REVIEW ARTICLE

Transformational change: governance interventions for climate change adaptation from a continuous change perspective

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Although transformational change is a rather new topic in climate change adaptation literature, it has been studied in organisational theory for over 30 years. This paper argues that governance scholars can learn much from organisation theory, more specifically regarding the conceptualisation of change and intervention strategies. We reconceptualise the divide between transformational change and incremental change by questioning the feasibility of changes that are concurrently in-depth, large scale, and quick; and the assumption that incremental change is necessarily slow and can only result in superficial changes. To go beyond this dichotomy, we introduce the conceptualisation of continuous transformational change. Resulting intervention strategies include (1) providing basic conditions for enabling small in-depth wins; (2) amplifying small wins through sensemaking, coupling, and integrating; and (3) unblocking stagnations by confronting social and cognitive fixations with counterintuitive interventions. These interventions necessitate a modest leadership. Governing transformational change thus requires transformation of the governance systems themselves.

Keywords: transformational change; continuous change; climate change adaptation; intervention strategies; small wins

1. Introduction

Transformation or transformational change is increasingly being discussed as a necessary societal response option to manage current and projected climate risks (IPCC 2012; Kates, Travis, and Wilbanks 2012; Pelling 2010; Park, Howden, and Crimp 2012; Rickards and Howden 2012; O’Brien 2012; Olsson, Galaz, and Boonstra 2014; Westley et al. 2013; Pelling, O’Brien, and Matyas 2014; Ferguson, Brown, and Deletic 2013; Moore et al. 2014). Adaptation to climate risks can be understood as a form of directional change in existing socio-ecological systems, either intentionally planned or developing autonomously, towards a normatively defined situation that is better suited to deal with current or future climate risks and/or take advantages of new opportunities (Dupuis and Biesbroek 2013). Successful adaptation can be understood as achieving the broader sustainability goals under climate change. Adaptation can consist of anything between short-term coping strategies, such as strengthening dikes or the evacuation of people, and systemic change, such as the introduction of the new paradigm of giving more room to the river, involving a shift from fighting the water to accommodating water, and giving it room. There are several indications that societies are taking such action; for example, the observed increase in the number and types of adaptation options across the world
Arguably, the majority of the current adaptation efforts fall into the category of what is called incremental adaptation (Kates, Travis, and Wilbanks 2012; Wise et al. 2014). Incremental adaptation represents familiar strategies of small changes to existing practices so as to sustain the functioning of existing socio-ecological systems under climate change (Park, Howden, and Crimp 2012; Wise et al. 2014). However, in some instances, the rate or extent of (projected) climate change may cause this type of adaptation to be insufficient (Kates, Travis, and Wilbanks 2012), especially against the backdrop of discussions on adapting to temperatures of 4 °C and beyond (Smith et al. 2011) and on thresholds or tipping points that, once surpassed, might cause collapse and unacceptable societal losses in existing socio-ecological systems (Rockström et al. 2009; Dow et al. 2013). The recognised limits to incremental adaptation have fuelled the scientific debates on transformational change, and policy-makers increasingly point to the need for it: “Incremental approaches are failing to prevent global climate change, and a systemic (read transformational) approach is required to reverse worrisome trends” (Head of the Global Environment Facility [GEF], March 2013).

The IPCC Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (2012, 436) defines transformation as “a fundamental qualitative change...that often involves a change in paradigm and may include shifts in perception and meaning, changes in underlying norms and values, reconfiguration of social networks and patterns of interaction, changes in power structures, and the introduction of new institutional arrangements and regulatory frameworks.” Kates, Travis, and Wilbanks (2012, 1) distinguish three classes of adaptations that they describe as transformational: “those that are adopted at a much larger scale or intensity, those that are truly new to a particular region or resource system, and those that transform places and shift locations.” This new transformational paradigm is considered a fundamental and much needed shift away from the incremental steps that the adaptation community has propagated thus far. The concept of transformation has not only inspired scholarly thinking about climate change adaptation, but also about sustainability in general, including mitigation to climate change (i.e. Nalau and Handmer 2015). While the focus of this paper is on adaptation, insights from this broader discourse of transformation towards sustainability will be used to underpin our arguments.

This emerging body of literature reflects the high expectations attached to the idea of transformational change, yet at the same time raises fundamental questions. What is transformational change and why is it so difficult to implement (Kates, Travis, and Wilbanks 2012)? Which theoretical frameworks help to elucidate transformational change (Olsson, Galaz, and Boonstra 2014)? How to decide whether incremental or transformational forms of adaptation are needed, and at which scales (Park, Howden, and Crimp 2012)? What is the role of agency, power, and politics in transformational change (Westley et al. 2013; O’Brien, 2015)? Which mechanisms, patterns, and conditions underlie transformations (Olsson, Galaz, and Boonstra 2014)? Does incremental adaptation always serve to maintain the status quo, or can incremental adjustments move a system towards structural change (Pelling, O’Brien, and Matyas 2014)? Can incremental actions on proximate causes be integrated with the transformational aspects of societal change (Wise et al. 2014)?

