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A process model for reconciling purpose and profit in the development of multistakeholder partnerships: case BalticSeaH2—a regional hydrogen valley☆

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ABSTRACT

Grand challenges, such as energy transition, demand long-term coordination across sectors through multi-stakeholder partnerships (MSPs) that must navigate persistent tensions between purpose and profit. Drawing on a longitudinal case study of BalticSeaH2 hydrogen valley, we use process analysis to trace how purpose- and profit-driven actions interact across phases. We uncover an embedded hybridity in actions by distinguishing between purpose-driven transformative actions and profit-driven shaping actions. While the former promote purpose and open collaboration, the latter pursue firm-specific strategic interests and selective alignment for collaboration. Our findings show that alternating sequences of these actions create partial reconciliations that support the emergence of governance arrangements and enable "small wins." We contribute to research on grand challenges, robust action and MSPs by theorizing a process model that reveals the embedded hybridity between purpose- and profit-driven actions in the reconciliation process and the sequential emergence of governance arrangements aligned with the robust action strategies.

1. Introduction

Grand societal challenges, such as energy transition, are complex and persistent. Addressing them requires coordinated action across sectors and boundaries (Ferraro et al., 2015; George et al., 2016). Multi-stakeholder partnerships (MSPs) have emerged as a promising organizational form for tackling such issues, particularly when public and private actors collaborate to combine resources, knowledge, and legitimacy (George, Fewer, et al., 2023; Stadtler et al., 2024). These partnerships must navigate and reconcile inherent trade-offs between multiple, and often contradictory, objectives, typically framed as tensions between purpose and profit (George, Haas, et al., 2023; Quelin et al., 2017).

Much of the literature emphasizes purpose-driven actions, oriented toward social and environmental goals, for addressing grand challenges. This emphasis often sidelines business or profit-driven actions, portraying them as opportunistic or harmful to collaboration (Kivleniece & Quelin, 2012). Similarly, studies of robust action strategies often treat actors as uniformly committed to a singular societal goal, overlooking the heterogeneity of motivations (Etzion et al., 2017; Kivleniece & Quelin, 2012). Research on shared value and hybrid organizations addresses this heterogeneity but focuses on reconciliation within a single entity (Battilana & Lee, 2014; Quelin et al., 2017), whereas grand challenges require inter-organizational alignment across actors who take different actions in more complicated environments.

Furthermore, the current framings may overlook the evolving and conflictual realities of how MSPs develop over time. In practice, purpose- and profit-driven actions coexist, sometimes in conflict, but also in ways that can be mutually enabling. Recent literature highlights the collaboration partners' different worlds and logics as the main source of tensions (Cloutier et al., 2025) and acknowledges the dynamic processes of setting goals (Williams et al., 2024; Zobel & Comello, 2025), shared frames (Grimm & Reinecke, 2024), and path adoption (Feuls et al., 2024) over time. Additionally, emerging work suggests that, in the absence of complete solutions, small wins (Savaget et al., 2024), adaptive governance (Cloutier et al., 2025), and polycentric governance

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arrangements and mechanisms (Doh et al., 2019) may be essential for maintaining momentum in long-term collective initiatives.

However, what remains unclear is how reconciliation occurs and how governance arrangements and mechanisms emerge and evolve over time. In particular, it remains unclear how different purpose- and profit-driven actions influence reconciliation trajectory, and whether certain mechanisms tend to precede others. In this paper we ask: How do contrasting purpose- and profit-driven actions affect the emergence and evolution of governance arrangements in MSPs that aim to tackle grand challenges? To answer this question, we draw on an in-depth case study of BalticSeaH2, a European hydrogen valley initiative. Using a process analysis approach, we theorize how the temporal sequencing of purpose- and profit-driven actions shapes the governance arrangements and trajectory of an initiative across multiple phases.

We uncover a hybridity in actions and distinguish between purpose-driven actions, which promote purpose and open collaboration, and profit-driven actions that include firm-specific strategic actions and selective alignment for collaboration. We reveal a recurring pattern of these actions that generates a partial reconciliation in each phase and thus allows the iterative development of governance arrangements for addressing the grand challenge. During these sequences, governance arrangements and priorities shift as the initiative matures: some goals are abandoned, new ones are introduced, and certain actors withdraw or adjust their plans.

Our study contributes to research on grand challenges (George et al., 2016), robust action (Ferraro et al., 2015), and MSP governance (Quelin et al., 2017) by theorizing a process model showing how polycentric reconciliation mechanisms emerge and evolve. First, we refine robust action theory by unpacking its embedded hybridity, showing how alternating waves of purpose- and profit-driven actions sustain the initiative's momentum. While purpose-driven actions are transformative, expanding the initiative's trajectory toward long-term, system-level goals, profit-driven actions shape the initiative and ensure actor engagement by adjusting the scope or pace of each iteration. Our analysis also complements the notion of governance traps (Couture et al., 2023) and shows that when purpose-driven actions take the lead, such as in blueprint development, the initiative is more likely to remain oriented toward its grand-challenge objectives and begin to produce "small wins" (Savaget et al., 2024). Second, we shift the focus to the reconciliation process itself, theorizing how robust action strategies in addressing grand challenges unfold iteratively. We show that appropriate governance arrangements emerge in response to specific misalignments, thereby sequentially generating multivocal inscription, participatory architecture, and distributed experimentation, ultimately enabling cumulative alignment over time.

2. Theoretical background

2.1. Grand challenges and multi-stakeholder partnerships

Grand challenges (GCs), such as climate change and poverty, are increasingly recognized as central issues in organization and management research. Consequently, the role of firms is evolving to encompass values that extend beyond profit-making, reflecting a growing emphasis on social and environmental purpose. While organizations have historically contributed to problems like climate change, they are now also seen as vital actors in addressing them (Wright & Nyberg, 2017). Some firms have begun to integrate issues like climate change into their strategies in response to the escalating and direct impacts of environmental volatility on their operations (Haigh & Griffiths, 2012).

However, tackling a GC is not easy due to its complexity, uncertainty, dynamic nature, and interdependence; it often demands long time horizons (Dentoni et al., 2018; Ferraro et al., 2015). These problems resist simple or definitive solutions; instead, they demand problem-centric solutions that are capable of evolving over time, operating across multiple levels, and adapting to changing circumstances. For this reason, GCs are often characterized as "wicked problems" that must be continuously engaged, rather than solved once and for all (Dentoni et al., 2018).

Traditional approaches, such as relying solely on a single organization or state-led interventions, have proven insufficient for engaging with the scale and systemic nature of GCs. As a result, scholars have increasingly emphasized the importance of collaborative approaches that involve diverse actors, private firms, public agencies, NGOs, and civil society groups, as a more promising path forward (Gray & Purdy, 2018). In particular, multi-stakeholder partnerships (MSPs) have emerged as a key governance form that enables the pooling of resources, unique capabilities, knowledge, and legitimacy across sectors (George, Haas, et al., 2023; Quelin et al., 2017). MSPs have shown promise in addressing issues across diverse domains from corporate sustainability initiatives (Williams et al., 2024) to renewable energy and microfinance (Etzion et al., 2017).

2.2. Governance arrangements for multi-stakeholder partnerships

Despite their promise, MSPs frequently fall short of their original objectives when facing grand challenges. In response, management scholars have sought to articulate governance arrangements specifically suited to such contexts. One influential framework is Ferraro et al.'s (2015) concept of robust action, which outlines three core elements designed to mobilize diverse actors without requiring early consensus. First, participatory architectures, understood as interactional structures and engagement norms that enable sustained collaboration among a broad and varied set of stakeholders. Second, multivocal inscriptions, which involve creating narratives and artifacts that can be interpreted in multiple ways by different audiences, thus allowing coordinated action without enforcing uniform understanding. Third, distributed experimentation, which encourages iterative, small-scale trials that foster learning and sustained momentum, while offering the flexibility to discard unsuccessful initiatives.

Similarly, in the context of cross-sector partnerships, Doh et al. (2019) build on the polycentric governance theory (Ostrom, 2010) and emphasize three governance arrangements. Two of these echo robust action strategies: polycentric governance promotes decentralized decision-making by granting autonomy to actors at multiple levels, whereas risk-sharing mechanisms help build commitment and reduce exit incentives in uncertain environments—often as a result of participatory structures and iterative experiments. In addition, they introduce ecosystem valuation mechanisms, which aim to align actors by focusing on how specific aspects of nature and ecosystem services should be understood and valued.

