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Knowledge leadership for resilient regions: Concluding remarks

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INTRODUCTION

The introductory Chapter raised three reasons why leadership needs to be studied and conceptually developed in the context of sustainable regional development. We stressed that there is a lack of studies focusing on leadership in this context, that the new forms of governance call for leaders to produce results in an ever more complex environment and that there is a mismatch between policy recommendations for sustainability and knowledge of how to deliver change. Therefore, our position is twofold. First, we see a need to investigate in more depth what influential actors in co-operation with the main stakeholders actually do to transform and reinvent their regions. Therefore, the main proposition of this book is that a deeper understanding of leadership might provide us with additional analytical leverage to understand and better explain how to truly construct sustainable regions. Second, all the local and regional champions, who invest time and energy in efforts to reinvent their regions, need and deserve better informed theories and models on how to lead and direct complex networks and governance systems for sustainable regional development.

This is all the more relevant since local and regional leadership in Europe is currently exercised by the need to better integrate social cohesion and economic sustainability agendas (see Europe 2020 and the EC's 5th Cohesion Report; ESPON, 2010). Some of the most recent evidence concerning the challenges that Europe's sub-national territories face in a rapidly changing world, points to the need for local and regional leadership to respond to external competitive shocks whilst at the same time exploiting new development opportunities around climate change, energy security, food security, demographic change, technology shift and so on. Meeting these more heightened and complex challenges of sustainable development requires integrative working at the territorial level (ESPON, 2010). Therefore, leadership capacity is of central importance to the future of all kinds of areas across Europe.

From these premises, this chapter brings together the observations from the chapters and suggests themes to be explored in future studies on leadership in local and regional development. Many of the chapters highlight the role of social embeddedness, story-telling, awareness building, etc., and to our understanding, all this points towards knowledge leadership. We continue the path opened by John Gibney and explore the relationship between leadership and knowledge, as we believe that construction of resilient regions calls for novel approaches also in how knowledge is linked to leadership models and practices. Thus, the focus is on knowledge leadership for resilient regions that might offer us an integrative framework to proceed. As John Gibney (in this book) stresses, 'at the most basic level, it is a question of what we know, and can come to know, across cities and regions and what we manage to do with this knowledge "writ large" … it is important to improve our understanding of how knowledge, place and leadership can come

together to improve economic and social outcomes for "the many" rather than "the few"'.

Of course, the discussion here is tentative in nature and, drawing upon the Chapters, its role is mainly to pose questions instead of searching for answers. We take a brief look at the challenge raised by the Chapters by linking resilience into the conceptual repertoire of the book. Resilience might offer us a way to link ecological concerns to socially and economically oriented concerns.

First, we take a look at the concept of resilience and see how it relates to the sustainability debate of the Chapters; second, we open a horizon on how it might be possible to link resilience and knowledge leadership in the same conceptual package. Third, we will come back to the governance issue already raised in the introduction chapter: what kind of governance conditions and leadership (institutional) arrangements are needed to support knowledge transfer and policy learning?

THE CHALLENGE OF RESILIENCE – NEED TO CONSTRUCT SELF-RENEWAL CAPACITY RAISED

Framing the concept of resilience

As we have pointed throughout the book, due to ever more global interrelatedness, regions all over the world are facing severe ecological, social and economic difficulties. The overarching objective for the regional development policy makers and practitioners seems to have been the creation of economic advantage through superior productivity performance, innovation systems and/or creative class (Bristow,

2010). Competitiveness has effectively become a natural law for economic development and policy, and the pursuit of globally competitive forms the resulting imperative. Furthermore, in the global economic recession, the economy has been prioritized over environmental and social aspects, partly transparently and partly behind the mask of balanced sustainable development (Jauhiainen and Moilanen, 2011). The dominant discourse of competitiveness displays a narrow focus on the growth of a region rather than the development of a region (Markusen, 1994). Not surprisingly, as a result, regional economic development strategies are littered with the language of winning, of gaining some form of competitive advantage over other regions, and of measuring competitive performance against 'rivals' in the form of indicators and league tables (Bristow, 2009).

Indeed, the competitiveness imperative facing regions mirrors the dominant thinking across all places and scales, from cities and city-regions to nations and even supranational powers such as the European Union (EU), where competitiveness is deeply embedded. Indeed, the 'conventional wisdom' is that nations, regions and cities have to be more competitive to survive in the new marketplace being forged by globalisation and the rise of new information technologies (Buck et al., 2005).

Regional development literature relies heavily on geographical proximity assumptions while the recent studies point more towards complex knowledge dynamics where the capacity to take part in multi-local dynamics and anchor mobile knowledge is seen as crucial (e.g., Crevoisier and Hugues, 2009). Furthermore, innovative public policy is increasingly developed in networks which span traditional organisational boundaries, but the type of high level knowledge required to create regional advantage within the

'knowledge economy' is increasingly being criticised for being 'spatially blind' (in terms of territorial development) and 'people-free' (see Sirak, 2010; Gibney, 2011). This discourse of competitiveness linked to forces of globalisation can be seen as a *'placeless' discourse*. It uses a narrowly conceived notion of place that elides place livability with place marketability. It lacks sensitivity to critical issues of knowledge in context and place (Bristow, 2010: 159-160).

The 'placelessness' of the competitiveness discourse also has implications for sustainability. The discourse of de-contextualised competitiveness fails to address the question of sustainability or the environmental costs of globally mobile firms and resources (Bristow and Wells, 2005; Hudson, 2008). The short-term growth-first approaches to development create scenarios whereby a region becomes competitive today by depleting and denuding its physical environment, thereby limiting its competiveness for tomorrow (Bristow and Wells, 2005). These narrow approaches are not based on social cohesion and conclusion but creation of winning dynamism in some regions but vulnerability in others. As already shown, the informal and softer dimensions of innovation where vital physical and human social capital, or 'invisible' factors, facilitate trusting relationships and collaboration lead to effective social and economic development (OECD, 1993).