An increasing number of climate change scholars recognise that transformational change also requires innovative governing strategies and the development of new
governance intervention repertoires (Pahl-Wostl et al. 2007; Pelling 2010; Berkhout, Hertin, and Gann 2006; Kates, Travis, and Wilbanks 2012; Armitage, Marschke, and Plummer 2008; Wise et al. 2014). Less is expected from traditional top-down, government-centred approaches and pre-packaged solutions (Olsson, Galaz, and Boonstra 2014; Grin, Rotmans, and Schot 2010). These scholars point to, among other things, the importance of governance interventions that encourage learning, questioning of mind-sets, leadership, and co-production. To date, it is hardly clear from the literature how to achieve this. The current conceptualisations of transformational change provide limited leverages for governance interventions.

Therefore, this paper aims to address two questions: (1) How can the processes of transformational change to adapt to long-term climate change be conceptualised? (2) To what extent and through which governance interventions can processes of transformational change to adapt to climate change be influenced? In this paper, we consider governance interventions as so-called process intervention in the governance of adaptation. It refers to the deliberative acts to improve governance systems by facilitating how things are done, rather than what is done (Schein 1987; Dawson 2003). This means that instead of focusing on the technical implementation of system transformations (e.g. ‘room for the river’), the focus is on the governance processes that enabled the emergence, adoption, and implementation of this new paradigm.

To answer our research questions, we will make use of insights from organisational theories where the nature of transformational change, its key dimensions, and whether and how it can be steered, governed, or facilitated, are some of the recurring questions of the past 30 years. In their seminal book about organisational transformation, Levy and Merry (1986, 5) describe transformation as “multi-dimensional, multi-level, qualitative, discontinuous, radical organizational change involving a paradigmatic shift.” The basic argument underlying transformation is that organisations, in order to survive, need to adapt to volatile and uncertain environments, including changing markets, regulations, safety risks, financial crises, and natural disasters. Although organisational change theory generally focuses on change within organisations, we argue that much can be learned for the governance of adaptation to climate change, more specifically regarding the conceptualisation of transformational change and the repertoires of process interventions to facilitate change.

Our article is explorative in nature, but we illustrate our arguments by using various examples of governance interventions in the Dutch Delta Programme. In Section 2, we start from the insights of organisational theory to conceptualise transformational change in response to climate change. On the basis of these insights, we critically reflect on the theoretical contrast between transformational change and incremental change. In Section 3, we introduce the alternative conceptualisation of continuous transformational change. Section 4 presents the resulting governance intervention strategies. Finally, we discuss and summarise the main conclusions.

2. Transformational versus incremental change

In both the organisational change and the climate change adaptation literature, the transformational—incremental dichotomy is key in the debate. Many of the arguments for a shift from incremental to transformational change are based on a number of assumptions about the depth, scope, and speed of change (Vermaak 2013). As discussed in Section 1, transformational change is often associated with change that is in-depth (fundamental, truly new, revolutionary), large scale (the whole system), and/or quick
(a discontinuous jump, achieved in a relatively short amount of time), whereas incremental change is often portrayed as shallow, partial, and slow.

2.1. Three dimensions of change: depth, scope, and speed

2.1.1. The depth of change

Depth refers to the level of change: superficial change means improving current practices without altering underlying assumptions, whereas in-depth change aims to radically change these practices by altering values, frames, and logics underlying the system. To address these different levels, it has become common in many strands of literature to distinguish between orders of change (Bartunek and Moch 1987; Schön and Rein 1994, Argyris and Schön 1996; Levy and Merry 1986; Watzlawick, Weakland, and Fisch 1974; Kessener and Termeer 2007). For example, Watzlawick, Weakland, and Fisch (1974) were among the first to introduce the distinction between first-order and second-order change. First-order change occurs within existing mind-sets. It aims to do things better within the existing logic, which itself remains unchanged. Second-order change breaks through mind-sets and opens them up for discussion by reframing problems and practices and understanding them from a different perspective. To emphasise the difficulty of challenging dominant mind-sets, Bartunek and Moch (1987) added the concept of third-order change. This refers to the development of the capacity of the people involved to reflect on the schemata underlying the system, of which they themselves are part. Third-order change thus emphasises the meta level of change and aims to change the way we change. When Argyris and Schön (1996) introduced their distinction between single-loop, double-loop, and deutero learning, they referred to this third-order change as learning to learn. Other concepts that address this deeper level of change are root change (Lindblom 1959), paradigmatic change (Kuhn 1962), or radical change (Skibbens 1974).

In the context of climate change adaptation, the prevalent assumption is that incremental steps often do not create enough depth to deal with the projected climate risks (Kates, Travis, and Wilbanks 2012; Park, Howden, and Crimp 2012; Pahl-Wostl 2009; Pelling, O’Brien, and Matyas 2014). It builds on the idea that paradigms and structural constraints impede widespread and deep social reform (Pelling 2010). Changing the system by adding or adjusting some instruments, processes, or structures, without altering the taken-for-granted frames of reference, is deemed insufficient (O’Brien 2012; Howell 2013). Transformation or higher order change is advocated to break through mind-sets by stimulating actors to critically reflect on existing assumptions, challenge prevailing norms and interests, and learn to deal differently with climate change adaptation (O’Brien 2012).