The above strategies have been effective in the early stages of GC initiatives, which Grodal and O'Mahony (2017) describe as the mobilization phase. In mobilization the focus is on building initial momentum, attracting resources, and convening diverse stakeholders. Yet, many initiatives falter when transitioning to the next phase: pursuit—the implementation of concrete actions, real change in the field, and delivering systemic solutions (Grodal & O'Mahony, 2017). The same mechanisms that enable mobilization may hinder progress during pursuit. For instance, Khan et al. (2007) show how efforts to eliminate child labor backfired by exacerbating poverty and Feront and Bertels (2021) argue that multivocality can generate persistent ambiguity that stalls decision-making.

Building on these concerns, research has turned toward understanding how internal governance complicates the pursuit phase. Couture et al. (2023) argue that an overemphasis on collective governance can lead to governance traps—situations where MSPs become so focused on managing internal coordination that they lose sight of the broader problem. More recently, scholars have focused on actor-level dynamics, particularly the divergence in evaluative logics that shapes how participants engage with the GC over time (Cloutier et al., 2025). For instance, the economies of worth frame introduced by Boltanski and

Thévenot (2021) has been used as a lens to highlight how actors justify actions based on distinct moral orders (Cloutier et al., 2025)—such as market efficiency, civic solidarity, among others. In pluralistic fields, these logics lead to different actions that often clash over what constitutes legitimate or valuable outcomes. As a result, different types of misalignments may arise, between goals or expectations, that can undermine coordination and stall progress (Caldwell et al., 2017).

2.3. Reconciliation of misalignments

In the presence of multiple stakeholders, firms must navigate and reconcile inherent misalignments between often contradictory goals, typically framed as tensions between purpose and profit (George, Haas, et al., 2023; Quelin et al., 2017). For example, social enterprises and impact ventures actively try to broaden the objectives of an initiative or reframe the proposed business models to serve societal needs (Quelin et al., 2017); in contrast, private firms tend to pursue actions that increase their competitive advantage or simply maximize profit, such as when they engage in environmental activities but still try to enhance their economic performance (Bansal, 2005). As a result, these actions alongside one another can generate misalignments, such as when social enterprises aiming for profit are seen as a potential risk for mission drift (Ebrahim et al., 2014). Similarly, in the strategy literature, concepts such as blended value and shared value (Quelin et al., 2017) aim to reconcile social purpose and financial returns; yet, their practical effectiveness has been questioned (Quelin et al., 2017). Others further complicate this alignment, suggesting that the tension between social goals and financial viability can be so pronounced that fulfilling broader societal goals may require a willingness to sacrifice private value capture (George, Haas, et al., 2023).

These tensions are equally, if not more, salient in MSPs addressing grand challenges. Unlike hybrid organizations, which attempt to integrate divergent goals within a single entity, MSPs must navigate these tensions across organizational boundaries, each with its own priorities, evaluative criteria, and institutional logics. In particular, paying attention to these misalignments is critical in the very early stages of partnerships, as they can lead to and intensify later conflicts (Doh et al., 2019).

Researchers increasingly recognize that reconciliation in MSPs is not a discrete event but a processual and iterative endeavor, characterized by the ongoing negotiation of trade-offs and evolving priorities (Makarevich, 2018; Tykkyläinen & Ritala, 2021). From parallel streams of research, we know that although these tensions may never fully disappear they can be gradually managed through repeated interaction, mutual adjustment, and co-evolution of practices and goals (Aguilera et al., 2024; Bouwens & Kroos, 2016). Similarly, in the MSP context, the goal setting (Williams et al., 2024), the creation of a shared frame (Grimm & Reinecke, 2024) in complex projects, the pursuit of goals in boundary organizations aiding collective action (Zobel & Comello, 2025), and field settlements that aim to change the rules of the game (Cloutier & Couture, 2024), are seen as emergent and iterative processes, shaped by differences that may activate paradoxes and latent tensions.

Taken together, these perspectives reveal that addressing GCs through MSPs involves managing misalignments across different actions over time to create governance arrangements. When MSPs move from mobilization to the pursuit and implementation phases, tensions become more pronounced and reconciliation more fragile and challenging. What remains underexplored is how these misalignments are navigated across stages of MSPs, especially when partners must move from broad alignment to concrete joint action.

Following on research on hybrid organizing within single organizations (e.g., Battilana & Lee, 2014) and on collaborative governance in inter-organizational arrangements (e.g., Bryson et al., 2015), we specifically want to study the condition that hybridity is located in the collaboration itself meaning that it is distributed across participating organizations and their interfaces rather than within any single actor. We refer to this phenomenon as embedded hybridity and will try to consider it at the collective level since it might help us understand why tensions often intensify as MSPs move from mobilization toward concrete action (Grodal & O'Mahony, 2017) and why reconciliation must be organized as an ongoing (Obloj & Sengul, 2020), cross-organizational process (Williams et al., 2024).

3. Methodology

3.1. A single case study with process-oriented analysis

This study adopts process-oriented analysis (Langley, 1999) and a single case study approach (Yin, 2009). The single case is an EU funded BalticSeaH2 project that is building a hydrogen valley. Case study research is particularly appropriate when examining complex or new phenomena within their real-life contexts, whereas process-oriented analysis allows us to trace how such phenomena unfold through sequences of actions and shifting actor relationships, emphasizing temporality, the unfolding of events, and the mechanisms connecting them (Langley & Tsoukas, 2016). Furthermore, we use an abductive approach (Dubois & Gadde, 2002; Mantere & Ketokivi, 2013) that allows for a dynamic interplay between empirical insights and theoretical development. This iterative logic supported our evolving focus on how actors' goals and collaborative forms shifted as the valley took shape.

The unit of analysis is the hydrogen valley as an evolving, multi-actor initiative and governance arrangement. Firms and organizations serve as units of observation, whose actions and interactions collectively shaped the formation and development of the valley.

3.2. Research context and case selection

Energy security and climate change have intensified the urgency of the energy transition, particularly the shift toward renewable energy. Hydrogen is increasingly promoted as a key enabler of the clean energy transition due to its potential to decarbonize heavy industry and transport (Arent et al., 2022). However, building a hydrogen economy requires overcoming technological, market, and organizational uncertainties (Markard et al., 2012), and making coordination across diverse actors. In particular, it requires joint work by public actors, who are often purpose-driven and focused on long-term societal outcomes, and private firms, which must balance these goals with commercial viability and strategic goals.

In this study, we focus on the BalticSeaH2 project that represents a form of MSP that is interregional and cuts across sectors and national borders. The project aims to establish Europe's first large-scale interregional hydrogen valley by 2030, producing over 48,000 tons of green hydrogen annually. The "main valley" spans Southern Finland and Estonia, while seven connected valleys extend across other neighbouring countries.

The BalticSeaH2 project takes a multi-level collaborative approach, bringing together 8 public or partially public entities, 15 private entities and 15 non-profit entities under a shared vision: establishing the interregional hydrogen valley in the Baltic Sea region. As shown in Fig. 1, at the top level, the project is governed by the project and valley coordinator. In the next level, the project is divided into production, distribution, and consumption subprojects and "investment cases," each focusing on specific aspects of the hydrogen valley's development. Figure lists only the lead partners but they are also supported by additional "collaborators" contributing to the subprojects. On the lowest level are supporting research and technology partners. The diversity of actors, including state-owned enterprises, large corporations, startups, and nonprofit organizations, makes BalticSeaH2 an ideal setting to investigate how contrasting logics of purpose and profit are addressed in practice. Specifically, the case allows us to explore how alignment is achieved (or strained) over time in a grand challenge MSP.