For above reasons the concept of resilience is attracting increasing interest in regional development studies and policy discourses around regional development (Bristow, 2010; Pike et al., 2010), as it may offer us an analytical lens to integrate social, economic and ecological issues for investigation of how regions may cope with external stress by improving local capacity to act. Additionally, the recent global

'credit crunch' and the accompanying increase in livelihood insecurity has highlighted the advantages of those local and regional economies that have greater 'resilience' by virtue of being less dependent upon globally footloose activities, having greater economic diversity, and/or having a determination to prioritise and effect more significant structural change (Larkin and Cooper, 2009; Ashby et al., 2009). The discourse of resilience is thus attracting increased interest in regional and local development circles.

The meaning of resilience draws heavily on the way in which it is used in ecological sciences. It can be seen as the capacity of a system to absorb disturbance and reorganise while undergoing change, so as to still retain essentially the same function, structure and feedbacks (Hopkins, 2008: 54; also Hudson, 2008). It is thus a holistic concept which bridges the analysis of people, institutions and economies with the context-specific natural resources on which they ultimately depend (Adger, 2000). It is also imbued with the notion of closing the economic loops where possible by 'being more prepared for a leaner future, more self-reliant, and prioritizing the local over the imported' (Hopkins, 2008: 55).

In economics, for its part, resilience usually refers to a system that returns to a fixed and narrowly defined state of equilibrium (as measured by employment, for example). In a more liberal version of economics, the system may return to multiple equilibria (Pendall et al., 2010). The term regional resilience has gained popularity because it is deeply associated with regional adaptation. By adaptability we refer to the capacity of a region to adjust continuously to changing circumstances in an appropriate way.

Resilience clearly resonates with literature on sustainability, localization and diversification, and the developing understanding of regions as intrinsically diverse entities with evolutionary and context specific development trajectories (Hayter, 2004). According to Bristow, resilient places require diversity and modularity and in some places they need to be characterized by an emphasis on small-scale, localized activities, which are embedded in the capacities of the local environment and cognizant of and adapted to its limits (Bristow, 2010). In this sense resilience can be seen as a strategy for place-based development and localized innovation systems (Liddle et al., forthcoming).

Simmie and Martin (2010) raise three basic mechanisms by which an entity can change to become better adapted to a new circumstance: the first is intentional response to the perception of changed circumstances, a second is homeostatic, the automatic following of specific rules in relation to target behaviours and the third is developmental, the cumulative unfolding of new behaviour patterns (such as innovation) within a specific set of constraints. As Simmie and Martin (2010) argue, instead of seeking equilibrist definitions for resilience in the context of regional adaptation, it is more constructive to draw upon adaptive cycle models based on an evolutionary perspective, and thus to seek fresh answers to the core question of all regional development studies; why some regions manage to renew themselves, whereas others remain locked in decline (Hassink, 2010) and, moreover, what kind of capacity is needed in regions to bounce back from the difficult times with models that balance ecological, economic and social concerns. The capacity to bounce back is in a central position in the debates on resilience: ‘Resilience has emerged as a notion

seeking to capture the differential and uneven ability of places to react, respond and cope with uncertain, volatile and rapid change' (Pike et al., 2010: 59.)

Earlier studies on resilient regions have focused on building understanding in the concept and carrying out meta-analysis on the theoretical and empirical perspectives of it (Pendall et al., 2010; Hassink, 2010; Simmie and Martin, 2010), resilience of the labour market (Chapple & Lester 2010), the ways industries cope with external shocks and bounce back (Treado, 2009) and co-evolution of policy and self-organising development for future resilience (Sotarauta and Srinivas, 2006). Our view on resilience is threefold. First, we follow Ashby et al, who define resilience as 'the region's ability to experience positive economic success that is socially inclusive, works within environmental limits and which can ride global economic punches' (Ashby et al., 2009; cited in Bristow, 2010). Second, resilience is here defined as including adaptive capacity that endows regions with a capacity to change their destiny by adapting to changes and reshaping their own strategic capacity to act. Third, resilience calls for leadership that is capable of reinventing a region and its social networks to match new situations.

The main question here is: *what kind of regional capacity is needed to adapt to a changing environment, not like driftwood in a stream, but with purpose*. To emphasise the conscious efforts for adaptation we add leadership into the emerging body of research on sustainable and resilient regions. All this calls for intentional design of processes that supports a continual renewal of regions; i.e. the regional system's self-renewal capacity to deal with knowledge and innovation for resilience.

Self-renewal capacity

We follow Simmie and Martin (2010) by adopting a point of departure that from an evolutionary perspective the adaptive capacity of local and regional economies is an important attribute of regional resilience. As they maintain: 'What matters for the long-run success of a regional economy is the ability of the region's industrial, technological, labour force and institutional structures to adapt to the changing competitive, technological and market pressures and opportunities that confront its firms and workforce'. To construct a conceptual connection between adaptive capacity and leadership we suggest that there is a need to focus on the self-renewal capacity of regions and the ways it can be strengthened.

Self-renewal capacity represents a set of processes that can be intentionally designed for the future on the one hand and that are the core of adaptation on the other hand (Sotarauta, 2005). Capacity can be defined as referring to a measure of the amount of work a system can perform, and to the power of receiving and holding ideas and knowledge; hence, if capacity refers to the ability to perform or produce something, self-renewal capacity can be defined as the set of capabilities targeted at renewing oneself in a continuous process. According to Ståhle (1998), self-renewal capacity refers to the overall capacity of a system to master changes in its strategies and operations. Thus, as she states, it is always based on the system's overall ability to deal with information, knowledge and innovation. In the context of regional development, self-renewal capacity is by definition an attribute of entire systems instead of individual organisations and therefore one should always be aware of the

question of where in a multi-scalar system specific self-renewal functions are located and how they are integrated into other functions.

The main question emerging here is *what is the dynamics between resilience, self-renewal capacity and leadership like?*

SOCIAL EMBEDDINGS OF LEADERSHIP FOR RESILIENCE

By asking 'what is the guiding leadership "narrative" that can be held on to and that might allow people and places to think beyond the classic short-term public policy responses and address the more challenging medium to longer term dilemmas to come', Gibney (in this book) points towards the most crucial of the issues revolving around resilient regions; leadership for resilient regions is a marathon, not a sprint. As Sotarauta and Mustikkamäki (in this book) remind us, leadership is often a relay in which key actors are engaged in a task or activity for a fixed period of time and then replaced by other actors with different constellations of power, knowledge and capabilities.

