

## Only Changing Policy? The Role of Coalitions in Sustainability Transitions

JULIUS WESCHE, MEIKE LÖHR AND DAVID J. HESS

### 20.1 Introduction to Coalitions in Transitions Research

Sustainability transitions can be understood as the transformation of socio-technical systems towards the sustainable provision of societal functions (see the introduction of the book). Socio-technical systems are held together by formal and informal rules, also called institutions. These rules include shared beliefs and values, routines, laws, policies, institutionalised practices and capabilities (Fuenfschilling & Truffer, 2014; Geels, 2004). For sustainability transitions to materialise, the formal and informal rules of socio-technical systems need to change. In democratic societies, individuals acting alone rarely have the power needed to bring about institutional change that can eventually lead to system-level change. Rather, individuals need to collaborate and coordinate their actions, often in the form of coalitions, to collectively change and shape these rules. For example, Smith, Stirling und Berkhout (2005, 1492) state that: ‘system-level change is, by definition, enacted through the coordination and steering of many actors and resources’. In sustainability transition studies, we define coalitions as groups of actors who share the same goal and coordinate strategies and actions over time to shape the socio-technical systems they operate in. As a result of these coalition-driven actions, selection environments are created in which sustainable innovations can thrive, and unsustainable socio-technical configurations are destabilised and phased out.

The concept of coalitions is often used in transition theory to represent coordination and steering efforts. Diverse empirical examples of coalitions advocating for change can be found throughout the sustainability transitions literature, including those related to the deployment of renewable electricity technologies in Germany (Geels et al., 2016; Jacobsson & Bergek, 2004; Jacobsson & Lauber, 2006; Lauber & Mez, 2004; Negro & Hekkert, 2008); the deployment of renewable electricity technology in Sweden and the Netherlands (Ulmanen, Verbong &

Raven, 2009); hydrogen in Germany (Löhr, Markard & Ohlendorf, 2024); Swiss energy policy (Markard, Suter & Ingold, 2016); the green transition in Finland (Haukkala (2018); with a focus on European energy transitions (Lindberg & Kammermann, 2021); and with a more conceptual lens Roberts et al. (2018) and Hess (2019b). In these contributions, coordination is often described as taking place in niche-support coalitions that collectively pressure regime actors to change institutions, thereby adapting the selection environment to favour niche innovations.

Although the concept of coalitions is frequently used in sustainability transitions, it is often applied in various ways and is not well conceptualised. To improve the conceptualisation of coalitions and their role in sustainability transitions research, the goals of this chapter are to:

- define coalitions and related concepts (Section 20.2),
- show how coalitions have been used in sustainability transitions studies (Section 20.3),
- introduce theoretical strands that use different types of coalition concepts and discuss how they can be applied to sustainability transitions (Section 20.4) and
- highlight valuable avenues for future coalition-related research (Section 20.5).

## 20.2 Defining Coalitions and Adjacent Collective Action Concepts

The terminology used for coalitions and adjacent concepts is inconsistent and researchers both in the sustainability transitions field and in related social science fields (e.g. sociology, political science and organisational studies) describe similar topics with different terms. The term ‘collective action’ is used here and in the background literature as an umbrella category for political action beyond the individual level with a shared goal or goals for change (Diani & Bison, 2004). Hence, although the focus of this chapter is on coalitions, we also define related concepts, such as social networks, alliances and social movements, to delineate their distinct boundaries and differences.

We suggest using these in the following sense:

- **Social Network:** A social network is a dynamic, interconnected system of individuals, groups, organisations, or other entities that share relationships, values, or interests. These social actors (nodes) are linked by ties (edges) that define their interactions, collaborations and dynamics (McLevey, Scott & Carrington, 2024). Network nodes can also include non-actor entities, such as ideas, frames, or events. The ties can be formal or informal and direct or indirect and for actors, they involve various forms of interaction, such as communication, exchange of resources, or mutual support. The nature of these ties shapes the network’s

structure, which influences the flow of information, the distribution of power and the overall dynamics of the network changes.