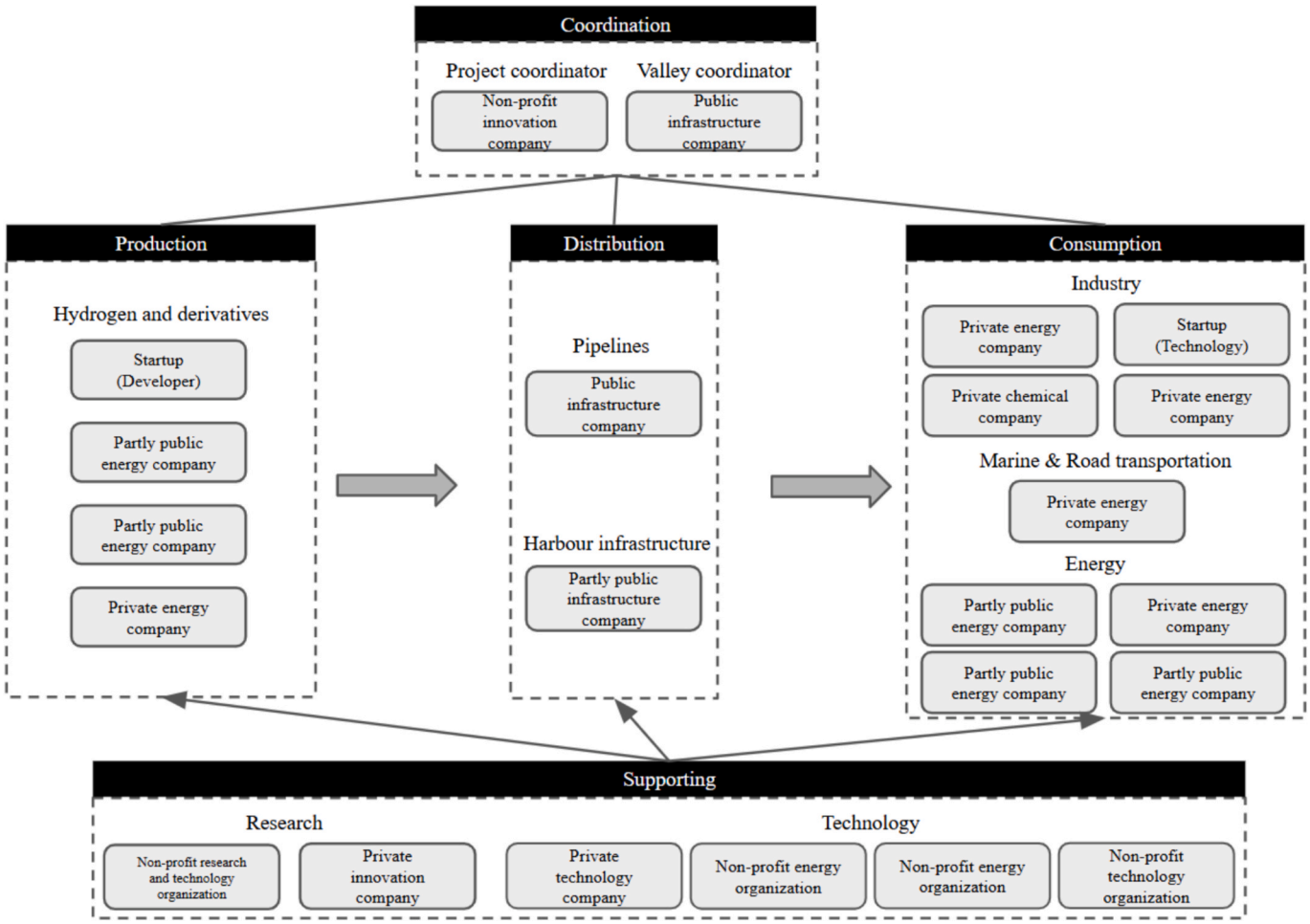

Fig. 1. BalticSeaH2 project structure with subprojects and their lead partners.

We combined three data sources to capture the emergence and development of the valley from June 2023 to April 2025: (1) semi-structured interviews, (2) project and firm documents and news, and (3) interactive workshops. We collected both real-time (interviews, meetings, workshops, contemporaneous documents) and retrospective materials (archived documents and retrospective interviews) and explicitly combined them, which enabled us to conduct temporal mapping that is systematically organizing events and actions into a chronological timeline and linking them to actors' decisions and interactions over time.

We conducted 17 semi-structured interviews with 26 participants from public, private, and non-profit organizations directly involved in BalticSeaH2, plus 5 pilot interviews with energy, hydrogen, and method experts. We sampled decision-makers engaged in strategic or operational roles across sectors and industries. The interviews (60–75 min) addressed objectives, motivations, decision points, and evolving challenges, anchored in documented events. Table 1 shows the list of participants and corresponding voice codes.

We continuously collected more than 652 pages (proposals, internal presentations, meeting slides, press releases, LinkedIn posts, media articles) relevant to the BalticSeaH2 and hydrogen (Table 2). These materials supported timeline reconstruction, tracked shifts in discourse and priorities, and corroborated claims. The full list of identified events is provided in the supplementary material. Finally, we ran seven monthly 2-hour workshops with 3 to 10 firm representatives (distinct from interviewees) discussing project development.

We ensured a transparent chain of evidence by linking excerpts to dates and sources, cross-checking narratives across data, and using divergence as analytical material to evaluate contested interpretations. The diversity of participants ensured multiple perspectives on evolving collaboration dynamics.

3.3. Data analysis

Our data analysis followed an iterative, abductive logic (Mantere & Ketokivi, 2013) informed by process research. We did not start with a fixed framework but allowed theory and data to co-evolve as our understanding deepened. Data analysis started with document analysis and attending initiative meetings (as described in Table 2). We then conducted interviews and simultaneously proceeded with initial coding. Taking a process-oriented approach we continued through timeline construction and the search for supplementary data in firms' news and reports. Analysis was completed by cross-case comparison, phase construction and theoretical abstraction. Finally, we conducted complementary data collection and reflective validation. While the steps are presented as an ordered list in table 3 we conducted the analysis in an iterative manner, and some steps were revisited several times during the analysis process.

Importantly, we paid attention to the differences between actions and changes and evolution of views on green hydrogen, collaborations, collaborative structures, subprojects, and the overall emerging green hydrogen market. Our first step was to examine the focus and direction of actions over time. Differences in the main focus of actions alongside key decision points and events helped us identify boundaries between phases. Through a process of constant comparison, we found that two types of actions consistently initiated progress within a phase and were

Table 1
Interviews.

Firm category	Number of interviewees	Role of interviewees	Voice Code
Non-profit innovation company	1	CEO	NP-IN
Public infrastructure company	2	Manager and Director	P-INF
Private technology company	2	Manager and Technical Director	PR-TEC-1
Private technology company	2	Manager and Senior Engineer	PR-TEC-2
Partly public energy company	1	Director	PP-EN-1
Private energy company	3	Director, Society Specialist, and Energy Specialist	PR-EN-1
Partly public energy company	2	Manager and Senior Manager	PP-EN-2
Partly public research organization	1	Director	PP-R
Non-profit technology organization	1	CEO	NP-TEC
Private chemical company	2	Asset Transformation Mang. and Program Mang.	PR-CH
Start-up (technology provider)	1	Director	ST
Non-profit energy organization	2	Manager and Senior Manager	NP-EN
Partly public infrastructure company	1	Manager	PP-INF
Non-profit energy organization	2	CEO and Head of Projects and Administration	NP-EN-2
Non-profit research and technology org.	1	Director	NP-TEC-2
Private energy company	1	Manager	PR-EN-2
Private innovation company	1	Manager	PR-IN

Table 2
The list of documents.

No	Document source	Number of pages
1	Proposal of the initiative submitted to EU-Horizon	70
2	Firms' published reports on the hydrogen or initiative	110
3	Initiative Reports and Presentations by different firms	281
4	Firms' news related to the hydrogen or initiative	187
5	Initiative evaluation reports by EU	16
7	**Total**	**664**

predominantly purpose-driven that we called them purpose promotion and collaboration opening. The first always occurred at the beginning of a phase, when some actors sought to advance a broader collective purpose. The second appeared later, when multiple actions were occurring but moving in divergent or even contradictory directions. These actions aimed to bring disparate efforts closer together and open channels for coordination.

In the next stage of analysis, we sought to understand how these actions related to one another and why they occurred when they did. We observed that collaboration opening was consistently preceded by a period of misalignment, during which actors pursued contradictory goals or incompatible strategies. By analyzing the actions that contributed to these misalignments, we saw that they were almost always strategic actions that were firm-specific, commercially oriented, and not included in the earlier purpose promotion efforts (Table 3).

We also identified a set of actions that emerged in response to, or sometimes in opposition to, collaboration opening efforts. Although these actions were heterogeneous and occasionally conflicting, they collectively worked to make collaboration possible. We label these actions selective alignment, as they enabled firms to connect to the collaboration on terms that remained feasible from their own strategic perspective. Despite occasional back-and-forth between collaboration opening and selective alignment, each phase ultimately concluded with a state of partial reconciliation, which temporarily stabilized the collaboration and created fertile ground for the next round of actions.

Finally, ordering actions alongside the status of collaborations at each moment helped us uncover the processual structure linking these constructs. This temporal ordering clarified the causal relationships among the constructs and aligned with the recurring sequence that characterizes each phase of the process.

4. Results

Our results reveal a multi-phase process in which purpose-driven and profit-driven actions interact and shape the emergence of governance arrangements. We identify three key phases: forming a vision, developing a blueprint, and advancing the valley as an organization (see Fig. 2 below), each representing a distinct bracket of activities within the broader initiative.

Phase 1 formed a shared vision of the green transition and positioned hydrogen as a potentially key solution. Firms, however, initially focused on narrower, firm-specific opportunities, resulting in an unsynchronized vision. Creating entry points through purpose-driven actions helped others join in co-learning projects that created conditions for a shared vision. Phase 2 marks the formation of a more structured multi-actor platform as firms introduce their strategic goals. The focus here is on emphasizing risk-sharing arrangements mostly through connecting existing plans and assets. Phase 3 involves implementation, supported by external funding and formal agreements. Operational challenges surfaced, prompting strategic adaptation, organizational realignment, and purpose reframing. Some actors deepened their involvement; others reconsidered their role. Misalignments thus became turning points for learning and realignment.

