

Governance of regional innovations towards sustainability

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Abstract

This paper addresses the governance of regional innovations towards sustainability. From the literature it is clear that variety is a major source of innovations: innovations come into being in interplay between a variety of public and private actors who bring with them a large variety of identities, values, realities and practices. In this context, traditional concepts of governance such as planning and control, formalized processes and top-down steering are less appropriate. Yet some stability and structures are needed to create common understandings and mutual trust. In this paper we focus on modes of governance that cherish and exploit society's variety in order to generate innovations. We present an analytical case study of Greenport Venlo, a region in the Netherlands with a good track record in sustainable innovations achieved by creating links between glasshouse farming, innovative businesses, transport, ecology and society. We examine how government actors have responded to this. By analysing the main organizing principles (minimal structure, new connections; communities of practice and loose couplings with power networks) and public actors' strategies (keying; improvising; certifying; and integrating) we will provide insights into how to govern for regional sustainable innovation and, simultaneously, how to innovate regional governance.

1. Introduction

Various societal innovations such as care farms in the Netherlands, Silicon Valley or the revitalization of communities in South Africa have in common that they cannot be understood as the result of planned change or central governmental policy. These kinds of innovations come into being in interplay between a variety of public and private actors who bring with them a large variety of identities, values, realities and practices. Relationships are organized around areas, chains and projects and result in new ideas, new connections between interests and new forms of entrepreneurship. Both public and private actors can initiate processes of innovation en route to an unknown future.

Political scientists have described these ways of organizing as a shift from government to governance (Edelenbos, 2005; Fischer 2003; Hajer and Wagenaar 2003; Kickert *et al* 1997; Koppenjan and Klijn 2004; Pierre, 2000; Rhodes, 1997). They follow Castells's analysis of the emergence of a fragmented network society consisting of complex and continuously changing mutual dependencies between parties (Klijn 2005) – a society in which hierarchical and well-institutionalized forms of government are replaced by less formalized forms of government and in which state authority makes way for collaborations between different mutually interdependent actors. There is currently a trend for studies to develop concepts for inter-organizational arrangements, such as public-private partnerships, chain management, network management or deliberative policy-making.

In the Netherlands, the concept of area-based environmental and regional policy incorporates this view on governance. The emergence of this concept is due in part to the complex character of problems like sustainability and spatial quality, the growing recognition of the interrelated nature of contemporary societal problems and the integrative opportunities of the regional scale. Recently, the concept has also gained impetus from the literature on regional innovation (Boschma, 2008; Boekema, 2006; Nijkamp et al., 2002). In an overview, Boschma (2008) opines that the literature is full of claims that regions are drivers of innovation and growth. To underpin his argument he mentions the launch of concepts such as industrial districts, clusters, innovative milieus, regional innovation systems, and learning regions. Against this background, organization for rural innovation is changing from government initiatives to networked partnership of regional and local government, business and civil society actors.

The Dutch Scientific Council for Government has recently argued that four types of openness are the prerequisites for innovation: openness to uncertainty in the innovation process; openness for collaboration with others; openness for new entrants; and openness to the world outside. They also conclude that 'this fourfold openness for innovation stands in contrast to much policy, and practice of innovation, which in many cases locks up innovation in pre-conceived targets, established players, national programs, isolated activities, and relationships at arm's length that lack collaboration and openness of communication' (Nootboom and Stam, 2008)

Emphasizing this contrast brings to the fore a permanent concern facing government organizations: the question of dealing with variety. In the current practice of steering and change, we can distinguish roughly two extremes (Termeer, 2007). The first extreme concerns the desire to reduce variety by wanting to check and control it. Back in 1968, Weber (1968) noted the Chinese rigidity; many of our instruments for steering and change still aim at suppressing variety and freezing anything that moves (Weber, 1968; Schumpeter, 1942; Frissen, 2007). Uncertainty and crisis are intensifying the political pressure to come up with one picture and to freeze it. The second extreme is collecting (or bringing together) the differences, with the express aim of achieving a consensus. This is caricatured as talking for as long as it takes to reach a compromise that everyone can live with but nobody is really happy with. The risk is then that new variety is excluded at all costs, for fear of having to break open the beautifully engineered compromise. It is a situation that has been aptly described as escalated harmony (van Dongen *et al*, 1996). The alternative is to organize in a way that cherishes difference and variety and uses them to come to innovation. In that situation, innovating is oriented towards investigating multiple realities, negotiating values and linking differences. Gergen has called the society that focuses on this method of organizing a second order civility; it is a society in which a vital democracy is based on vital differences (Gergen, 2001). This paper seeks to investigate this alternative in more detail.