- **Alliance:** An alliance is understood here as an agreement between two or more actors with a common goal. In the context of politics, an alliance often refers to a formal relationship between government units (such as countries that form a league or confederation) or between political parties that form an alliance prior to elections. The term ‘alliance’ can also refer to companies that have a formal relationship, such as two airlines that coordinate and share routes (Oxford English Dictionary).
- **Coalition:** The term ‘coalition’ is sometimes used synonymously with ‘alliance’; however, the term ‘coalition’ is understood here as a broader concept. In general, a coalition involves different types of actors who share a goal (e.g. beliefs in the Advocacy Coalition Framework) and have some coordination of strategy (Weible & Ingold, 2018). Coalition action may also involve multiple episodes or events over time. Coalitions can be ephemeral and short-lived or become more established (Weible, Ingold, Nohrstedt, Henry & Jenkins-Smith, 2020). In politics, a common use of the term occurs when two or more political parties form a coalition government. In contrast in sustainability transitions studies, the main coalitions are those engaged in the governance of socio-technical systems. These coalitions can be in favour of or in opposition to efforts that support niche configurations or the phase-out of unsustainable configurations. Like social movements, coalitions emerge from diverse conditions, including institutional opportunities, mobilisation capacity and resources and political conflicts and grievances (M. Fischer, 2015; van Dyke & Amos, 2017).
- **Social Movement:** The term ‘social movement’ often refers to a long-term mobilisation of actors across diverse campaigns that challenge authorities and seek change. Examples include the environmentalist, anti- or decolonial, feminist, labour and conservative movements (van Dyke & Amos, 2017). The understanding of a social movement often includes the idea of protest or extra-institutional action, such as the following: ‘A social movement is a collective, organised, sustained and non-institutional challenge to authorities, powerholders, or cultural beliefs and practices’ (Goodwin & Jasper, 2003). Depending on the temporal and spatial scale on which an analysis is based, social movements can comprise multiple coalitions over diverse campaigns. Whereas the term ‘coalition’ is generally used in the context of state-oriented action with an institutional repertoire of action, the term ‘social movement’ can have non-state actors as targets and can include extra-institutional repertoires of action, such as street protest and civil disobedience (Della Porta & Diani, 2017).

### **20.3 The Role of Coalitions in Established Transition Research Frameworks**

Coalitions have been described and used in several of the main sustainability transitions frameworks. In the following section, four major sustainability transitions frameworks will be briefly introduced, with an emphasis on how, if at all, they conceptualise coalitions. These frameworks were selected as foundational approaches in transition studies (Markard, Raven & Truffer, 2012). When introducing the use of coalitions in these four key frameworks, we will also briefly discuss coalition frameworks developed outside the Sustainability Transitions Research field, such as the Advocacy Coalitions Framework and the Discourse Coalition approach. These frameworks will be explored in greater detail in Section 20.4, alongside the concepts of Policy Networks and Strategic Action Fields.

#### ***20.3.1 Multi-level Perspective***

The Multi-level perspective (MLP) is a processual framework that suggests that socio-technical transitions come about ‘through alignment of trajectories and ongoing processes with and between three analytical levels’ (Geels, 2020): the niche, the regime and the landscape (see Chapter 2). Original versions of the MLP referred to conflicts between actors and also mentioned coalitions of different types. For example, ‘broad political coalitions’ (Geels, 2002, 1260) were seen as one of several heterogeneous factors that populate the socio-technical landscapes and influence socio-technical change. Although coalitions are mentioned in the MLP, detailed conceptualisations of coalitions have not been developed so far in the MLP literature. When references are made, these in most cases point to the Advocacy Coalition Framework (Geels, 2019; Haukkala, 2018; Lindberg & Kammermann, 2021; Roberts & Geels, 2019) or the Discourse Coalitions concept (Geels, 2014b; Roberts & Geels, 2018; Späth & Rohracher, 2010). Nevertheless, although coalitions continue to be sparsely mentioned in MLP contributions and are not conceptualised in further detail, in more recent work, ‘actors and social networks’ have been included as a fundamental category in each phase of a transition (Geels & Turnheim, 2022). This development could suggest that actors and social networks in general and potentially coalitions as a type of network will receive more scholarly attention in the future of MLP research.