The subsections that follow detail each phase in order. For each phase (subsection), we elaborate, on the trigger (T1–T3) that stimulates initial diverging purpose- and profit-driven actions: purpose promotion (P1–P3), which refers to preliminary advancement of collective goals, and firm-specific strategic actions (S1–S3), the resulting misalignments (M1–M3), the collaboration opening (O1–O3) aimed at addressing misalignments, and selective alignment (A1–A3) used to navigate them. Finally, the partial reconciliation (R1–R3) as the outcome of the whole phase that allowed the initiative to move forward. The constructs are also visible in the empirical figure 2 and Tables 4–6.

4.1. Phase 1: vision

The initial phase of the hydrogen valley's development centered on articulating a shared vision for utilizing hydrogen in the green transition. This phase laid the foundation for collective action by introducing hydrogen as a technology with the potential to advance the goals of the green transition. Alongside this, public initiators also created a decentralized approach that encourages distributed experimentation, enabling actors from different regions, and sectors, to explore hydrogen applications.

Trigger. The cycle was activated by EU-level developments that altered expectations around hydrogen and green energy. A tightening EU ETS, the launch of the Clean Hydrogen Partnership (2021), and geopolitical uncertainty along Europe's eastern borders reframed hydrogen as a dual solution to climate mitigation and energy security. These changes prompted Finnish actors to revisit their decarbonization trajectories and consider hydrogen's potential role in them.

Purpose promotion. A vision of hydrogen as a national and regional opportunity emerged by public actors, helping diverse regions and sectors explore hydrogen applications. Finland's ambitious climate

Table 3
Data Analysis Steps.

Step 1: Document analysis and initiative meetings. We began by analyzing internal project documents and attending early initiative meetings. This allowed us to understand the collaborative context, identify its key actors, milestones, and early governance structures.
Step 2: Conducting interviews and initial coding. After refining our interview protocol through pilot interviews, we conducted interviews with key firm decision-makers. We used MAXQDA to code transcripts, informed by multi-stakeholder collaborations, public–private partnerships, and clean energy transitions literature. Codes were adjusted iteratively as new patterns emerged. Particular attention was given to firms' motivations, how firms articulated social goals, responded to challenges, negotiated roles, and justified shifting objectives. To ensure validity of the interpretations the coding was done by all three authors. The first author coded all interviews and two other authors coded different selected subsets of interviews. Disagreement by authors was discussed in review meetings after each coding round.
Step 3: Timeline construction and re-coding. We developed a detailed process timeline of initiative development by revisiting early data sources and aligning coded interview excerpts with key decision points and events. This step helped establish the temporal structure for understanding the process dynamics.
Step 4: Workshops and search for supplementary data. We ran monthly workshops with people from different firms and systematically scanned all the news related to participating companies for second-hand data sources, including media reports, LinkedIn updates, and organizational press releases, to complement and validate our interpretations and coded patterns. Next, we added our codes to the data collected here.
Step 5: Cross-actor comparison (Eisenhardt, 1989)**.** We compared how actors framed their involvement, allowing us to identify shared themes (e.g., strategic reframing) and consider points of divergence in priorities.
Step 6: Phase construction and theoretical abstraction. Using visual mapping of decision points, turning moments, and discourse shifts across data sources, we grouped the initiative's development into three distinct phases. Drawing on Langley (Langley, 1999), we linked empirical patterns to theoretical constructs through abstraction and memo writing.
Step 7: Complementary data collection and reflective validation. Throughout the study, we held regular team discussions, and consulted external experts to discuss and validate our emerging interpretations.

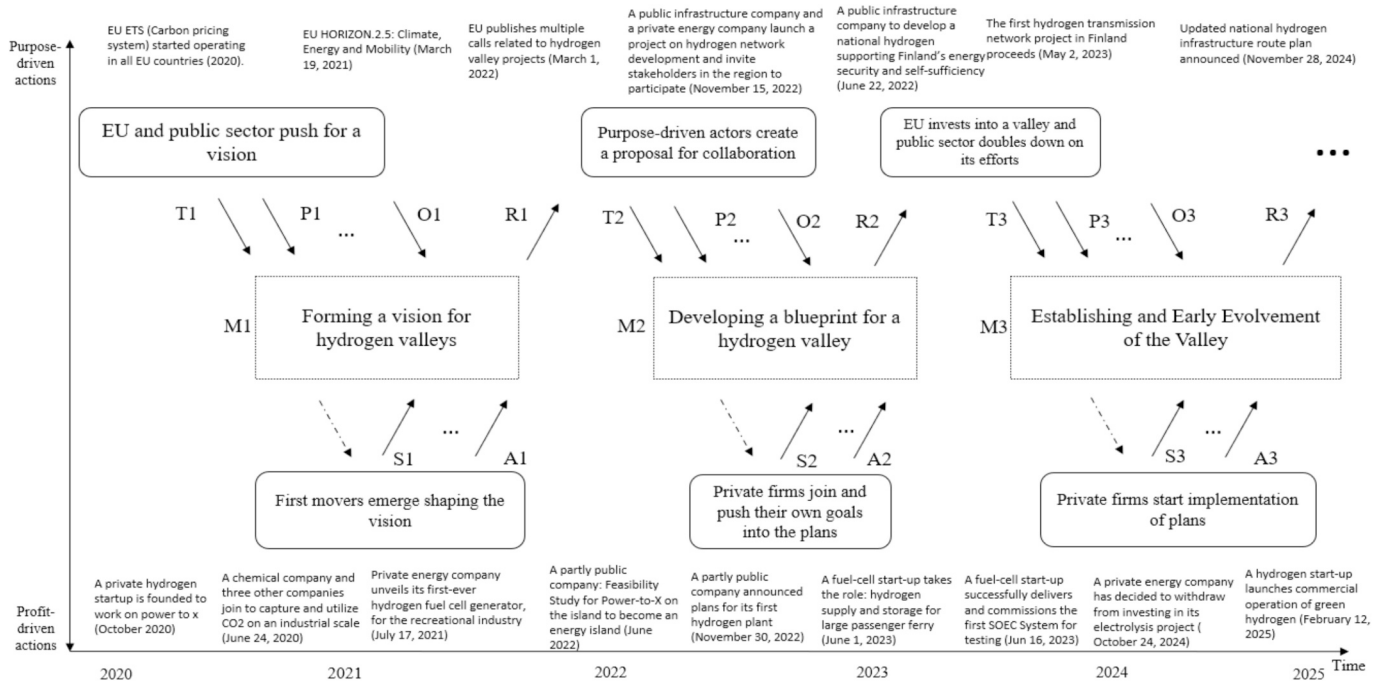

Fig. 2. Emergence of the hydrogen valley through purpose and profit driven actions and example events (empirical figure)(Symbols T, P, S, O, A and R represent trigger, purpose promotion, strategic actions, misalignments, collaboration opening, selective alignment, and partial reconciliation. Specific instances are elaborated in Tables 4, 5, and 6. The list of all events are provided in the supplementary document.)' (The positions of the elements in the figure are not perfectly aligned with the timeline.)'(The dashed arrows show the influence of triggers to the profit-driven actions.)

goals, abundant freshwater resources, and strong energy infrastructure were used to frame hydrogen as a platform for system-wide transformation. Government funding increased for hydrogen-related research, and organizations began setting ambitious internal targets: "*We want to become climate neutral… hydrogen has a big role to play* (PP-EN-1)."

Strategic actions. At the same time, firm-level actions responded to the triggers more cautiously and instrumentally. Companies monitored EU initiatives, analyzed risks, and viewed hydrogen as either an opportunity or a hedge against future regulatory pressure. While smaller actors positioned themselves to capture emerging funding streams, larger ones sought to "*future-proof*" their operations or secure early-mover advantages. For the latter, hydrogen was examined as a means to avoid future carbon pricing penalties or to prepare for anticipated shifts in customer and investor expectations: "*The future price of CO_2 would affect our business fundamentally… we need to be prepared* (PR-CH)."

Misalignments. These initial actions were valuable, but they did not immediately create collaborations among actors. Long-term societal goals, energy sovereignty and the need for system-level hydrogen infrastructure (e.g., the European Hydrogen Backbone,) were not aligned with near-term feasibility niche use cases (e.g., fuel cell generators for the recreational market).