Against the background sketched above, this paper addresses the question of governance of regional innovation towards sustainability. Drawing on recent literature, and consistent with the conclusions of the Scientific Council, we will argue that variety acts as a major source for innovations and that regional innovation is particularly a process based on learning in regional networks comprised of loosely coupled relationships between actors that enable openness and integration, and create prospects for action. In this context, traditional concepts of governance such as planning and control, formalized processes and top-down steering are less appropriate. On the other hand, some stability and structures are needed to create common understandings, mutual trust and prospects for joint actions. In this paper we focus on modes of governance that

cherish and exploit the variety in society in order to generate innovations. What are their main organizing principles and how do government actors act on them?

To support our argument we present an analytical case study of Greenport Venlo, a region that has a good track record of making sustainable innovations by creating links between glasshouse farming, innovative businesses, transport, ecology and society. In the Venlo region the concept of network organizing has been put into practice. Based on the principle of the 'new connection', collaboration has evolved between the following 5 domains: research, business, education, government and environment. The parties suggest new common means and identities, which lead to new forms of entrepreneurship in varying alliances, based around initiatives like the New Mixed Farming Concept, the Innova tower, cross-border initiatives, or the innovation centre for healthy food. Below, by analysing the main organizing principles and public actors' strategies we will provide insights into how to govern for regional sustainable innovation and, simultaneously, how to innovate regional governance.

Contributing to the research and education domains Wageningen University has been an active playing partner in the Venlo region. In our capacity of political and organization scientists, we have been personally involved, engaged in the processes of organizing, learning and governing. Methods of reflective action research have been applied. We have been guided by four interwoven characteristics of action research (Termeer and Kessener 2007). First, action research is engaged in action on real-life issues with those who experience these issues directly. Second, the actors who take action, in our cases the streamlining group of Greenport Venlo, also actively participate in the research. Third, action research can be considered as a combination of learning and researching. New knowledge is created through an interactive process in which actors reflect on their actions and underlying assumptions. Fourth, this learning must not remain restricted to the actors concerned, but also aims to make the experiences meaningful to others (Eden & Huxham, 1996).

To clarify our point of reference, in the following section we will summarize some of the literature on (regional) innovation, sense making and learning, in which the focus is on variety as a major source of innovation. The case of Greenport Venlo will be introduced in the third section. In the fourth and fifth sections we systematically empirically and theoretically analyse the main organizing principles and public actors' strategies. Finally, we formulate some conclusions on the governance of regional innovation, including some tensions and dilemmas.

2. Variety as source of regional innovation

Scholars from various disciplines have demonstrated that variety acts as a major source of innovations. Over 60 years ago, Schumpeter, the originator of innovation theory, wrote of constructive processes to generate 'novel combinations' – processes, however, that are difficult to achieve within public organizations due to what Schumpeter called the moral atmosphere: 'Mainly, this is due to the difficulty, inherent in the bureaucratic machine, of reconciling individual initiative with the mechanics of its working' (Schumpeter, 1942: 207). The currently popular ideas of 'open innovation' suggest that firms should not innovate in isolation, but in collaboration with others. In such collaborations a wide variety of actors interact to generate Schumpeterian 'novel combinations'. Innovation literature increasingly claims that the innovation process should be seen as the outcome of interaction between a variety of actors within firms, between firms, and between firms and other societal organizations such as

universities, educational facilities, financing organizations, and government agencies (Nooteboom & Stam, 2008).

Variety is considered to be the main driver for a flourishing regional economy within the specific domain of regional innovation too (Boschma, 2008). The presence of many different individuals, firms, and sectors in the same place enhances knowledge exchange and the recombination of different sorts of knowledge in novel ways. Nevertheless variety alone does not make an innovative region. The long-term development of regions depends on their ability to create new variety through collaboration, entrepreneurship and innovation. The attention paid to learning regions reflects the awareness that improving the regional economy is particularly a process based on learning in regional networks comprising loosely coupled relationships between actors that enable openness and integration and create prospects for action. Boekema's (2006) analysis revealed that successful learning regions have formed networks of collaboration between government, knowledge institutes and private companies at regional level. In a negative case, networks become conservative and inward-oriented, preventing any action, or they become subject to confusion, leading to high transaction costs and inefficient adaptation (Nijkamp et al., 2002)

However too much variety can also become counter-productive. The attractive concept of 'related variety' implies that innovation is favoured by variety that is still somehow related (Boschma 2008). Some degree of related variety – though not too much – is required, to ensure that effective communication and learning take place. Nooteboom reinforced this point with some thoughts borrowed from cognitive science: 'In order to achieve a specific joint goal the categories of thought of the people involved must be co-ordinated to some extent. A large cognitive distance has the merit of novelty but the problem of comprehensibility" (Nooteboom 2000: 71).

