From Vanguard to Repeatable: Field Stability as a Condition for Project Replicability

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Vanguard projects play a central role in sustainability transitions by pioneering first-of-a-kind solutions that must eventually be scaled and replicated. Yet existing theory on project replicability focuses predominantly on organisational-level mechanisms—template codification, knowledge transfer, and adaptive learning—treating the institutional environment as a stable backdrop. This paper argues that field-level stability is not peripheral but constitutive of replicability. Drawing on Strategic Action Field (SAF) theory, we examine how the stability of the field surrounding a vanguard project enables or constrains the replication of its template. Through a comparative case study of two Norwegian sustainability-transition projects—Northern Lights (carbon capture and storage) and Fosen Wind (onshore wind)—we illustrate two contrasting pathways: an emergent field moving toward institutional settlement, and a technically mature field destabilised by a legitimacy rupture. The analysis shows that even a fully codified, organisationally replicable template cannot be deployed when the surrounding field has been destabilised. Conversely, where the field is still emerging, meaning that the field preconditions required for replication have not yet fully formed and must be constructed alongside the maturation of the project template. These findings demonstrate that replicability depends not only on the readiness of the organisational template but also on the stability of the surrounding field, with important implications for both theory and the governance of sustainability transition projects.

Keywords: *vanguard projects; project replicability; strategic action fields; field stability; sustainability transitions*

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1. Research Problem Statement and Purpose

Vanguard projects are often understood as exploratory efforts that build capabilities, reveal technical and organisational uncertainties, and open potential market spaces (Brady & Davies, 2004; Frederiksen & Davies, 2008; Gasparro et al., 2022). These projects operate within a larger context shaped by global challenges like the climate crisis, and their experimental nature allows them to push forward early-stage solutions that can later be scaled across a broader landscape. Existing research on vanguard projects emphasises organisational actor dynamics (Laurila & Ahola, 2021), organisational learning (BenMahmoud-Jouini et al., 2025; Midler & Alochet, 2024), market creation (Frederiksen & Davies, 2008), capability building (Brady & Davies, 2004; de Melo et al., 2020), and institutional complexity (Mahalingam, 2022). Vanguard projects also play a crucial role in sustainability transitions by catalysing technological innovations aligned with policy goals such as achieving net-zero carbon emissions (Gasparro et al., 2022; Terenzi et al., 2025; Victor, 2019; Winch et al., 2023).

Achieving the critical goal of sustainability transition in response to the climate crisis has led governments to introduce new policy measures that are being implemented, or are planned for implementation, through various projects and programmes (Locatelli et al., 2020; Terenzi et al., 2025). These policies are operationalised through different types of initiatives, such as innovation projects and infrastructure projects, that either modify existing processes and systems or establish entirely new ones (Gasparro et al., 2022; Terenzi et al., 2025). Within this context, vanguard projects play a crucial role by catalysing and advancing technological innovations and by enabling the implementation of new systems necessary to achieve sustainability transition (Gasparro et al., 2022; Geels & Locatelli, 2024; Papachristos et al., 2024; Terenzi et al., 2025; Winch et al., 2023).

Despite the key role of vanguard projects for dealing with grand challenges such as sustainability transitions, considerably less attention has been devoted to understanding how these first-of-a-kind initiatives are operationalised, managed, or transformed into replicable patterns. Specifically, existing theory on project replicability focuses predominantly on organisational-level mechanisms—template codification, knowledge transfer, and adaptive learning—treating the surrounding field as a stable backdrop in which these mechanisms operate (Ruuska & Brady, 2011; Tsvetkova et al., 2015). This paper argues that this assumption is unwarranted in sustainability transition settings, where fields are often emergent or contested. Field-level stability is not a background condition that can be taken for granted; it is itself a variable that determines whether replication succeeds or fails. The central theoretical contribution of this paper is therefore that field-level stability is not peripheral to replicability but constitutive of it. The same template may be deployable in one field context and blocked in another, not because of any deficiency in the template itself, but because the surrounding field has been destabilised.

Considering that the climate crisis is one of the biggest challenges the world has faced for a long time, and that immediate action is required to address this global humanitarian issue, the important role of projects and programmes in the transition to sustainability gives project scholars a moral duty to contribute to addressing this problem (Gasparro et al., 2022; Geels & Locatelli, 2024; Papachristos et al., 2024; Terenzi et al., 2025; Winch et al., 2023). This study therefore focuses on the replicability of vanguard projects within the sustainability-transition context. We argue that sustainability transitions rely not only on technological advances, but also on the ability of engineering project organisations (EPOs) to transform first-of-a-kind vanguard projects into standardised and replicable project systems.

Replicability refers to the ability to reuse an existing design or facility (Halari, 2014) by applying a proven template, transferring both codified and tacit knowledge, and recreating complex practices despite differences in local conditions (Mota et al., 2016). Rather than simply learning from one project to the next, replicability represents a broader process of reproducing a production concept while the underlying technology and template are still evolving (Ruuska & Brady, 2011). This implies that exploration and exploitation occur simultaneously, and that true replication becomes possible only once a stable template has emerged. In addition to technology and process, replicability reflects the capability to repeatedly deliver value-creating solutions with sufficient standardisation to gain economies of repetition, while maintaining enough flexibility to adapt to different markets and ecosystem conditions (Tsvetkova et al., 2015).

This capability emerges from continual learning, distinguishing what must be reproduced, how it should be implemented, and where replication is feasible, while balancing exploration and exploitation in refining the underlying template (Ruuska & Brady, 2011). This capability is developed through learning from vanguard projects, turning successful practices into standardised formats, and applying these lessons in subsequent projects while still allowing for context-specific adaptation (Friesl & Larty, 2013; Tsvetkova et al., 2015).