Collaboration opening. As the diverse landscape became recognized, efforts to open collaboration channels were initiated. Public actors began exploring ways to ease entry, for instance by collaboratively exploring hydrogen transport in gas grids, or by creating new subsidiaries to coordinate hydrogen-focused initiatives, such as hydrogen research projects. These early initiatives broadened participation and created initial points of connection among otherwise disparate actors.

Selective alignment. These emerging collaborative opportunities

Table 4
Identified constructs and illustrative examples for Phase 1.

Construct	Description	Indicative Examples
Trigger	T1: Public push for decarbonization	Document: Clean Hydrogen Partnership launch (2021) and EU Hydrogen Strategy updates; tightening EU ETS. "*EU initiatives are developing and we are following up*." (NP-EN)
Purpose promotion	P1: Promoting a national hydrogen vision	Action: Increased national funding for hydrogen research and cross-sector pilots (Sustainable Growth Programme For Finland 2021–2022). "*We want to become climate neutral… hydrogen has a big role to play* (PP-EN-1)."
Strategic Actions	S1: Exploration of hydrogen business	"The future price of CO_2 would affect our business fundamentally… we need to be prepared (PR-CH)","*We see a commercial threat for us [as a port] if we do not adapt to the transition happening.*" (PP-INF*)* Action: New start-ups in e-fuels/electrolyzers; incumbents assess hydrogen for compliance and first-mover options.
Misalignment	M1: Unsynchronized vision	*"We as electricity producers would like to create new demand in the market"* (PP-EN-1) Action: European Hydrogen Backbone vision (infrastructure), vs. near-term private commercialization of portable hydrogen generators (recreational niche).
Collaboration Opening	O1: Small-scale experimentation and creating entry points	Action: Cross-border feasibility work on transporting hydrogen in gas grids (P-INF press releases) "*[A public company] establishes a daughter company to promote its role … in the development of the national hydrogen network, international infrastructure cooperation, and the hydrogen market in [the region] … as quickly as possible.*" (P-INF press release)
Selective Alignment	A1: Joining low-risk learning research projects and pilots	*"We were … trying to apply for similar projects last year and the year before, but we didn't have success there."* (NP-TEC) *"We are now [already] part of another project funded by the government"* (PR-CH)
Partial Reconciliation	R1: Creating the vision for collaborative hydrogen	*"…there's many things that we need to learn and to understand … from and with other actors."* (P-INF), and *"The financial needs for this transition are so huge that nobody can do it alone."* (NP-IN)*"We need to establish new kinds of partnerships to look at the setups of doing the business,…, really strong requirements coming from the transition of … several industries at the same time."* (PR-CH)

Table 5
Identified constructs and illustrative examples for Phase 2.

Construct	Description	Indicative Examples
Trigger	T2: Funding calls for formalized regional coordination	Document: Clean Hydrogen Europe call, texts "Hydrogen Valleys… essential to scale up Europe's hydrogen economy."
Purpose Promotion	P2: Catalytic leadership in coordinating activities	*"The challenge now is who moves first? …we have started to develop the infrastructure early enough so that we create the confidence for the others so that they can start making contracts and I think last week was a good example of that."* (P-INF) *"A lot of synergies that we thought that are very important, especially the collaboration between different countries and infrastructure. So we saw this as a very good opportunity to collaborate with different stakeholders … we didn't necessarily have the financial resources [by ourselves] …"* (PP-EN-1)
Strategic Actions	S2: Pushing firm's interests into the collaboration	*"The key objective is to demonstrate the scaled-up technology for our solitude electrolyzer…this initiative would not change our company or how we behave. But we see this as a big opportunity to scale up our business."* (ST) "*we need to first get the hydrogen transport sector up and running* (PP-EN-1)"
Misalignment	M2: Divergent goals and logics of value creation	*"Even though it's a pilot, it still needs to make some money for us … off-taker … very important"* (PP-EN-1) *"there is a clear interest for these end products [that we produce] and we have mainly been focusing on the maritime sector…."* (PR-TEC-2) *"Theoretically it [, our plan,] is a great line to operate a ferry with hydrogen there. We really like to make it happen, it's two hours very proper for hydrogen that makes it a perfect case.*" (PR-EN-1) *"We want to become an Energy Island and for that we had led projects to explore the possibilities of producing hydrogen, ammonia or methanol on the island."* (PP-INF) "*We want to play a central and leading role in the upcoming market [which this initiative would help]*" (PR-TEC-2)
Collaboration Opening	O2: Relaxing participation structures	*"We need to be open minded and develop something completely new with getting help from others."* (P-INF) "*They were not actually forced to change their plans; they just could get some financing that would ease their life. So, they were able to get some financing for all the studies that they anyways would need to do for their investment.*"(NP-IN)
Selective Alignment	A2: Selectively aligning blueprint elements with existing strategies	*"you don't want to have only one company that is buying your hydrogen, but several so you … minimize the risks [through this initiative]."* (PP-EN-2) "*We today produce more hydrogen than we are consuming… that could be utilized in this initiative* (PR-CH)." *"[we joined] because in port, we have the existing ammonia terminal which has been there for years and it has experience with shipping and sending ammonia."* (PP-INF)
Partial Reconciliation	R2: Blueprinting shared purpose and actor roles	Action: All partners sign the collaboration MoU; letters of support for specific subprojects from city stakeholders. Early joint working groups established.

triggered low-risk strategic adjustments across different actors to engage with them. Many firms joined publicly funded pilot and research initiatives, not as commitments to hydrogen deployment, but as safe learning platforms: "*we are now part of another [hydrogen research] project funded by the government* (PR-CH)." These projects allowed firms to share and gain early knowledge, and access state co-financing, gradually aligning their exploratory efforts with the broader public vision.

Partial reconciliation through establishing a common vision. Through these early interactions, actors achieved a very initial partial reconciliation of purpose and profit in the form of a shared high-level vision. As hydrogen was reframed as increasingly relevant to firms' decarbonization agendas: "*Hydrogen is an important element in our mission* (PP-EN-1)," it became a focal point around which new conversations and cross-sector ties formed to develop hydrogen related technologies and use cases. In addition, several organizations created new hydrogen units, spin-offs, or multi-organizational consortia: "*We are expanding our ecosystem… now part of another government-funded project* (PR-CH)."

Although motivations remained heterogeneous, actors converged on a collective understanding of hydrogen's relevance. This shared vision did not eliminate underlying tensions, but it reduced misalignment to a level that enabled the transition to the next developmental phase.

4.2. Phase 2: blueprinting – negotiating the BalticSeaH2 valley (2022–2023)

The second phase shifted from ideation to designing a multi-actor blueprint for the BalticSeaH_2 Valley. This phase involved turning fragmented corporate plans, public-sector ambitions, and cross-sector initiatives into an integrated platform capable of coordinating hydrogen development across the region.

Trigger. The phase was activated by a round of EU and international funding calls aimed at supporting "*hydrogen valleys*" as "*essential in order*

Table 6
Identified constructs and illustrative examples for Phase 3.

Construct	Description	Indicative Examples
Trigger	T3: Approval of the blueprint and securing the finance	"*BalticSeaH2 is based on 5 core principles: (1) To achieve environmental targets set forth by the European Commission in the European Green Deal …*" (Approved Proposal template Part B: technical description)
Purpose Promotion	P3: Taking first steps for national infrastructure	Action: Two public companies complete feasibility and sign MoU to develop national hydrogen infrastructure (joint press release). Quote: "*We invited stakeholders to open consultations.*" (P-INF)
Strategic Actions	S3: Finalizing decisions and pursuing projects	Publishing plans, and celebrating collaborations' breakthroughs "*Scenario work … infrastructure companies' joint project completed*", "*…celebrate a key development milestone in green hydrogen production technology*", "*… to replicate its hydrogen plant concept in Pori*"
Misalignment	M3: Operational challenges	*"Hydrogen production plans are typically not built to be flexible, and that was a surprise for us…. Although we have a very solid off taking agreement … reaching that is difficult."* (PP-EN-1) "*technical unpredictability…*" (NP-EN-2) *"It's still really difficult to put a price on the hydrogen yet and many questions are still open … make the investment risky."* (NP-IN) *"The delivery of market model is limited by competition laws, it's not clear which information are shared in the consortium."* (Project Review Report), "*… we now have to report quite a lot about the investment projects even though they are not all actually really financed through the project.*" (NP-IN)
Collaboration Opening	O3: Broadening outcomes and expanding resources	"*We cannot be too picky on the color of hydrogen… more colors can be considered sustainable*" (Director, Partly Public Energy Company) "*Energy is also safety… and there is no other way than producing hydrogen and its derivatives*," (PP-EN-1) "*We are discussing with our key members to relaunch a hydrogen resource group… because of our own strategy*." (NP-EN-2).
Selective Alignment	A3: Recalibration and selective engagement	"*Our final decision would depend on the hydrogen price, the regulations and how they would categorize the hydrogen we produce*" (PR-CH) "*[to make decisions] some info that helps [us is that] different companies and how the market is developing. We should see different contexts in different locations … and see what the best moves are*." (PR-EN-2) "*We will re-evaluate our renewable hydrogen plan… and decided to withdraw from investing in a [large-scale] electrolyzer*" (PR-EN-2) "*…to deliver renewable energy to … green hydrogen plant…a five-year Power Purchase Agreement (PPA)*…"Action: forming a policy cluster to jointly address regulatory barriers (industry position papers).
Partial Reconciliation	R3: Hydrogen valley evolves through small wins and multi-speed advances	*"[A start-up] launches commercial operation of green hydrogen as the first one in Finland"* (BalticSeaH2 website) *Document: Project Review Report notes progress on multiple independent production units and uses (e-fuels, methane, ammonia, hydrogen).*

to scale up Europe's hydrogen economy". These calls reframed regional collaboration as both timely and strategically valuable, generating urgency and incentives for actors to formalize their plans.