In sensemaking theory the cognitive and social dimensions of processes are integrated (Weick 1979, 1985). In this schools of thought, phenomena are considered to be social constructs that are the result of an active process of sense making, in which people make their world logical and meaningful while talking and acting (Gergen, 1999; Hosking, 2004; Van Dongen *et al.* 1996). Normally, actors merely enact the ordinary routines of organizational life (Baez & Abolafia 2002). Sense making comes to the fore when actors experience ambiguity and have to cope with issues that can no longer be understood within the existing routines and schedules. Because people somehow have to make their own line of activity fit in with the actions of others somehow, sense making can never be solitary (Weick 1995). In interacting with each other, people 'negotiate' on the meaning they give to their particular context: what is happening, what do we think of it, what don't we know yet, what is allowed in our organization, to whom do we assign power, what consequences does this have on our actions, what outcomes do we expect, etc. During such social-cognitive processes actors develop shared, or at least workable, understandings, meanings and rules of interaction (Weick 1995). Variety is the engine behind change (Termeer, 1993; Van Dongen, 1996). Encounters with different realities, content, people or forms of interaction can be the stimulus for the development of new meanings, identities and options for behaviour.

Stabilizing structures are important in processes of sense making, too (Chia, 1996). Another precondition for swinging into collective action is the temporary establishment of set meanings and interaction rules. Structures, for example, may provide people with the 'undisturbed' time they need to get to know each other, to sort things out and to build mutual understanding and trust. An example of a temporary sensemaking system is Communities of Practice (CoP's)(Wenger,

1998). Wenger states that collective and social learning processes take place in communities of practice, which distinguish closed and open phases. To develop common identity, meaning and community, the network should be closed to create a safe environment with space and inspiration for new ideas, developments and collaboration. In the open phase the group spreads and shares ideas and searches for alignment in the social, institutional and spatial environment. However, when meanings and rules become so self-evident that it is no longer possible to reflect on them, processes of sense making and innovation become blocked (Dongen et al. 1996).

3. The story of Greenport Venlo

As a case study we will now analyse Greenport Venlo. Venlo is a city of 90,000 inhabitants situated in the southeast of the Netherlands. Due to its location on a major European river, the Maas, embedded in the web of infrastructure surrounding the important trade routes with Germany, it has been able to develop into a thriving distributional and logistics centre. The region is important for horticulture (cut flowers, fruit and vegetables, mushrooms, seeds) and processing. The region used to be known for its concentration of applied agricultural and horticultural research institutes. Venlo's characteristic industries are large-scale logistics, warehousing, transport, auction and commercial enterprises, mostly connected to the strong horticulture chain in the region. However, at a certain point at the end of the 1990s, entrepreneurs, researchers and some provincial governors warned of a decline: knowledge institutions moved away, economic investments dropped and there was a deterioration in the quality of life.

Early initiatives

In 2001 a group made up of people with new ideas and aspirations contacted regional politicians and initiated the Stichting Regiodialog [Foundation for Regional Dialogue], a think-tank in which all kinds of people who were concerned about the future of the region participated (Mansfeld *et al.*, 2003). They set themselves an ambitious task: to combine intellectual, political and financial powers and integrate regional and sector developments, find the added value in town-country coalitions, work across borders and towards the future. To create new perspectives, this process has been facilitated by professionals, and creative sessions and ateliers have been organized. This kick-started an intensive process with the minimum of fuss and bother. Many innovative new regional perspectives have been designed: for instance, a mayor proposed holding a regional event and despite being ridiculed, he persisted. The result was that the region's tender for the 2012 Floriade was accepted – one of the first visible successes of the Foundation.

Status of Greenport – new dynamics

Now, some years later most of the elected politicians have been replaced and the initial enthusiasm has dimmed somewhat. In 2005 the region was designated in the National Spatial Framework as one of the Greenports in the Netherlands (these are economic networks of horticulture-related companies, organizations and institutes). The Dutch government has a policy for the two mainports, Amsterdam Schiphol Airport and the Port of Rotterdam, and has designated five Greenports: Westland-Oostland, Aalsmeer, Venlo, Bollenstreek and Boskoop.

