

## 9 Innovative leadership through networks

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### Introduction

Society calls for innovative solutions to wicked problems such as poverty, food security, climate change or mobility. Many scholars stress that these problems can only be resolved through public innovation processes that cut across traditional jurisdictions and routines of organizations, that cross the boundaries between the public and private sectors, and that create new synergies, new learning and new commitments (Termeer 2007; Koppenjan and Klijn 2004; Ansell and Torfing in this volume). This chapter argues that new thinking about public innovation processes requires a new thinking about public leadership. We do not use ‘public leadership’ here in the sense of the formal bearers of responsibility but more in terms of the unofficial view of leadership (see Teisman *et al.* 2009). It is about those people who actively face up to public innovation challenges by seeing opportunities, arranging connections and reinterpreting their own routines. This leadership is not limited to elected politicians or high-ranking civil servants and may come from inside and outside government organizations (Ansell and Torfing in this volume). Inspired by the guiding questions for this book, we distinguish three features of public innovations leading to corresponding leadership challenges.

First, public innovations cannot be controlled by or attributed to a single actor or a single leader. Scholars studying private sector innovation have long recognized that innovation is not typically the product of heroes working in isolation, but rather the result of various forms of collaboration that bring together different disciplines, interests and resources. In addition, Ansell and Torfing (in this volume) mention six often reinforcing reasons why public innovation in particular will take a collaborative form, varying from the wickedness of the problems at stake to the siloed nature of public sector institutions. As a result, public innovations are enabled by multiple leaders, formally and informally, rather than relying on one leader (Ansell and Gash 2007: 554). These public leaders, acting in complex governance networks, are even more interdependent than leaders who want to innovate only a single organization.

Second, public innovation inevitably leads to tensions with existing institutions. Innovations involve changes in the way of looking, thinking and acting of

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1 public actors, with sweeping consequences for existing structures and cultures  
2 (Termeer 2007; Whitley 2000). Obviously, not all processes of change qualify as  
3 innovations. They have at least to address second- and third-order change.  
4 Chapter 1 of this volume even states that only forms of change that either disrupt  
5 the established practices or challenge the common wisdom in a certain field are  
6 considered as innovation (Ansell and Torfing in this volume). Following this  
7 definition, inevitably tensions or even contradictions or misfits will arise between  
8 these innovations and existing governance institutions, characterized and main-  
9 tained by codified, well-established patterns of behavior (Hajer and Wagenaar  
10 2003). Innovations may question dominant values, redistribute benefits, under-  
11 mine existing procedures and alter power relationships. Therefore innovation  
12 demands leaders that dare to challenge the vested regime that they are part of  
13 themselves. These actors have been described as autonomous leaders, those who  
14 show an impassioned commitment to making a difference (Wallis and Dollery  
15 1997) and who stick their necks out in defiance of the institutional context  
16 (Vigoda-Gadot *et al.* 2005).

17 Third, innovations that aim to radically change existing ways of addressing  
18 societal problems cannot be restricted to the implementation phase only. Innova-  
19 tions are more successful if the design phase is integrated into the collaborative  
20 innovative practices (Ansell and Torfing in this volume). Vice versa, creative  
21 plans only become innovation when the good ideas are realized in practice.  
22 Innovation thus relates to all phases of the policy-making process. Due to the  
23 complex dynamics of public innovation, the process cannot be designed as a  
24 simple roadmap with predefined steps and outcomes. It is more about creating  
25 venues for collaboration between multiple stakeholders that address all aspects  
26 and phases (Ansell and Torfing in this volume). This requires leaders who are  
27 influential in all phases and who are able to align key actors in networks that  
28 reflect the complexity of the innovation.

29 Against this background, this chapter seeks to analyze the leadership of  
30 innovations in public governance systems. In doing so, it addresses three ques-  
31 tions: (1) What are the mechanisms and motives underlying multiple leadership?  
32 (2) Which strategies do these leaders employ to overcome organizational bound-  
33 aries and institutional barriers? (3) Which design principles do these leaders  
34 apply to enhance innovation during the entire innovation process? In answering  
35 these questions many concepts are relevant, such as collaborative leadership  
36 (Chislip 2002), connective leadership (Lipman-Blumen 1996) and integrative  
37 leadership (Crosby and Bryson 2010). Although these concepts all involve a refer-  
38 ence to multi-actor complexities, the focus is on the acts of single leaders using  
39 a variety of methods to facilitate collaboration between mutually dependent  
40 actors. The problem is, however, that single leaders lack the knowledge and  
41 influence required to create complex innovations and that innovations can never  
42 be traced back to single actors. In this respect Complexity Leadership Theory  
43 (CLT), as developed by Uhl-Bien *et al.* (2007; Uhl-Bien and Marion 2009),  
44 might provide interesting additional concepts. CLT aims to develop leadership  
45 models that analyze mechanisms that foster creativity, learning and adaptability,

and that more accurately reflect the complex nature of leadership as it occurs in practice (Uhl-Bien and Marion 2009). It radically conceptualizes leadership as a dynamic brought about by multiple actors. These leadership dynamics are not connected to fixed persons, and one and the same person can contribute to various dynamics. However, these dynamics have to be observed through the eyes of the individual participants.

Our empirical research is based on two case studies in the Netherlands, namely Transport Transition and Greenport Venlo. Both cases were selected because they have a good track record of developing and realizing sustainable innovations. At a first glance, these innovations have been brought about by many formal and informal public and private leaders, embedded in a variety of networks. The authors invested ample time to build a relationship with leadership networks in these complex systems, which enabled them to assess dynamics that otherwise are hidden.