#### ***20.3.2 Technological System Perspectives***

Technological Innovation Systems (TIS) perspectives analyse ‘the emergence of novel technologies and the institutional and organisational changes that have to go hand in hand with technology development’ (Markard et al., 2012, 959).

Scholars who investigate the emergence of novel technologies through TIS focus on understanding the building up of a TIS (looking at TIS structures) and the core processes in these systems (called functions) (Bergek, Jacobsson, Carlsson, Lindmark & Rickne, 2008; Hekkert, Suurs, Negro, Kuhlmann & Smits, 2007). Although politics and collective action are not at the core of the analytical scope of TIS, networks and coalitions are, together with actors and institutions, key conceptual elements of a TIS (Bergek et al., 2015; B. Carlsson & Stankiewicz, 1995; Markard & Truffer, 2008). For example, Bergek et al. (2015, S. 61) suggest that ‘TIS actors forge political networks or coalitions that work towards policy changes in favour of the focal technology.’ Likewise, Hekkert et al. (2007, S. 425) suggest that advocacy coalitions ‘can function as a catalyst’ in innovation systems because they ‘put a new technology on the agenda, lobby for resources and favourable tax regimes and by doing so create legitimacy for a new technological trajectory.’ These conceptualisations also appear in empirical papers, such as TIS studies on solar PV (Dewald & Truffer, 2011) or renewable energy more broadly (Jacobsson & Bergek, 2004). Although innovation systems scholars acknowledge coalitions as drivers of change that can accelerate innovation systems development, similarly to the MLP, the TIS approach does not specifically conceptualise coalitions and it instead points to the Advocacy Coalition Framework as an example of how to proceed with the analysis of coalitions in innovation systems studies e.g. Hekkert et al., 2007; Bergek et al., 2008).

### ***20.3.3 Strategic Niche Management***

Strategic niche management (SNM) has been defined as the deliberate ‘creation, development and controlled phase-out of protected spaces for the development and use of promising technologies by means of experimentation’ (Kemp, Schot & Hoogma, 1998, S. 186). These protected spaces are called niches and are often intentionally established. In these niches, radical innovations are shielded, nurtured and empowered before they can compete with other established technologies (Smith & Raven, 2012) (see also Chapter 5). In the SNM literature, coalitions are mentioned, but as in the MLP and TIS literature, they are not central in the analytical framework. Among the few SNM researchers who examine coalition building are Pesch, Vernay, van Bueren und Pandis Iverot (2017, S. 1938), who suggest that niche entrepreneurs adopt strategies of ‘creating and maintaining a coalition of actors’ to form niches. Concerning who may build coalitions to support niches, Caniëls und Romijn (2008, S. 258) suggest the concept of niche champions: as they have ‘informal organisational power and influence that help him/her to build effective support coalitions.’ As with other foundational transitions frameworks,

empirical research on coalitions in the SNM substrand is very limited. One example is by Raven (2012) who showcased empirical cases on sustainable housing in the UK and biofuels in the Netherlands.