No concrete goals and approaches have been set for implementing the Greenport policy. Many professionals clearly felt that a Greenport should have something to do with the clustering of agribusiness and links with the infrastructure and main centres of food production, distribution and consumption. But it was also clear

that there were many differences in interpretations and aspirations. For the region, the Greenport designation provided an opportunity to undertake new initiatives. A small group (20 people) of public and private actors, researchers and facilitators got together to brainstorm about giving meaning and identity to this Greenport designation. As well as expressing their views and contributing their knowledge, they drew up a SWOT appraisal together and explored the potential for new regional organizational structures. The meeting and exchange between representatives of the research, business and governance communities led to the recognition and joint selection of new regional innovation strategies, steering styles, approaches and instruments. The outcome was a regional development strategy for Greenport Venlo combined with an organizational concept: Greenport Venlo, the new connection. At the end of a 4-day workshop this was presented to the regional and provincial governors¹, and discussed with them. They adapted the strategy and became founding fathers of Greenport Venlo. Based on the principle of the 'new connection', collaboration evolved between the 4 domains of research, business, education and government. Later, environment was added, to ensure the development would be balanced. The content of the regional development strategy was based on four pillars: added value, learning, basics and quality of life. Further key projects were selected, in which various of the domains participate and which also reflect some of the pillars. The central issues are the development of sustainable regional innovations by creating links between glasshouse farming, innovative businesses, transport, ecology and society. The parties involved develop new common meaning and identities, which lead to new forms of entrepreneurship in varying alliances based around projects such as the New Mixed Farming project, the Innova tower, the innovation centre for healthy food, and horticulture project development. The intersection of the A67 and A73 motorways has been chosen to be the physical heart of the region.

Other initiatives have followed: on the regional organizational problem, the challenge of creating a regional knowledge infrastructure, and the extension of the Greenport to include adjoining parts of Germany, 'Brainport' Eindhoven and even to parallel initiatives in China, where the concept of the new mixed farming has been embraced and will possibly be achieved faster than in Venlo. Needless to say, the process has been one of searching, of trial and error.

The network has grown rapidly and many new project initiatives have emerged. Greenport Venlo is having an enormous spin-off, which has also resulted in problems typical of fast-growing regions. These are to do with capacity, competences, understanding, organization, etc. For instance, it remains difficult to get more entrepreneurs involved and to keep them involved. And the links between businesses are fragile, as demonstrated when an entrepreneur had to pull out for personal reasons, causing a project to stagnate. To overcome this and to get more entrepreneurs involved, the question of organizing and steering the process came to the fore once more.

Greenport Venlo is a complex project, because:

- It is a zone in the east of the Netherlands where urban–rural frontlines mix and there are links with major ports and centres of consumption.
- Its economic activities are primary production, processing, service agriculture, transport services, trade and distribution
- It is an area of knowledge-intensive agribusiness
- The functions and connections between production chains are attuned and interdependent

¹ In this paper we use "governors" to mean members of the provincial and local executives, plus members of university and business executive boards.

- The production and processing are cyclic, waste materials are used
- The land use is intensive, clustered, clever
- Sustainability is the label
- There is cooperation between knowledge institutes, entrepreneurs, NGO's and local and provincial government, to achieve innovation

Summarizing, Greenport Venlo can be seen as a regional development strategy, a network of people and organizations, a collection of projects and a regional brand and identity.

Growth and aspirational concepts towards sustainability

There have been some organizational adaptations. Firstly, the founding fathers have been organized into a network of regional and provincial governors and directors of the 5 domains. The project team, which had grown to an unmanageable size, was split into a front office and a back office. Since January 2008 the front office has become the Service Unit, with the challenge of connecting the people, organizations, initiatives and projects to new regional aspirations such as *Floriade 2012* and *NV Noord Limburg*, and embed them in newly connected organizational, spatial and economic structures.

In 2006 the region was inspired by a Dutch public television documentary spotlighting the work of Michael Braungart and his concept of 'cradle-to-cradle' living, which produces zero garbage and zero pollution yet allows maximum economic activity (www.expatica.com). To get the ball rolling, the Chamber of Commerce contacted the province of Limburg, the Floriade, and several other public and private partners. A meeting in early November 2007 attracted 650 producers, entrepreneurs, environmentalists and local politicians to discuss the way forward. Within months of the documentary's showing, local politicians decided Venlo Greenport should become a testing ground for the cradle-to-cradle (C2C) theory; the aim was to have C2C operational by the time visitors flock to the region in 2012 for the once-in-a-decade mammoth flower show, Floriade Greenport Venlo embraced the concept of C2C to further strengthen the sustainable development of the region and simultaneously to inspire the Greenport network, its implementation and its performance. By adopting the C2C philosophy, Greenport Venlo has also become a very challenging ambitious regional design.