We have developed our insights mainly through reflexive participation (Schön 1983). We were involved in the transport case during the period 2000–2007, and the Greenport Venlo case during the period 2005–11. We conducted dozens of individual interviews, held presentations regarding the process, asked reflexive questions at larger meetings and advised the people involved. Finally, we tried to identify the personal system analysis of some key leaders, including their motives and actions, their analysis of the outcomes that have emerged and how they interpret these outcomes as a result of the interactions and strategies. We wrote various documents on the processes and received feedback on these documents from actors in the process (Arnold *et al.* 2011; Termeer and Nootboom 2012; Nootboom 2006; Nootboom and Marks 2010; Termeer and Kranendonk 2008).

The structure of this chapter is as follows. In the next section, we give a brief rendition of CLT and introduce our network typologies. The following section presents the two cases in terms of the general context, the key leaders and their embeddedness in various networks and the process. We then present an analysis of both cases in terms of the research questions. We conclude with a short reflection.

### **Complexity Leadership Theory and networks**

Complexity Leadership Theory (CLT) stems from organization science and has mainly been applied to private organizations. It has been developed as an alternative to organizational leadership models, based upon top-down, bureaucratic paradigms. These models are not well suited to understanding leadership in a volatile knowledge era, in which traditional bureaucracy is only one of the many contexts in which leaders operate (Uhl-Bien *et al.* 2007). CLT proposes to understand innovation as interplay between formal bureaucratic and informal interactive dynamics. To understand these dynamic complexities, CLT draws from the premises of complexity science. It focuses on leadership in and of complex adaptive systems (Uhl-Bien *et al.* 2007; Uhl-Bien and Marion 2009). In

these systems innovation does not occur through linear processes, but more often follows patterns labeled as surprises, tipping points, thresholds or cascade effects (Duit and Galaz 2008). Local acts of individual leaders can produce small or even bigger innovations in other parts of the system or in the system as a whole. While these dynamics may be predictable in their processes, they are unpredictable in their outcomes (Uhl-Bien and Marion 2009).

According to CLT, three key leadership dynamics contribute to innovations: administrative, enabling and adaptive (Uhl-Bien *et al.* 2007). The concept of administrative leadership mostly resembles leadership concepts used in the majority of public leadership research. In addition and to elaborate on the point that networks form important contexts for leadership (Uhl-Bien *et al.* 2007), we developed a typology of networks, ‘hosting’ the three leadership mechanisms: formal governance networks, shadow networks and change alliances (Termeer and Nooteboom 2012). We use the term ‘hosting’ because the network is a relatively stable ‘substrate’ that provides the interactions between people. As mentioned, actors can exhibit all three leadership functions while operating in different networks. For instance, the activities of an administrative leader who is the first to publicly utter an innovative idea which he has developed himself, as part of an adaptive leadership collaboration which he has enabled himself, are hosted by all three networks. Separation between these different networks is crucial to deliver the trust (within a network) and the tensions (between networks) that drive innovations. Table 9.1 gives an overview of the typology of networks hosting leadership mechanisms.

*Formal governance networks* consist of the official power arenas that prepare, make and implement collective decisions, and that finally control innovations. Here, the official actions of different hierarchies are attuned to each other. These networks can be relatively easily observed, for example since acts of formal power are under scrutiny of the press and often organized in formal unities as in a Cabinet, an advisory committee or a public–private partnership. Formal networks host *administrative leadership*, defined as ‘the managerial form of leadership that addresses the bureaucratic functions of the organization’ (Uhl-Bien and Marion 2009: 633). Administrative leaders structure tasks, engage in planning, build visions, acquire resources, manage crises, control processes, and manage

Table 9.1 Networks hosting leadership dynamics (based on Termeer and Nooteboom 2012)

<i>Network types</i>	<b>Formal governance networks</b> Visible, based upon formal power relations	<b>Shadow networks</b> Invisible and informal networks, close to power	<b>Change alliances</b> Temporal bypasses, looking for creativity, change and resources
<i>Leadership dynamics</i>	<b>Administrative</b> Controlling innovation	<b>Enabling</b> Creating conditions for innovation	<b>Adaptive</b> Doing innovation

organizational strategy (Uhl-Bien *et al.* 2007: 306). Yet administrative leadership is not well fitted to generate innovations, since it is primarily focused on maintaining and increasing the position of the actors in terms and goals that have already been officially defined (Uhl-Bien and Marion 2009).

*Shadow networks* (Stacey 1996), also termed adaptive networks (Nootboom 2006; Nootboom and Marks 2010), enable the emergence of change alliances that carry innovations, while themselves remaining barely visible in the shadow of formal networks. Many of their members are also members of administrative networks. Shadow networks may have their own meetings, but they can also be an implicit sub-dynamic in the meetings of formal networks. The outside world usually only sees the official acts of power in formal networks, but not the invisible acts in shadow networks that may inspire the leaders to engage in a different type of formal acts. Here, opposite leaders and influential experts jointly analyze their position in society, market and administrative networks, and look for room for interventions they can apply in their official capacity – in the regime of administrative networks. Shadow networks therefore need to be close to the formal networks of the regime, where most power is, yet they must be willing to enable change that threatens that same regime (Uhl-Bien and Marion 2009). Shadow networks host *enabling leadership* that ‘maneuvers and protects the conditions in which adaptive leadership can flourish and it allows for emerging innovations’ (Uhl-Bien *et al.* 2007). Furthermore, it facilitates the flow of knowledge and creativity from innovative structures into administrative structures. In other words, ‘enabling leadership manages the entanglement between administrative and adaptive leadership’ (Uhl-Bien and Marion 2009) and between formal networks and change alliances. Shadow networks have no resources of their own, and are often volatile, in the margin of official networks. As trust and urgency increase, they may also become more robust, as the cases will show.