2.1.2. The scope of change

Scope generally refers to the scale of that which is to be changed: a broad scope generally refers to large-scale, system-wide change, whereas a narrow scope addresses specific elements or subsystems that require change. As Levy and Merry (1986, 9) noted, transformational change addresses the whole organisation instead of isolated parts and is thus inherently multi-dimensional, multi-component, multi-aspectual, and multi-level. Networks surrounding organisations, including, for example, customers and governments, can support the endurance and irreversibility of deep change (Levy and Merry 1986). The rise of the network society (Castells 1996), including the growing
importance of inter-organisational networks and networked organisations, more dramatically points to the importance of exceeding the level of a single organisation and targeting the whole network (Kim, Oh, and Swaminathan 2006; Knight 2002). Transformational change is thus not just about isolated instances of change brought about by a few people, but about changes in the way of looking, thinking, and acting, with sweeping consequences for the arrangement of organisations, markets, technology, social relations, and concepts (Termeer and Nootenboom 2012).

From the climate change perspective, a narrow scope is associated with incremental adaptation where only parts of the system change (Dupuis and Biesbroek 2013), for example, a household or neighbourhood. Transformational change aims to alter regulatory, legislative, or bureaucratic regimes; financial institutions; and technological or biological systems (IPCC 2012, 5). Fieldman (2011) even pointed to changes in political systems when he discussed how neo-liberalism has created systemic constraints that incapacitate Western democracies from going beyond incremental adaptation efforts.

2.1.3. The speed of change

Speed or the timeframe within which change can be achieved is the third dimension of change. Although speed is important, it has not very often been explicitly addressed in theories of change. Characteristics of transformational change like revolutionary jump or discontinuous (Levy and Merry 1986) suggest that transformational change would achieve the desired amount of change in a short period of time. However, most scholars emphasise that transformational change is a long and expensive process: “the process may include moments of insights and a relatively sudden shift in views, perceptions, and attitudes; however, there is a long way to go until ideas are translated into rules, procedures, technologies, and structures, and until a new order is established” (296–297). Kindler (1979) nuances this argument by stating that a single transformational change step obviously requires more time than a single incremental change step, but if the incremental steps are too small, or only maintain the status quo, then the desired amount of change will more quickly be achieved with one big step than with an endless series of small steps.

Despite these long time horizons, most scientists, policy-makers, and activists concerned about the impacts of climate change and its assumed irreversible character call for rapid responses (Olsson, Galaz, and Boonstra 2014; O’Brien 2012). Pelling, O’Brien, and Matyas (2014) add an interesting nuance to this perceived impatience by arguing that incremental change to adapt to climate change can result in short-term achievements, but can also avoid more deeply rooted change and consequently delay transformation.

2.2. Tensions of the transformational—incremental dichotomy

The three dimensions of depth, scope, and speed show that transformational change is often seen as the opposite of incremental change (see Table 1). These dimension are of course always relative and contextual. We argue that thinking in terms of the transformational–incremental divide is not fruitful conceptually, nor does it lead to tailored governance interventions to achieve change. To illustrate our point, we critically discuss two dominant assumptions from the transformational change discussions: (1) it is feasible to have change that is concurrently in-depth, large scale, and quick to achieve well-adapted societies; (2) incremental change is necessarily slow and can only result in superficial changes.
Feasibility of transformational change that is concurrently in-depth, large scale, and quick

The climate change adaptation debate in many policy, science, and media fora generally results in a call to realise all three characteristics (in-depth, large scale, and quick) simultaneously. Although this might be an attractive proposition for people with a change agenda, organisation science suggests that achieving all three simultaneously is virtually impossible because of the inherent trade-offs between them. Vermaak (2013) argues that the depth and the scope of change are at odds with each other; one way is to go for scope by organising a large-scale, first-order change; the second is to go for depth by organising a small-scale, third-order change. A combination of both is impossible for two reasons. First, because in-depth change requires people to challenge existing cultures, dominant rationalities and habitual practices, which cannot be enabled through rolling out a large-scale intervention over the whole organisation in a standardised way (Vermaak 2013; Weick and Westley 1996). As Vermaak (2013, 18) illustrates, “If a CEO announces a companywide cultural shift, he or she is either camouflageing what is really going on or is ignorant about what is actually feasible.” Second, because large-scale changes are more visible and thus will experience more institutional pressure to conform, they will hinder second- or third-order change (Vermaak 2013; Letiche and Statler 2005). This is especially the case in political power-driven organisations, in which high and conflicting interests are at stake. In general, governance systems are very prone to institutional pressure that reflects existing power relations.