4. Organizing innovation

The Venlo case shows a large group of public and private actors experimenting in new ways of working together. The Venlo actors from government, business and civil society have realized that for sustainable regional innovation they have to disregard the traditional jurisdictions and routines of organizations and dismantle the traditional boundaries between the public and private sectors: the government has to relinquish its authoritative planning schemes; entrepreneurs have to deal with sustainability solutions; educational institutions have to adjust their teaching programmes in light of regional project development; scientists have to become participants and generate mode 2 knowledge (Gibbons et al, 1994); and environmental partners have to join in the process. And so on. The question is how to organize regional innovation when the traditional structures and roles are no longer suitable. In this section we discuss the main principles regarding the organizing of regional innovation in Greenport Venlo: new connections; minimal structures; communities of practice and loose couplings between adaptive and power networks.

New connections

Social learning processes can be stimulated by bringing people from different configurations in contact with each other. This principle is called connecting and is about organizing meetings with variety, such as new ideas, new people, new knowledge or new ways of relating (Termeer, 2004). Well-known forms are attending conferences, inviting interesting speakers and organizing debates. Connecting can arise voluntarily, from the idea that each encounter with a third party can provide food for thought, or can be arranged intentionally. Under the motto of the new connection both strategies are being practised in Greenport Venlo. They correspond with the central argument that regional sustainable innovation requires there to be links between glasshouse farming, innovative businesses, transport, ecology and society. The policy is to stimulate and facilitate network development, in order to enhance the opportunities for new meetings and create new connections. Sufficient variety is organized by the policy of involving actors from all 5 domains (research, business, education, government and environment). In contrast to many regional development programmes, the government is not the intermediary organizing the network and connecting people; instead a core group consisting of a representative of each domain is responsible for organizing the network, meetings and implementing various new approaches. Among the participants in this group are people from KnowHouse – a regional knowledge broker, a new kind of intermediate organization, created with the intention of leveraging the benefits provided by bringing together partners from different sectors – including the market, government and knowledge institutes – and applying innovative working methods and instruments with a focus on knowledge exchange and development.

All the initiators have contributed to creating new connections. KnowHouse has renewed its partnership with Wageningen University; new research disciplines such as public administration and innovation management have been engaged. In addition, new connections have been made with the Ministry of Agriculture, at both political and employee level. The regional public actors have broadened the scope of Greenport Venlo by creating new territorial relationships with the 'Helmond Food Region' the regional development agency of 'Brainport Eindhoven' and with cross-border networks of horticulture and regional policy in the Niederrhein Region of Germany. The educational institutions have also been engaged and organized, both practically and academically. Even the cultural sector has become interested in the design problems of Greenport Venlo. Thus we can say that the initiators – the core group of greenport Venlo – have succeeded in engaging powerful and visionary people from the world of science (which is objective) and policy networks (which are intersubjective), in order to achieve support and generate knowledge and ideas for further developments. This has resulted in an unusual network of people and cultures.

In spite of these good intentions, such networks often run the risk of becoming locked into insufficient variety (Nooteboom and Stam, 2008). This has not occurred in Greenport; on the contrary, the problem is more likely to be too much variety and dynamics. Continuous attention is needed for the exclusion of new variety (Termeer, 2004). At first, social and environmental groups who were not in agribusiness networks, were not part of the initiatives. Later they did not respond to open invitations to join, although the initiators realized the importance of engaging the fifth domain: environment. Kersten et al. (2006) found that the reason some groups do not participate is not because they have been deliberately excluded, but because they are not ready to adopt new ways of development, planning and policy-making. Those groups still function in networks in which the modus operandi is representation of interest instead of open networking and mutual development. It has proved to be difficult to undo former exclusions and to adopt new ways of working, but new social partners, such as the environmental movement organizations, are – very gradually expressing their

interest in joining in the process. Inclusion is very important because some of the innovative projects, for instance New Mixed Farming, have met with much resistance from local civil society actors.

