also by a bundle of stakeholders who may be acting in different fields (Friedman & Miles, 2006).

### **SAF: Social Skills and Relational Distance**

Given the heterogeneity of actors and their positions as well as relations, the conditions of a field's governance are central to the actors' possibilities to act (Hinings et al., 2017). Social skills, a notion introduced by Fligstein (1999), allow the flexible accommodation of various interests and social competencies that aim for either field transformation or maintenance. Social skills are more precisely defined as 'the ability of actors to induce cooperation in other actors in order to produce, contest, or reproduce a given set of rules' (Fligstein, 1999: 11). Fligstein's study (1999) exemplifies his understanding of social skills with Jacques Delors, who was the key actor in convincing European countries to form the European Union and flexibly accommodated the various interests of European countries. But social skills may be inherent not only to the individual but also to collective actors, including organizations and even collectives of organizations such as can be seen in Hoffman's (1999) examination of pro-environment NGOs in the chemical industry. Thereby, the notion of social skills may aim not only at transformation but also at the maintenance of the field (Lawrence & Suddaby, 2006).

In addition to conceptualizing social skills with regard to inducing cooperative action, the SAF approach differentiates between incumbents and challengers. The most obvious difference lies in manifest interests in maintaining or transforming the field. Moreover, there are organizational actors called 'governance units'. These are charged with overseeing compliance with field rules to ensure smooth functioning overall. Since governance units such as state agencies and industry associations often bear the imprint of influence by the most powerful incumbents in the field,

they tend to justify that dominance, that is, contribute more to field maintenance than to change.

Utilizing the concept of social skills and different types of actors, the SAF approach adequately conceptualizes the long-term evolution of field dynamics. However, the SAF approach has not fully recognized differences involving the quality of interorganizational relations and of the social skills that influence these relations. To embrace such qualitative differences, this study adopts and adds the concept of relational distance. This concept and its counterpart, proximity, concerns the relationship between at least two organizations and is multiplex, as it includes various dimensions (Boschma, 2005; Ibert & Müller, 2015; Knoben & Oerlemans, 2006).

The literature on the issue of relational distance distinguishes between the cognitive, organizational, institutional, social, functional, interest, and hierarchical dimensions (Ibert & Müller, 2015). These and other dimensions (like geographical and technological distance/proximity) are assumed to greatly influence and be influenced by (inter-) organizational actions and practices in the field. For our purpose – that is, looking at dynamics at a field level – the institutional, interest, cognitive, organizational, and hierarchical dimensions in particular seem to be fruitful. While the SAF approach constitutively embraces the first two dimensions, the last three also need to be included to fully recognize the quality of relations.

*Institutional* distance refers to the difference between the institutional, not least regulative and cultural contexts that organizations are embedded in. In the present article, this forms the analytical frame, which provides the basis of field dynamics in different countries. The *interest* dimension is closely related to cognitive distance, which can be seen by examining an actor's cognitive-normative templates. Such templates shape actors' interests. Most typically, the cognitive and interest dimensions can be exemplified between incumbents and challengers. Incumbents hold cognitive-normative templates that are congruent with the status quo and thus have an interest in maintaining field structures. By contrast, challengers' templates conflict with incumbents and find interest in changing the status quo. The *organizational* dimension of relational distance indicates the degree of integration, that is, the membership in organizational units and sub-units. Lower distance in this dimension means that actors are 'affiliated with the same organization and sub-organizational units'. Following Ibert and Müller (2015), *hierarchical* distance refers to organizational positioning in the field, which greatly impacts access to resources. Ibert and Müller (2015: 184) define proximity, regarding this dimension, as a situation in which actors 'have comparable access to organizational resources and occupy positions at the same level in their organizations and institutional fields'.

Against this background, we pose the following two research questions: *How do incumbents and challengers enact rules and resources and, thereby, contribute to the (non) transformation of the field of renewable energy, in particular the field of wind energy, in the two*

*countries? What role do relational distance and social skills play in this process and how can the theory of fields, by including them, better explain such a transformation process?*

## RESEARCH SETTING AND METHODS

As indicated above, Furnari (2018) calls for research to address the recursive relationship between field structures and actors' political interactions through the analysis of fields with different structural conditions. Responding to this call, the present study focuses on the Japanese and German wind power generation fields, both understood as nested in the respective national energy sectors. The German and Japanese wind energy generation fields are highly contrasting cases (Eisenhardt & Graebner, 2007) in terms of the rules and resources surrounding their respective wind power fields, although they are not entirely decoupled from one another. Rather, multinational firms from these two and other countries link them.

While the importance of solar energy was quite similar in both countries in 2020 (8.6% Germany and 8.5% Japan), in the very same year Germany relied on 23% of wind energy generation, whereas this was less than 1% in Japan. Despite existing inter-case linkages, a contrasting case study design seems an especially promising basis on which to detect commonalities but also specificities of field developments, in order to then explain the very different extent of transformation (Seawright & Gerring, 2008; Yin, 2009). In our understanding, the fields of wind power generation in Germany and Japan form the social unit and represent the 'cases' in our analysis.

Interestingly, in the early stages of development, similar conditions prevailed in these two highly developed countries with regard to a strong machine-building industry, and energy generation and supply originally dominated by major regional stakeholders. The field of energy generation in Germany continued to be dominated by four major corporate actors, who were also operators of traditional power plants (fossil fuel and nuclear power). These traditional energy generators maintained more or less collaborative connections with state actors (Nelkin & Pollak, 1980; Renn & Marshall, 2016) but were nevertheless being confronted at an increasing rate by a sequence of jointly interacting external pressures destabilizing the field (Kungl & Geels, 2018), requesting that incumbents build 'hybrid ambidexterity' (Ossenbrink, Hoppmann, & Hoffmann, 2019). The incumbents in Germany did so by first installing business units dedicated to renewables before switching to a hybrid approach that combined structural with more contextual approaches (e.g., running idea competitions or convening innovation campuses) to explore the arising opportunities. The field of energy generation in Japan continued to be dominated by nine large corporations, which – not unlike their German counterparts – enjoyed *de facto* near monopolies regionally. Other similarities can be pointed out with respect to the emphasis on nuclear energy up to a certain point in time (Cherp, Vinichenko, Jewell, Suzuki, & Antal,



2017). Large German energy companies developed close ties with government, in particular, the Ministry of Economic Affairs and Energy (BMWi) and the Ministry of Research and Education (BMBF), which promoted the development of nuclear energy, at least until the 1990s, when the anti-nuclear movement gained not only more prominence but also political influence in the aftermath of the Chernobyl disaster. Likewise, large energy corporations in Japan depend hugely on state actors, in particular the Ministry of Economy, Trade, and Industry (METI) (Dauvergne, 1993; Vivoda & Graetz, 2015). After the oil shock in the 1970s<sup>[1]</sup>, the predecessor of the METI established the New Energy and Industrial Technology Development Organization (NEDO) and sought alternative forms of energy generation to those relying on oil. Although various experiments concerning alternative energy sources were conducted, little growth in such energy sources was actually witnessed. Instead, the country clearly shifted toward nuclear power. The development of solar energy generation was similar across the two countries.