### **20.3.4 Transition Management**

Transition management (TM) is a method of governance that is designed to promote and accelerate sustainability transitions (Loorbach, 2010; Rotmans, Kemp & van Asselt, 2001). It involves collaborative processes where participants engage in envisioning, learning and experimenting. The approach encourages the incorporation of diverse perspectives and methods within a ‘transition arena’. Here, stakeholders collaboratively identify issues in the existing system and create common visions and objectives. For an advanced introduction, please see Chapter 3 in this book. In contrast with SNM, the concept of coalitions is quite central in TM. In fact, ‘the very idea behind TM is to create new coalitions, partnerships and newly formed networks that allow for building up continuous pressure on the political and market arena to safeguard the long-term orientation and goals of the transition process’ (Loorbach, Frantzeskaki & Huffenreuter, 2015, S. 56). TM suggests that coalition building is a core task in the previously mentioned transitions arena. Here, the coalition ‘identifies and reframes a persistent problem; articulates and commits to a vision of sustainable development and to a shared agenda for moving in this direction’ (Frantzeskaki, Loorbach & Meadowcroft, 2012, S. 28). Building coalitions is understood as a tactical act that incorporates ‘specific organisations and actors that share a similar sense of urgency and are willing and able to further the ambition of realising a (desirable) transition’ (Jhagroe & Loorbach, 2015, S. 67). Although coalitions are conceptualised as important elements in TM processes, their composition, strategies and dynamics have not yet been conceptualised in greater detail.

This brief review of four transitions research frameworks shows that coalitions are influential, though their importance varies. They are most emphasised in the TM approach and less so in the others. Despite this, coalitions remain underdeveloped conceptually. Some authors reference the Advocacy Coalitions Framework or Discourse Coalition approach, but a comprehensive understanding of coalitions in transitions is lacking.

## **20.4 Introduction of Four Theoretical Strands to Understanding Coalitions**

In this section, we will introduce four theoretical strands, the Advocacy Coalition Framework, Discourse Coalitions, Policy Networks and Strategic Action Fields, that use different types of coalition concepts. We will discuss how these can be

harnessed for sustainability transitions studies. The number of concepts could easily be expanded. However, we have chosen those that most closely deal with coalitions. For a general discussion of policy process theories in particular and how to utilise them for sustainability transitions research, see also Kern und Rogge (2018).<sup>1</sup>

#### **20.4.1 Advocacy Coalition Framework**

The Advocacy Coalition Framework (ACF) is an actor-centred policy process theory for analysing policy change and stability (P.A. Sabatier, 1998; Weible et al., 2020). Its key conceptual elements are *advocacy coalitions*, which share a common set of *beliefs* (shared values and problem perceptions) and participate in a *policy subsystem* (P. A. Sabatier, 1998). A policy subsystem is defined by a functional focus and geographical scope (P. A. Sabatier & Jenkins-Smith, 1993). Belief systems consist of deep core beliefs, policy core beliefs and secondary aspects. Subsystem-specific policy core beliefs can change over a few years and are used to identify coalitions (Weible & Ingold, 2018).

Advocacy coalitions include individual and collective actors, such as interest groups, policymakers, or researchers, who share policy core beliefs and coordinate within the same subsystem (P. A. Sabatier & Jenkins-Smith, 1993; P. A. Sabatier, 1998). Typically, two or more advocacy coalitions compete over policy issues and try to influence policy through their beliefs. The dominant coalition can translate its beliefs into policy.

In contrast to transition studies, the ACF distinguishes different coalition types. The theoretical ideal is an adversarial coalition (no cross-coalition coordination) (Weible et al., 2020). Other types include disconnected coalitions, coalitions of convenience, or dominant coalitions without opposition. Cross-coalition coordination leads to cooperative coalitions (Weible et al., 2020).