Purpose promotion. Foresighted actors responded by promoting coordination activities as necessary to prevent fragmented investments and infrastructure mismatches, "*we found this call for the hydrogen valleys and then in the group we decided to try to build this sort of a wide project* (NP-IN)". These activities included spotting ongoing projects, identifying complementarities, and organizing cross-sectoral events that brought together energy, chemical, and electricity companies. A smaller collaboration group produced an early cross-sectoral blueprint that visualized how diverse projects could interconnect. The goal was to create a platform for structured networking and cross-industry integration that would also help actors to build infrastructure that works for all.

Strategic actions. The framing of the blueprint resonated differently across actors who simultaneously engaged with it in order to shape the blueprint around their own strategies. Firms considered leveraging their current assets and projects, such as chemical terminals, renewable energy parks, or emerging electrolyzer technologies. One firm joined shortly after launching its own green fertilizer project. For others, the goal was to accelerate market entry or scaling: "*We want to play a central and leading role in the upcoming market* (PR-TEC-2)." Others saw the blueprint as useful for de-risking their investments. For example, a firm discussed the sequencing challenge: "*We couldn't find a good business case… the only reasonable logic we found is that we need to first get the hydrogen transport sector up and running* (PP-EN-1)," while another emphasized the benefits of shared facilities: "*We have the hydrogen plant… so it makes sense to consider who else is around and who else could benefit from having the pipeline there* (PP-EN-2)."

Misalignment. The entry of additional firms meant the presence of multiple projects and goals that were not always well aligned. Purpose-driven initiators were focused on interdependent and system-wide coordination, whereas others pursued more instrumental and firm-specific projects.

Collaboration opening. To manage these misalignments, purpose-driven actors took three major actions. First, they framed the blueprint as a flexible platform by accommodating different project timelines, sizes, and commitment levels; thereby highlighting the need for openness: "*We need to be open-minded and develop something completely new with help from others* (P-INF)." Second, they introduced risk sharing logic and, through asset-synergy mapping, identified complementarities in pipelines, storage systems, and logistical capabilities. Finally, they emphasized the benefits of participating in the partnership, such as financial support: "*They could get some financing that would ease their life… they needed to do it anyway* (NP-IN)." These actions opened the collaboration space and reduced early exits.

Selective alignment. Private actors responded by selectively aligning the blueprint with their existing assets, sunk costs, and strategies. Firms used the initiative to leverage existing assets (e.g., "*ammonia terminals* (PP-INF)"), accelerate ongoing decarbonization plans (e.g., "*sustainability goals* (PR-EN-2)"), test products in real environments or scale (e.g., "new *electrolysis* (PR-TEC-1)"), and gain early insights into market design. These selective adjustments allowed firms to remain aligned with their own commercial trajectories while still contributing to collective coordination.

Partial reconciliation through blueprinting. Through repeated adjustment, actors achieved a partial reconciliation that resulted in a working, negotiated regional blueprint with a list of distributed projects. Firms reframed hydrogen from a peripheral technology into an integrated component of their investment logic—both an opportunity and a risk mitigation tool. Followingly, ties among actors deepened, participation in the blueprint became a signal of credibility and coordination mechanisms emerged, including joint working groups, early rule-setting, and distributed piloting efforts. While misalignments persisted, they were channeled into a workable interdependence, and the partial reconciliation stabilized cooperation sufficiently to initiate organizational formalization.

4.3. Phase 3: establishing and early evolvement of the valley (2023–2025)

With the blueprint formalized through a joint proposal and

Memorandum of Understanding, the BalticSeaH2 collaboration entered the implementation phase. The EU's decision to finance the initiative transformed the valley from a plan into a more formal organizational structure with formal commitments, dedicated work packages, and clear responsibilities. Yet implementation revealed operational challenges, fragmented risk perceptions, and persistent uncertainty, producing a new cycle of divergent actions and attempts to stabilize collaboration.

Trigger. The EU's approval of the hydrogen valley proposal and the allocation of multi-year funding was the third trigger. It eased financial pressure for some actors and helped them to execute parts of their plans: "*Today I would not get to be worried about the financial part as we are in a good status* (NP-IN)."

Purpose promotion. A group of purpose-driven actors responded by accelerating activities beyond what had been originally planned. One major infrastructure company joined as the co-leader of the initiative and, at the same time, publicly released preliminary national hydrogen infrastructure plans while intensifying its hydrogen related events.

Strategic actions. On the firms' side, the dominant approach was to view implementation instrumentally. Those that had already initiated hydrogen-related investments independently of the valley, simply saw it as a confidence boost: "*These investments will happen regardless of if the initiative is there or not* (PR-TEC-1)." Others used the valley to accelerate their plans: "*We are all in* (PP-EN-1)."

Misalignment. Implementation revealed a new configuration of misalignment, rooted in uncertain business models "*Still really difficult to put a price on the hydrogen… the investment [is] risky* (NP-IN and similar points by others)," regulatory instability "*We had to stop… because the regulation made it highly costly* (PP-EN-2)," and technical challenges "*Hydrogen production plans are typically not built to be flexible, and that was a surprise for us*…(PP-EN-1)." These tensions generated hesitation, reevaluation, and uneven progress across the valley, challenging the possibility of synchronized implementation.

Collaboration opening and maintenance. In this phase, collaboration maintenance became the focus rather than collaboration opening. To preserve collaboration amid rising operational misalignments, three purposeful adaptations emerged. First, method flexibility was introduced by broadening acceptable technological pathways and discussing blue hydrogen or nuclear-derived hydrogen as transitional options: "*We cannot be too picky on the color of hydrogen* (PP-EN-1)."

Second, resource expansion occurred through emphasizing energy sovereignty to re-anchor the initiative's social purpose goal and open up new resources. Actors framed hydrogen as part of broader energy security concerns: "*Energy is also safety*" (P-INF). At the same time, organizations expanded their internal resources for hydrogen. One actor described internal restructuring to enhance adaptability "*We are discussing with our key members to relaunch a hydrogen resource group… because of our own strategy* (NP-EN-2)." Another diversified outward by launching smaller replication projects across the Baltic region, securing additional EU funding, and forming a new collaboration with the government of an island to explore complementary hydrogen infrastructure.

Overall these actions sustained the momentum, created new entry points, and expanded the valley's strategic perimeter, reducing the risk that implementation stagnation in one area would stall the entire initiative.

Selective alignment. As operational misalignments increasingly affected firms, they preserved optionality and lowered exposure through three aligning instances. Some projects were paused and postponed "*final decision would depend on the hydrogen price, the regulations and how they would categorize the hydrogen we produce* (PR-CH)." Two projects were transformed into smaller scales (e.g., "*digital twin simulations* (PP-EN-1)"). Two large industrial firms reduced their scope and withdrew from originally proposed project: "*We will re-evaluate… and decided to withdraw from investing in [a larege-scale] electrolyzer*" (PR-EN-2). At the same time, smaller collaborative initiatives emerged to collectively tackle specific challenges. For instance, firms consolidated into a cluster to jointly address regulatory and policy barriers, using their collective voice to lobby and influence regulations through regularly publishing fact sheets and position papers. One project successfully entered the operationalizing stage through the major collaboration of three actors. Overall, these adaptive steps allowed actors to remain part of the initiative without assuming full commitment.

Partial reconciliation through small wins and multi-speed advances. Despite unresolved challenges, the phase produced a workable, temporary alignment grounded in distributed multi-speed progress. For instance, while different projects advanced at different speeds and remained at various stages, the initiative reported an interim milestone in a subproject that delivered the first green hydrogen to its customers. A larger replication of the same project is now being considered, subject to regulatory and market conditions, to initiate implementation soon. In other cases, smaller technological developments have also been celebrated by collaborators.