### Data Collection

Our primary source of data is secondary data and semi-structured interviews with organizational actors involved in wind power in each country (see Table 1). When applying the SAF approach, those involving traditional energy generation may be considered as incumbents and those involving wind power generation as challengers. However, as indicated above, such a simple classification did not help us to make sense of the field dynamics. Therefore, at first, we aimed to understand more details about organizational actors in both fields. For this purpose, we gathered secondary material such as newspaper articles, reports, and studies. This also includes material that allowed us to reconstruct the historical development of the wind energy fields.

With a sound understanding of the development of both fields, interviews, with an average duration of 63 minutes, were conducted in German and Japanese, respectively. In particular, we asked our informants questions concerning the organizational and hierarchical dimensions of relational distance against the background of a significant institutional distance between the two countries, which are, nevertheless, both considered as coordinated rather than liberal market economies (Hall & Soskice, 2001). Regarding the organizational dimension of relational distance, the questions included the informants' perception of renewable energy in general and wind power in particular, and the allocation of respective responsibilities to different organizational units. German and Japanese informants involving traditional energy generation tended to regard traditional energy generation as being of primary and renewable of secondary importance to the organizations. We were particularly interested in whether those involving wind power generation shared this view or not. In terms of the hierarchical and organizational dimensions of relational distance, we inquired about their relations with different organizations and the allocation of resources in the field.

Table 1. Empirical data

<i>Source</i>	<i>Germany</i>	<i>Japan</i>	$\Sigma$
Qualitative interviews	46 interviews (with 57 informants) <ul style="list-style-type: none"> <li>– 12 management turbine manufacturers</li> <li>– 12 employee representatives energy sector</li> <li>– project designer wind farms</li> <li>– 15 unions energy sector</li> <li>– 4 employer associations energy sector</li> <li>– 2 NGOs</li> </ul>	29 interviews (with 25 informants) <ul style="list-style-type: none"> <li>– 3 wind energy generators</li> <li>– 3 wind turbine manufacturers</li> <li>– 5 traditional energy companies</li> <li>– 4 energy experts</li> <li>– 4 governmental actors</li> <li>– 1 political party</li> <li>– 5 NGOs</li> </ul>	75
Site visits	4 visits to wind turbine manufacturers	3 visits to wind turbine manufacturers, 1 to a research institute on renewable energy	8
Secondary material	Official statistics; material regarding the history of renewable energy firms; archival data regarding Japanese and German energy politics; campaign material		

We conducted interviews at the interviewees' customary places of work and, where relevant, organized site visits to wind turbine manufacturers as well as research institutes concerned with renewable energy in order to triangulate our interview material with onsite observations. We finished our data collection when we could predict, more or less, what our informants would say regarding the organizational and hierarchical dimensions of relational distance.

## Data Analysis

Our data analysis is comprised of three stages. The first stage relied primarily on secondary data. We intended to identify key actors and key issues and to flesh out their activities around the field of wind energy generation in these two countries since the 1970s. The key actors identified as a result included those operating within the field of wind energy generation as well as those in the traditional energy generation field. This first stage of data analysis allowed us to develop a timeline of major events between the 1970s and 2010s, based on the recollections of our informants as well as on secondary material to compensate for any potential hindsight bias among the interviewees. This is consistent with Langley (1999: 703) in one of her strategies for analyzing data from process studies: temporal bracketing. This analytical strategy involves the 'decomposition of data into successive adjacent periods', which 'enables the explicit examination of how actions of one

period lead to changes in the context that will affect action in subsequent periods' (Langley, 1999: 703).

On the basis of this first analysis, we tried to find patterns in the interplay of various actors, including incumbents, challengers, and governance units, in connection with the specific time period. As a result, the periods in both countries were divided into three phases (1–3) centering on the three triggering events – (1) the oil shock of 1973, (2) the Chernobyl disaster in 1986, and (3) the Fukushima catastrophe in 2011.

In the final stage, we conducted within-case and comparative-case analyses, mainly focusing on Phase 3 in both countries, which was conditioned by the previous phases (Langley, 1999). Comparative analysis of Phase 3 is obviously of particular significance, since this phase embraces the process after the Fukushima disaster. Within-case analyses were conducted in parallel before comparing the two cases with respect to our core concepts. At this stage, we focused on abstract theorizing by embracing the organizational and hierarchical dimensions of the relational distance between those involved in wind energy generation and traditional energy generation. As the institutional and interest dimensions of distance are widely recognized in the SAF approach, we shed light on hierarchical and organizational distance in particular.