While replicability has often been conceptualised as a capability that emerges within organisations through processes such as learning, template formation, codification, and adaptation (Ruuska & Brady, 2011; Tsvetkova et al., 2015), our aim is to examine replicability in sustainability transition projects from a *field-level* perspective. This approach highlights that replicability is not only dependent on organisational capabilities but is also shaped by the field condition in which temporary organisations operate. Although flexibility is identified as a key criterion for replicability, allowing templates to be adjusted to different local conditions (Mota et al., 2016), the complex nature of sustainability transitions suggests that it is essential to analyse replicability beyond the organisational level.

An organisational field, as defined by DiMaggio and Powell (DiMaggio, 1983), refers to a network of interconnected organisations and actors such as suppliers, consumers, regulators, and competitors (DiMaggio, 1983; DiMaggio & Powell, 1983), that operate within a shared institutional environment and influence one another through established relationships, norms, and meanings (Scott, 2008; Wooten & Hoffman, 2017). Unlike an industry, which is limited to economically similar firms, a field encompasses both relational systems (e.g., power, exchange, and communication networks) and symbolic systems (e.g., cultural norms, values, and rules) that shape organisational behaviour over time (Fligstein, 2001; Wooten & Hoffman, 2017). Beyond their internal structure, organisational fields operate within a wider constellation of social, economic, and political environments. Rather than functioning as self-contained units, fields are embedded in and interlinked with adjacent fields whose dynamics can enable or constrain their development (Scott, 2008; Wooten & Hoffman, 2017). Projects, as temporary organisations (Lundin et al., 2015), play a significant role in shaping field dynamics by influencing public discourse, setting performance benchmarks, and either reinforcing or disrupting existing institutional structures (Bohn & Braun, 2021; Thiel & Grabher, 2015).

Strategic Action Field (SAF) theory builds directly on this foundation by retaining the idea of a socially constructed field but placing greater emphasis on the role of collective actors, incumbent–challenger dynamics, and episodes of conflict and settlement. In doing so, SAF theory reframes organisational fields not as static institutional environments but as arenas of ongoing strategic interaction where actors interpret the rules, struggle for advantageous positions, and attempt to stabilise or reshape the field (Fligstein & McAdam, 2011; Fligstein & McAdam, 2012).

Large-scale projects, sustainability-transition projects, are shaped by their stakeholders and are intended to deliver benefits to those affected by their outcomes (Derakhshan et al., 2019; El-Gohary et al., 2006; ElWakeel & Andersen, 2020). Consequently, they do not exist in isolated settings but are embedded in complex, dynamic fields where actors negotiate meanings, pursue divergent interests, and influence the rules governing project development. By conceptualising these initiatives as Strategic Action Fields, we can examine how field conditions—actor roles, rules, and shared understandings—enable or constrain the replication of project designs and outcomes, ultimately addressing the research question:

How does the field stability enable or constrain the replicability of vanguard projects in sustainability transitions?

We situate this study in two Norwegian research settings that illustrate different stages of field evolution. Northern Lights (CCS), the world's first open-access, cross-border CO_2 transport-and-storage service, completed its Phase 1 facilities in 2024, achieved its first CO_2 injection in August 2025, and has a sanctioned Phase 2 capacity expansion (Equinor, n.d.; NorthernLights, 2024, 2025a). This project represents a vanguard initiative within sustainability transition efforts. Replicability here is constrained at two distinct levels: at the organisational level, the technology and process template is still maturing and has not yet been sufficiently codified for transfer; and at the field level, the regulatory framework, actor roles, and shared understanding that would allow the template to be deployed in new sites and by new emitters are still under active construction.

On the other hand, Fosen Wind, Europe's largest onshore wind complex (1,057 MW), represents a case where the organisational conditions for replicability were fully met: the technology was mature, the process template was codified. In organisational terms, the template was ready for replication across new sites. Yet the Norwegian Supreme Court's 2021 ruling (Høyesterett, 2021), destabilised the field by invalidating licences , collapsing the field-level conditions on which template deployment depends. Replication was therefore blocked not by any deficiency in the template itself, but by the dissolution of the institutional context it required.

By analysing these two cases as contrasting snapshots—one where organisational conditions are absent and field conditions are still being constructed, the other where organisational conditions are intact but field conditions have collapsed—we can develop a more complete account of what replicability requires and how carbon capture and storage could become fully replicable once both levels of condition are established. These projects are used only as empirical settings to illustrate abstract concepts; the purpose and contribution of the paper are theoretical.

2. Strategic Action Fields

Strategic Action Fields (SAFs), as developed by Fligstein and McAdam (2011), constitute a meso-level framework in which actors—individual or collective—interact with knowledge of one another on the basis of shared understandings about the field's purposes, power relations, and operative rules. Within this framework, three principal types of actors structure the dynamics of the field: incumbents, challengers, and governance units.

Incumbents occupy the most advantageous positions, commanding significant resources and influence; as a result, the existing arrangements of the field—its rules, norms, and distribution of benefits—tend to align with their interests (Fligstein & McAdam, 2012). Their primary orientation is toward maintaining and reinforcing the established order from which they benefit (Kungl & Hess, 2021). In contrast, challengers operate from comparatively weaker positions, with fewer resources and limited influence. Although they understand and navigate the dominant logic of the field, they often envision alternative configurations and may seek to advance these alternatives when openings for change emerge, such as during periods of disruption or uncertainty (Fligstein & McAdam, 2011; Kungl & Hess, 2021). Supporting the functioning of the field are governance units, which serve as internal regulatory bodies tasked with overseeing compliance and facilitating coordination among actors. Despite their formal role as neutral arbiters, these units frequently reflect and uphold the preferences of incumbents, thereby contributing to the reproduction of existing power relations within the field (Fligstein, 2021; Fligstein & McAdam, 2011; Fligstein & McAdam, 2012).

In addition to these internal actors, state actors play a significant external role in shaping the conditions under which fields operate. These typically include government ministries, regulatory agencies, and legislative bodies that can intervene directly by allocating resources, endorsing specific field arrangements, or imposing new rules. Although they are not part of the field itself, they influence its stability by certifying dominant arrangements, intervening during episodes of crisis, or introducing policies that alter resource flows and power relations. Because of their capacity to legitimise certain actors and practices, they often function as crucial allies for incumbents, though their interventions can also unintentionally open opportunities for challengers and catalyse field transformation (Fligstein & McAdam, 2011; Fligstein & McAdam, 2012).