Indeed, resilient regions cannot be created overnight with one 'super leader' who solves all problems and satisfies all interests (Termeer and Nooteboom, in this book; Liddle, in this book). Leadership is a shared effort (Karlsen and Larrea, in this book), developed over long periods and embedded in informal and softer dimensions, or 'invisible' factors that facilitate trusting relationships and collaboration between leaders and other regional players. However, as the chapters show, it is not easy to create or maintain the momentum for change. How do we keep a leadership relay in

motion in a world that is characterized by an almost pathological race for short-term profits, shortsighted politics and a search for quick fixes (Sotarauta and Mustikkamaki, in this book) at the expense of deeper collaborative arrangements? Therefore, in spite of stressing the marathon nature of leadership and sustainable development, we also acknowledge the need for occasional sprints to produce short-term results that construct and maintain belief in the cause and network aiming for change. By creating a sense of urgency which emerges between visions, leaders can drag collective action over time and cross various obstacles (Sotarauta and Mustikkamäki, in this book). Therefore, studies revolving around resilient regions ought, by definition, to investigate adaptation processes (adaptive cycles) underpinning regional transformations. Fresh research questions can be posed: *(a) How does leadership facilitate and/or hamper adaptive cycles, and (b) how do key actors (and who are they) influence adaptive cycles and construct self-renewal capacity for resilience?* In her chapter, Peters (in this book) shows how, in our connected society, 'leaders who are separate and stand apart are less effective than those who are socially connected as peers within their group'. Leadership for resilient regions is socially embedded action. Also the other chapters reveal the socially embedded nature of leadership, and thus we suggest that to study leadership for resilient regions we need to take the socially embedded nature of it seriously.

Leadership that lacks the underpinning social capital structures can lead to unexpected and uncontrolled outcomes and therefore purposeful leadership that utilises socially influenced knowledge creates the necessary conditions to trigger change (Peters, in this book). Horlings (in this book) pushes the view opened by Peters forward by concluding that social capital can play a role as initiator, lubricant and outcome in

processes of change. Additionally, she shows how social capital is 'nested' in the wider domains of endogeneity, sustainability, governance of markets, novelty and institutional arrangements. Peters' and Horlings' observations are complemented by Raagmaa et al. (in this book) who, based on their empirical study in Estonia, argue that open community with embedded leaders can create new development paths. Furthermore, as Beer and Baker (in this book) argue, community history and industry structure also shape expressions of leadership. They also remind us about the limits of the networks in smaller regions that are dependent on national decision-making processes and leadership. These regions are vulnerable, especially within such market-led economies as Australia.

Territorial networks for resilience are more often than not loosely organised strategic networks. It is important to remember that usually only part of the actors involved in a network are assigned the task of promoting sustainability or are adopting it willingly. Some of the actors may participate only via their own selfish interests, simultaneously having both a direct and indirect effect on the network and its outcomes. Of course, as Horlings (in this book) shows us, there are leaders of change who are not motivated solely by their own private interests but who have feelings for and an awareness of environmental problems, animal welfare and sustainable production. All in all, networks for resilience are often fairly loose by the fact that they do not necessarily have an established organisational form or permanent forums created for their purposes.

Moreover, the networks for resilience are generally organised in different combinations around different projects. In these kinds of networks, even the question

‘what is sustainability?’ may prove hard to answer. Moreover, such questions as ‘what are we aiming at and why?’ and ‘how are we acting together’, may be very difficult to answer without proper leadership as various actors contemplate these issues mainly from their own perspectives. Here leadership is not a formal position or management of resources but the emphasis is rather on skills in negotiation, communication, persuasion, ‘wheeling and dealing’, mediating and envisioning.

Resilient regional development benefits from shared leadership that builds on collective values, feelings, trust, commitment and energy that are the core in joint agendas of regional networks (Horlings, in this book). The results of the networks rely heavily on social skills in the leadership networks, where people should be willing to grant other network members success when and where they need it, developing reciprocity in networks (Termeer and Nooteboom, in this book). Network relations demand the recognition and acceptance of mutual dependence and that can be hard to achieve. As Stoker (1997: 59) maintains, these kinds of networks do not rest on hierarchical relations but on ties characterised by loyalty, solidarity, trust and reciprocal support. But, of course, these are demanding requirements and in practice social networks for resilient regions are not free of problems. These networks, social relations that are organised in different ways between mutually dependent actors around common interests, are as prone to various bottlenecks as any human constellation.

Drawing upon their case study in the Basque Country, Karlsen and Larrea (in this book) show us that networks and regional innovation systems are not conflict-free zones. They make an important observation: conflict should not be avoided but

handled carefully by discussing it openly. This requires people that are capable of refraining from short-term personal success at the expense of the general trust in the networks, in other words, from opportunism and populism (Termeer and Nooteboom, in this book). In practice, regional leaders run the risk of becoming governmentalised, which encourages the 'exit' of the citizenry and frustrates sustainable development (Padt, in this book). All in all, their looseness and their very nature as conflicting as well as aligned ambitions make social networks for resilience tough to lead.

KNOWLEDGE AND LEADERSHIP

In her chapter, Liddle (in this book) argues that in the future, 'leaders must continually move beyond their own organisational boundaries into "collaborative leadership spaces" and act on behalf of the city region for the public interest'. Among the most important reasons for this is that to mobilize, co-ordinate and direct networks for change requires types of knowledge that are not only accessible within the formal policy world. Figure 1 illustrates simplistically a situation where there is no proper local/regional leadership and thus the construction of resilient regions depends solely on formal knowledge and formal processes. This kind of situation may lead to a gap between policy design and implementation as discussed in the introductory chapter, as it relies mainly on the explicit knowledge produced by the policy and research apparatus. For leadership efforts, this might even lead to a situation in which the leaders alienate themselves from the social networks by speaking a language the rest of the pack does not understand or by using a rationale that has no meaning to people. Therefore, in knowledge leadership for resilience regions, the capacity to integrate explicit with implicit and vice versa (see Nonaka and Takeuchi, 1995) may be among

the most important vehicles for influence. Liddle shows how informal, softer and invisible dimensions are harnessed to facilitate trusting and collaborative leadership to overcome some of the more traditional, competitive aspects of social and economic development. Leaders need to be aware of the contextual and temporal embeddedness of policy and practice, and moreover recognize path dependency for linking pre-existing relationships and networks linked to past, present and future policy agendas. In addition, leaders need to be able to link local policy imperatives into regional, European and international policy agendas.