The ACF and transition research both analyse change and pursue a system perspective (socio-technical system versus policy subsystem). The key difference is a policy focus in the ACF and a broader understanding of change in multiple dimensions in transition studies (see Markard et al., 2016). A key element of transition studies, technological change, has been linked with the ACF by several authors (Jacobsson & Lauber, 2006; Markard et al., 2016; Schmid, Sewerin & Schmidt, 2020). Research mostly focused on energy-related advocacy coalitions (Haukkala, 2018; Lindberg & Kammermann, 2021; Markard et al., 2016). Conceptual contributions integrating the ACF with transition studies include Markard et al. (2016), who compare key concepts – for example, policy versus systemic change. Löhner et al. (2024) conceptualise policy core beliefs in a nascent hydrogen policy

<sup>1</sup> Find a concise comparison of the frameworks in Table 20.1.

subsystem, linking conceptual ideas from the ACF's policy perspective with socio-technical ones in transition studies. Gomel und Rogge (2020) bridge the ACF with policy mixes in Argentinian energy policy. Data for ACF analysis includes surveys, interviews, content analysis of policy documents, and media analysis to identify belief and policy changes (see Table 20.1).

#### **20.4.2 Discourse Coalitions**

The Discourse Coalition approach examines how problems are framed through discourse, which Hajer defines as 'a specific ensemble of ideas, concepts and categorisations (...) through which meaning is given to physical and social realities' (Hajer, 1997, p 264). It suggests that the manner in which a situation is understood varies and that the way an issue is discussed determines whether it is perceived as a problem (Hajer, 1995). These different ways of understanding and constructing a phenomenon can lead to different perceptions of whether the phenomenon in question is a political problem and hence if action is needed. Like the ACF, the Discourse Coalitions approach suggests that, in any policy field, there are different coalitions competing for policy influence, of which one is normally dominant. What binds coalitions together is a shared understanding of phenomena and the discourses, storylines and narratives that evolve around them, which eventually leads to political action and practices (Hajer, 1995). The DA approach includes individuals (Bulkeley, 2000) and organisations (Di Gregorio, 2012) as coalition members. Data collection for DA studies can use sources from public hearings (Vieira, 2019), electronic and print news media (Fergie, Leifeld, Hawkins & Hilton, 2019), interviews (Ortega Alvarado, Sutcliffe, Berker & Pettersen, 2021) and social media (Muller, 2015).

Discourse coalitions have repeatedly been used to refine the conceptual understanding of socio-technical transitions. For example, in a community energy case study in Austria, Späth und Rohrer (2012, S. 461) suggested that 'local and non-local discourses' can provide 'specific opportunities for the legitimisation and entrenchment of alternative socio-technical configurations.' Geels (2014b) also used discourse coalitions to conceptualise how regime incumbents can resist challenges by social movements and Rosenbloom, Berton und Meadowcroft (2016) developed a discursive approach to examine how actors use language to shape the legitimacy of socio-technical innovations. In addition to these conceptual contributions, the volume of empirical studies has steadily increased over the past 15 years. Contributions include, for example, Kern (2011), who explained policy divergence regarding a more sustainable energy system in the UK and the Netherlands; Hess (2019a), who analysed the actor relationships, the composition of coalitions and the choices of frames in an electricity case study in California;

Lowes, Woodman und Speirs (2020), who documented an incumbent discourse coalition resisting electric heating in the UK; and Markard, Rinscheid und Widdel (2021), who analysed discourse networks concurrent with the progression of the German phase-out of coal.

### 20.4.3 Policy Network Analysis

Policy Network Analysis (PNA) identifies key actors in policy-making to (1) describe and explain the structure of their interactions and (2) predict collective policy decisions and outcomes (Kenis & Schneider, 1991; Knoke, 2011). The primary unit of analysis is the network of ties connecting members (usually organisations) of policy networks. Individuals act on behalf of their organisations, representing organisational interests (Knoke & Kostiuhenko, 2017). PNA examines the roles, interactions and influences of actors in the policy-making arena, using both qualitative (Ahrens, 2018) and quantitative approaches (Shearer, Dion & Lavis, 2014), recognising that these elements are socially constructed and evolve based on interactions.