A field is considered stable when the actors (incumbents, challengers, and governance units) operate within a widely accepted set of meanings and role expectations that guide interactions (Fligstein & McAdam, 2011). In such periods, actors recognise the dominant conception of the field, power relations are relatively uncontested, and governance mechanisms reinforce existing arrangements, making the reproduction of the status quo more likely (Fuchs & Hinderer, 2014; Heiskanen et al., 2018). Therefore, stability depends on a shared understanding of the field's basic structure—its purpose, rules, and power relations. When interpretive divergence begins to question or undermine these shared understandings, it can signal increasing instability and the potential onset of crisis. In such situations, divergences extend beyond normal positional differences and develop into competing definitions of the field's rules, legitimacy, or purpose. As a result, actors can no longer rely on predictable interactions, uncertainty increases, and contention intensifies, potentially leading to significant restructuring of relationships, the emergence of new coalitions, or even the collapse or reconfiguration of the field itself (Fligstein & McAdam, 2012).

In the early stages of field formation, fields are considered emergent, meaning that actors have begun to interact but lack shared understandings regarding the field's purpose, rules, and power relations (Apajalahti et al., 2018; Candido et al., 2019; Wassermann et al., 2015). Because these core elements are not yet settled, emergent fields are inherently unstable, characterised by uncertainty, fluid roles, and ongoing contention. A field becomes more stable as actors gradually establish a shared understanding of its basic structure—clarifying what the field is about, who holds power, and what rules govern interaction (Fligstein & McAdam, 2011; Fligstein & McAdam, 2012).

Using the stability-and-crisis lens of Fligstein's SAF framework to analyse roles, rules, and shared understanding in sustainability-transition projects, this study will assess the replicability of the cases and draw on the identified SAF conditions to inform future vanguard initiatives.

3. Methodology and Approach

Our design is a comparative case study with theoretical replication logic (Eisenhardt, 1989; Eisenhardt & Graebner, 2007). We deliberately select most-different projects—CCS and Fosen wind—as polar snapshots of field maturity that, on theoretical grounds, should reveal contrasting mechanisms of field structuration. Fosen is selected because it illustrates the counter-intuitive case in which a technically mature, organisationally replicable project's replicability is blocked by field destabilisation. CCS is selected because it illustrates replicability that is pending on institutional construction in a field where the settlement has not yet formed. The two cases are situated in the same national context (Norway) and the same policy domain (sustainability transition). The analytical variation lies in field maturity and stability: one field is mature and destabilised, the other is emergent and stabilising.

The unit of analysis is the SAF; each project is treated as a SAF snapshot at a particular stage of its evolution. This design allows us to keep the argument conceptual while grounding the illustrations in two recognisable transition settings. At this preliminary stage, we rely exclusively on secondary sources: (a) government documents, which frames national decarbonisation policy; (b) owner/operator materials for Northern Lights (Equinor; Northern Lights JV) and Fosen (Statkraft) that describe technical architectures and programmatic intent (Equinor, 2024, n.d.; NorthernLights, 2024, 2025b; Statkraft, n.d.-a); and (c) primary legal documents, including the Supreme Court's HR-2021-1975-S judgment (Høyesterett, 2021).

To conduct this analysis, we employ a thematic analysis approach (Naeem et al., 2023), using the Strategic Action Fields (SAF) theory as the theoretical lens. Guided by the SAF framework, we conducted a deductive analysis to identify information related to field stability and crisis, including rules, roles, and understandings within the SAFs. The roles include incumbents, challengers, and, potentially, governance units, and these actors were identified in the data based on their theoretical definitions. We also examined rules and regulations within the data to assess whether they were established or emerging. Furthermore, understandings were identified by the frames and interpretations that actors used in articulating the SAF. The coding structure used in the analysis is provided in Appendix 1. Through this analysis, we examined the conditions of each SAF, and based on these themes, we mapped the field conditions, which are illustrated and presented in the findings section.

The thematic coding was carried out on 11 documents related to the Fosen Wind case and 8 documents related to CCS development. The Fosen Wind material consisted of seven press releases from Statkraft, three governmental reports, and one news article featuring interviews with reindeer herders, selected to ensure representation of all relevant actor perspectives. Similarly, the CCS dataset included a 209-page budget proposal from the Ministry of Energy, a presentation prepared by NLJV, NLJV report and news article, and four documents from companies engaged as current CCS service users, including Hafslund Celsio and Heidelberg Materials. These documents were selected to ensure coverage of all actor perspectives within the field. Data collection is ongoing to further strengthen the analysis and enhance its overall validity.

Although this article does not directly analyse interview data, the interpretation of the documentary material was informed by a research visit to the NL site and by preliminary interviews with reindeer herders and their allies. These engagements contributed to validating and strengthening the thematic interpretations developed in the analysis. Future stages of the research will expand the dataset by incorporating these interview materials alongside additional documents.

4. Empirical Illustrations

4.1 Fosen Wind as a Rupture of the Existing Settlement

The Fosen wind-farm (FW) was conceived as a concrete instrument for delivering Norway's energy-transition objectives within the broader sustainability-transition portfolio. Consequently, the incumbent actors—the three project-developer firms—enjoyed sustained state backing throughout the entire life-cycle of the venture. Statkraft, the majority shareholder (52.1 %), led the consortium together with Nordic Wind Power DA (40 %) and Aneo (7.9 %) (Statkraft, n.d.-a, n.d.-b). By contrast, the challenger actors were the reindeer-herding Sámi communities, who opposed the installation from the outset of the licensing procedure because the turbines would compromise the winter pastures that are indispensable for the continuation of their cultural and livelihood practices (NRK, 2021). Although additional stakeholders (e.g., NGOs, local municipalities) entered the field (Fosna-Folket, 2018), the present analysis concentrates on the dominant incumbents and the primary challengers.