To better understand the tensions between the depth and scope of change (Vermaak 2013), we take into account the speed of change. Despite some people’s impatience, it is impossible for in-depth change to occur overnight (Keast and Brown 2006). People have to break through their routines and experiment with, and learn about, different modes of behaviour in order to incorporate change. Moreover, it is easier for individuals to adopt and change, but not for societies as a whole. For example, the initial spread of cell phones might have happened rapidly, but it took two and a half decades until they became much more than a device for phone calls and transformed societal life (Goggin 2012). Transformational changes thus take a long time to bear fruit (Argyris 2000) and are best understood as a gradual process that can take many years. Recall Kuhn (1962) who pointed to the long time required to effect a paradigm shift, often involving 20 years or more. However, it is important to note that this distinction also depends on the perspective of the observer: “From a distance, when observers examine the flow of events, they see what looks like repetitive action, routine, and inertia dotted with occasional episodes of revolutionary change, also described by words as deep change and

| Incremental change | Transformational change |
|--------------------|-------------------------|
| Depth of change    | First-order change       | Second-/third-order change |
|                    | Improve existing practices in the same direction | Alter paradigms, values, and worldviews |
| Scope of change    | Small scale, micro, parts of the system | Large scale, macro, system-wide |
| Speed of change    | Slow, step by step, short term | Quick, big jumps, long term |

2.2.1. Feasibility of transformational change that is concurrently in-depth, large scale, and quick

Table 1. Summary of the assumptions of the incremental–transformational change dichotomy on the three dimensions of change.

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transformation. But a view from closer in (the micro level) of analysis suggests ongoing adaptation and adjustment” (Weick and Quinn 1999, 362).

We contend that a fruitful way to think about these three change dimensions is to assume that one can, at best, achieve two of the three goals, but only at the expense of the third. This means that quick, in-depth change is only possible at the small scale; that large-scale, quick changes can only be superficial; and that in-depth, large-scale changes will take a very long time to materialise, if at all.

2.2.2. **Incremental adjustments are not necessarily non-transformational**

Organisational change theory also provides insights to nuance the rather dominant assumption that incremental change is necessarily slow and can only result in superficial changes. This requires taking a non-linear perspective on change. Here, the fact that changes are relatively small does not mean that they are trivial in the long term (Vermaak 2013). Weick and Quinn (1999) argue that incremental changes, when effective, do not necessarily stay small. Indeed, they can amplify and cumulate into large-scale change, particularly in complex systems characterised by a high level of inter-connectedness. Although expressing it differentially, Lindblom (1979) also refers to this non-linear mechanism of accumulation when he states that “a fast-moving sequence of small changes can more speedily accomplish a drastic alteration of the status quo than can an only infrequent major policy change” (520).

In the climate change literature, Kates, Travis, and Wilbanks (2012, 7516) point to these mechanisms when they argue that over the long run, “cumulative incremental changes may coalesce into what appears in retrospect as a transformational adaptation.” Rickards and Howden (2012) state that transformational change in adaptation should be understood against the backdrop of co-evolutionary (continuous) change in which transformational change is a recognisable shift in the scope of change. However, in contrast to most of the climate change literature, Lindblom (1979, 520) argues that these small steps might also be the fastest way: “Incremental steps can be made quickly because they are only incremental. They do not rock the boat, do not stir up the great antagonisms and paralysing schisms, as do proposals for more drastic change.” Micro-level changes also provide the necessary elements and platform for transformational changes. Small steps are easily overlooked, however, e.g. when depictions of successful revolutionary changes downplay the importance of the sequence of incremental changes that made them possible.

3. **Beyond the dichotomy: continuous transformational change**

As opposed to the conclusion of the IPCC-SREX report (2012, 839) that the “differentiation between incremental and transformative adaptation, although indistinct, is important since it affects how we approach adaptation, how we integrate it into planning and policy, and how we allocate adaptation funding in both developed and developing countries,” we argue that this distinction blocks the development of meaningful governance interventions to adapt to climate change. We suggest to go beyond this dichotomy, following Burnes (2005, 84) who states that “small-scale incremental change and large-scale radical-transformational change will need to be rejected in favour of a third kind which lies between these two, and which is continuous.” This perspective of continuous transformational change focuses on how transformational change can be shaped through a series of small in-depth steps or small wins (Burnes 2005,
Small wins are at contrast with quick wins, which are first-order changes where people take fast and easy steps to solve simple issues (Vermaak 2013; Bryson 1988). The basic metaphor underlying continuous change, sometimes referred to as emergent change (Weick 2000; Burnes 2004; Kickert 2010), is that organisations are continuously adapting, learning, and improvising, and that they are unable to remain stable (Weick and Quinn 1999). Each shift in practice creates the conditions for further breakdowns and innovations (Orlikowski 1996, 66). Proponents of this continuous change approach do not only reject incremental models, but also punctuated equilibrium models that presume that long periods of relative stability, with at most small incremental changes, are interrupted by short periods of radical planned and discontinuous change (Gersick 1991).

Continuous change has proven to be particularly relevant for organisations and networks that operate in ambiguous high-velocity environments. These dynamic environments force organisations to have the capability to change as rapidly as the environment (Brown and Eisenhardt 1997). In order to survive, organisations cannot afford periods of stability and relatively slow planned change trajectories. Indeed, they must develop the ability to change themselves continuously in a fundamental manner (Burnes 2005, 76).