*Change alliances* are temporal and informal bypass-structures crisscrossing formal hierarchies and networks, developing innovative practices. They produce innovations through the development of discourses that challenge the dominant discourse. Change alliances host *adaptive leadership*, defined as ‘a leadership function that occurs in intentional interactions of interdependent actors ... as they work to generate and advance new solutions’ (Uhl-Bien and Marion 2009: 633). Change alliances can be structured into working groups, communities of practice or other temporal foundations. In these groups leaders from different organizations interact, share ideas and develop innovative actions that they can propose to members of formal networks. They spend relatively more of their time in this sub-dynamic than is done in shadow networks; they therefore need more resources, which makes them visible and competitive with the regime and with other change alliances. Since the current regime, dominated by administrative leaders, often impedes innovation, change alliances often emerge in a ‘niche’ that is artificially enabled and protected by shadow networks. Once they become successfully enabled and can make a claim for resources for further development, they also lead change in the public spotlights, since that is how they gain their support and influence.

## Two case studies

This section will illustrate the theoretical framework with two cases where the different network types of complexity leadership were observable. Here, leaders actually have archetypical networks types in their mind. Steps toward innovative change are reconstructed as interplay between the three different network types, driven by the three leadership dynamics that emerge when leaders across the system share views about joint complex challenges. The description order is reversed, beginning with these challenges.

### *Case 1: Transition to sustainable transport – barriers to innovation in formal ‘polder’ networks*

In the Netherlands, public discussions about the future of transport had for decades related to the use of fossil fuels and the prevention of the growth of private transport. The recurring difficult decisions about infrastructure had always been made according to the customs of the Dutch ‘polder model,’ a form of collaborative governance in which governments and interest groups negotiate until they reach the best achievable compromise, after which the government settles the issue. Because root causes of mobility growth and technological ways of accommodating that growth could not be changed, these compromises followed and reinforced the trends in the system – i.e., towards ever more and ever cheaper individualized modalities of transport. Short-term economic interests prevailed and the adverse impacts of transport were mitigated where possible, sometimes leading to expensive compromises such as tunnels under meadows.

#### *The emergence of a shadow network: Innovation Board for Sustainable Mobility*

In the shadow of recurring ‘polder model’ rituals, personal relationships emerged across gaps such as the public–private gap, the economy–sustainable development gap and the practice–science gap. Frustrations that economic and environmental concerns could not be reconciled were shared in this network. These shared frustrations were the fertile soil that collectively influenced the formal network of ministries (transport, environment and others) to adopt an ambitious plan. In this plan government announced the start of a ‘transition’ process to sustainable transport, and identified the Ministry of Transport as responsible for leading a dialogue in society with respect to the future of transport. This was the first achievement of an awakening shadow network.

Among these enablers was a deputy director general of the Ministry of Transport who was regarded as the most powerful transport official in the government. He approved an initiative by two of his more progressive staff members to convene a group of key actors to discuss the future of transport – and which action would be required. In response to this initiative, dozens of high officials from all over the transport system indicated they wanted to participate. These

included industries and interest groups alike, including environmental groups. The deputy director general (DG) then decided that he would personally participate as well. This was widely seen as a unique step, since this group was clearly not going to make any formal decisions, nor develop public advice directly important for specific scheduled government decisions. The deputy DG later indicated that he had joined because he was looking for a way to communicate truly with the transport and energy industries. Earlier meetings had mainly been forms of one-sided lobbying.

At the first meeting of the group, all agreed that it should not become a project of the Ministry of Transport since that would create a single dominant interest, which would go against the trust in the group that all were acting primarily for their joint goal – sustainable transport. If that were done, participants feared the minister would have to defend it in parliament which might jeopardize the whole process. It was agreed that all participants were not allowed to represent others than themselves. This unofficial group met every two months in the evening (after official workdays), in an expanding composition. For convenience it was called the ‘Innovation Board for Sustainable Mobility’ (IB). Ministries of energy, environment and transport participated at the level of directors, as did directors of several industries, transport companies and environmental NGOs. Among others, they intentionally facilitated various change alliances that helped the transport system move in a sustainable direction. They often gave more legitimacy and resources to already existing initiatives if these fit their views. The participants of the shadow network also organized resources to support change alliances in their official capacity, without reference to the IB.

#### *Various change alliances*

Enabled by this shadow network, a number of change alliances emerged, or were enabled to flourish, in the field of transport policy. At first, official platforms for continuous dialogue across the public–private–civil divide about the future of transport were facilitated. This led to direct interaction between CEOs of automobile and energy industries, where they looked for acceptable joint interventions or advice to the government enabling further steps toward sustainable transport.

Furthermore, the IB inspired the ministries to jointly organize an international conference about sustainable mobility during the Dutch presidency of the EU. Director generals of environment, energy and transport ministries of 25 countries participated at this conference. CEOs and directors of several oil and automobile industries also attended. Votes during the conference showed that a majority had started to agree that the European policy efforts should be aiming away from diesel fuel engines, as interest in these was delaying a transition to sustainability. Ministers openly distanced themselves from unsustainable futures, which for some of the participating organizations was painful.