The incumbent developers frame the Fosen wind-farm (FW) primarily as a renewable-energy production system that advances Norway's carbon-neutrality target; in other words, FW is strategically aligned with the nation's energy-transition policy by supplying electricity generated from wind (Statkraft, 2020). A second, complementary framing emphasizes regional welfare. The project is portrayed as a source of new jobs and a reliable power supply for central-Norwegian communities, thereby contributing to local economic development (Statkraft, 2010). Finally, the developers invoke profitability as a decisive criterion for investment decisions (Statkraft, 2015). These three frames correspond to distinct temporal goals of the project implementation: profitability represents a short-term objective, whereas strategic alignment with climate policy constitute long-term, structural goals that legitimize the incumbents' position within the field.

The regulatory framework governing the Fosen wind-farm was well-established at the time the project entered the licensing stage. The licensing procedure comprised a formally documented project plan, explicit technical and environmental guidelines, clearly defined assessment criteria, a designated competent authority (the Norwegian Water Resources and Energy Directorate), and a mandatory consultation process. Both the Norwegian national government and the Sámi Parliament were formally invited to participate in the consultation, thereby embedding the indigenous-rights dimension within the procedural framework (Regjeringen, 2008, 2010). Since the Fosen project was not Norway's first on-shore wind development, the relevant statutes, regulations, and procedural templates had already been drafted and applied to earlier installations, ensuring a pre-existing institutional field that incumbents could rely on for regulatory certainty (Fligstein & McAdam, 2012).

In contrast, the challenger coalition, comprised of reindeer-herding Sámi communities, interprets FW as a direct threat to their cultural practices and livelihoods because the turbines would eliminate essential winter pastures (NRK, 2021). The challengers therefore mobilise a rights-based frame that foregrounds the protection of indigenous land use and cultural continuity. Their claim is reinforced by the Sámi Parliament, which supplies both normative and institutional support, effectively granting the challengers a degree of state backing (Sametinget, 2020). This divergence in interpretation goes beyond normal positional differences within the field and begins to challenge the shared understandings that underpin field stability. These interpretations develop into fundamentally competing definitions of the field's purpose, legitimacy, and acceptable use of land. For incumbents, the project represents a legitimate contribution to national energy transition and regional development, whereas for challengers it constitutes a violation of indigenous rights and an illegitimate use of critical livelihood resources. This divergence undermines agreement on the rules and legitimacy of the field, thereby signalling increasing instability and setting the stage for the SAF's later destabilisation (Fligstein & McAdam, 2011).

The stability of the Fosen wind as the strategic action field was ruptured when Norway's Supreme Court declared that the licence for part of the project was invalid because it violated the indigenous-rights of the Sámi to practice their cultural activities (Høyesterett, 2021). The judgment reflected the successful framing and coalition-building of the challenger actors within the SAF. In other words, the reindeer-herding Sámi, supported by the Sámi Parliament, were able to translate their cultural-rights claim into a legally binding institutional outcome. This institutional shock ruptured the previously stable, incumbent-dominant field, dismantling the existing settlement and creating a period of uncertainty in which the rules of the game had to be renegotiated (Fligstein & McAdam, 2011).

Figure 1 summarises these findings, mapping the SAF conditions of the Fosen wind project in terms of actor roles, rules, and interpretations, and illustrating how the incompatibility between incumbent and challenger interpretations, operating within the same established regulative structure, ultimately produced a rupture of the existing settlement.

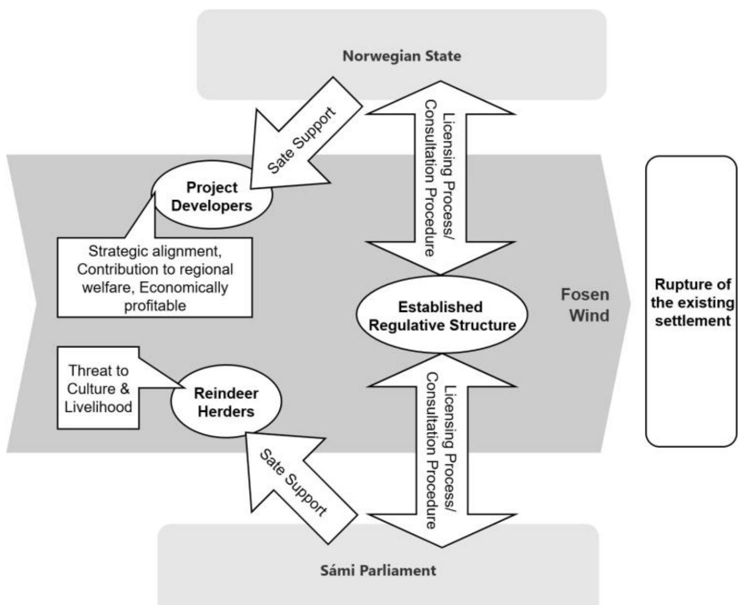


Figure 1- The Strategic Action Field of Fosen Wind

4.2 Northern Lights as an Emerging Field

Carbon Capture and Storage (CCS) is another policy that the Norwegian government has introduced to reach its net-zero-emissions goal. Although the underlying gas-separation technology dates back to the 1920s, today CCS is being driven by decarbonisation efforts in the oil-and-gas, cement, steel and chemical industries (Parker, 2021). Consequently, Norway launched the world's first large-scale, government-initiated CCS programme to help meet its carbon-reduction commitments (Parker, 2021). The programme, which was conceived and funded by the state, covers the entire CCS value chain: capture, transport and permanent storage of CO_2. Northern Lights is the first commercial CO_2-transport and storage network in Europe that provides open-access "storage-as-a-service" capacity to multiple industrial emitters across different countries, thereby creating a scalable model for hard-to-abate sectors such as cement (ClimateTech, 2025).