4. Towards a repertoire of governance interventions for continuous transformational change

This perspective has far-reaching consequences for the planning and design of interventions in organisation science. Since continuous transformational change is emergent, it cannot be controlled by planned change efforts. This fits into the findings that over 60% (Burnes 2004), 70% (Boonstra 2004), or 80% (Beer and Nohria 2000) of all planned change projects do not result in the envisaged transformational change. Proponents of the continuous transformational change perspective thus developed an alternative repertoire (Weick and Quinn 1999; Boonstra 2004; Vermaak 2013; Termeer 2007).

In contrast to planned change interventions, which usually start with unfreezing processes and structures, these authors suggest a more modest repertoire of interventions. This is motivated by the observation that people, organisations, and networks are already unfrozen, since they are involved in numerous adjustments of their social practices in response to ongoing dynamics in their environment. Although these processes of continuous change might be evaluated as not deep, quick, or large enough, some restraint of planned change is crucial as it could even disrupt ongoing adaptive processes (Weick and Quinn 1999). It is continuous and emergent change that provides openings for process-interventions.

We have summarised this alternative repertoire into a coherent set of three groups of interventions. The first group focuses on setting conditions to enable and further encourage continuous adjustments that result in small wins: in-depth change at a small scope. The second group aims to increase the chance that these small wins accumulate into change at a larger scope. The third group comes into play if persistent inertia forms a blockage to processes of continuous change. In these situations, intentional interventions are needed to unblock stagnations in order to restore learning processes and thus revitalise processes of continuous change.

Originally, this intervention repertoire is targeted towards realising a situation in which organisations are capable of continuous changes to changing circumstances (Weick and Quinn 1999). We translate this repertoire into governance interventions.
targeted towards enhancing the capabilities of societal systems to adapt to changing climatic circumstances. We use examples from the Dutch Delta Programme to illustrate these three types of governance interventions (Boezeman et al. 2013; Deelstra 2014; Van Buuren and Teisman 2014; Biesbroek, Robbert, et al. 2014; Biesbroek, Termeer, et al. 2014; Vink et al. 2013, 2015; Dewulf and Termeer 2015; Biesbroek et al. 2015). The Dutch government initiated the Dutch Delta Programme in response to alarming scientific signals about the expected destructive effects of climate change. The programme aims to guarantee flood protection and safeguard fresh water supply until at least 2100, while maintaining the economic prosperity of the Netherlands. The Delta Act, which went into force on 1 January 2012, constitutes the legal basis for the Delta Programme and the related Delta Fund and Delta Commissioner. In the first phase, the programme installed nine regional and thematic subprogrammes that had to propose regional or thematic long-term advice and prepare input for the five so-called Delta Decisions to be taken by the national government by 2015, as the start of the second phase: (1) adopting new norms for flood protection; (2) spatial adaptation as flood risk strategy; (3) (re)design of the main water system of the Rhine-Meuse estuary; (4) the availability and distribution of fresh water; and (5) the water level of lake IJssel. Funding for implementing the Delta Programme’s measures is arranged through the Delta Fund. To ensure that progress is achieved in a coherent manner between the various components of the Delta Programme, a Delta Commissioner has been appointed who falls under the direct responsibility of the cabinet. The Delta Programme is a suitable illustrative case, since it deliberately aims for transformational change to deal with long term-climate change and, in retrospect, includes several interventions that fit into the continuous transformational change perspective.

4.1. Providing basic conditions for enabling small wins

The first group of intervention repertoires is aimed at enabling processes of continuous adaptation, learning, and improvising, resulting in in-depth changes at a local scale. Much has been written about enhancing the necessary conditions, such as providing psychological safety or organising a culture that encourages non-conformity or shadow spaces (Boonstra 2004; Pelling et al. 2008). The literature on self-management of common pool resources also provides many useful insights (Ostrom 1990). In the seminal book Breaking the code of change, these insights have been more systematically investigated and translated into four key conditions that are crucial to learning, adapting, and changing in a turbulent, ambiguous world: (1) stay in motion, (2) have a global direction, (3) look closely and update often, and (4) converse candidly (Beer and Nohria 2000, 232).

Stay in motion means that the intervention stimulates people and gets them moving and generating experiments that uncover new opportunities. It is based on the idea that learning is not only about talking, but that people must also be encouraged to act or experiment in order to discover what is going on (Weick 2000). Having a direction is important because both too much and too little focus can paralyse people (Burnes 2004). Interventions could provide a global direction or a “limited number of simple order-generating rules, which permit limited chaos while providing relative order” (Burnes 2004, 80). Look closely and update often refers to the importance of encouraging a process of updating by improving situational awareness and closer attention to what is really happening (Weick 2000). The final condition, conversing candidly, stresses the inherently social character of change (Weick 1995; Dewulf et al. 2009). Only in cases in
which trust, reliability, and self-respect can develop, people are able to continuously adjust to changing circumstances (Termeer and van den Brink 2013). Therefore, interventions are needed that facilitate frank interactions.