In PNA, *lobbying coalitions* are understood as one type of interorganisational relation that may help to explain a policy domain's social structure (Knoke, 2001, 2011). These coalitions 'form around a specific *policy event*, a pending decision on a proposed legislative bill, regulatory order, or court case ruling' (Knoke, 2011, S. 212). They are held together by shared ideology (Henry, 2011), policy preferences and the belief that pooling resources increases the likelihood of a successful outcome (Knoke, 2011). Coalitions are conceptualised as short-lived activities that aim to affect the outcome of a specific, narrowly defined policy event. After public officials render a decision, the coalition partners routinely disband to pursue their separate agenda items. To analyse policy networks, researchers gather and analyse empirical data which depending on the analyst can, for example, be interpreted based on positivist epistemology (Fawcett & Daugbjerg, 2012, S. 200) or based on a critical realist epistemology (Bevir & Richards, 2009; Fawcett & Daugbjerg, 2012). Data that is used for PNA include survey and questionnaire results (Robins, Lewis & Wang, 2012), policy documents (McGregor, 2004), individual case studies (McGregor, 2004) and graphical presentations (Brandes, Kenis & Wagner, 2003).

While the conceptualisation of coalitions is well developed in PNA (see Knoke 2011) there are also some concerns regarding the explanatory value of the framework (Rhodes, 1990) and some have suggested that the theoretical grounding in analysing policy networks has not kept pace with the growing sophistication of its data analysis methods (Adam & Kriesi, 2007; L. Carlsson, 2000; Raab & Kenis, 2007; Siegel, 2007).

In sustainability transitions, PNA is rarely applied, with only three peer-reviewed studies so far. These examine regime-destabilising tendencies in the US and Netherlands

(Normann, 2019), carbon capture and storage policy in Norway (Normann, 2017) and the low-carbon transition in the US (Justo & McCauley, 2010).

#### **20.4.4 Strategic Action Fields**

The strategic action field perspective is one of several perspectives that utilise the concept of fields, and it has become the dominant field perspective in sustainability transition studies. Examples of field perspectives include the analysis of community wind energy in Denmark (Mey & Diesendorf, 2018), grassroots governance of electricity in Germany (Fuchs & Hinderer, 2016), and distribution systems in the United States (Lenhart, Chan, Forsberg, Grimley & Wilson, 2020). Other studies and theoretical concepts are reviewed in Kungl und Hess (2021).

Strategic action field theory draws on Bourdieu's analysis of fields (Bourdieu & Wacquant, 1992) and brings it together with concepts from institutional and social movement theory (Fligstein & McAdam, 2011). Fields are demarcated social spaces that have some degree of autonomy; actors with varying levels of capital or resources that are utilised as part of the actors' strategy; relations of cooperation and competition between the actors; rules that govern those relationships; and unique products such as policies, regulations, or goods and services. For example, a government legislature or regulatory agency can be treated as a field that generates rules that govern transitions. However, a field approach views social change and transitions from a more diverse perspective that often considers interactions across political fields (legislative, regulatory and judicial), at multiple levels of spatial scale and between political fields and industrial and civil society fields.

For sustainability transitions research, a field perspective tends to shift attention from the niche–regime relationship of technological systems to the relations between coalitions of challengers and incumbents. Empirical studies often move beyond a dyadic, intra-industry conflict with associated policy coalitions to multiple coalitions that can include societal change conflicts over justice and democracy in addition to policies that govern socio-technical system change (Hess, 2018). Because actors can operate across multiple fields, a field perspective can show how actors in one field with relatively lower power can leverage countervailing power from other fields to their favour.

There are several other contributions to the broader conversation on coalitions in sustainability transition studies. These contributions include the analysis of and different types of power and strategic action, the construction of new fields and definitions of field rules (see Kungl & Hess, 2021). Data used for strategic action fields analysis include quantitative modelling and network data, frame analysis and more qualitative approaches such as frame analysis, controlled comparisons and case studies (see also Table 20.1).