## FINDINGS FOR THE GERMAN CASE

### Relational Distance

The German wind energy field can be characterized, right from the start of the transformation process, by a high degree of organizational distance and a low degree of hierarchical distance between those involved in the wind energy generation field and those in the traditional energy generation field. It is unique because of the challenge to the existing regulatory system in the wind energy sector, which often arises out of idealism. Those in the wind energy sector hold totally different templates and interests compared to those in the traditional energy generation field. [Figure 1](#) summarizes the developments in the German wind energy generation field from Phase 1 to Phase 3. In Phase 1, energy generation and distribution were dominated by large incumbent corporations that enjoyed regional dominance, which was endorsed by BMWi and BMBF as state-run governance units. However, such regional dominance did not mean there was no or only little change in the wind energy generation field. On the contrary, transformational change has been underway since Phase 1 and is still ongoing. With the rising oil price, small-scale wind power firms started to enter the wind energy generation field, as did small firms starting to manufacture wind turbines. In Phase 2, after the Chernobyl disaster, the country witnessed the entry of a new group of organizational actors. While the first (unsuccessful) wind energy test program (GROWIAN), financed by BMBF (called the Bundesministerium für Forschung

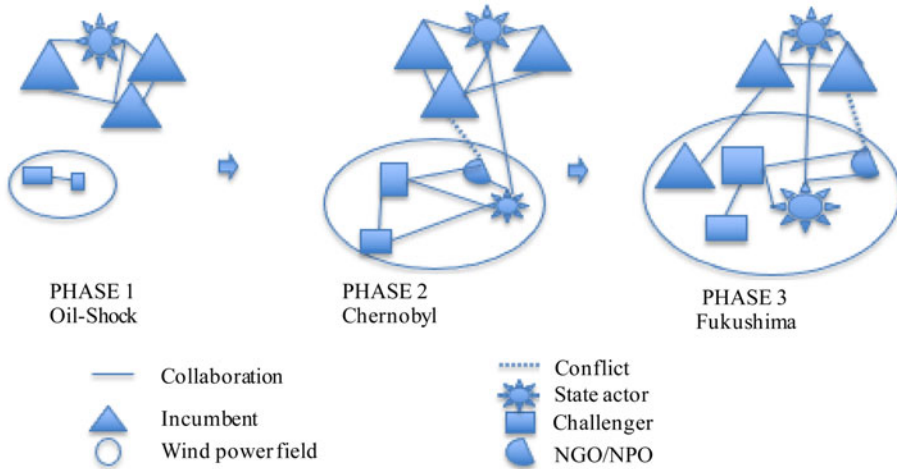


Figure 1. Wind field transformation in Germany

und Technologie or BMFT at that time), was conducted with the participation of traditional energy corporations, the later, more successful programs (e.g., 100 MW-wind), were accomplished first and foremost by challenger firms, which had started to collaborate in order to realize their shared goals with environmental NGOs and state actors, including the Green Party. In other words, there was a fundamental transformation of energy generation (Hoppe-Kilpper, 2003), originally taking place with the help of ‘collaborative innovation projects’ (Heidenreich & Mattes, 2022) in a sub-set of the field. Particularly with regard to the first tests carried out by the traditional energy players, it was repeatedly reported that they were more interested in showing that wind energy is not feasible. That means that different interests, which are linked to the respective positions of the actors, became apparent even in the early stages. This sub-field is often known as a niche (Carpenter, Simmie, Conti, Povinelli, & Kipshagen, 2012; Kemp, Schot, & Hoogma, 1998) and is characterized by little relational distance within this sub-set, but the relatively large distance between the actors in the niche and those within the larger field.

While incumbents in the traditional energy generation field did not diversify into wind energy generation for economic reasons or interests during Phase 1, the challengers in the wind energy generation field had almost no resources but were acting out of pure idealism (Bruns & Ohlhorst, 2011: 51). This also represented the basis of their interests. In other words, these actors were involved in establishing the issue of environmentalism rather than turning wind power into a viable business. In consequence, incumbents in the traditional energy generation field and challengers in the emerging field of wind energy generation were clearly different, not only with respect to their cognitive-normative templates but also with respect to interests as well as resource access and usage. Regarding the organizational dimension of relational distance, a representative of one wind association states that they ‘see

that regarding consultancy activities, most of the firms are coming from other industries or are relatively small independent firms' (wind association representative).

Environmental NGOs became salient after the Chernobyl period and criticized the practices of incumbent energy generators. As one farmer and wind pioneer states: 'This [event] was crucial, as it anchored the discussion on alternative energy in people's minds'. In contrast, renewable-energy firms, including those related to wind power, were in close collaboration with these NGOs. The relationship with grid owners is described as follows by the same informant: 'We had to fight with the grid owners to make the grid suitable for us. ... Once they realized we would find alternatives and realize a grid on our own, they developed a suitable concept'. But finally, they succeeded, which seems to be a good expression of the degree of hierarchical distance. This was also the phase in which governance units such as industry associations in the traditional energy sector began to soften the rules of the field and loosen the dominance of the big energy firms – with corresponding effects on the hierarchical dimension of the relation. According to the neo-corporatist tradition in Germany, these units were closely involved in the regulation of energy policy and had the opportunity to contribute their interests.

After the Fukushima catastrophe in Phase 3, even some incumbents in the traditional energy generation field turned their attention to the wind energy generation field. Not least because increasingly, they saw the opportunity to realize their economic interests. At that time, these incumbents, being still quite distant from those challengers in the wind energy generation field, had begun a process of convergence in face of external pressures and the respective responses to a general destabilization of the energy sector in Germany (Kungl & Geels, 2018). This process, however, continued to be characterized by many ambiguities and uncertainties, not only for challengers but also for incumbents to cope with (Ossenbrink et al., 2019). The challengers, such as small wind park owners, tried to organize themselves, which is described in the following:

We [different small wind park owners] integrated regenerative energy into the grid, which is represented by one organization. We worked on the plan to commercialize our MWh as one unit so that we appeared like one big nuclear power plant. This led to the fact that we are recognized now. (Farmer and wind pioneer)

Again, this was intended to lower the degree of the hierarchal dimension further. Regarding the governance units, it can also be seen that the idea that a transition in energy policy was necessary emerged in this phase – although there were still differences among actors regarding its pace and form. The close relationship of grid owners and traditional energy generation is still seen as an important problem, whereas the renewables are organizationally more distant: 'Although the corporation says these questions are treated independently ... of course they are not' (farmer and wind pioneer).

## Transformative Skills and Field Transformation

In terms of transformative skills, the turning point was reached in Phase 2, when the Green Party and several anti-nuclear and environmentalist NGOs were established. With the entry of the Green Party into parliament, new aspects were brought onto the agenda, and it became possible to establish commissions that dealt with environmental issues and debated human-driven climate change in the German parliament. These actors challenged the traditional energy generation field through their support of wind energy generation. Building on the foundation of their ‘preparatory’ work done following the Chernobyl catastrophe, and incentivized by institutionalizing a ‘feed-in-tariff’ (EEG), actors in the German field of wind energy generation radically accelerated their efforts to transform the wind energy generation field (Mautz, Byzio, & Rosenbaum, 2008), mobilizing all their transformative skills and developing new skills, relating in particular to persuasive rhetoric, the creation of mutual benefits, and coalition building.