It does not matter which interventions in terms of programmes, processes, or instruments actors use, as long as they contribute to these four basic conditions (Weick 2000). Most governance interventions pay attention to one or two of these conditions, but almost never to all four of them (Beer and Nohria 2000). When people meet an ambiguous, turbulent world without having access to these four conditions, it easily results in stressful situations, with the effect that people fall back into old routines and resist crucial steps towards in-depth transformational changes (Beer and Nohria 2000; Weick 2000). Many policy programmes, for example, will provide some stimulus and some direction, but will not necessarily result in increasing experiments, closer attention, or lively dialogue that enable people to build up a shared picture of what is happening and what can be done. This is particularly the case when people are forced to just implement a plan rather than experiment, when allocation of resources is changed without respectful interactions, or when policies focus on effects rather than outcomes.

The Dutch Delta Programme was a deliberate decision to set up a separate programme structure to climate proof the Netherlands, as a “bypass” of existing administrative structures and daily political struggles. It certainly fulfils some of the basic conditions. First, it provides a clear global direction of the final goals, the time schedule, and the available funding. This generated a strong logic of attraction for various actor groups as, for example, illustrated by the yearly Delta Programme conference in which over 1500 water professionals come together. At the same time, this direction provides enough room to encourage people to develop in-depth understandings, initiate various new activities, and engage in different networks. Second, there was a clear focus on connecting people and organising candid conversations. The programme provides a structure that facilitates interactions between the national ministries, the provinces, the water boards, the municipalities, civil society organisations, business actors, and knowledge institutes. The Delta Commissioner and his staff invested in safeguarding a trustful environment and encouraging people to develop visions beyond the bureaucratic policy beliefs of each of the individual organisations. The availability of ample resources (staff, process money) and a formal powerful position were crucial to animating all these stakeholders. Third, the programme certainly contributed to looking closely and updating often, in particular to the rise of local awareness. An increasing number of people applied the climate change adaptation frame to look closely at risks and opportunities in their specific local environment or policy domain. However, this awareness was limited to the formal stakeholders who participated in the many subprogrammes, leaving out much of the broader civil society. Fourth, to a certain extent, people were encouraged to stay in motion. The regional programmes’ mandate, for example, was broadened from developing long-term strategies to achieve the aims of the national Delta Programme, to actively linking these aims to regional developments and concerns. However, these interventions were more focused on talking than on acting. Despite the high expectations, real experiments were mainly postponed to the next phase of the programme, after the five key decisions would have been taken.

4.2. Amplifying small wins through sensemaking, coupling, and integrating

Interventions to encourage continuous adjustments may result in in-depth changes to existing routines at a small scale. In interconnected systems, small changes at one place...
may force breakdowns at another place or at a broader scope (Uhl-Bien, Marion, and McKelvey 2007). To amplify this process, we present three interrelated intervention strategies that aim to accelerate change that is already underway: sensemaking, coupling, and integrating (Baez and Abolafia 2002; Weick and Quinn 1999).

The intervention strategy sensemaking is about recognising patterns of continuous adjustments and making them more salient through stories, framing, and translation (Baez and Abolafia 2002; Weick and Quinn 1999). In other words, it is about seeing what is happening in the context of transformational change and telling the world how important this is and what its implications are (Hosking 2002). For this purpose, governance actors can use their own resources, like access to (social) media, speeches, or policy programmes. The idea is that other people become informed and inspired by these stories about successful climate change adaptations, and start adjustments in their practices or create conditions to encourage other people to do so. However, sensemaking is not only about recognising small wins in specific situations, but also about translating them in ways that are “more mindful of sequences, more resilient to anomalies and more flexible in their execution” (Weick and Quinn 1999, 380).

Many innovative adaptation efforts proceed in rather isolated niches, circumscribed by boundaries of localities, policy domains, or jurisdictional levels. The intervention strategy coupling is about organising connections between, for example, experiments at a regional level and developments on a national or global level, between widespread local experiments, or between various adaptation practices in different policy domains. The intervention stimulates social learning across boundaries by deliberately bringing people from different configurations into contact with one another (Termeer 2007).

Finally, the strategy of integrating is about connecting the new experiences with adaptive practices to the existing institutions (Termeer 2007). While the above-mentioned interventions all resulted in altering familiar assumptions and shaking existing routines, the strategy of integrating focuses on restoring harmony (Baez and Abolafia 2002). To upscale innovative adaptations and to prevent them from losing their connection with existing configurations and then fading away, it is necessary to integrate innovative practices into the activities and resources of existing organisations, without losing its transformational strengths. This will proceed with difficulties, but using a logic of attraction (given the proven results of new practices) instead of a logic of persuasion (Verguts et al. 2016) enhances room for change.

In an ideal situation of sensemaking, the Delta Programme would have started with identifying what small-scale, in-depth changes were already ongoing that fit into its ambitions and policy goals. However, it decided to immediately install a new programme structure. Initially, it also overlooked the emerging informal regional networks of stakeholders concerned with the effect of climate change (Deelstra 2014). Due to political pressure of local authorities, regional subprogrammes were set up, governed by dual steering committees consisting of a policy director of one of the involved national departments and stakeholders from the regional networks. During the whole period, the Delta Commissioner in person put a lot of efforts in sensemaking in terms of telling the story of the Dutch Delta Programme both in the Netherlands and abroad. In doing so, he channelled energy and inspired people all over the Netherlands to develop their local climate adaptation strategies.