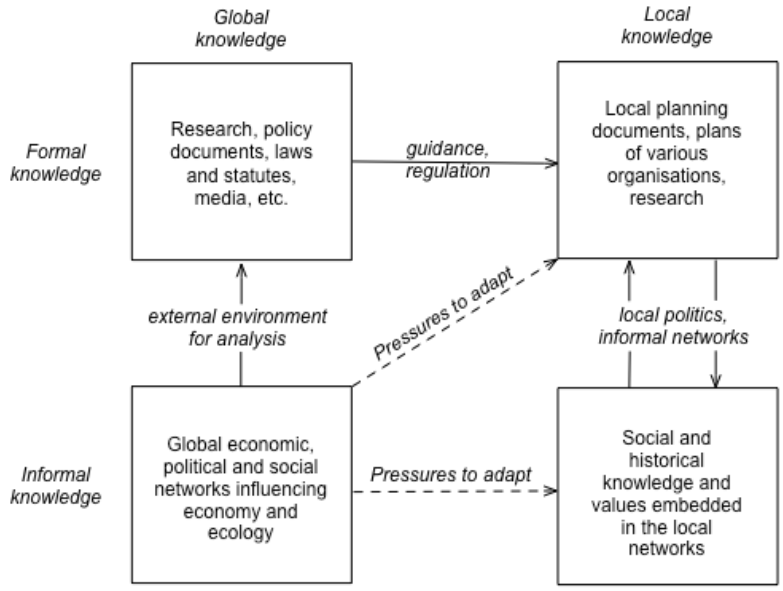

Figure 1. Simplified model of knowledge flows in a regional system without strong local leadership

In his chapter, Padt (in this book) says that while theoretical wisdom is often abstracted from action, practical wisdom is the kind of knowledge and capacity that guides it. Liddle (in this book) argues that earlier analyses of city regions, for example, have ignored deeper knowledge of the interests and motivations of socio-political actors, those leaders responsible for turning external stimuli into internal

responses and opportunities. According to her, local leadership has not been integrated well enough into the wider systems. Liddle also shows how the lack of real resources leads local/regional development actors to harness knowledge, information, stakeholder management and capacity to lobbying to achieve their strategies. Consequently, if one aims to make change, one needs to work indirectly and exercise interpretive and network power (Sotarauta, 2009). We suggest that collective generation of new knowledge is in the core of regional leadership practices. Leadership in sustainable regional development is about leading by knowledge. This is the way leaders can influence the independent decisions of independent actors.

Regional leaders with entrepreneurial capacity turn external stimuli into internal changes by acting as 'animateurs' who 'animate, bring to life, enliven, spark, create and produce' with a strong commitment to building up social capital and institutional infrastructures. These kinds of actors have been identified at intermediate levels with a strong commitment to building up social capital and institutional infrastructures in numerous and diverse international policy domains such as health and education in the Philippines (Innotech, 2005, prisons and schools (Animarts, 2003), homelessness in Scotland (Communities Scotland, 2007), or regional economic development (Bruun 2002; Linnamaa 2002; Sotarauta, 2009; 2010; Morgan, 1996; 1997; Indiana and California, 2011).

Regional leaders also provide the linkages into 'localised knowledge clusters' of animateurs and entrepreneurs who draw together tangible and intangible resources to stimulate and organise for change. Within this interactive learning process between the local, sub-regional and regional spatial levels leaders create new knowledge by

sharing and drawing together explicit and tacit knowledge across the levels, between institutional, disciplinary and sectoral boundaries, and by facilitating dialogue between diverse stakeholders. In this sense, they not only 'strategise' in a formal sense to achieve transformation, but they broker different formal and voluntaristic relationships within and between the institutional and individual milieux and draw knowledge sets into a coherent and collaborative narrative. In doing so, they need to go beyond existing frames of reference to facilitate experimentation with and exploration of innovative, networked approaches for resilience.

Leadership is enhanced when it has access to superior information, both now and into the future, and hence the 'slack resources' that enable leadership to both develop and find purposeful expression are important (Beer and Baker, in this book). To become truly effective, leaders need to have the capacity to work with, by and through their social networks. Therefore, as Beer and Baker (in this book) maintain, policies that seek to advance the leadership capacities of regions, through education, training, better provision of information to existing leaders, the provision of additional resources to support initiatives and the devolution of some responsibilities, are of utmost importance. Knowledge is an elemental part of the thinking of Beer and Baker: 'Local leadership is especially important because not only does it provide local knowledge, but it ensures (because most leaders are very long term residents) continuity … A reliance on established stocks of knowledge, however, can discourage innovation and may provide an inadequate basis for experimentation, risk taking and leading for change'. This view is pushed forward by Peters (in this book), who, drawing from Burt (2004), argues that by describing how non-redundant contacts that lead to new networks rather than loop back into the same group create diversity in

network information resources. As she writes: ‘people who stand near the holes in a social structure are at a higher risk of having good ideas’.

Termeer and Nooteboom (in this book) complement this view: ‘Under complex conditions, one leader who wants to enable change has insufficient knowledge and overview to select among innovative propositions that emerge, and also insufficient influence, in a regional governance system as a whole. Therefore, they will identify the other members of formal networks with whom they have special understandings that inspire them to enable change alliances together. In this way, enabling leadership becomes shared in shadow networks’. Indeed, leadership can create appropriate organisational conditions to foster effective adaptive leadership in places where innovation and adaptability are needed (Termeer and Nooteboom, in this book). Peters (in this book) continues this line of thinking: ‘purposeful leadership using socially influenced knowledge creates the necessary milieu to trigger a move from a non-active to an active-change state’. The primary agency of group influence on individuals is socialization and enculturation.

It is easy to agree with Raagmaa et al. (in this book), who observe that the education and knowledge base of leaders is crucial. Equally stressed is the need to have open access to information so as not to have the situation they describe as follows: ‘sensitive information that was kept indoors before started to leak. As leaders tried to keep doors continuously closed, then this in turn caused increasing suspicion amidst rising opposition’. If knowledge is seen as an open process, then leadership appears as the art of asking questions without the certainty of either a clear answer or the knowledge of whom to ask or where to obtain the correct answers. For these reasons

leadership is a never-ending learning process over time (Sotarauta and Mustikkamäki, this book). Leaders of change are thus forced to look beyond their own network in search of knowledge, and a mind that is open to new knowledge and the use of variable multilevel networks is required (Horlings, in this book).