The CCS field in Norway is still emerging. The state functions as the primary strategic stabiliser by legitimising CCS as a climate-action measure for hard-to-abate and land-based industries and by allocating key resources (e.g., CO_2-storage slots) together with a suite of financial supports. Public funding is directed across the whole value chain—from the Northern Lights transport-and-storage hub to the heavy-industry emitters that will ship their CO_2 there—and is complemented by EU co-financing (Regjeringen, 2023). In the technology arena, the government finances R&D projects and holds the majority stake in the Technology Centre Mongstad (TCM), a state-run CCS test facility that operates in partnership with the major energy companies (Regjeringen, 2023).

Incumbents in the field are the joint-venture partners that operate Northern Lights (Equinor, Shell, and TotalEnergies), as they control the core CCS transport and storage infrastructure and thus hold a structurally dominant position. Industrial emitters also occupy important roles within the field, as they depend on CCS to maintain their operations under tightening climate policies. However, they remain less privileged than the Northern Lights joint venture, which defines access to infrastructure and shapes the overall conditions of the field. As a result, emitters largely recognise and operate within the dominant field logic rather than directly contesting it, reflecting the tendency of less powerful actors to conform to the prevailing order in stable strategic action fields (Fligstein & McAdam, 2011; NorthernLights, 2023, 2025a). At the same time, they engage in ongoing positioning by advocating expanded storage capacity, cross-border transport possibilities, and regulatory adjustments that better serve their interests.

Gassnova, a state-mandated agency, performs as the governance unit which coordinates the national CCS value chain. Even though Gassnova is a state enterprise, it functions inside the CCS field and coordinates the activities of the key industrial actors, which aligns with the SAF definition of a governance unit. It is responsible for promoting CCS development, managing funding, and overseeing testing and technology development through the Technology Centre Mongstad (TCM) (Regjeringen, 2023). These tasks facilitate the smooth functioning of the CCS system, which is what governance units do in SAF theory. This means Gassnova is not just a neutral state actor, but part of an industry–state coalition that helps stabilise and advance the dominant logic of the field. That is consistent with how SAF governance units typically reinforce incumbent interests (Fligstein & McAdam, 2011).

Regulatory Framework is not yet well established, and “tested regulatory frameworks are not in place”. In line with SAF theory (Fligstein & McAdam, 2011; Fligstein & McAdam, 2012), the state plays a central role in building this new field by developing national and international frameworks, including bilateral agreements for cross-border CO_2 transport required under the 1996 London Protocol amendments. The Norwegian Continental Shelf Directorate (formerly the Norwegian Petroleum Directorate) acts as the supervisory authority, issuing CO_2 storage licenses, overseeing regulatory compliance, and managing subsurface data. Much of the current regulatory structure is adapted from existing oil and gas frameworks, reflecting how new strategic action fields often borrow institutional logic from established sectors (Fligstein & McAdam, 2011; Regjeringen, 2023).

All actors within the emerging CCS strategic action field frame carbon capture and storage as a necessary climate measure to reduce emissions. However, Northern Lights additionally presents CCS as a service-based industry that must be commercialised and integrated into its long-term business objectives. The industrial emitters, emphasise CCS as a promising initiative for generating socio-economic benefits. They highlight its potential to stimulate "increased value creation, export revenues, and more jobs,"(Hafslund, n.d.) .

Altogether, state-driven resource allocation, a still-developing regulatory rule-set, and ongoing but largely coordinated strategic positioning among actors, reflecting incremental adjustments within a state-supported and still-emerging field, suggest that the CCS field is an emergent field moving toward a more stable hierarchical settlement.

Figure 2 summarises the field conditions of the CCS, illustrating how the state-industry coalition, internal governance, and developing regulatory framework together produce a field that is emergent but directionally stable — characterised by coordinated actor positioning and compatible interpretations rather than contestation, and moving toward the institutional stability that would constitute the field-level precondition for replication.

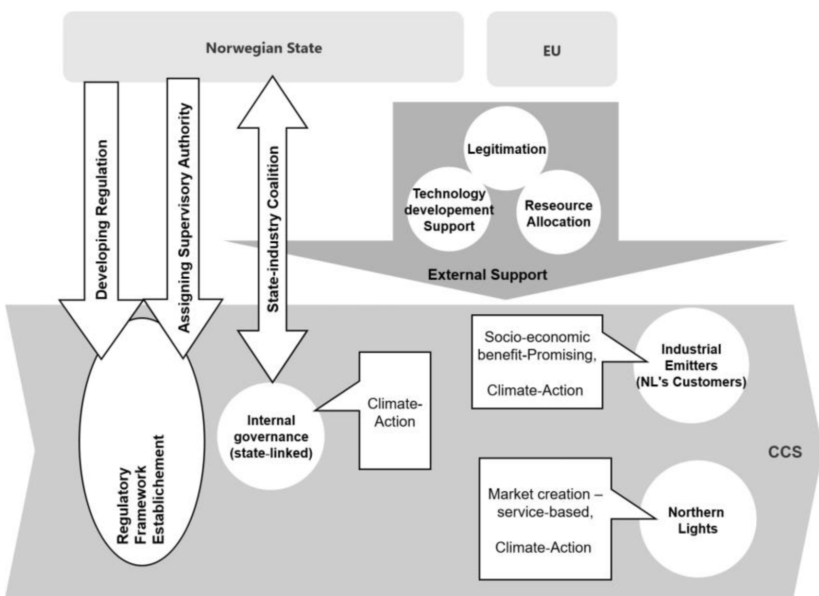


Figure 2- The Strategic Action Field of Norway's CCS programme

4.3. Cross-Case Synthesis

At the organisational level, the Fosen wind project reflects a highly mature model, where both the technology and implementation processes were already fully developed and standardised through prior projects. This makes the technical and procedural aspects of wind-farm development largely replicable. In contrast, the CCS project represents a model that is still under development. While the core technological components exist, the integration of capture, transport, and storage systems, as well as the associated coordination and regulatory processes, are still evolving.