The Delta Programme aimed to bridge institutional gaps through connectivity, but its structure created new forms of fragmentation also. While the flourishing regional subprogrammes succeeded in jointly developing adaptive strategies for their region, they
simultaneously and unintendedly organised competition with the other regions (Biesbroek et al. 2015). Also, the five key decisions are highly interconnected. The Delta Programme included some interventions to organise couplings across the various subprogrammes and decisions. The subprogramme directors, for example, acted as liaison officers between the regional and national decision-making arenas and faced the challenge of negotiating the regional interests in the national arena and of defending the national decisions in the regional arena. The emergence of innovative integrating concepts enhanced connections between key decisions. For example, the new policy concept of multi-layered safety connected flood safety norms (first key decision) to the spatial adaptation as a flood risk strategy (second key decision).

By the end of 2014, the programme delivered the Delta Decisions that formed the start of a new phase of programming, more focused on implementation. This raised the question of the optimal integrating strategy. For several policy-makers, the bypass structure was only of temporary value and implementation could be best established by integrating the programme within the traditional line organisation. Another group of stakeholders resisted this default solution, arguing that reducing such a complex issue as climate change adaptation to a simple policy plan problem that can be implemented in the traditional administration would not result in the envisioned transformational change. They advocated to cherish the many networks that have emerged within the Delta Programme and qualify them as sophisticated governance arrangements, not only to prepare, but also to guide the implementation of decisions and to guarantee further adaptation to external changes in the climate (Van Buuren and Teisman 2014). The subsequent power games resulted in a compromise.

4.3. Unblocking stagnations by confronting social and cognitive fixations with counterintuitive interventions

The above-mentioned intervention strategies are only effective if actors are able and willing to reflect and to learn. However, in many situations, people, organisations, or networks are not, or are no longer, able to change their deep structures and core beliefs to new demands (Termeer 2007). The system faces serious stagnations and barriers to change to the environmental dynamics; some first-order changes might still occur, but, in general, the system is resistant to in-depth processes of change. Symptoms of stagnations include the presence of taboos, repetition of moves, vicious circles, exasperating delays, or an escalated conflict. Stagnations can be rooted in path dependency, vested interests, dialogues of the deaf, or other institutional characteristics that suppress or disable initiatives to explore more adaptive, but often controversial, approaches (Vermaak 2013).

In situations of serious stagnation, forceful interventions are needed to unfreeze or loosen up the system (Weick and Quinn 1999; Burnes 2004). The idea behind these interventions is not to replace one fixated state with another, but to unblock disrupted adaptive processes and overcome locked-in structures in order to create room for learning processes and continuous transformational change (Weick 2000). Many scholars in the field of both organisation and environmental change have described locked-in transition processes (e.g. Kotter 1995; Olsson, Galaz, and Boonstra 2014; Grin, Rotmans, and Schot 2010; Loorbach 2014). However, less attention is paid to the problem of loosening up fixated patterns.

Such interventions require close examination of the mechanisms that maintain or reinforce the stagnated patterns (Senge 1990). In general, the distinction can be made between social and cognitive fixations (Voogt 1991; Termeer and Koppenjan 1997;
Stoppelenburg and Vermaak (2009). Social fixations make it no longer possible to reflect on those actors involved in decision-making or on the mutual rules of interaction between actors. Cognitive fixation refers to the inability of actors to reflect on current contents and therefore there are no openings for other ideas. When social or cognitive fixations occur, people are no longer able to reflect and to change their behaviour within the existing context. Trying harder does not suffice. In the case of social fixations, better designed workshops do not allow for changed interaction patterns, as people will reproduce their fixated interaction patterns. This implies that the pallet of interventions cannot be more of the same.

The recommended intervention strategy is called context variation (Voogt, 1991). Given that social and cognitive processes are interconnected, defixating cognitive processes will affect the social processes, and vice versa (Stoppelenburg and Vermaak, 2009). In the case of cognitive fixation, the intervention is aimed at new actors or new rules of the game. For instance, when new actors are introduced, new ideas will be (re)introduced naturally, even when those same ideas previously would have met with much resistance. With social fixations, contributing new content is a proven strategy (Termeer, 2007). Context variation is counterintuitive for many people because many interventions are aimed precisely at underlining things that are locked in.

Already before its formal approval in 2012, the Delta Programme faced the challenge to navigate in a changed political context, in which climate change was no longer a political priority and has even become subject of polarised debates between climate change believers and sceptics. In this situation, that we qualify as both a cognitive and social fixation, it was no longer effective to try to convince people of the urgency of the climate issue or to facilitate interactions between climate believers and deniers. The intervention was to radically change the context by removing the climate frame and replace it with a focus on flood safety and fresh water supply and connect it to the dominant frame of economic prosperity. Instead of aiming to climate proof the Netherlands, the new policy objective became to ensure long-term prosperity of the Dutch Delta (Vink et al., 2013).