After the conference, where the IB members received positive feedback on several of its ideas, they organized follow-up actions. They allocated funds for

1 innovative studies under the condition that cross-cutting alliances were built up.  
2 This resulted in dozens of change alliances offering their ideas about possible  
3 opportunities to make steps toward sustainable transport. These competed with  
4 the dominant regime and often with each other. They included hydrogen buses,  
5 hybrid car fuel technology, and many other initiatives. Representatives of the  
6 change alliances were sometimes invited directly into the IB to present their  
7 ideas and progress, purely for knowledge exchange. IB members tried, in their  
8 administrative capacity, to realize the initiatives of such groups if these con-  
9 tributed to their joint idea of sustainable transport.

### 11 *Influence on formal networks*

13 Key actors from the sustainable transport world indicate that without IB, the  
14 influential EU conference would not have taken place and many innovative ini-  
15 tiatives requesting resources would have had less chance of further continuation.  
16 The innovative proposals mentioned above passed through the IB before influen-  
17 cing formal networks. Furthermore, the IB inspired many of its participants to  
18 change their behavior in various formal positions and networks.

### 20 ***Case 2: Sustainable innovations in Greenport Venlo – a formal 21 agricultural network's lost power***

23 The Venlo region, located in the southeast of the Netherlands, used to be  
24 important for horticulture, the processing of agricultural products, and its con-  
25 centration of applied research institutes. Its location in a web of infrastructure  
26 surrounding the important trade routes with Germany enabled its development  
27 into a thriving international distributional and logistics center. However, at the  
28 end of last century, these developments declined. Agricultural knowledge insti-  
29 tutions moved away, economic investments dropped, young people left the  
30 region, nature and landscape values deteriorated, environmental pollution  
31 increased and the countryside became silted up. Such problems used to be  
32 tackled by effective agricultural arrangements, such as the so-called iron triangle  
33 policy system in which the Ministry of Agriculture, the farmers' organizations  
34 and the agricultural specialists from the Dutch parliament developed policy; and  
35 the agricultural knowledge system that integrated education, extension and  
36 research (Termeer and Werkman 2011). Due to growing societal and political  
37 concerns about the negative side-effects of agricultural modernization, such as  
38 environmental pollution, trade distortions and the damage to biodiversity, these  
39 arrangements were contested and lost power.

### 41 *The emergence of a shadow network: the founding fathers*

43 Around the turn of the century, a few people from the Venlo business com-  
44 munity warned that things were not going well in the region. In earlier days,  
45 these business people would have asked for help from the agricultural knowledge

system or the iron triangle policy system. But those formal networks were no longer perceived as helpful. Motivated by a shared sense of urgency, some business people met in a pub and decided to act. They contacted regional politicians and got together with other people who shared their concerns about the future of the region. They set themselves an ambitious task of developing an innovative and sustainable region. Above all, they aimed to dismantle traditional boundaries between their organizations.

The Greenport Venlo process started with this informal group of people, including a bank manager, an auction manager, a mayor, a civil servant from the municipality, a provincial governor and a knowledge broker. Because these leaders knew that the challenge of sustainable regional innovation was complex, and individually they had insufficient overview and insufficient influence, they formed an informal network. Each of them expressed individual (not institutional) commitment to their common ambition. Later they would become known as the founding fathers of Greenport Venlo. Driven by an intrinsic desire to not only maintain their formal position but also contribute to a more sustainable future, they searched out the 'zone of discomfort' (in their own words), sought out new relationships, new language, new meanings and new alliances. At the same time, they were aware that their ambitions challenged all the rules and routines of the organizations they were part of: the government would have to relinquish its authoritative planning schemes; entrepreneurs would have to implement sustainable solutions; scientists would have to become partners; and environmental partners would have to join the process.

Next, they started using their positions in the formal network to accelerate the regional innovation process. For instance, they made strategic use of their relations with the ministries to get the Venlo region nominated as one of the Dutch Greenports. Also the idea of the mayor to organize the Floriade, the once-in-a-decade mammoth national flower show, took advantage of this informal network.

When, some years later, most of these persons including the elected politicians obtained other positions in the region, they continued their activities in this informal network. A joint business trip to China further strengthened mutual trust relationships and shared ambitions. When the visible (formal) part of the Greenport network expanded, these founding fathers continued to support its activities.

In terms of CLT, the founding fathers formed a shadow network. It was a mix of people with power in a number of formal networks, in and outside the Venlo region. The networks also included some experts with less political power, but with crucial knowledge and networking competences. After the shadow network had developed a joint ambition, many of its participants acted in their formal capacity, and in that way also influenced other members of their formal networks (for example, national politicians).

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### *Various change alliances*

1 An early idea of the founding fathers was to mobilize and invoke the Foundation  
2 for Regional Dialogue into life. They were themselves not members of this alli-  
3 ance, but they supported and enabled it. Many organizations with contrasting  
4 interests in the transition of the Venlo region participated. It was temporary  
5 because of its short-term goals and funding schemes (in the context of long-term  
6 goals). Driven by the abstract ambitions of the founding fathers, this foundation  
7 actively challenged actors to develop more concrete projects and ideas. The  
8 sense of opportunity augmented, and many proposals were successful.

9 Some years later, when the first actions and successes of the Greenport process  
10 emerged, the founding fathers group agreed that a permanent coordination struc-  
11 ture was needed. To achieve joined-up activities and to make progress, the group  
12 decided to set up a 'core group,' comprising participants put forward by their  
13 respective organizations and participants with aspirations to be involved in the new  
14 regional networks. Many members of the foundation participated in this second  
15 change alliance. This core group of public and private actors got together to brain-  
16 storm about giving meaning and identity to this formal Greenport designation. The  
17 workshops led to a joint regional innovation strategy combined with an organiza-  
18 tional concept. The core group was not primarily focused on speaking the language  
19 of innovation, but on following the course of innovation by stepping right into it  
20 by developing and testing new solutions, reflecting upon the outcomes, and rede-  
21 signing the solutions that did not deliver results. Hence, at least implicitly, the  
22 members of the core group were informed by key elements of design thinking.