At the field level the cross-case comparison highlights that in the Fosen wind case, destabilisation occurred due to a deep interpretive divergence undermined the shared understandings necessary for field stability. Competing definitions of legitimacy, purpose, and acceptable land use eroded the common framework that had previously organised interaction, leading to uncertainty and ultimately culminating in an exogenous institutional shock. This illustrates how even well-established fields can become destabilised when disagreements escalate beyond positional differences and challenge the underlying structure of the field.

In contrast, the CCS field reflects a different dynamic. While still emergent, it is characterised by coordinated interaction, strong state involvement, and the construction of shared understandings. Although actors attach different functional meanings to CCS, these differences do not challenge the legitimacy or core purpose of the field. Instead, they coexist within a broadly accepted framework, allowing actors to engage in incremental adjustments without undermining overall stability. This results in a process of stabilisation rather than contestation.

However, drawing on the Fosen case, the CCS field reveals a potential risk trajectory rather than a present crisis. If the differences in how actors interpret CCS were to deepen, these differences could evolve into competing definitions of legitimacy and purpose. In such a scenario, the currently shared understandings that underpin coordination may be weakened, increasing the likelihood of contention and destabilisation. The comparison therefore suggests that the future stability of the CCS field depends not on the absence of differing interpretations, but on whether these differences remain contained within a shared framework. Fosen demonstrates that when interpretive divergence escalates to challenge the legitimacy of the field itself, even a highly developed system can enter crisis. Applying this insight, the CCS field can be expected to remain stable as long as actors maintain alignment on its core purpose, but may become vulnerable to destabilisation if this alignment deteriorates.

Table 1 summarises the key differences in field-level stability and organisational-level replicability between the Fosen wind project and the CCS (Northern Lights) case.

Dimension	Fosen Wind	CCS
Technology maturity	**High:** well-established and widely applied wind technology	**Moderate/Developing:** technologies exist/ still developing , system integration still evolving

Process maturity	**High:** standardised procedures and well-established implementation processes	**Developing:** implementation, and regulatory processes still evolving
Overall organisational-level replicability	High (technically and procedurally replicable)	Moderate and conditional (dependent on further development and standardisation)
Role Clarity	Clear roles (incumbents vs challengers)	Clear hierarchical structure with coordinated positioning
Regulatory maturity	**Mature:** tested through prior projects	**Developing:** adapted from oil-and-gas regulatory frameworks
Shared Understanding (Purpose, Power, Rules)	**Purpose:** Conflicting (energy transition vs indigenous rights) **Power relations:** Recognised but contested (state/developers vs Sámi communities) **Rules:** Challenged (legitimacy of licensing and decisions questioned)	**Purpose:** Shared (decarbonisation as common goal) **Power relations:** Clear and accepted (Northern Lights dominant, emitters dependent, state-led governance unit) **Rules:** still evolving
Interpretive dynamics	Incompatible interpretations (energy vs indigenous rights)	Compatible differences
Field outcome	Destabilisation and crisis	Stabilisation trajectory toward structured settlement

Table1- Cross-Case Comparison

The table demonstrates that high organisational-level replicability does not necessarily translate into successful or sustained implementation at the field level. In the Fosen case, despite the presence of mature technology and well-established implementation processes that made the project highly replicable from an organisational perspective, the breakdown of shared understandings at the field level led to destabilisation and ultimately blocked the project's practical replicability. In contrast, the CCS case shows that organisational replicability remains limited due to developing technologies and evolving processes. At the same time, field-level stability is still being constructed.

5. Discussion

The findings of this study invite a fundamental reconsideration of what project replicability requires. Existing theory conceptualises replicability as an organisational capability built through template codification, knowledge transfer, and adaptive learning (Friesl & Larty, 2013; Halari, 2014; Mota et al., 2016; Ruuska & Brady, 2011; Tsvetkova et al., 2015). Implicit in this framing is the assumption that the field surrounding the project is a stable backdrop — a condition that exists prior to and independently of the replication process itself. Our analysis shows this assumption does not hold in sustainability transition settings. The configuration of actors, roles, shared understandings, and power relations within the SAF is not a precondition that can be taken for granted; it is a variable, and one that is as determinative of replication outcomes as the maturity of the template itself.

This leads to a theoretical claim that the existing literature cannot accommodate: replicability is a two-level condition. Template maturity — the organisational level — and field stability — the field level — are independent of one another, and replication requires both simultaneously. Table 1 makes this argument visible. At the organisational level, Fosen Wind scores high on technology maturity, process maturity, and overall replicability, while CCS remains moderate and conditional. At the field level, however, the picture reverses, Fosen is characterised by destabilisation and crisis, while CCS reflects a stabilisation trajectory. It is precisely what allows the two cases together to establish that neither condition substitutes for the other, and that existing replicability theory, having theorised only the organisational level, provides an incomplete account of what project replication requires.

As Table 1 shows, template maturity and field stability do not necessarily align, and it is this misalignment that existing replicability theory cannot account for. Where Ruuska and Brady (2011) argue that replicability depends on managing the tension between exploration and exploitation in refining the underlying template, and where Tsvetkova et al. (2015) emphasise sufficient standardisation alongside contextual flexibility, neither accounts for the possibility that the specific arrangement of actors, rules, and shared meanings within the surrounding field may itself be the source of replication failure. When the field condition shown in Figure 1 — collapsed shared understandings— coincide with a mature organisational template, the organisational mechanisms these authors identify become irrelevant regardless of their maturity. Conversely, when the field condition shown in Figure 2 — coordinated actor positioning, compatible interpretations, and active state stabilisation — coincide with an immature template, field-level coordination cannot substitute for organisational readiness. The two figures together establish that replication requires both conditions simultaneously, and that the failure of either is sufficient to block it.

Crucially, the Fosen case also functions as a predictive lens for the CCS field. The field conditions that preceded the Fosen rupture — an established regulatory framework that formally embedded incompatible framings within the same procedural arena, and an escalation of interpretive divergence beyond what shared rules could contain — identify the specific mechanism through which a stabilising field can be destabilised. Applied to Figure 2, this mechanism suggests that the CCS field's current stability is contingent rather than assured. If the compatible interpretive differences currently coexisting within the CCS field were to harden into competing definitions of the field's legitimacy and purpose, the stabilisation trajectory shown in Figure 2 could be interrupted in ways that would block replication even after the organisational template has matured.