Another example of stagnation happened in the regional Lake Ijssel programme. The programme’s objective was to develop an adaptation strategy on how to maintain the lake’s function as a buffer for excess river water discharge as well as storage for freshwater during summer droughts. As a consequence of an influential advisory committee report that had suggested a radically top-down plan for a water level rise of 1.5 metres in Lake Ijssel, which would flood historical fishing towns, regional governments and stakeholders resisted participating in this process. Despite the various attempts to organise dialogues with regional stakeholders, the resistance against the process only increased. This is a clear example of a social fixation in which it was no longer possible for the actors involved to reflect on their mutual relationship. New attempts to restart a dialogue tightened the deadlock and resulted in regional stakeholders becoming even more distrustful of the Delta Programme. To overcome this deadlock, an external intervention was needed; the regional programme director invited a new actor, the National Planning Agency, to conduct a technical cost–benefit analysis. The findings ruled out the feasibility of the 1.5-metre rise on economic grounds (Vink et al., 2015). In doing so, the report replaced the goal of realising the 1.5-metre water rise with the goal of developing innovative adaptation strategies for the Lake Ijssel region. This unfroze the deadlock and allowed new discussions on the content. Or, to phrase it in more theoretical terms, this cognitive intervention, through a report in a social fixation, revitalised the regional learning processes.
5. Conclusions

Transformational change is often associated with change that is in-depth (fundamental, truly new, revolutionary), large scale (the whole system), and quick (a discontinuous jump, achieved in a relatively short amount of time), and it is contrasted with incremental change. On the basis of insights from the organisation change literature, this paper argues that because of a three-way trade-off, changes that are concurrently in-depth, large scale and quick are not feasible; and incremental change is not necessarily slow and superficial. This unrealistic ambition and persistent dichotomy hinder the development of a coherent framework for governance interventions to facilitate change. As an alternative, the paper introduces the conceptualisation of continuous transformational change with a focus on enabling and accelerating small in-depth change. This provides opportunities to present and theoretically underpin three groups of intervention strategies, as was illustrated through the Delta Programme.

All three groups of interventions implicate that the attention of governance actors that heretofore regarded themselves as central actors requires a shift to more modest roles of setting conditions, sensemaker and defixator. These roles and strategies require time and patience. People need to be able to experiment in their own situation, to see how things work when done differently, and share these experiences with others. What is more, governance actors who opt for planning and control-based strategies often discard some of the most adaptive processes and discourage the most adaptive persons (Weick 2000, 238). This contrasts with the impatience surrounding public managers and politicians who aim for quick wins. Their challenge is to make sense of small wins in what Yanow has named “a spirit of passionate humility” (Yanow 2003, 246). Interestingly, and despite the political drive to score, the IPCC SREX report also emphasises that attempts to enhance transformational responses are not always radical or monumental — sometimes they simply involve a questioning of assumptions or viewing a problem from a new perspective (IPCC 2012, 466). Governing transformational change thus requires transformation of the governance systems themselves.

Finally, we reflect on our argument that much can be learned from organisational change theory. First, it is important to note that we have reviewed only a small part of the extensive literature on organisational change (e.g. Kuipers et al. 2014). Because we are mostly interested in transformational change in response to climate change — or sustainability issues more broadly — we relied mainly on authors who explicitly studied how organisations can adapt to volatile dynamic environments. Furthermore, we focused predominantly on articles that take critical analysis of planned change as their starting point as this feeds very well into current governance debates and resembles what Hajer et al. (2015) nicely coins as cockpit-ism: the illusion that top-down steering by governments and intergovernmental organisations alone can address global problems (1652).

Second, in the organisation literature, adaptation refers to adjusting organisational values, processes, and structures to all kinds of changes in an organisation’s environment, such as volatile demands, new governmental regulations, or changes in the physical domain. This differs from the concept of adaptation in the climate change literature. Here, adaptation is generally defined as “adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities” (IPCC 2007, 982). We have shown that governance processes about adjustments to climate change may profit from the findings about adaptation to other changes and risks.
Third, much of the climate change literature distinguishes between collective adaptations that are explicitly planned and implemented, and autonomous adaptations by individuals and organisations (IPCC 2012). To a certain extent, the concept of continuous change resembles the concept of autonomous change. In contrast to the rather narrow definition of autonomous change, this paper has shown that continuous change can also be in-depth, is not limited to individual citizens or private companies, and may result in collective action. Furthermore, we have argued that strict distinctions between modes of change block the development of rich intervention repertoires. This applies not only for the transformational/incremental distinction, but also for the planned/autonomous dichotomy.

Fourth, we used theories that focus on organisations and argued that these can be applied to households, communities, networks, regions, or even whole societies. In contrast to organisations, these levels are characterised by different dynamics and complexities, and lack a CEO who is formally in charge of guiding transformational processes. From a theoretical point of view, we expected that organisational theories that focus on transformational change in loosely coupled systems (Weick 1976) or in complex adaptive systems (Uhl-Bien, Marion, and McKelvey 2007) might provide fruitful insights. The examples of the Delta Programme proved this assumption by showing how the suggested set of interventions is already used in Dutch climate adaptation practices in which they contribute to transformational change. Further research could elaborate this set into specific governance intervention strategies for adaptation to climate change. Particular attention is needed to the context of high stakes, conflicting interests and unequal power positions.

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