As indicated already above, all this calls for shared leadership, which is about sharing thoughts that connect knowledge with actions between the interdependent actors in the network as well as with actions in each of the individual collaborating organisations in the network (Karlsen and Larrea, in this book). In practice, the degree of sharedness varies in time and place, as does the degree of formality of networks. In addition to formal networks and policy processes, there are often shadow processes and networks. Shadow networks consist of leaders who may influence, and importantly who have knowledge about, a significant part of the societal system that is managed by one or more formal networks. In the shadow networks experts with less political power but with crucial knowledge and networking competences are often involved (Termeer and Nooteboom, in this book).

To have influence at the crossroads of the formal and informal, leaders of change are expected to have the time and skills to tell their story over and over again and link other actors in collective story-telling that constructs their collective strategic awareness. As Horlings' (in this book) empirical analysis shows, leaders help to raise awareness in the region and play a sense-making role; they tell stories and aim thus to align people around sustainability issues. Sotarauta and Mustikkamäki (in this book) believe that with a believable story it is possible to link fragmented pieces of information as well as intentions and interests together in a world that is full of

information and filled with competing ideas and interests, not to mention regional and innovation development programmes, projects and other development efforts. Leaders need to have an open and flexible external attitude in networks and towards new knowledge and the ability to signal and use synchronicity of events (Horlings, in this book).

Leading processes and networks for resilience requires many kinds of information and knowledge. Leaders need to learn about the other visions, motives and rationales of the other actors, governance systems, policy processes and ways to navigate through the policy jungle, the region in question, i.e., its economy, social structure and ecological situation and political ambitions, as well as global trends and their implications in a region. As Tödtling and Trippl (2005) remind us, increasing attention has been paid to the dangers of lock-in situations in cases where the majority of linkages are internal to the region in question (Grabher, 1993). Storper and Venables (2004) and Bathelt et al. (2004) emphasise both local interaction and knowledge and interaction through trans-local linkages (i.e., global pipelines) and hence there is a need to establish extra-regional linkages to complement localised learning. As Nooteboom et al. (2007) argue, if actors rely too much upon local knowledge sources and/or knowledge sources of the same sector, the cognitive distance may become too short and the learning ability of the firms and other actors is hampered. Thereby, the interplay between local and global knowledge flows and multi-scalar learning is crucial for innovation to emerge (Gertler and Levitte, 2005).

All in all, leaders need to acquire and process both formal and informal, and local and global knowledge. By global knowledge we mean simply all those sources of

knowledge that are external to the given region. Multi-scalar learning suggests that in leadership for resilience, learning, more often than not, has no regional boundaries. In this context, leaders may influence through the following processes.

- **Unlocking** socially and historically embedded local/regional knowledge – what do we know about our region that we do not know that we know.
- **Translating** local knowledge into national/global policy language and feeding it into global knowledge processes – how to make our knowledge their knowledge.
- **Tapping into** global networks for tacit knowledge to learn what is in the pipeline for becoming formalized – what should we take seriously and what not.
- **Transferring** and **translating** global knowledge into local language, thinking and action – what does all the fuss mean to us.
- **Discussing** local plans and decisions as well as plans of individual actors to generate strategic awareness – what do we want to achieve collectively as well as independently.
- **Debating, interpreting and combining** different sources of knowledge into local understanding and awareness – how would we understand various sources of knowledge and act on fresh knowledge, if we did not discuss and debate it.

The above processes are ongoing and continuous, formal and informal; they take place in the media, seminars and conferences, face-to-face, planning procedures, etc. All this requires a capacity to identify and combine key projects and initiatives to enhance regional social and economic development and growth as well as being able to broker the linkages between spatial levels to experiment with and enhance existing policy approaches. To make these demands even more challenging we add that leaders are expected to bridge institutional, disciplinary and sectoral boundaries to experiment and explore potential for innovation and thus move beyond existing 'frames of reference' for resilience. This is needed to bridge different policy and practice knowledge sets to draw together a 'whole system'. All this leads us to

complement Figure 1 by the tentatively identified knowledge leadership processes (figure 2).

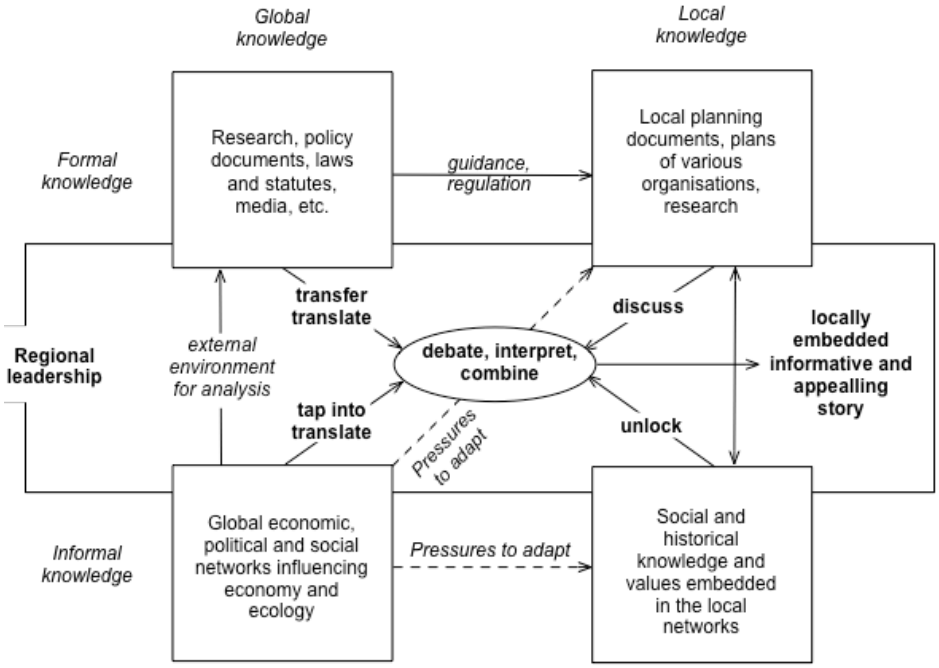

Figure 2. Simplified model of knowledge flows in a regional system with strong regional leadership

GOVERNANCE CONDITIONS FOR STRATEGIC LEADERSHIP?