23 As a result of the Greenport designation and the enthusiasm of the core group,  
24 the number of people involved grew rapidly and many new project initiatives  
25 emerged. This led to new forms of entrepreneurship in varying change alliances  
26 undertaking projects such as the New Mixed Farming project, the InnovaTower,  
27 the Innovation Center for Healthy Food, and the Sustainable Horticulture project  
28 development. However, the actors involved in the core group increasingly per-  
29 ceived tensions between their informal structure and the increasing number of  
30 projects and initiatives. To deal with the expanding activities, some organiza-  
31 tional adaptations were made without abandoning the value of open networks.  
32 Leading people from the domains of research, business, education and govern-  
33 ment were organized into a network board, tasked with reviewing the regional  
34 initiatives submitted to them. In addition to this and inspired by Wenger (1998),  
35 a Community of Practice was set up in order to build a common learning process  
36 with all people experimenting with new ways of working and simultaneously  
37 experiencing difficulties, sometimes related to the need to loosen up the tradi-  
38 tional roles in development processes (Kranendonk and Kersten 2007).

### *Influence on formal networks*

39 The founding fathers had enabled the foundation and its successors (among  
40 others the core team; the network board; the Agrofood community; the  
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community of practice) as change alliances. Many of these change alliances developed projects and ideas that were then adopted by the formal networks and became mainstream and formal. Except for the process manager, they all continued to combine their membership of the change alliance with a position in the formal networks, such as being a civil servant of a municipality/province, a researcher at a university or an auction employee.

### **Analysis and discussion**

Above we have used the concepts of CLT, supplemented with the network typologies, to describe the public innovation processes in Transport Transition and Greenport Venlo. In this section we will analyze and discuss our results in terms of the three research questions.

#### ***The mechanisms and motives underlying multiple leadership***

Leaders in both cases described their dynamics in analogy with the three proposed archetypical network types. All three leadership dynamics were needed: administrative leadership for stability and legitimacy, adaptive leadership for developing possible innovations, and enabling leadership to initiate, inspire, protect and translate innovation. The achieved innovations, in terms of processes and products, can be understood as interplays of these three mutually reinforcing dynamics, creating an overall dynamic that helps innovation to penetrate and challenge the regime. The dynamic of enabling leadership may have been more visible in these two cases than in others because here, shadow networks (the IB and the founding fathers) were relatively developed and open for research observation. Both initiated change alliances and inspired adaptive leaders, especially in times of disappointment and tension with bureaucratic rules. In turn, change alliances fed them with new ideas and new language. Shadow networks looked for room in their organizations and administrative networks to offer resources to change alliances that fit the common interest in the administrative network in the long term – as the participants saw it.

Furthermore, as both cases show, one person can take part in all three leadership dynamics. Most participants indicated that they were convinced of the accelerating effect of these leadership dynamics. Their motives were mixed. Enabling leaders said they were driven by a dream of a more sustainable future. They had less faith in the problem-solving capacity of the existing formal governance arrangements (in which they also participated, but now inspired by innovative ideas). They often combined powerful positions with a drive to challenge the vested regime. They gave each other credit and were willing to sacrifice personal time. The ambition to contribute to a better and more sustainable world seems to have provided these people with a firm base for a long-term commitment and shared identity in shadow networks. Their enabling activities and the time they spent were hardly visible to non-participants, even to direct colleagues.

1 Both cases revealed that adaptive leaders were basically driven by a personal  
2 commitment to making a difference as members of an exciting change alliance.  
3 They often initially acted without a clear mandate from their superiors. As long  
4 as they were supported by enabling leaders they did not mind if bystanders asso-  
5 ciated them with windmill chasers. Their ultimate aim was to lead ‘their’ innova-  
6 tion into the public spotlights, to beat other change alliances, to gain support and  
7 influence and to make a claim for further resources.

8 In the eyes of enabling leaders participating in both cases, other administra-  
9 tive leaders in formal networks did not seem to be driven by dreams of sustain-  
10 able innovations. They advocated the status quo, or they preferred specific  
11 innovations (those they might call sustainable). They were only willing to move  
12 when they were convinced by the short-term opportunities of innovative ideas,  
13 in terms of powerful political support or proven benefits for themselves or their  
14 organizations. Both cases showed how mixed motives resulted in a powerful  
15 combination of on the one hand encouraging variety, responsiveness and learn-  
16 ing and on the other hand promoting order, decisiveness and reliable perform-  
17 ances (Weick and Sutcliffe 2001).

### 18 19 *Strategies to overcome organizational boundaries*

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21 Innovation requires heterogeneity of backgrounds and organizational functions  
22 (Uhl-Bien and Marion 2009; Weick 1995). Both shadow networks and the  
23 various change alliances involved people from a variety of backgrounds and  
24 with contrasting organizational functions or even competitive formal relation-  
25 ships. In particular, enabling leaders employed strategies to overcome organiza-  
26 tional barriers and to reach high levels of heterogeneity and connectedness  
27 (Nooteboom and Termeer 2013). We observed at least three strategies, namely  
28 building interpersonal trust, providing joint resources and connecting.