Table 20.1 *Structured overview of introduced collective action frameworks*

	Understanding of knowledge acquisition	Scope of analysis	Source of actor cohesion	Type of actors in coalitions	Typical data and methods used
Advocacy Coalition Framework	Positivist tradition	Advocacy coalitions in policy sub-systems	Shared policy core beliefs	Individual and collective actors, typically policy actors	Interviews, documents (articles, position papers), network data, qualitative and quantitative analysis, cluster analysis
Discourse Coalitions	Constructivist tradition	Discourse coalitions in a political realm	Shared understanding of a phenomenon that is constructed via discourse	Individuals and organisations	Interviews, documents (media articles, policy and government documents)
Policy Networks	Both dialectical approaches, based on a critical realist epistemology, as well as, for example, rational choice approaches based on positivist epistemology	Policy networks in policy domains	Shared set policy preferences and ideology	Only organisations (individuals are only part of coalitions as agents of organisations)	Questionnaire data, policy documents, individual case studies, graphical presentations
Strategic Action Fields	Both positivist and constructivist	Includes non-state fields of action and extra-institutional tactics	Coordination of action toward a shared goal or goals	Individuals and organisations	Interviews, frame analysis, network data, quantitative models, comparative analysis, case studies

### 20.4.5 Comparison

The introduction of the four approaches shows that two – specifically, the ACF and the DC framework or approach – centre on coalitions as key players capable of collectively influencing and shaping their (institutional) environment. Conversely, the PNA approach views coalitions more peripherally, as merely one form of inter-organisational relationship. In contrast, the strategic actions field perceives actors and interactions as organised not by different levels of structuration, where challengers interact with incumbents as described in the MLP (Geels, 2004), but rather as occurring across various spatial scales with evolving coalitions competing for dominance in a range of political and industrial fields.

When examining the potential of the four approaches to complement sustainability transitions research, it becomes evident that they are quite different in terms of their ontologies and epistemologies in comparison with the foundational frameworks of sustainability transitions theory (see Table 20.1, see also F. Fischer (2005) for a comparison between discourse and advocacy coalitions). Furthermore, the four approaches have been employed with varying degrees of intensity to inform sustainability transitions research. The AFC and DC approaches have been adopted more than the others over the past decade to deepen the understanding of transitions. Meanwhile, the SAF perspective has only recently begun to gain some recognition, albeit limited. Although these three frameworks are gradually becoming more prominent, the adoption of PNA by transition scholars remains minimal. This could be due to its theoretical basis, which is described as relatively underdeveloped and may offer restricted conceptual contributions to transition studies.

In Section 20.5, avenues for future research on coalitions in transitions research in general and in regard to the presented four frameworks will be presented and discussed.

## 20.5 Future Research Needs and Conclusion

Here, we identify and discuss several key areas for future research related to coalitions based on the previous findings. These areas are categorised into three themes: linking coalition theories to transition theory, characteristics and internal dynamics of coalitions and the activities and strategies of coalitions to accelerate socio-technical change.

### 20.5.1 Linking Coalition Theories to Transition Theory

As discussed in Section 20.4, the four coalition approaches were developed with different goals and epistemic traditions. For example, the ACF follows a positivist policy process tradition, while the DC approach is rooted in social

constructionism, embracing the complexity of environmental policy (Hajer & Versteeg, 2005). These differences may make them less directly compatible with transitions frameworks like the MLP, which draws from evolutionary economics, innovation sociology and institutional theory (Köhler et al., 2019). Some efforts have been made to combine the ACF with transitions theory (Gomel & Rogge, 2020; Löhr et al., 2024; Markard et al., 2016) and SAF theory has been applied to sustainability transitions (Kungl & Hess, 2021). However, further conceptual work is needed to integrate policy analysis frameworks with transitions theory where appropriate. For instance, PNA has been underused in transition studies but could improve our understanding of policy-making arenas in socio-technical systems. Additionally, the discussion of coalitions in transition theory in Section 20.3 was limited to the four main perspectives. Other emerging transition theories, like policy mixes (Kern, Rogge & Howlett, 2019), intermediaries (Kivimaa, Boon, Hyysalo & Klerkx, 2019), the triple embeddedness framework (Geels, 2014a) and geography-focused approaches such as global innovation systems (Binz & Truffer, 2017), were not covered. Future research could benefit from cross-fertilisation between coalition concepts and these newer transition theories.