As we stated above, we believe that knowledge leadership at its best leads to enhanced strategic awareness that for its part boosts mobilization, co-ordination and collective action. This brings us back to the issue of governance: *what governance arrangements can enhance knowledge leadership*, and *how knowledge leadership can enhance governance arrangements?*

To realize resilient development and novel governance arrangements, such innovations are needed that exceed the jurisdiction of organisations and command and

control bureaucracies. Padt (in this book) argues that the Machiavellian type of regional leadership creates tension with sustainable development that is multi-scalar by its very nature. Machiavellian interpretations of regional leadership are embedded in a forceful 'managerial' discourse of the state. Leaders can take another route by taking responsibility for sustainability as a political ideal, not only for the region but in a wider 'ecological space'. So-called 'phronetic' leaders can help deliberations about the scale of the ecological space in and around their regions and appropriate measures. They can help to create 'spaces of the possible' by telling new scalar narratives about their region and 'wider' sustainability. Sustainable development provides 'phronetic' leaders with an escape route from managerial control and a reductionist approach to regional development. (Padt, in this book.)

Of course, context-specific conditions prevent any single recipe being given for a new breed of regional leaders, but we can distinguish some steps that can be taken in change processes.

Sotarauta and Mustikkamäki raise the following aspects as important in leadership relays: creative tension, a sense of urgency, an ambitious and believable story, strategic awareness, a shared vision between individual visions, and inductive and inducing strategies (Sotarauta and Mustikkamäki, in this book). Karlsen and Larrea (in this book) remind us that in this process conflicts will happen, but that *a first step* in leadership is to make these conflicts explicit. A *second step* is that of the seeding of ideas. Granovetter's weak ties that create innovation, learning and professional advancement between groups are an essential element of the seeding process. Good and purposeful leadership is endogenous and receptive to regional development

initiatives, and intentionally provides interpretation and influence to support the adoption of these concepts among its membership (Peters, in this book).

A *third step* in leadership is adaptation to different governance contexts that require different leadership strategies (see Termeer and Nooteboom, in this book). The need for sustainable innovation and experiments as building blocks for resilient systems causes tensions with current regimes. In order to create room to manoeuvre, change alliances, shadow networks (Termeer and Nooteboom, in this book), vital coalitions (Horlings, 2010) or new policy networks (Karlsen and Larrea, in this book) are needed. These networks are more informal, innovative and experimental, less based of formal power, less visible and less institutionalized and they create conditions for a new capacity to act.

We should bear in mind that regional leadership requires a continuous balance between intention and purpose, as Sotarauta and Mustikkamäki (in this book) describe. This evolutionary approach requires an alert attitude towards emerging changes for development in order to create a new nexus. A nexus - a node or crossroad where intentions and surprises come together at the right moment - relates to the idea of serendipity: a concurrence of circumstances or synchronicity. Serendipity is a term coined by Carl Jung for the apparently meaningful coincidence in time of two or more similar or identical events that are causally unrelated. Synchronicity refers to the coupling of activities, persons and events in time. Several cases have shown how leaders were able to create a new nexus as cornerstones for building more resilient systems.

CONCLUSION

This book proposes that there is a need to address contemporary challenges of sustainable regional development by adopting a holistic approach that integrates ecological, social and economic concerns. It also proposes that the concept of resilience might offer us the conceptual lens for this effort and, additionally, it might bring forth temporal issues by leading us to investigate adaptive cycles in more detail. Moreover, this book proposes to add analytical leverage to studies on resilient regions by investigating the ways in which actors aim to guide social networks for resilience. And here, we have found knowledge leadership or leadership by knowledge to be one of the possible avenues forward.

The proposition, however, is not to take regional development studies towards leader-centric approaches; on the contrary, to study leadership is to study encounters between forces shaping sustainable regional development from the micro level perspective. We do not, however, suggest that there might be a direct causality between the actions of a single actor and/or groups of actors and regional development that is somehow predestined in this line of study. At best, leadership studies for resilient regions are a form of process-oriented inquiry where the roles of actors and the ways to influence are fleshed out by analysing the adaptive cycles and experimenting with and exploring new angles on traditional problems. Consequently, taking the adaptive cycle and leadership as units of analysis might shed light on the key processes of institutional change and this might also lead to practical policy recommendations on how to influence, to lead complex processes and hence to embed the capacity to change strategically in the regional systems. Developing a co-

production model of problem-solving enhances facilitative and collaborative leadership that is path-dependent and links together past, current and future policy and practice. Moreover, it enables an acknowledgement of both contextual and temporal elements of transformation.

The wider scientific goal here is to contribute to the conceptual and methodological development of resilient regions, and thus a new set of research questions are needed. The questions posed above are unique not independently but in combination in the context of leadership, sustainable regional development and adaptive cycles for resilient regions. As pointed out by Horlings and Padt (2011), we also need to know more about the inner motivations of leaders who invest considerable energy and resources in boosting sustainability. We also need to reveal some of the hitherto softer and invisible dimensions that facilitate trust and collaboration between leaders, because this will enable us to move beyond the competitive aspects of regional change and further our understanding of informal and voluntaristic linkages. If we can examine more fully how leaders create and co-produce commitment to building up social capital and institutional infrastructures, by drawing together tangible and intangible resources within an interactive learning process between the local, sub-regional and regional 'clusters of knowledge', and facilitate dialogue between diverse stakeholders within a 'whole system', we can illuminate how knowledge is co-produced and acted on.

Bibliography

Adger, N. (2000) 'Social and ecological resilience: are they related?', *Progress in Human Geography*, 24:3 347-64.

Animarts (2003) '*The Art of the Animateur: An investigation into the skills and insights required for artists to work with schools and communities'*. London; Animarts.

Ashby, J., Cox, D., McInroy, N. and Southworth, D. (2009) *An International Perspective of Local Government as Steward of Local Economic Resilience.* Report by the Centre for Local Economic Strategies: Manchester.

Bathelt, H., Malmberg, A. And Maskell, P. (2004) 'Clusters and knowledge: Local buzz, global pipelines and the process of knowledge creation', *Progress in Human Geography*, 28:1 31-56.