As a result, the valley increasingly came to be seen as a multi-speed system in which actors could progress at different tempos while still contributing to shared goals. It also matured into a polycentric field with distributed centers of coordination, replication projects, and flexible governance mechanisms that insulated the initiative from the stoppage of any single project.

Overall, this partial reconciliation stabilized collaboration enough for the initiative to continue toward the emergence of a more operational polycentric governance arrangement, even as technical, regulatory, and commercial uncertainties persisted.

4.4. Iterative reconciliation process through embedded hybridity

Across the three phases, we find a repeating sequence of mechanisms that gradually contribute to the reconciliation of purpose and profit. Each phase follows a similar process pattern (see Fig. 3) with embedded hybridity between purpose- and profit-driven actions (left- and right-hand side of the figure respectively). No single phase fully resolves the tension, or even significantly solves the challenges; rather, reconciliation accumulates as each phase produces a partial reconciliation that becomes a fertile ground allowing the next trigger to initiate the following phase, while still including instances of failure and exits. Together, this sequence first established a shared narrative around green hydrogen, then produced a coordinated blueprint, and finally helped organizational formalization supported by external funding.

In each phase, the repeatable process starts with triggers that carry forward the outcomes of the prior phase and activate a first stage of embedded hybridity across purpose- and profit-driven actions. From the purpose side, purpose promotion translates broader goals from the trigger into context-specific narratives that articulate local opportunities and mobilize collective attention. From the profit side, strategic actions reflect how firms interpret the trigger in terms of risk, opportunity, and competitive advantage, often diverging from the purpose framing and thus creating misalignments. This embedded hybridity helps reveal the misalignments between differing actions.

Once visible, the misalignments prompt a second, collaboration-oriented stage of embedded hybridity. Concerning purpose-driven actions, opening collaboration involves efforts to create entry points, pilot spaces, or flexible participation pathways that lower barriers for misaligned actors. In parallel, selective alignment involves profit-driven recalibration of strategies to connect with others, leveraging shared assets, information, and capabilities to advance firm goals while contributing to collective progress. Selective alignment may at times also involve postponement or cancellation of a planned project while sustaining the actor's engagement with the collaboration.

The outcome of each phase is a partial reconciliation: enough alignment to move forward, but not enough to prevent new misalignments as fresh triggers emerge. This does not imply that our model represents a guaranteed pathway forward, as the same misalignment may appear again. Rather, it illustrates how iterative, partial reconciliations sustain collaboration without resolving underlying tensions once

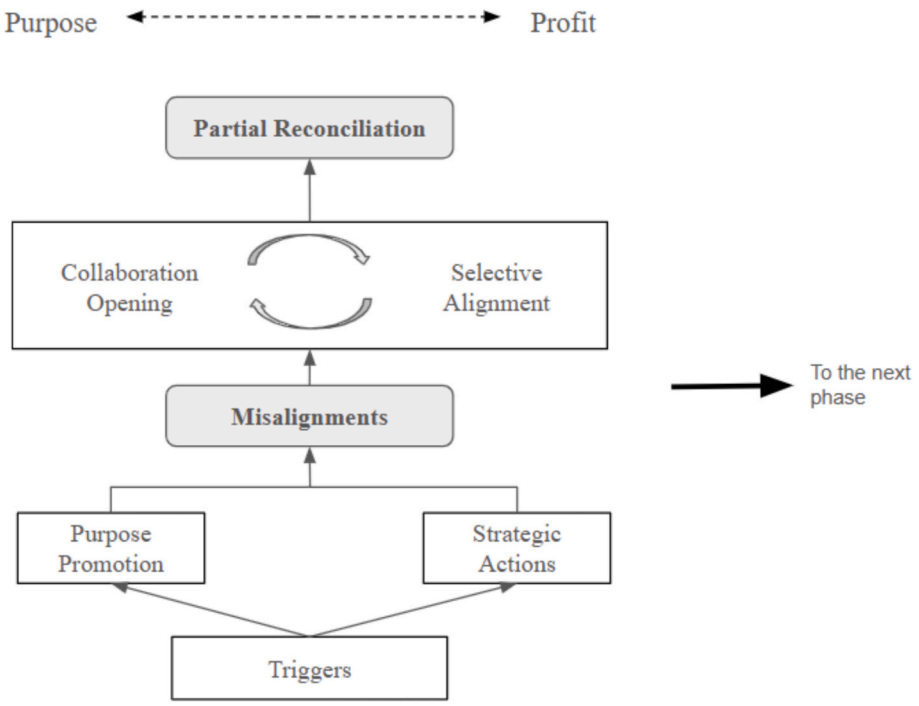

Fig. 3. Process model of partial reconciliation of purpose and profit.

and for all. In other words, this semi-cumulative process explains how purpose–profit tensions evolve and why reconciliation unfolds incrementally rather than conclusively.

5. Discussion

Our case study of the BalticSeaH2 project provides a detailed look at an early phase of a multi-stakeholder partnership that has succeeded in engaging all key actors in the region and fostering commitments to investments related to their core activities, while already producing small wins. We expose a recurring process of partial reconciliation that is iterated in each phase consists of embedded hybridity across purpose- and profit-driven actions. Governance arrangements progressively emerged through repeated partial reconciliation of purpose and profit in response to misalignments that appeared over time. While the reconciliation process is similar in each phase, the focus of reconciliation shifts and maps onto robust action strategies. We next describe our contribution in detail.

5.1. A process model for iterative and partial reconciliation of purpose and profit

We contribute a process model for the reconciliation of purpose and profit in addressing grand challenges. We join the literature on robust action theory (Etzion et al., 2017; Ferraro et al., 2015), which examines how MSPs can tackle grand challenges. Our process model parallels recent process research in this context (Cloutier & Couture, 2024; Grimm & Reinecke, 2024; Zobel & Comello, 2025), but focuses on the actual reconciliation mechanisms showing how reconciliation takes place through repeated iterations of purpose- and profit-driven actions.

We extend the literature in two ways. First, we refine robust action theory by unpacking its embedded hybridity between purpose and profit in the reconciliation process. Prior studies have focused on distinctions such as collective versus member goals (Zobel & Comello, 2025) or steering committee vs. stakeholder actions (Grimm & Reinecke, 2024). We show that purpose- and profit-driven actions are present and form a similar pattern in all phases (see Fig. 3). More specifically, we expose that in the initial part of each phase, profit-driven strategic actions, which are divergent from the purpose promotion actions, help reveal misalignment, and in the later part of the phase, purpose-driven collaboration opening with profit-driven selective alignment interaction helps resolve misalignment and deepen connections between actors, which in turn, enable partial reconciliation.

Further, we show that purpose-driven actions, promoting purpose and opening collaboration, often function as transforming moves, expanding the initiative's trajectory toward long-term, system-level goals. In contrast, profit-driven actions, including firm-specific strategic actions and selective alignment, tend to function as shaping moves, adjusting the scope or pace of each iteration in ways that help sustain actor engagement. For example, allowing a firm to join primarily to help it sell its excess hydrogen (Phase 2) or postponing a large-scale project to 2030 (Phase 3) illustrates shaping actions, as these decisions adjusted the scope or pace of the initiative without altering its direction. In contrast, efforts such as creating funding mechanisms that enabled private firms to engage in collaborative hydrogen research (Phase 1) or developing an initial version of the blueprint that created a participatory structure and connected dispersed actors (Phase 2) represent transforming actions because they were aligned with broader sustainability goals and expanded the initiative's trajectory toward its long-term, system-level aims. This dual dynamic balances purpose- and profit-oriented goals. These results align with earlier literature on multiple goals, which suggests that sequential attention to conflicting goals can ease tensions over time (Greve, 2008; Obloj & Sengul, 2020).

Second, our process model specifically focuses on mechanisms and process of reconciliation and reveals the sequential ordering of robust action strategies across multiple phases. Earlier literature has elaborated process models for goal setting (Williams et al., 2024; Zobel & Comello, 2025), the development of shared frames (Grimm & Reinecke, 2024), path enactment (Feuls et al., 2024), or the field's "rules of the game" (Cloutier & Couture, 2024). Essentially all these processes revolve around how shared understanding of conflicting goals, typical in grand challenges, develop over time among participants. In contrast, our model shows not only the forming of a shared goal or vision, but also the iterative emergent development of governance arrangements and the gradual reconciliation occurring in later phases while tackling the grand challenge.

We reveal a temporal development of reconciliation mechanisms that sequentially gives rise to three main elements of robust action strategies: first, multivocal inscription through a shared vision for collaborations; second, participatory architecture through designing the blueprint and clarifying roles and relationships among actors toward the shared purpose; and third, distributed experimentation through subprojects and pilot investments. Relatedly, our result aligns with George et al. (2023), who emphasize organizational design considerations in the early phase of collaborations, but also add that creating a shared vision is required before entering the organizational design stage.