Furthermore, this study concerns the temporal dimension of replicability. The results suggest that the relationship between template maturity and field stability is not static. In the CCS case, both conditions are under construction simultaneously — the template is maturing as the field stabilises, reflecting what Ruuska and Brady (2011) describe as the simultaneous pursuit of exploration and exploitation, but operating at the field level rather than the organisational level. The Fosen case, by contrast, shows that a field can be destabilised after the template has matured, decoupling the two conditions in a way that existing theory does not anticipate. Replicability is therefore not a stable achievement that once reached persists indefinitely — it can be lost at the field level even when it remains intact at the organisational level, as the rupture in Figure 1 demonstrates. This suggests that sustaining replicability over time is as much a matter of maintaining field stability as it is of preserving template integrity.

6. Implications, Limitations, and Ongoing Work

Our findings suggest that project replicability theory needs to move beyond the organisational level by incorporating field-level stability as a constitutive condition for template deployment. Where existing theory treats the surrounding field as a stable backdrop against which organisational mechanisms operate, our analysis shows that this stability cannot be assumed, it is itself a variable that shapes whether replication succeeds or fails. This implies that future theorising on project replicability should account for the dynamic interplay between organisational capability and field-level conditions, recognising that the same template may be replicable in one field context and blocked in another.

The study also contributes to sustainability transitions research by introducing the SAF as an intermediate level of analysis between the project and the broader transition regime. Existing transitions research tends to focus either on the project level — examining how individual vanguard projects catalyse innovation (Gasparro et al., 2022) — or on the socio-technical system level — examining how regimes and niches interact over time (Geels & Locatelli, 2024). The field level occupies the space between these. Our analysis suggests that this intermediate level is where replicability is ultimately enabled or blocked, and that transitions research would benefit from attending more systematically to field dynamics when explaining why some vanguard projects scale successfully and others do not.

Policy makers, governance units, and incumbent firms must therefore take responsibility for actively stabilising the field in which transition projects operate, rather than treating field stability as a background condition that emerges automatically. This involves three specific governance tasks. First, establishing coordination mechanisms that sustain shared understandings among actors, ensuring that interpretive differences remain compatible rather than escalating into competing definitions of the field's legitimacy and purpose, as the Fosen case demonstrates can occur even within a well-established regulatory framework. Second, ensuring inclusive stakeholder engagement that identifies and addresses challenger framings before they reach the point of escalation. The Fosen rupture was not sudden but developed through a prolonged period of unresolved interpretive divergence that the existing consultation process embedded but did not resolve. Third, maintaining regulatory clarity over time which means not only establishing rules but actively monitoring whether those rules retain their legitimacy as field conditions evolve. For the CCS field specifically, the predictive logic developed in this study suggests that the current stabilisation trajectory is contingent on maintaining actor alignment around the field's core purpose.

This study relies on secondary documentary sources, and the research is ongoing to collect and analyse additional materials including primary interview data. This continued work will help strengthen the credibility and depth of the findings, particularly in relation to the actor perspectives and interpretive dynamics that documentary sources can only partially capture. While the study is based on two Norwegian cases situated within the same national context and policy domain, the theoretical arguments developed here can be transferable to similar projects in other geographical contexts, provided that comparable institutional and policy conditions are present.