The use of persuasive language to support the further introduction of wind energy generation proved particularly effective between Phase 2 and Phase 3. As illustrated in Table 2, we observed rhetoric emphasizing economic merits and social norms as well as emotions throughout the three phases. As from Phase 2, however, due to the introduction of the ‘feed-in-tariff’, persuasion referring to economic merits was particularly effective. One of our informants who entered the field in Phase 2, for example, reflected on the persuasion process:

I said to the people in more rural parts, if you do not want to run a wind power farm on your own, then rent out your land ... I remember a meeting in a community, and this was a real agricultural community, and I said ... if you grow 100 hectares of wheat ... you get € 2,000, but if you build a windmill, you will get € 250,000, and you can grow the wheat anyway. (Wind turbine manufacturer)

This type of rhetoric, stressing the economic gain, was complemented by activities that sought to create benefits for generating wind power. Perhaps the most important contribution to developments was the introduction of the feed-in-tariff after the Chernobyl accident, which was fully supported by the Green Party and pro-environmental NGOs. While the discussions on this issue started among representatives of renewable energy industries in the 1980s, one of the first feed-in-tariffs (worldwide) was introduced in 1991 and opened up the opportunity for – usually small – renewable energy generators to connect to the grid. The law obliged the grid owners to buy the electricity that small energy producers fed into the supply for a fixed price. The fixed price was based on the value of the average utility revenue per kWh sold and was around 8.49 Eurocents/kWh for wind at that time. As this was the highest price paid for a variety of renewable energy sources, relatively speaking, the law favored wind power. In addition to the feed-in-tariff, power generators – including wind turbine manufacturers as well

Table 2. Transformative skills in the German wind energy generation field

<i>Skills</i>	<i>Summary</i>
Persuasion	Active since Chernobyl incident
Creating benefits	Active introduction of feed-in-tariff
	Revitalization of economically weak regions
Building coalitions	Holistic in the wind energy generation field

as wind farm operators – in the wind energy field, together with the NGOs supporting the cause and the Green Party, developed various programs that stimulated the expansion of wind energy generation. One of these programs was the so-called Clean Air Program, which was initiated by a public development bank at the beginning of the 1990s and offered a lower interest rate for wind power generators.

In the German case, coalition building, providing benefits, and rhetoric went hand in hand. As from Phase 2, there were joint initiatives by strong environmental movements and business associations. Such joint initiatives, originating from the Chernobyl incident, became more salient and stronger after the Fukushima catastrophe in Phase 3 (see also Pacheco, York, & Hargrave, 2014). Under these circumstances, environmental NGOs also had various opportunities to use their transformative skills to induce cooperation among relevant organizational actors and developed the ability to build coalitions with renewable generators, namely wind power firms, against nonrenewable energy suppliers. Manifestations of this ability are, not least, joint activities with respect to the energy transition, such as joint studies by NGOs and corporate actors (Greenpeace Energy, 2012; Jansen & Sager-Klauß, 2017). These initiatives involved various actors over the course of time. One of our informants, for example, who originally operated a finance-related business, isolated from the wind power field, was able to build a coalition with actors in the field in a supportive environment in the post-Chernobyl period. Eventually, the informant even participated in the wind generation field as a primary player:

It was actually forbidden for me to talk to the Kreditanstalt für Wiederaufbau (KfW) [Credit Institute for Reconstruction] as a [previous] small bank manager ... [After Chernobyl, such a ban was not seriously enforced] I discovered that they [= the public banks] had developed a so-called clean air program ... I contacted the public banks that had initiated this program ... and I said I am planning to finance wind power plants ... if you install windmills and generate energy, you will get clean air. Many of them refused to listen to what I suggested, but finally, I encountered a guy who showed an interest ... he said, yes, you are right, I will have to talk to my boss. And two days later he called me and said: let's do it [= financing wind farms] together. And I applied directly for the loan. (Former private bank manager and founder of a wind turbine manufacturer)

The informant built a coalition and secured the financing of the wind farms, thanks largely to the benefits created by the environmental movement, NGOs, and political parties. Supporters on a regional level played an important part in this coalition building. Regional actors were interested in the installation of windmills in order to develop the region. A project designer of wind farms highlighted the necessity for a regional coalition, including local banks and agricultural farmers, to initiate and operate the wind power projects:

We had to demonstrate that we would take care of the regional citizens' investments. And after the VR-Bank [a regional bank] supported our project and said: 'yes, you can do this [invest money in the project]', people said, 'if the VR Bank says we can do it, we will do it'. This was important, as most people had a private bank account at the regional bank. (Project designer of wind farms)

As seen above, although they were not able to exert pressure on incumbents in the traditional energy generation field, coalition building took place among organizational actors in the emerging field of wind power. As a consequence, the actors in the former field started to look seriously at the issue of wind power and tried to launch wind power themselves.

Starting with Phase 1, renewables in Germany, including wind energy generation, continued to be rather a niche market for quite some time (Fettke & Fuchs, 2017; Mautz et al., 2008). However, the country underwent a transformational change following the Chernobyl incident. The idea of the necessity for transformation gained more prominence among the population and small providers of renewable energy. There were constant reminders of the nuclear catastrophe in Chernobyl, and politics came under pressure to take action. Against this background, the Fukushima catastrophe had another significant impact, even on the challengers of the wind energy generation field. The operation of the traditional energy generation field was no longer influenced exclusively by its direct exchange partners within the field, but also by a bundle of stakeholders who were interested in the same issue (Hoffman, 1999) across the established *and* newly emerging fields.