Furthermore, in relation to other emerging considerations of governance arrangements, our study pinpoints the importance of common vision, consistent with recent studies emphasizing the formation of basic rules of communications as a requirement for developing MSPs (Schwoon, 2025). In addition, all our phases begin with triggers that are usually external and drive a new set of diverging actions. This finding is partly aligned with ideas from transformative innovation policy (Vedel et al., 2025), in which exogenous policy interventions can catalyze transformative change. Likewise, our observation that governance arrangements develop sequentially resonates with work on emergent program templates (Hetemi et al., 2025). However, we differentiate purpose and profit driven actions, rather than value creation pathways, as necessary for revealing misalignments and resolving them.

Finally, we offer insights into the literature on collective environmental entrepreneurship, built on polycentric governance (Ostrom, 2010) and extended by Doh et al. (2019), which recognizes broad phases, such as partnership formation, establishing governance mechanisms in early collaboration, and learning from failures. Rather than treating polycentric governance as a starting condition, our findings suggest how such arrangements may emerge gradually through iterative reconciliation of competing actions. For example, in the early visioning phase, rising carbon prices helped align actor interests, by assigning value to environmental assets in ways that enable collaboration despite differing priorities, while the blueprinting phase surfaced risk-sharing arrangements that enabled commitment despite strategic uncertainty. In the final implementation phase, the hydrogen valley increasingly operated as a polycentric governance mechanism, enabling decentralized coordination across firms and countries. Thus, we deepen the temporal analysis of collective environmental entrepreneurship by showing how these mechanisms iteratively emerge and transform as the collaboration evolves.

5.2. Future research: the broader evolution of grand challenge initiatives

We present a conceptualization of an extensible sequential process that opens new perspectives for future studies exploring how grand challenges may be addressed. Our paper offers a starting point for shifting the level of analysis from an individual phase to the overall process and the broader perspective on addressing grand challenges (see, e.g., Baumann et al., 2023; Doh et al., 2019; George, Haas, et al., 2023). Our model exposes an evolutionary and dynamic path, in which purpose- and profit-driven actions become alternately salient and extend across phases and organization forms in addressing grand challenges (see Fig. 4). As illustrated on the left of the figure, this study shows that in the early phase, an MSP can act as a vehicle for reconciliation. However, after the initial project- and EU-funding-driven phase, another type of organizational form may need to emerge, such as regional ecosystems or market-based approaches (in the middle and on the right), providing governance mechanisms that support reconciliation in a more open market and collaborative environment. Both possibilities open promising avenues for future research.

First, along with Ambos and Tatarinov (2023), we suggest that an ecosystem lens may offer a fruitful perspective for future studies to understand evolving and incentive-compatible organizational forms for solving grand challenges, particularly in the context of energy transitions. An ecosystem perspective may help explain how the regional nature of energy solutions can either hinder or foster broader replication. Considering green hydrogen specifically, sector coupling (Breyer et al., 2023) represents a form of "specific complementarities" (Jacobides et al., 2018) for which ecosystem governance may be required. Furthermore, the phases of the reconciliation process may mirror the gradual emergence of ecosystem legitimacy (Thomas & Ritala, 2022).

Second, future research could adopt an even broader perspective by examining market-based scaling opportunities for addressing grand challenges. The ecosystem itself may be temporary; if a green hydrogen economy scales globally, many activities may shift into the broader market (Holgersson et al., 2022). The platform economy has proven to be an extremely successful way of scaling and growing in digital markets (Kenney & Zysman, 2016). Network effects that drive platform growth are neutral growth mechanisms and thus could also be leveraged for societal growth (Karhu et al., 2024). In the context of grand challenges, platform ecosystems may offer coordination structures for orchestrating complementary inputs, governing collective action, and enabling generativity (e.g., distributed experimentation) (Ritala, 2024).

5.3. Practical implication, boundary conditions and limitations

Our study offers multiple practical takeaways. First, in addressing grand challenges, purpose-driven actors should begin with low-burden collaboration structures and formalize them as they encounter and resolve specific tensions. Second, tensions cannot be addressed before they are surfaced. Thus, purpose-driven actors should allow diverging actions to reveal them. This approach helps diagnose underlying conflicts and enables solutions that attract participants and strengthen collaboration. Third, purpose-driven actors should build a portfolio of subprojects based on firms' plans and strategies, while ensuring that these projects contribute to the overall grand challenge goal.

Nevertheless, our findings should be interpreted within several boundary conditions. First, the study focuses on the early stages of a hydrogen valley collaboration. While these stages are critical for shaping long-term trajectories, we do not observe later system-scale deployment. Second, our case featured visible episodes of diverging activities that rendered misalignments analytically accessible. In this context, misalignments were not destructive and were partially resolved over time. In other settings, however, misalignments may become too deep to bridge, potentially stalling collaboration altogether. Under such conditions, intentional openness may no longer enable selective alignment.

Third, despite strong access to key stakeholders, private-sector participation was uneven, and some firms were reluctant to disclose detailed strategic considerations. Consequently, our analysis reflects the mechanisms that actors were willing to share. While we infer that similar dynamics may have operated in less accessible subprojects, we cannot directly validate their enactment or relative importance in those cases. Fourth, the collaboration unfolded in a Nordic institutional context characterized by high public trust and widespread expression of societal goals by firms. This environment likely amplified the salience and legitimacy of purpose-centered actions, which may limit transferability to contexts with weaker sustainability norms or more adversarial state–industry relations. Finally, several contextual conditions supported the observed development trajectory. Public funding was critical for early technological experimentation and later organizational establishment, while regulatory signals at national and EU levels, despite creating challenges, provided directional motivation for actor engagement. The applicability of our findings may therefore depend on the presence of similar funding and regulatory conditions.

6. Conclusion

Climate change is an urgent and evolving challenge. Addressing this challenge in a just and inclusive manner is difficult and demands major reformations of the energy sector. MSPs can help pool resources and

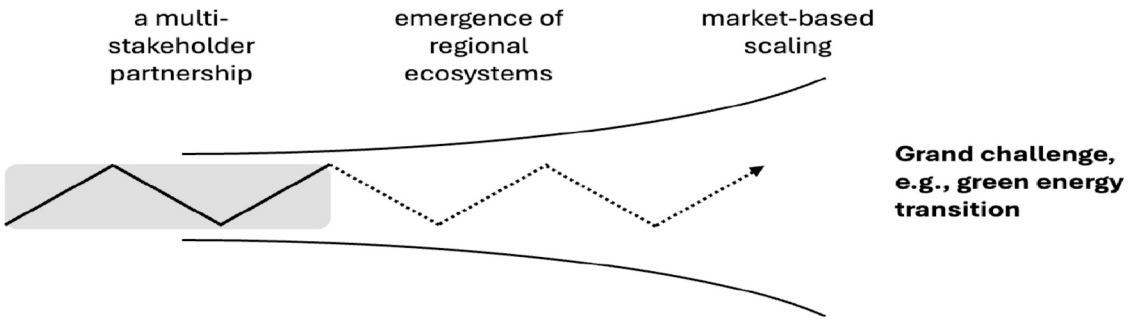

Fig. 4. Possible perspectives for future work on grand-challenge initiatives.

coordinate initiatives that support the energy transition, yet aligning divergent interests among partners remains a key hurdle. We study a case of green hydrogen within the context of energy transition initiatives and illustrate how MSPs can also support more inclusive and just transition processes. For example, the initiative promotes inclusivity by bringing together diverse actors with different motivations and representing a wide range of stakeholders in society. We show that iterative interactions between purpose- and profit-driven actions sustain actors' engagement and advance climate initiatives. Furthermore, the case suggests how MSPs can enable risk sharing mechanisms that reduce transition costs for individual firms, especially smaller and more vulnerable ones, while creating structures for coordinated action that strengthen individual efforts. The progressive reconciliation mechanisms, we identify therefore, contribute to the procedural and distributive dimensions of energy justice by broadening participation and distributing risks across actors.

CRediT authorship contribution statement

Sajjad Salehi: Writing – review & editing, Writing – original draft, Project administration, Methodology, Formal analysis, Data curation, Conceptualization. **Mikko Heiskala:** Writing – review & editing, Writing – original draft, Software, Resources, Formal analysis, Conceptualization. **Kimmo Karhu:** Writing – review & editing, Writing – original draft, Visualization, Software, Project administration, Funding acquisition, Formal analysis, Conceptualization.

Declaration of competing interest

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

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jbusres.2026.116341.

Data availability

The authors do not have permission to share data.

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