### ***20.5.2 Characteristics and Internal Dynamics of Coalitions***

A more comprehensive understanding of coalition composition and its evolution over time is needed, particularly regarding how members are bound together in transition settings. Are these ties based on shared beliefs, as in the ACF, shared discourse as in DC, mutual interests seen in policy networks, or other factors? Examining the organisational structures and power dynamics within coalitions could reveal what frameworks foster robust or ephemeral coalitions, offering valuable insights for socio-technical transition strategies.

There is also a need to explore how coalition composition impacts internal dynamics, including how member diversity influences interactions and decision-making. Understanding how coalition members coordinate, negotiate goals and allocate resources is key. Additionally, investigating the factors that contribute to coalition longevity and internal stability could shed light on what drives their rise or decline and their effects on the niches or regime configurations they support.

### ***20.5.3 Activities and Strategies of Coalitions***

There is a need to better understand the strategies coalitions use to shape their institutional environment and how these evolve over time, particularly with the maturity of supported configurations and the level of contestation in systems. Future research could explore how coalitions agree on visions, develop socio-technical

imaginaries and manage expectations with policymakers and other stakeholders. It would also be useful to examine how they engage in discursive struggles, framing problems and solutions to resonate with their constituents.

Additionally, it's important to understand interactions among coalitions within the same systems and across system boundaries. This could shed light on when interactions are collaborative, indifferent, or competitive and how these dynamics unfold. Exploring how coalition activities differ when major policy decisions are imminent or when governments have committed to action would also be valuable.

As coalition and transition research advances, it may increasingly address outcomes beyond policy conflict, such as institutional and technological change, impacts on multiple systems, private-sector strategy, governance and broader shifts in culture and public opinion.

#### 20.5.4 Conclusion

This chapter has shown that the role of coalitions is consistently highlighted in the socio-technical transitions literature. Their role is quite encompassing and includes shaping the selection environments for innovations as well as changing institutions and policies that help in the phasing out of outdated regime configurations (Geels & Schot, 2007; Geels & Turnheim, 2022; Kern & Rogge, 2018; Markard et al., 2016; Rosenbloom et al., 2016; Smith et al., 2005). Hence, the question posed in the title if they are only interested in changing policy can be answered with a 'no' as coalitions in sustainability transitions research are not solely conceptualised to aim at policy change but also at broader institutional change.

The understanding of coalitions has gradually increased in the past decade in response to calls for a deeper understanding of policy change and collective action (e.g. Farla, Markard, Raven and Coenen (2012); Köhler et al. (2019)). However, collective action, and especially the role of coalitions, has so far been under-conceptualised in sustainability transitions research, and the role of coalitions in transition processes is yet to be comprehensively understood. This is surprising, as sustainability transitions can be understood as 'an inherently political enterprise' (Rosenbloom et al., 2016, S. 1276) in which coalitions as bodies of collective action are likely key to socio-technical change. In an effort to enrich theory and empirical research in this area, this chapter has delineated coalitions and related concepts of collective action. Furthermore, it has scrutinised the application of coalitions in existing sustainability transitions studies and introduced four theoretical perspectives, primarily derived from policy research, that may be harnessed to develop the conceptualisation of coalitions in transitions research. The chapter also concludes with several promising research directions, which, if pursued, are anticipated to deepen the understanding of coalitions and amplify their significance in the study of sustainability transitions.

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