## FINDINGS FOR THE JAPANESE CASE

### Relational Distance

In contrast to Germany, the field of wind energy generation in Japan can be characterized by a low degree of organizational distance and a high degree of hierarchical distance until the Fukushima catastrophe. The wind energy field was dominated by subsidiaries of incumbents in the traditional energy generation field. Those in traditional energy and wind energy shared normative-cognitive templates. Moreover, they were mutually interested in maintaining the status quo. Importantly, the field did not witness the emergence of 'real challengers' such as newly established, small-scale wind turbine manufacturers until the Fukushima catastrophe in Phase 3 (see Figure 2). Throughout the phases, the



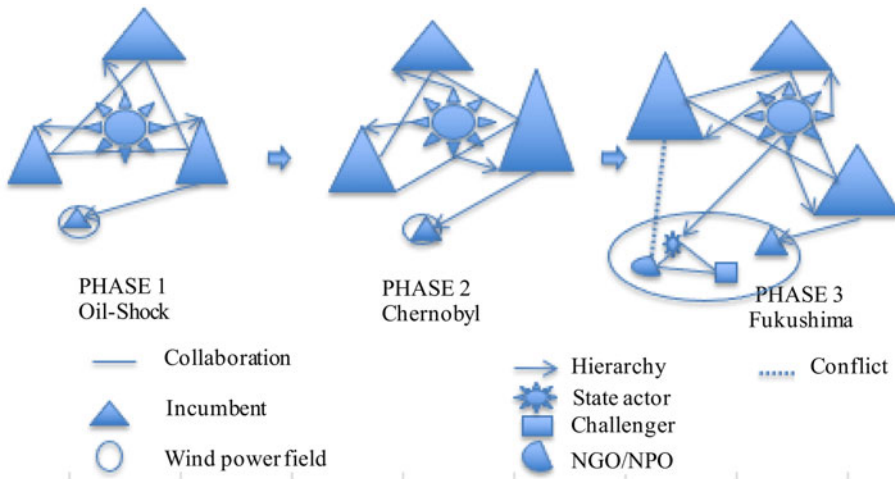


Figure 2. Wind field nontransformation in Japan

field stability had been maintained largely by governmental coordination (predominantly by the METI), with industrial associations representing large manufacturers and electric power companies in the traditional energy generation field (Kucharski & Unesaki, 2018), which acted as governance units. Importantly, since governmental coordination sometimes acted as an intervention that needed to be complied with by the energy companies, there were hierarchical relations between governmental actors and companies in the traditional energy generation field (Hughes, 2012). During Phase 1, METI's predecessor established NEDO and initiated renewable energy generation, together with the incumbent energy generators. These projects produced and experimented with various alternative energy generation methods, including wind turbines. NEDO projects were seen by the incumbents in relation to the importance of the METI in supporting related companies in the arrangement of energy supplies, including grid allocation. In other words, no one associated with the issue of environmentalism entered the field of wind energy generation until Phase 3. Instead, incumbent corporations in the traditional energy generation field used their subsidiaries or joint ventures to 'experiment' with renewables, including wind power. For example, a joint venture by a trading company and Tokyo Electric Power Company (TEPCO) continued to be the largest wind power generator in Japan as from the late 1990s.

These subsidiaries or joint ventures were, in a way, controlled hierarchically by parent corporations that continued to dominate the traditional energy generation field. One of our informants, who worked in such a subsidiary dealing with wind energy generation, indicates that their contribution to wind energy generation 'does not aim to overthrow the existing forms of energy generation'. This is because 'the core policy [of the parent firm] cannot be changed by the decision of its subsidiaries' and 'the production of components such as generators and turbines ... needs to be coordinated within the group [including the

parent and subsidiary firms]’. In other words, they were not distanced enough from the incumbent corporations in terms of cognitive-normative templates as well as resource access and usage.

In contrast to those more or less hierarchically controlled firms, serious challengers, who were significantly different from the incumbents in terms of templates and resource usage, finally entered into the wind energy generation field only in the aftermath of the Fukushima catastrophe in Phase 3. These actors, according to our interviews, criticized nuclear power as being ‘irresponsible with regard to the next generation’ and produced wind turbines and generators in their own networks, since they considered ‘reliance on those producing nuclear energy may cause considerable upheaval for wind energy generation’. Importantly, these real challengers collaborated with newly established NGOs. In terms of governance units, the METI established a specific division dealing with renewable energy and started to develop close ties with such challengers. In a way, however, this renewables division is controlled hierarchically by ETI, which continues to emphasize fossil power generation after Fukushima (Cherp et al., 2017). Therefore, although challengers and NGOs aim to expand wind power generation, METI’s stabilization activities do not necessarily support such a radical direction.

### **Transformative Skills and Field Maintenance**

Although these genuine challengers after the Fukushima catastrophe aimed to transform the means of energy generation in Japan, they did not manage to develop their transformative skills and apply them to promoting the wind energy generation field in Phase 3. Seeds of transformative skills were nevertheless shown in the field of wind energy generation in this phase (see Table 3). However, these different components comprising transformative skills could not be interconnected due to the lack of transformative skills ‘accumulated’ during previous phases.

Our informants from the group of challengers, comprised of those who entered the field after the triggering event of the Fukushima catastrophe, clearly witnessed such a problem, in particular regarding the ineffectiveness of persuasion. Similar to the German case, the challengers in the Japanese case pointed out problems inherent in traditional energy generation and related to the potential risks of nuclear energy and actual carbon emission of fossil fuels:

Given the enormous amount of money spent on decontaminating the affected area, I doubt that nuclear power is economically feasible ... needless to say, coal, which Japan is predominantly relying on at the moment, is also producing lots of CO<sub>2</sub>, which we ultimately have to compensate for ... wind is economical by nature ... considering the increasing reduction in the cost of wind turbines and related components globally, it is obviously much more economical. (Environmental NGO)

Table 3. Transformative skills in the Japanese wind energy generation field

<i>Skills</i>	<i>Summary</i>
Persuasion	Active since Fukushima incident
Creating benefits	Passive introduction of feed-in-tariff
Coalition building	Under-developed

By the same token, the challengers in Japan emphasized the necessity for renewable transformation:

Wind should be an alternative to nuclear power and petrol/coal ... if you look at other places in the world, China is launching wind, Germany is launching wind, even the US has a far bigger capacity for wind ... in a way, Japan is some decades behind the worldwide trend. (Political party representative)

Moreover, the Japanese challengers underlined the significance of the Fukushima catastrophe, stressing that this should never be repeated:

When the Fukushima disaster happened, I was working for another company ... I could not help crying; the TV show repeatedly broadcast the Tsunami washing away the entire region, cars, people, houses ... I kept thinking about what I could do to help change this dominant nuclear regime ... I am furious about those who are still trying to rely on nuclear power ... wind power is the solution for all those affected by the Fukushima disaster and for those who may well be affected by nuclear power in the future. (Newly founded wind turbine manufacturer)

Challengers who have recently entered the field emphasize how economical wind power is compared to other forms of energy generation, including nuclear and fossil fuel. Their criticism of nuclear power not only highlights the long-term cost, in particular in relation to accidents like Fukushima but also points to the 'side effects' of relying on fossil fuel, such as global warming and related environmental disasters. Furthermore, regarding wind power as a normative alternative, our respective informants – the 'real challengers' – are often heralded as the 'frontrunners' of wind energy generation. With reference to persuasive language, highlighting the emotional responsiveness to nuclear and wind energy, these informants tend to emphasize the sorrow they felt in the wake of the Fukushima catastrophe and anger they feel towards those who still continue to support nuclear power, even after the Fukushima catastrophe.

Unfortunately, further elements of transformative skills other than persuasion have not been developed in Japan. As can be seen in the German case, coalition building and the creation of benefits were promoted jointly by organizational actors in the wind energy generation field and contributed to pushing the field transformation forward. However, in the Japanese case, these two features did

not gain momentum. A feed-in-tariff for renewable energy, including wind energy generation, was not introduced until 2012, that is, only in the aftermath of the Fukushima catastrophe. Importantly, it was primarily the feed-in-tariff that encouraged the entry of small-scale wind generators since there was a clear difference between the tariffs below and above the small-scale wind power generators with a threshold of 20 kW. More precisely, below 20 kW, the tariff was around 55 JPY for 20 years, while above 20 kW, it was around 25 JPY for 20 years. This contrasts with the feed-in-tariff for solar power, where 10 kW was a threshold, but the tariff applied was more or less the same, and about 40 JPY for 20 years. Such differences are reflected in the rapid diffusion of solar and slow spread of wind power generation in Japan. A wind turbine manufacturer who entered the field after the Fukushima catastrophe explained how this differentiation was *not* effective for the field transformation:

If you seriously want to introduce wind power, then the feed-in-tariff has to encourage both small-and large-scale wind generators, right? ... Obviously, there was a difference, in fact more than twice the difference. What happened was that more and more small-scale wind generators were introduced. Look at solar power, the difference [in terms of price] was very low [between small-scale and large-scale generators], solar power operators have incentives to invest in large-scale panels.

The introduction of a feed-in-tariff to encourage renewables, including wind energy generation, was the product of a quick decision made by the regime of the time as a response to the Fukushima catastrophe. Since it was endeavoring to introduce a feed-in-tariff as quickly as possible, the Japanese government aimed to minimize the risk of conflict stemming from incumbents in the traditional energy generation business (Li, Xu, & Shiroyama, 2019). This was different from what happened in Germany. The feed-in-tariff in Germany was based on long-term collaboration between environmental NGOs and political parties, the decision of the Japanese government was largely autonomous.

Indeed, challengers in the wind energy generation field were distant in terms of the organizational dimension from incumbents in the traditional field of energy generation. However, the challengers were also distant from incumbents in terms of the hierarchical dimension of relational distance. Therefore, the challengers, unlike the incumbents in traditional energy generation, did not have access to resources. Typically, the scarcity of resources was seen from financial aspect. A wind turbine manufacturer illustrated the overwhelming amount of time allocated for fund raising:

90 percent of my energy is spent seeking for supporters for my activities ... [Individual] supporters kind of come and go ... supporters staying for more than a couple of years are rare ... I talk to financial institutions, angels [who may invest in start-ups] ... financial institutions show some interest in my

business, but they say wind power is only for small-scale provision [due to the feed-in-tariff] and cannot be expected to grow very much. (Newly entered wind turbine manufacturer)

Similarly, a political party pointed to the difficulty in raising funds for campaigns promoting renewable energy:

Certainly, some people support us. When we make public speeches, we feel it ... we know there are potentially thousands of supporters ... For that reason, we actively use social media, like Twitter and our webpage ... At the moment, we don't have enough money to run in elections. (Political party representative)

These informants in the wind energy generation field implied the importance of coalition building between challengers and incumbents. However, again, there was little sign of coalition building with the challengers. Unlike in Germany, Japanese stakeholders were *not* necessarily interested in the same issue (Hoffman, 1999) across established and newly emerging fields.

## DISCUSSION: THE PIVOTAL ROLE OF DISTANT CHALLENGERS

The SAF approach with its focus on the structures of the field and strategic actions of incumbents, challengers, and governance units has proven useful in grasping the quite different dynamics in the two fields and, thereby, better understanding the extremely different outcomes with regard to employing wind power as an important source of electric energy. With this article, we have been able to specify the relationship and dynamics of the different field elements and thus contribute to the understanding of field structuring. Conceptually, we aimed to examine the features of field interactions and their effects on field transformation, that is, what are the conditions and what exactly changes within a field and how change takes place (Hinings et al., 2017). Since important differences between organizational actors, in terms of normative-cognitive templates and resource access, remain implicit in the SAF approach, we expand the theory and have used our two cases to explore the relevance of relational distance and transformative skills in the process of (non) transformation of the field in more depth. Without these conceptual refinements, we argue that our research cannot adequately address the relational dynamics between field structures and the political interaction of field actors. Especially elements of field governance such as actor positions and the distance between actors are often conceptualized as static, thereby often only examining 'snapshots' (Ibert & Müller 2015: 183).

Given these shortcomings, we want to add to the discussion about 'stretching the strict dichotomy of incumbents and challengers' (Kungl & Hess, 2021: 25). In this respect, we have been able to enrich our interpretation of data through a more precise understanding of the constructs (Eisenhardt, 1989: 541) – not only of

transformative skills but also of relational distance and its interrelations, which seem to be essential in both cases studied. Relational distance should be conceptualized in a multiplex manner. Our notion of relational distance involves templates and resources and distinguishes – in addition to the different interests of actors and institutional distance between countries – between organizational and hierarchical distance. Such notions are particularly congruent with Giddens' (1984) notion of structure as rules and resources in the field, which also underlies the theory of fields. In other words, the structure in this sense indicates mutual understanding and normative views as well as resource – often knowledge – access and usage.