#### 29 30 *Building interpersonal trust*

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32 Both shadow networks were highly dependent on mutual trust because members  
33 often had contrasting or even opposing interests in administrative networks.  
34 Therefore they deliberately invested time in building interpersonal trust through  
35 sharing ideas about personal interests, knowledge influence and possible futures.  
36 Against that background they discussed ideas about innovation – often emerging  
37 from change alliances. As one IB member said, they were keen on maintaining  
38 their trust in each other in the sense that each one acted in line with their shared  
39 ideas. It was accepted that their own organizations sometimes would act against  
40 those ideas if such actions could not be prevented by an IB member.

#### 41 42 *Providing joint resources*

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44 Members of shadow networks – in their formal capacity, not in network roles –  
45 also provided joint resources. They provided different resources for different

purposes than they otherwise would have done. For example, IB members hired professional moderators to bring people together or designated project leaders to organize an EU conference. Different members would ensure that initiatives in their different organizations reinforced each other – usually without their organizations having official cooperation arrangements. They ensured that those receiving the resources would have sufficient freedom to be innovative and look for synergy.

*Connecting*

The enabling leaders deliberately sought to organize novel linkages between people, between domains, between levels and between businesses. For example the IB group’s members invited alliances to make change proposals with the explicit purpose of connecting to even more organizations and, via these, to connect between administrative leaders. Whereas the enabling leaders organized connections by activating parts of their enormous existing networks, the adaptive leaders mainly focused on involving and connecting new voices, interests and people. New connections were not made at random but were sought where leaders expected to find joint opportunities.

***Strategies to overcome institutional barriers***

Both processes faced disappointments caused by a variety of institutional barriers. Many innovative ideas and projects, emerging from the change alliances, became bogged down in existing policies and procedures. Leaders applied strategies to overcome these barriers, such as ‘keying,’ ‘sense-making’ and ‘integrating.’

*Keying*

Baez and Abolafia (2002) borrowed the term ‘keying’ from Goffman (1986) to denote the rearrangement of existing routines and procedures as an answer to new problems (Baez and Abolafia 2002). The focus is on changing the interpretations of the rules instead of changing the rules. For instance, more than 100 rules applied to an innovative project in Greenport Venlo, making short-term realization difficult. In this situation, enabling leaders used their formal power to search for possibilities within the existing frameworks. As a result of their acts, which were discussed in the shadow network, the minister granted the innovative project the official status of a ‘governance experiment.’

*Sense-making*

The strategy of ‘sense-making’ is about seeing what is happening with processes of innovation and telling the world how important this is, attracting people to these innovations. Uhl-Bien and Marion (2009) refer to it as ‘issue selling.’

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1 In the Venlo case governors and businessmen applied the strategy of sense-  
2 making when they used their position to spread the successes of Greenport. An  
3 important moment was when Greenport was showcased to the European com-  
4 missioner for regional development when she visited the province. Furthermore,  
5 they managed to organize a weekly edition on regional television showing the  
6 most innovative projects and entrepreneurs. In doing so, they were able to realize  
7 results in the short term and thus overcame the institutional barrier of long pro-  
8 cedures and public consultations.

### 10 *Integrating*

11 For bureaucratic organizations to benefit from innovations produced in change  
12 alliances, the outcomes must be integrated into the formal systems in the form of  
13 new products (Uhl-Bien and Marion 2009). The strategy of integrating organizes  
14 relationship between formal top-down administrative forces and informal innov-  
15 ative forces (Uhl-Bien and Marion 2009). It is about connecting the new stories  
16 about innovation to the customary stories and identities of existing organizations  
17 (Baez and Abolafia 2002). Without effective integration strategies, innovations  
18 will not reach the level of implementation, consolidation and up-scaling. Some-  
19 times it is also necessary to restore harmony and stability to prevent innovations  
20 from losing their connection with existing organizations and then fading away.  
21 The most crucial event in the sustainable transport case may have been the parti-  
22 cipation of the most influential civil servant of the ministry for transport. Subse-  
23 quently, he used many opportunities to intervene in the formal transport system  
24 for the sake of sustainable transport. Under his influence several cabinet  
25 members succeeded at official occasions in expressing the need of a sustainable  
26 transport transition and the innovative efforts that would contribute to that.

### 29 *Design principles to enhance innovation in shadow networks*

30 Both processes started with people who joined their motives and efforts to foster  
31 innovation in and through shadow networks that in turn gave rise to various  
32 change alliances. In doing so, they developed broad ownership involving all  
33 stages of the innovation processes, including required implementation capacity.  
34 Despite the many setbacks, elections, job rotations and changing political priori-  
35 ties, shadow networks in both cases lasted for many years (founding fathers  
36 approximately 12 years and the Innovation Board for at least five years). For  
37 obvious reasons, shadow networks are not the result of formal plans or decisions,  
38 but emerge in contingent and unforeseen circumstances. What can be said about  
39 the design principles that enhance these self-organization dynamics? We have  
40 revealed two of them: a shared sense of urgency and interdependency, and  
41 modest forms of transparency.

*Shared sense of urgency*

Both cases show how actors, having met in formal networks where they had built up a basic level of mutual trust, started sharing concerns and frustrations. Many IB members even indicated that some of them had known each other for decades. In doing so, they developed a shared sense of urgency. This fits the observation that ‘in collaborative processes actors do not share exactly the same goals but instead have personal needs that can best be satisfied by working together’ (Uhl-Bien and Marion 2009: 643). While formal collaborative frameworks often create ‘artificial interdependencies’ (Uhl-Bien and Marion 2009), these enabling leaders realized they had insufficient knowledge and influence to foster sustainable innovations themselves, and thus were highly committed to collaboration.