Beer, A. and Baker, E. (2012) 'Adaptation, adjustment and leadership in Australia's rural margins', in: Sotarauta, M., Horlings, I. and Liddle, J. (eds) *Leadership and change in sustainable regional development*. Abingdon; Routledge.

Bristow, G. (2010) 'Resilient regions: re-'place'ing regional competitiveness', *Cambridge Journal of Regions, Economy and Society*, 3:1 153–167.

Bristow, G. (2009) 'Limits to regional competitiveness', in: Tomaney, J. (ed) *The Future of Regional Policy*, London; Smith Institute and Regional Studies Association.

Bristow, G. and Wells, P. (2005) 'Innovative discourse for sustainable local development: a critical analysis of eco-industrialism' *International Journal of Innovation and Sustainable Development,* 1:1/2 168-179.

Bruun H. (2002) 'The emergence of regional innovation network: A process analysis of the local bio-grouping in Turku', in: Sotarauta, M. and Bruun, H. (Eds) *Nordic*

Perspectives on Process-Based Regional Development Policy. Nordregio Report 3, 79–124, Stockholm; Nordregio.

Buck, N., Gordon, I., Harding, A. and Turok, I. (eds) (2005) *Changing Cities: Rethinking Urban Competitiveness, Cohesion and Governance*. Basingstoke; Palgrave Macmillan.

Burt, R. S. (2004) 'Structural holes and good ideas', *American Journal of Sociology*, 110:2 349-399.

Communities Scotland. (2007) *Community animateurs helping to promote and organise the participation of local people to make positive changes to their communities*. Scottish Centre for Regeneration. Online: Available HTTP: www.communitiesscotland.gov.uk (accessed 18th February 2011).

Crevoisier, O., Hugues, J. (2009) 'Territorial knowledge dynamics: From the proximity paradigm to multi-location milieus', *European Planning Studies,* 17:8 1223-1241.

Diamond, J. (2012) 'Learning about leadership from the experience of the voluntary and community sector in the UK', in: Sotarauta, M., Horlings, I. and Liddle, J. (eds) *Leadership and change in sustainable regional development*. Abingdon; Routledge.

ESPON. 2010. *New Evidence on Smart, Sustainable and Inclusive Territories*. Luxembourg.

European Commission. (2003) *Entrepreneurship in Europe.* Commission Green Paper.

European Commission. (2010) *Europe 2020: A European strategy for smart, sustainable and inclusive growth*. COM (2010). Brussels.

European Commission. (2010) *Investing in Europe's future; Fifth report on economic, social and territorial cohesion.*

Gertler, M. S. and Levitte, Y. (2005) 'Local nodes in global networks: The geography of knowledge flows in biotechnology innovation', *Industry and Innovation*, 12:4 487–507.

Gibney, J. (2011) 'Knowledge in a "Shared and Interdependent World": Implications for a Progressive Leadership of Cities and Regions', *European Planning Studies*, 19:4 613-627.

Gibney, J. (2012) 'Leadership of place and the dynamics of knowledge', in: Sotarauta, M., Horlings, I. and Liddle, J. (eds) *Leadership and change in sustainable regional development*. Abingdon; Routledge.

Granovetter, M. (1985) 'Economic action and social structure: The problem of embeddedness', *American Journal of Sociology,* 91:3 481-510.

Graoher, G. (Ed.) (1993) *The Embedded Firm. On the Socio-Economics of Industrial Networks*. London and New York; Routledge.

Hassink, R. (2010) 'Regional resilience: a promising concept to explain differences in regional economic adaptability?', *Cambridge Journal of Regions, Economy and Society*, 3:1 1-14.

Hayter, R. (2004) 'Economic geography as dissenting institutionalism: the embeddedness, evolution and differentiation of regions', *Geografisker Annaler B*, 86:2 95-115.

Hopkins, R. (2008) *The Transition Handbook: From Oil Dependency to Local resilience.* Chelsea; Green Books.

Horlings, I. (2010) 'Vitality and values: the role of leaders of change in regional development', in: Horlings, I. (ed) *Vital coalitions, vital regions, partnerships in*

regional sustainable development, 95-124, Wageningen; Wageningen Academic Publishers.

Horlings, I. (2012a) 'The interplay between social capital, leadership and policy arrangements in European rural regions' in: Sotarauta, M., Horlings, I. and Liddle, J. (eds) *Leadership and change in sustainable regional development*. Abingdon; Routledge.

Horlings, I. (2012b) 'Value-oriented leadership in the Netherlands, in: Sotarauta, M., Horlings, I. and Liddle, J. (eds) *Leadership and change in sustainable regional development*. Abingdon; Routledge.

Horlings, I. and F. Padt (2011) 'Leadership for sustainable regional development in rural areas: Bridging personal and institutional aspects', *Sustainable Development*, available online. DOI: 10.1002/sd.526.

Hudson, R. (2008) 'Material matters and the search for resilience: rethinking regional and urban development strategies in the context of global environmental change', *International Journal of Innovation and Sustainable Development,* 3:3/4 166-184.

Indiana and California, Chambers of Commerce. (2010) *Taking charge of our future*. Online. Available HTTP: http.www.innovatenow.us/wdkm_in/wcm/content/innovation_leadership/4_article-davies.jsp (accessed 18th February 2011).

Innotech (2005) Online. Available HTTP: www.seameo-innotech.org/resources/journals.pdf/31977_1_1357 (accessed 18th February 2011).

Jauhiainen, J. S., and Moilanen, H. (2011) 'Towards fluid territories in European spatial development: regional development zones in Finland', *Environment and Planning C: Government and Policy* 29:4 728 – 744.

Kalantardis, C. and Bika, Z. (2006) 'Local embeddedness and rural entrepreneurship: case study evidence from Cumbria, England', *Environment and Planning A*, 38: 1561-1579.

Karlsen, J. and Larrea, M. (2012) 'Emergence of shared leadership in situations of conflict – Mission impossible? Long term experiences from a local network in the Basque Country', in: Sotarauta, M., Horlings, I. and Liddle, J. (eds) *Leadership and change in sustainable regional development*. Abingdon; Routledge.