The SAF approach recognizes political, that is, interest-driven, interaction or agency (Fligstein, 1999; Fligstein & McAdam, 2012). Relational distance, then, is not a given, but an outcome of (inter-) action. With regard to the cases under scrutiny, the agency is required to master the challenging integration of conventional energy generation and renewable energies such as wind power. This integration is challenging, as many different interests are manifest and extremely high investments are involved, not only but also within the organizational structure of incumbents. By taking agency seriously, one can see a different relationship between the incumbent actors in the traditional energy generation field and challengers in the field of wind energy, leading to diverging trajectories of change with different outcomes (Table 4).

Our data also helps to develop this understanding of challengers and their relational distance to incumbents further. Accordingly, a look at our cases implies that the relational distance and transformative skills of organizational actors within and between fields need to be considered in the longer term. Such relations should not be considered as 'one-shot'. Instead, they need to be considered as processes embracing certain phases of development as well as feedback mechanisms (e.g., learning), whereby the previous time phases condition the subsequent phases. Looking at the two cases, we see that both countries, historically speaking, began to deal with wind power at almost the same time. While a first sign of transformational development of wind power energy generation in Japan can only be seen after the Fukushima catastrophe, the change was transformational in Germany from the beginning, even though originally it was confined to a niche.

Other relevant studies emphasize the importance of a close relationship for the successful building of a social movement towards technological or social change, for instance (Diani & Pilati, 2011). Moreover, such studies indicate that it is difficult to keep internally diverse coalitions together in these contexts (e.g., Diani, 2013). Consistent with this line of research, we observed a highly influential, incumbent-led coalition for protecting traditional energy generation based on a close organizational dimension of relational distance in the Japanese case. The coalition included incumbents in traditional energy generation, state actors, and political parties. By the same token, we observed an effective challenger-led coalition for expanding the wind power share in the German case. Challengers in Germany built a coalition with NGOs and political parties based on close

Table 4. Case comparison

<i>Dimension</i>	<i>Germany</i>	<i>Japan</i>
Share of wind energy	23.3% in 2020	Less than 1% in 2020
Relational distance	Challengers continue to be independent firms High degree of organizational distance; low degree of hierarchical distance	‘Challengers’ as dependent units under the ownership of incumbents Low degree of organizational distance; high degree of hierarchical distance
Transformative skills	Elaborated skills because of high diversity and great relational distance: Persuading, creating benefits for, and building a coalition with relevant actors	Underdeveloped skills because of little diversity and too close proximity historically: attempts to build a coalition with relevant actors failed
Trajectory of field transformation	Challenger-driven transformation	Incumbent-driven maintenance

relational distance in the organizational dimension. While this dimension of relational distance provides insights into effective coalition work based on similar cognitive-normative templates, it needs to be complemented with the hierarchical dimension of relational distance. Challengers in Japan, after the Fukushima catastrophe, started to seek coalition building with NGOs and political parties that shared similar cognitive-normative templates. However, unlike the German case, such a movement in Japan did not result in the transformation of the field. The crucial difference here lies in the challengers’ and incumbents’ access to resources, which is captured by the hierarchical dimension of relational distance: the challengers made the distance closer over time in the German case; the challengers still face greater distance in the Japanese case.

This difference needs to be understood in relation to transformative skills. In our cases, we found transformative skills that can be interpreted – in line with isolated discourses so far – as the capacity of organizations to persuade actors (Green, 2004; Hoffman, 1999; Powell et al., 2016; Suddaby & Greenwood, 2005), create benefits for actors (Hitt et al., 2011), and build a coalition with relevant actors (Fligstein, 2001; Maguire et al., 2004; Powell et al., 2016). As a whole, this set of capabilities, tightly connected and applied by the German challengers, influenced the mobilization of various actors for the collective action required for field transformation. Despite the importance of such transformative skills, the driver of the development remains the organizational dimension of the relational distance between the actors. This is particularly obvious, as these actors might act independently and bring in their own interests.

In more detail, and regarding the capacity of persuasion, actors within the field of energy generation draw on rhetoric or the language of persuasion in order to bring the ‘issue’ with which they are concerned into the field. Such language consists of certain variations. In terms of the creation of benefits for relevant

actors, we found three levels to be considered in our cases: individuals, organizations, and societies (see also Hitt et al., 2011). Accordingly, in their communications, the actors referred to individual benefits, which included economic gain as well as satisfaction. Organizational benefits included various forms of innovation, which may be crucial for the organizations' survival. Benefits at the societal level involved references to social improvements, such as job creation and slowing down climate change. Another practice observed was coalition building with relevant actors. This practice or skill was found within as well as across fields and was based on expected mutual benefits. According to Maguire et al. (2004), in order to achieve coalition building, it is crucial to recognize the different values and routines of various stakeholders. Our German case particularly illustrated the successful building of coalitions, but also how this worked together with practices of persuasion and the creation of benefits for actors.

One important ingredient of transformative skills, ultimately, is being able to significantly alter the existent relational distance in the hierarchical dimension. The alteration of relational distance in this dimension and its impacts on the organizational dimension of relational distance may need to be further explored in a future study. In the case of a radical alteration of relational distance in the hierarchical dimension, 'shared understandings, which define what is accepted and valued in the field, are overturned or significantly altered' (Micoletta et al., 2017: 13). In other words, the alteration may relate to a change of definition in terms of specific situations as well as changing the meaning behind existential or material interests.

## CONCLUSION

Based on a comparative study in the fields of Japanese and German wind energy, this article argues that relational distance matters significantly. More precisely, we illustrate the pivotal role of distant challengers for the successful conversion of already established rules within a field. Incumbent-challenger relational distance in terms of cognitive-normative templates conditions field dynamics, for aiming towards either the maintenance of or change in the status quo. Altering such relational distance with regard to resource access and usage requires transformative skills.

While reflecting a recursive style of process theorizing (Cloutier & Langley, 2020), a full explanation of the maintenance and transformation of the fields of energy generation in Japan and Germany, respectively, may indeed require not only consideration of other renewable energy sources (in particular solar) but a theoretically more comprehensive framework (Cherp et al., 2017). For our part, we opted for a selective, less eclectic method by focusing on the SAF approach (Fligstein & McAdam, 2012) linked to more recent action-oriented neo-institutionalist theorizing (e.g., Lawrence & Suddaby, 2006; Owen-Smith & Powell, 2008; Thornton et al., 2012).