*Transparency*

Shadow networks risk becoming associated with backroom deals and secret conspiracy, which may seriously threaten broad ownership. The shadow network members as a rule did not refer to their network or to their joint understanding to legitimize any formal action, and they made their shadow networks transparent as soon as they felt safe enough to do so. The founding fathers, for example, went public when the core team presented their strategy to give meaning to the formal Greenport designation. It was from that moment on that they were known as the founding fathers of Greenport Venlo. The shadow network in the Transport Transition became known as the Innovation Board for Sustainable Mobility, as people explained to their colleagues where they went every six weeks. They saw this as a risk, as less high-ranking participants might be forbidden to continue participation by their unsympathetic superiors, or administrative leaders with short-term objectives or protecting vested interests might interfere with their process. In Greenport Venlo this was the case in 2011, when the populist right-wing party won the elections and gained powerful positions in the formal network.

*Design principles to enhance innovation in change alliances*

These shadow networks played an important role in initiating and protecting a variety of change alliances. Again, the design question comes to the fore. Which design principles have been applied to organize these change alliances? Both cases show that the change alliances were not introduced in a top-down manner and were not pre-structured by formal procedural requirements. Instead, conditions were created to encourage and attract people to form alliances, such as inspiration, resources and safe niches to elaborate innovative ideas. The ‘principle of attractiveness’ prevents the problem of energizing participants, which arises when individuals are placed in systems to which they may feel little personal attachment (Uhl-Bien and Marion 2009: 643).

1 Next they applied the ‘principle of minimal structures’ (Barrett 1998: 611) or  
2 managed chaos (Uhl-Bien and Marion 2009: 646). Both concepts refer to the  
3 fundamental tensions between the desire for structure required for justification of  
4 resources (advocated by administrative leadership) and the need for flexibility  
5 required for producing creative challenges (advocated by adaptive leadership).  
6 Innovations in niches or change alliances depend on forms of organization that  
7 enable people to spend their time in a goal-oriented way. Time can often only be  
8 allocated by creating structures such as projects and programs as vehicles for  
9 adaptive leaders to interact. Given the unpredictable nature of innovations, such  
10 structures were specified at a general level, allowing ‘fitting’ groups to emerge  
11 by self-organization. Within Greenport Venlo resources were provided by  
12 reserving them in the formal policy-making process; however, this was done  
13 without marked planning and control. The alliances that made use of these  
14 opportunities reported about the progress and results in a retrospective way  
15 (Weick 1995).

16 However, it is not easy to sustain this strategy of minimal structures, espe-  
17 cially when more change alliances emerge and the invested resources increase.  
18 As a result of the Greenport designation, many projects were initiated. In spite of  
19 these new demands and expectations, the founding fathers – acting in their  
20 formal capacity – were not tempted to develop strict organization schemes. They  
21 stuck to their belief that traditional ways of project management by means of a  
22 project plan and steering groups would not be satisfactory. But, without any  
23 organization, they feared there would be stagnation and chaos. To achieve  
24 joined-up activities and to make progress, they made some organizational  
25 adaptations, like installing the core group. The founding fathers seemed to  
26 understand the value of open change alliances and so legitimated and enabled  
27 the continuation strategy of organizing minimal structures. The call for further  
28 institutionalization of the Greenport Venlo initiative was heard, but largely  
29 failed. Control measures were made just strict enough for democratic legitimacy  
30 of money spent on the encouragement of innovation, while open enough not to  
31 block new initiatives and learning.

## 32 **Conclusions**

33 CLT concepts supplemented with network typologies have proved to be a useful  
34 approach to describe and analyze how the Transport Transition and Greenport  
35 Venlo innovation processes were enabled by many leaders. Together our theo-  
36 retical exploration and our empirical case analyses have improved our under-  
37 standing of the mechanisms and motives underlying multiple leadership. We  
38 have shown how administrative, adaptive and enabling leadership dynamics  
39 were embedded in formal networks, change alliances and shadow networks and  
40 how they mutually reinforced each other. We have also revealed strategies to  
41 overcoming organizational boundaries and institutional barriers: building inter-  
42 personal trust, providing joint resources, connecting, keying, sense-making and  
43 integrating. These strategies differ from more traditional leadership strategies.  
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Finally we addressed the design questions. Although shadow networks and change alliances cannot be designed in a top-down or pre-structured way, we found some design principles that can encourage these networks to emerge, to survive and to enhance innovation. These principles are a shared sense of urgency and interdependency, modest forms of transparency, attractiveness and minimal structures.

This theory combines archetypical networks, design principles and strategies. The networks are relatively easily to observe as groups of interacting people. The content of that interaction – the dynamics – are more difficult to observe, but separating networks from each other will also separate dynamics from each other. Design principles help the separate networks emerge. Then, strategies can help these separated dynamics emerge and produce constructive tension between vested interests, long-term ideals, and innovations. This tension drives the emergence and penetration of innovation. In particular, enabling leaders are crucial in creating and separating these settings. They, as ‘collective mediators,’ must oversee dynamics and identify them for others, so all can feel the tension between the joint short term and the joint long term, rather than just the tension between the short-term interests of actors in the power arena, vested or innovative. In terms of innovation, collaboration and leadership design, these insights therefore provide concrete guidelines. Certainly, the proposed strategies and design principles are neither complete nor necessarily the most important ones; the added value of our theory lies primarily with the network types and the associated dynamics.