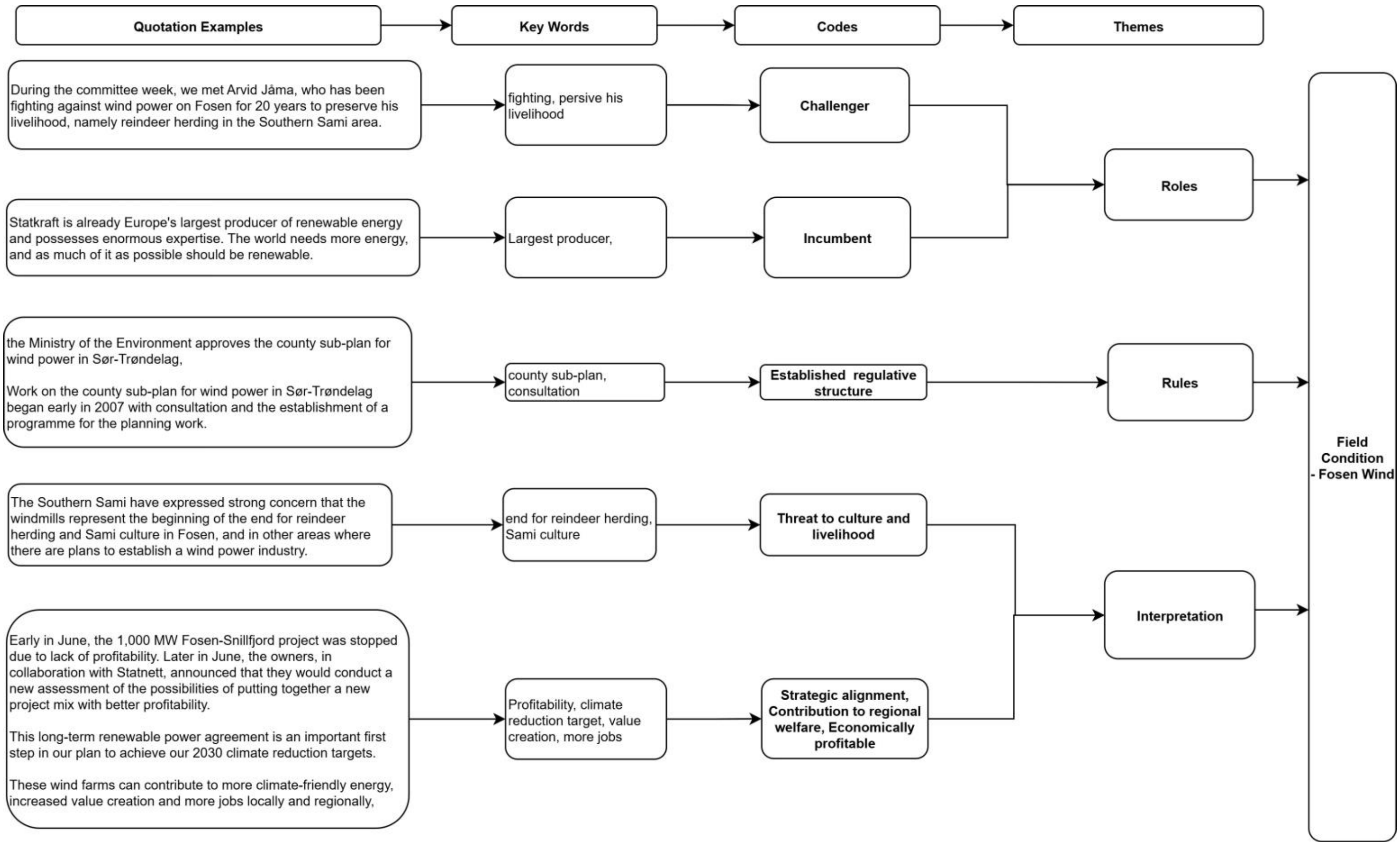
Acknowledgements

We would like to thank the participants of the research site visit to the Northern Lights facility for their time and willingness to engage with the research. We also extend our gratitude to the reindeer-herding Sámi communities and their allies who shared their perspectives during the preliminary interview phase. This study is part of ongoing research conducted at the Norwegian University of Science and Technology (NTNU). We are grateful for the constructive feedback received on earlier versions of this manuscript, which contributed to strengthening the theoretical framing and empirical analysis.

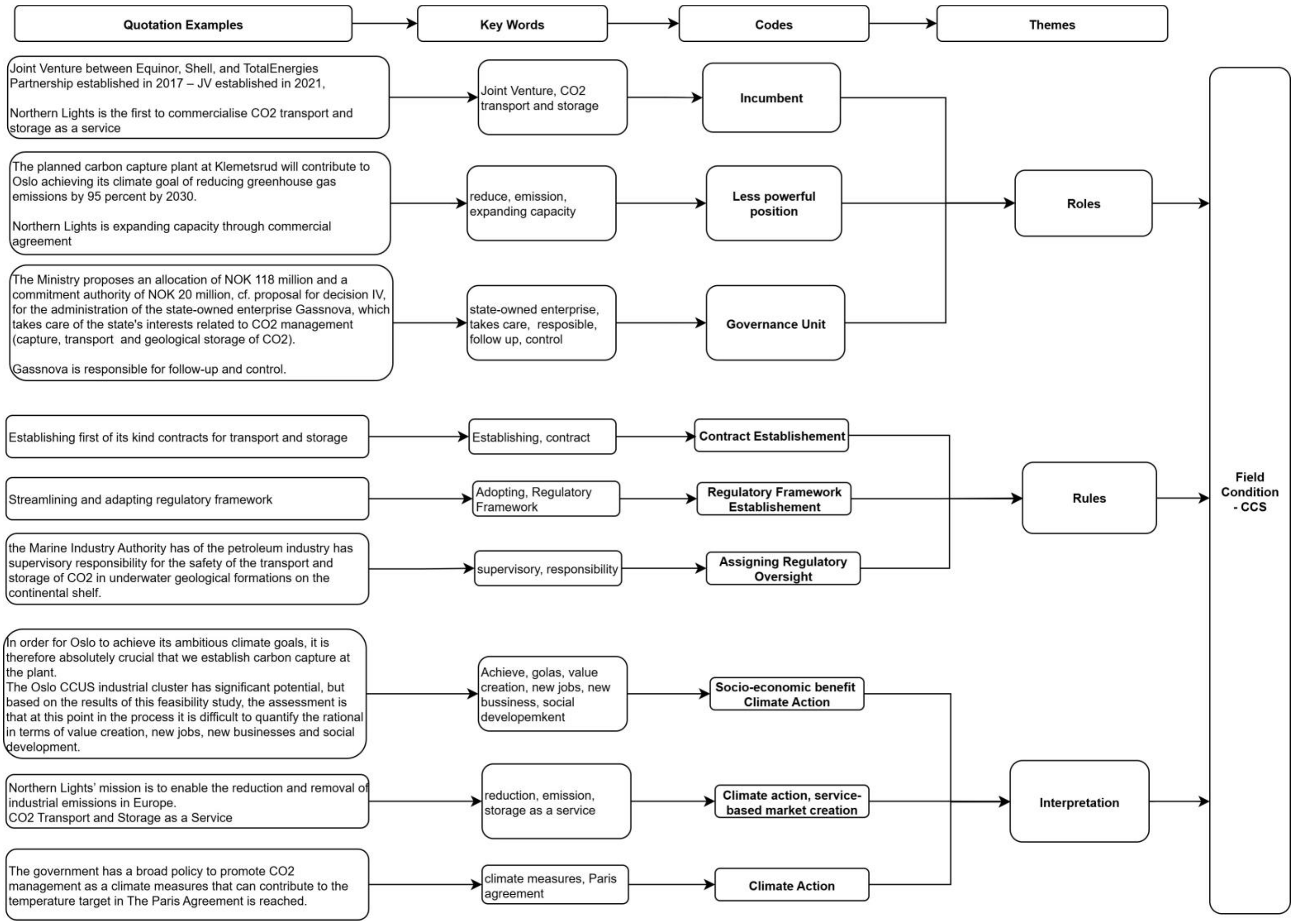
AI Statement

Claude (Anthropic) and Copilot were used during the preparation of this manuscript to assist with language editing, structural revision, and the refinement of academic prose. All theoretical arguments, empirical analysis, interpretations, and conclusions are entirely the authors' own. Full responsibility for the integrity and accuracy of the work as published is taken by the authors.

Appendix 1



Thematic Analysis- Fosen Wind



Thematic Analysis- CCS

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