Larkin, K. and Cooper, M. (2009) *Into recession: Vulnerability and resilience in Leeds, Brighton, and Bristol.* London; Centre for Cities.

Liddle, J. (2012) 'Collaborative leadership in city-regions: achieving social, economic, environmental objectives in partnership, in: Sotarauta, M., Horlings, I; and Liddle, J. (eds) *Leadership and change in sustainable regional development*. Abingdon; Routledge.

Liddle, J., McElwee, G. and Annibal, I. (forthcoming) 'Community to Community Learning (C2C) in rural environments: Implications for policy transfer', *Policy and Politics.*

Linnamaa, R. (2002) 'Development process of the ICT cluster in the Jyväskylä Urban Region', in: Sotarauta, M. & Bruun, H. (eds.) *Nordic perspectives on process-based regional development policy*. Nordregio report 2002:3. Stockholm.

Lundvall, B. A. (ed) (1992) *National systems of innovation. Towards a theory of innovation and interactive learning*. London; Pinter.

Markusen, A. (1994) 'Studying regions by studying forms', *Professional Geographer,* 46:4 477-490.

Morgan, K. (1996) 'Learning by interacting: inter-firm networks and enterprise support', in: OECD (ed) *Local systems of small firms and job creation*, Paris; OECD.

Morgan, K. (1997) 'The Learning Region: Institutions, innovation and regional renewal', *Regional Studies,* 31:5 491-503.

Nonaka, I and Takeuchi, H. (1995) *The knowledge-creating company*. New York; Oxford University Press.

Nooteboom, B., van Haverbeke, W., Duysters, G., Gilsing, V. and Van Den Oord, A. (2007) 'Optimal cognitive distance and absorptive capacity, *Research Policy*, 36:7 1016-1034.

OECD. (1993) *Territorial development and structural change*. Paris; OECD.

Padt, F. (2012) 'Leadership and scale', in: Sotarauta, M., Horlings, I. and Liddle, J. (eds) *Leadership and change in sustainable regional development*. Abingdon; Routledge.

Pendall, R., Foster, K. A. and Cowell, M. (2010) 'Resilience and regions: building understanding of the metaphor', *Cambridge Journal of Regions, Economy and Society*, 3:1 71-84.

Peters, K. (2012) 'Socially embedded leadership', in: Sotarauta, M., Horlings, I. and Liddle, J. (eds) *Leadership and change in sustainable regional development*. Abingdon; Routledge.

Pike, A., Dawley, S. and Tomaney, J. (2010) 'Resilience, adaptation and adaptability', *Cambridge Journal of Regions, Economy and Society*, 3:1 59-70.

Putnam, R. (1993) 'The prosperous community: Social capital and public life', *The American Prospect,* 13: 16-29.

Raagmaa, G., Kindel, G. and Lüsi, M. (2012) 'Leadership and institutional change: economic restructuring, sense of place and social capital - the repeated case study of Emmaste rural municipality, Hiiumaa, Estonia', in: Sotarauta, M., Horlings, I and Liddle, J. (eds) *Leadership and change in sustainable regional development*, Abingdon; Routledge.

Schucksmith, M., Cameron, S., Merridew, T. and Pilcher, F. (2009) 'Urban-rural differences in quality of life across the EU', *Regional Studies*, 43:10 1275-1289.

Simmie, J. and Martin, R. (2010) 'The economic resilience of regions: towards an evolutionary approach, *Cambridge Journal of Regions, Economy and Society*, 3:1 27-43.

Sirak, M. (ed) (2010) 'Understanding Regional Leadership'*, Regions,* Number 275. (Autumn). Seaford, England, The Regional Studies Association.

Sotarauta, M. (2005) 'Tales of resilience from two Finnish cities: Self-renewal capacity at the heart of strategic adaptation', in: Duke, C. & Osborne, M. & Wilson, B. (eds.) *Rebalancing the social and economic learning, partnership and place*. Niace. Leicester.

Sotarauta, M. (2010) 'Regional Development and Regional Networks: The Role of Regional Development Officers in Finland', *European Urban and Regional Studies*, 17:4 387-400.

Sotarauta, M. and Kosonen, K.-J. (2004) 'Strategic adaptation to the knowledge economy in less favoured regions: a South-Ostrobothnian university network as a case in point', in: Cooke, P. and Piccaluga, A. (eds.) *Regional Economies as Knowledge Laboratories*, Cheltenham; Edward Elgar.

Sotarauta, M. and Srinivas, S. (2006) 'Co-evolutionary Policy Processes: Understanding Innovative Economies and Future Resilience', *Futures*, 38:3 312-336.

Sotarauta, M. and Pulkkinen, R. (2011) 'Institutional Entrepreneurship for Knowledge Regions: In Search of a Fresh Set of Questions for Regional Innovation Studies', *Environment and Planning C: Government and Policy,* 29:1 96-112.

Sotarauta, M. and Mustikkamäki, N. (2012) 'Strategic Leadership Relay: How to Keep a Regional Innovation Journey in Motion?, in: Sotarauta, M., Horlings, I. and Liddle, J. (eds) *Leadership and change in sustainable regional developmen*t. Abingdon; Routledge.

Ståhle, P. 1998. *Supporting a system's capacity for self-renewal.* Helsinki; Yliopistopaino.

Stoker, G. (1997) 'Regime Theory and Urban Politics', in: Judge, D., Stoker, G. and Wolman, H. (eds.) *Theories of Urban Politics*, 54-71, Sage Publications.

Storper, M. And Venables, A. J. (2004) 'Buzz: Face-to-face contact and the urban economy', *Journal of Economic Geography*, 4:4 35-370.

Termeer, K. and Nooteboom, S. (2012) 'Complexity leadership for sustainable regional innovations', in: Sotarauta, M., Horlings, I. and Liddle, J. (eds) *Leadership and change in sustainable regional development*. Abingdon; Routledge.

Tödtling, F., And Trippl, M. (2005) 'One size fits all? Towards a differentiated regional innovation policy approach', *Research Policy*, 34:8 1203-1219.

Treado, C. D. (2009) 'Pittsburghs evolving steel legacy and the steel technology cluster', *Cambridge Journal of Regions, Economy and Society,* 3:1 105-120

Ward, N. and Brown, D. L. (2009) ‘Placing the rural in regional development,

Regional Studies, 43:10 1237-1244.