## References

- Ansell, C. and Gash, C. (2007) ‘Collaborative governance in theory and practice,’ *Journal of Public Administration Research and Theory*, 18: 543–571.
- Arnold, D., van de Waart, R., Laurentzen, M. and Termeer, C. J. A. M. (2011) *Greenport Venlo: Van zorgenkind tot paradepaardje?*, in Nooteboom, S., Deelstra, Y., van den Berg, J. and Kesseler, W. (eds) *Kwartiermakers van de toekomst*, Deventer: Matstercircle, available at [www.kwartiermakersvandetoekomst.nl](http://www.kwartiermakersvandetoekomst.nl).
- Baez, B. and Abolafia, M. Y. (2002) ‘Bureaucratic entrepreneurship and institutional change: A sense making approach,’ *Journal of Public Administration Research and Theory*, 4: 525–552.
- Barrett, F. J. (1998) ‘Creativity and improvisation in jazz and organizations: Implications for organizational learning,’ *Organizational Science*, 5: 605–622.
- Chrislip, D. (2002) *The collaborative leadership fieldbook: A guide for citizens and civic leaders*, San Francisco: Jossey-Bass.
- Crosby, B. C. and Bryson, J. M. (2010) ‘Integrative leadership and the creation and maintenance of cross-sector collaborations,’ *The Leadership Quarterly*, 21: 211–230.
- Duit, A. and Galaz, V. (2008) ‘Governance and complexity: Emerging issues for governance theory,’ *Governance: An international Journal of Policy, Administration and Institutions*, 21(3): 311–335.
- Goffman, E. (1986) *Frame analysis: An essay on the organization of experience*, Boston: Northeastern University Press.

- 1 Hajer, M. A. and Wagenaar, H. (eds) (2003) *Deliberative policy analysis: Understanding*  
2 *governance in the network society*, Cambridge: Cambridge University Press.
- 3 Kranendonk, R. P. and Kersten, P. H. (2007) 'Midlife communities of practice: Experi-  
4 ences and alignment,' *American Behavioral Scientist*, 7: 946–957.
- 5 Koppenjan, J. and Klijn, E. H. (2004) *Managing uncertainties in networks: A network*  
6 *approach to problem solving and decision making*, London: Routledge.
- 7 Lipman-Blumen, J. (1996) *Connective leadership: Managing in a changing world*,  
8 Oxford: Oxford University Press.
- 9 Nootboom, S. (2006) *Adaptive networks: The governance for sustainable development*,  
10 Delft: Eburon.
- 11 Nootboom, S. and Marks, P. (2010) 'Adaptive networks as second order governance  
12 systems,' *Systems Research and Behavioural Sciences*, 27(1): 61–69.
- 13 Nootboom, S. and Termeer, C. J. A. M. (2013) 'Strategies of complexity leadership in  
14 governance systems,' *International Review of Public Administration*, 18(1): 1–16.
- 15 Schön D. (1983) *The reflective practitioner: How professionals think in action*, New  
16 York: Basic Books.
- 17 Stacey, R. (1996) *Complexity and creativity in organizations*, San Francisco: Berret-  
18 Koehler.
- 19 Teisman, G. R., Van Buuren, A. and Gerrits, L. (2009) *Managing complex governance*  
20 *systems: Dynamics, self-organization and coevolution in public investments*, London:  
21 Routledge.
- 22 Termeer, C. J. A. M. (2007) 'Vital differences: On public leadership and societal innova-  
23 tion,' inaugural speech, Wageningen University.
- 24 Termeer, C. J. A. M. and Kranendonk, R. P. (2008) *Organizing processes of regional innova-*  
25 *tions towards sustainability*, paper for EGPA Conference, Rotterdam, 3–6 September.
- 26 Termeer, C. J. A. M. and Nootboom, S. (2012) 'Complexity leadership for sustainable  
27 regional innovations,' in Sotarauto, M., Horlings, L. and Little, Y. (eds), *Leadership*  
28 *and change in sustainable regional development*, London: Routledge, 234–251.
- 29 Termeer, C. J. A. M. and Werkman, R. A. (2011) 'Changing closed agricultural policy  
30 communities,' *Critical Policy Studies*, 5(3): 283–298.
- 31 Uhl-Bien, M. and Marion, R. (2009) 'Complexity leadership in bureaucratic forms of  
32 organizing: A meso model,' *The Leadership Quarterly*, 20(4): 631–650.
- 33 Uhl-Bien, M., Marion, R. and McKelvey, B. (2007) 'Complexity leadership theory: Shift-  
34 ing leadership from the industrial age to the knowledge era,' *The Leadership Quar-*  
35 *terly*, 18(4): 298–318.
- 36 Vigoda-Gadot, E., Shoham, A., Schwabsky, N. and Ruvio, A. (2005) 'Public sector  
37 innovation for the managerial and the post-managerial era: Promises and realities in a  
38 globalizing public administration,' *International Public Management Journal*, 1:  
39 57–81.
- 40 Wallis, J. and Dollery, B. (1997) 'Autonomous policy leadership: Steering a policy  
41 process in the direction of a policy quest,' *Governance*, 10(1): 1–22.
- 42 Weick, K. E. (1995) *Sensemaking in organizations*, London: Sage.
- 43 Weick, K. E. and Sutcliffe, K. M., 'Managing the unexpected: Assuring high perfor-  
44 mance in an age of complexity,' San Francisco: Jossey-Bass.
- 45 Wenger, E. (1998) *Communities of practice: Learning, meaning, and identity*, Cam-  
bridge: Cambridge University Press.
- Whitley, R. (2000) 'The institutional structuring of innovation strategies: Business  
systems, firm types and patterns of technical change in different market economies,'  
*Organization Studies*, 21: 855–886.