Conceptually, we elaborate the theory of fields with regard not only to the recursive interplay between structure and agency but also to the possibility of



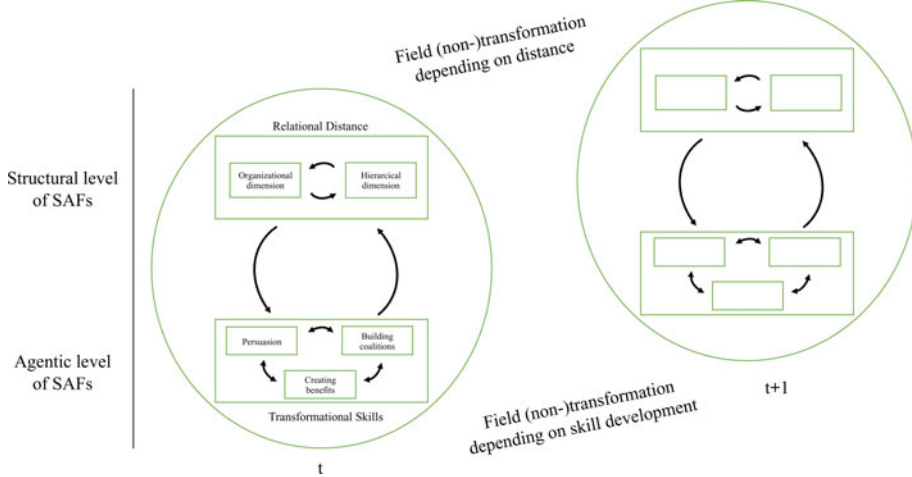


Figure 3. Conceptual model

capturing the quality of the relations among organizational actors and their more or less transformative skills. Through our cases, we have shown that it is useful to distinguish between different, albeit interrelated dimensions of relational distance as well as transformative skills, all to be studied over time (see Figure 3).

In terms of contributing to existing knowledge, we would like to highlight three key points. First, this article has demonstrated the necessity and effectiveness of the concept of relational distance to capture differences between relevant organizational actors in a field (Grabher & Ibert, 2014; Ibert, 2010; Ibert & Müller, 2015). The difference between incumbents and challengers may be relevant, as already underlined by Fligstein and McAdam’s (2012) *Theory of Fields*, to neo-institutional theory more broadly (e.g., Jackson, 2016; Owen-Smith & Powell, 2008). Thereby, the concept of relational distance with its multiplex dimensions unearths many finer-grained differences. More precisely, the concept directs attention to differences in terms of cognitive-normative templates as well as resource access and usage and explicitly shows a connection to divided interests in maintaining the status quo of the field. By this means, analytical attention can go beyond the more often than not over-simplified dichotomy of incumbents and challengers (see also Kungl & Hess, 2021), also looking at practices enabled and constrained by field structures and relations, and anchored in transformative skills. For new entrants, for instance, are not necessarily challengers, in particular, if a new entry is made under the influence of incumbents, so hindering the development of respective skills. In such a situation, practicing persuasion, creating benefits for oneself and for others, as well as building coalitions with relevant actors to transform a field may be very difficult, if not impossible.

Secondly, despite the existence of real challengers with their respective skills, the transformation of a field may take a long time (see also Cherp et al., 2017). This is nicely illustrated by the German case, which is certainly an extreme case with

respect to the significant organizational dimension of the relational distance between the challengers and the incumbents and immense institutional support (from social movements and government regulations). The process of transforming the field from one dominated by fossil fuels and nuclear energy to renewables (not only wind but also solar power) took several decades and has been marked by specific incidents and developments. The comparative analysis reveals that time is indispensable for understanding field transformation. In fact, the perception of past events by particular actors might change over time (Coraiola, Suddaby, & Foster, 2018; Üsdiken & Kipping, 2021) and thereby alter the organizational and hierarchical dimensions of relational distance between incumbents and challengers. This implies that relational distance and perception of the past are involved in a recursive cycle, which eventually leads to the opportunity to transform the field. The process of dynamic perceptions of the past and the understanding of distance from this perspective is poorly conceptualized in the SAF approach. So far, history and the resulting distance have been treated as facts. However, only by conceptualizing the perception of the past as dynamic can we fully explain the changing relational distance. Further empirical research could address both structure and agency, and in particular their recursive interplay, against the backdrop of the collective memories that vary significantly between Germany and Japan with regard to energy generation.

Finally, our study has implications for managers, policy makers, and social activists. The introduction of renewable energy remains ongoing and controversial (Rogelj et al., 2015). As our comparative study illustrates, the diffusion of renewables depends on actors' relational distance and their development of transformative skills in the long term. If the aim is to transform a field, challenger-driven change may need to be promoted. The emphasis of support needs to be placed on actors with templates distinctively different from those of the incumbents in a way that further encourages their access to alternative resources. This is easier said than done, since the incumbents in traditional energy generation tend to minimize the possibility of energy transformation. This addresses an intuition that many social activists have expressed over time, that is, there is a real danger of challengers becoming co-opted by the incumbents too soon or too thoroughly (McDonnell, 2016).

In conclusion, despite striking similarities between Germany and Japan, two highly developed, coordinated economies (Hall & Soskice, 2001) have witnessed quite different transformational trajectories in the field of energy generation. The social construction of positive associations between generating renewable energy on the one hand and efficiency, economic growth, and employment on the other has been put forward in the German case. As argued, transformative skills in combination with a large relational distance made this change possible. After the triggering event of the Fukushima disaster, the transformational practice may finally be awakening rather belatedly in Japan, while it has moved well beyond the established pattern and led to the political decision to end the generation of nuclear energy in Germany.

## NOTES

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[1] The so-called oil-shock or oil-crisis was the result of an oil embargo by Saudi-Arabia in 1973 (among other countries, Japan was hit directly by this embargo).

## DATA AVAILABILITY STATEMENT

Data is not accessible due to third-party restrictions. Not least to guarantee the anonymity of our interview partners.

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