Minimal structures

The question of organizing Greenport Venlo is one of the most persistent and continuously recurring topics. The actors involved are agreed that some kind of organization is needed. Without organization, they fear there will be stagnation and chaos. However they also agree that traditional ways of project management by means of a project plan and steering groups will not be satisfactory because Greenport Venlo cannot be viewed as a project with clearly defined outcomes. It is more appropriate to define it as a joint process en route to a more sustainable but still unknown future. In organizational science the jazz band has become popular as a metaphor for organizations designed for maximizing innovation and learning (Barrett, 1998). Just like an innovative network, a jazz band is a group of diverse specialists living in chaotic turbulent environment making rapid irreversible decisions, highly interdependent on one another and dedicated to innovation and the creation of novelty. They invent novel responses without a prescribed plan and without being certain of the outcomes, but discovering through acting as it unfolds. The organization needed for this process is described as creating a context of minimal structures and maximum flexibility (Barrett, 1998: 611). The underlying principles of Greenport Venlo resemble the concept of minimal structures. However, the perception of what a minimal structure implies has changed over time. In accordance with the increase in activities and participating actors, the organizational structures have been expanded. The presence of hard deadlines such as the Floriade year, the need to reorganize the horticultural auction, or the need for more space for greenhouses and horticulture is putting pressure on the process to come up with tighter organization.

The working sessions in which regional development strategy has been developed merely resulted in a network of engaged and collaborating participants. To achieve joined-up activities and to make progress, the group decided to set up a core group comprising participants put forward by their existing organizations and participants with aspirations to be involved in the new regional Greenport networks. The 5 domains were set up around the core group, to develop a network per domain and to develop networks between the domains at pillar, theme and project levels. Another starting point for organization is the level of the pillars. Representatives of the core group have filled the pillars with content and have started to form networks per pillar. So far, the network has been informal; it has become a vital coalition purely as a result of the participants' engagement and conviction. To be able to achieve their aspirations, the core group started to search for new connections in academia (knowledge, methods) and at the level of regional and provincial governors (power, support, acknowledgement, scope for development).

The initiatives described above led to an explosion of energy, people, ideas, meaning and initiatives, and to the emergence of questions about organization as no one could oversee what was happening any more. There was a need for more structure.

The directors of the 5 domains have been organized in a network board, tasked with reviewing the regional initiatives submitted to them. The board can use its power and influence and the board will give direction towards to developments.

The core group grew so large that it could no longer co-ordinate developments effectively or achieve consensus on approaches. The initial agreement to network openly instead of controlling and managing was abandoned. In 2008 the group

was split into a front office and a back office. The six persons in the front office, (public actors as well as representatives of the private sector) collaborate as a Service Point to foster and facilitate Greenport performance. The people in the Service Point need to have skills in network and knowledge management and be familiar with methods of collaboration in networks and CoP's in order to achieve innovation. The task of the back office is to embed initiatives and projects in existing organizations. This structure is experimental; the people working in the Service Point are relatively inexperienced and are seeking the best ways of working.

At project level, where power and money come together, traditional project planning and management are being applied. These structures are becoming powerful and dominant in the performance of Greenport Venlo.

Learning in Communities of Practice

Social learning processes can contribute to overcoming complex problems. Individuals or organizations faced with such problems can join in a common development or change process. To do so they can use a form of social organization often referred to as a Community of Practice (CoP). CoP's are formed by people who engage in a process of collective learning in a shared domain of human endeavour. They develop a shared repertoire of resources: experiences, stories, tools, ways of addressing recurring problems—in short a shared practice. This takes time and sustained interaction (Wenger 1998). The Greenport Venlo process shows a large group of people experimenting with new ways of working and simultaneously experiencing difficulties, sometimes related to the need to loosen up the traditional roles in development processes. A CoP has been set up in order to build a common learning process with all stakeholders. The Greenport Venlo CoP has its own particular characteristics (Kersten et al., 2006).

At the start of implementing the Greenport status, the existential need to express and develop common ideas, perceptions and identity was raised by the participants in the CoP. The concept of CoP's and the environment which can be shaped by a CoP seem to be a suitable environment in which to share, exchange and create identities. Regional characteristics have been distinguished and named, and used in the storyline. The drivers of regional development in Greenport Venlo appear to be engagement, horticulture, logistics and the awareness of the importance of learning.

The Greenport CoP offers an open-platform structure, which participants can (to a certain extent) freely enter or leave. Reasons for leaving include specialization (daughter CoP's), or lack of interest in some process stages necessary for the project. CoP's have an open network function. As their members act on behalf of their formal organization, both technical as well as government decisions are dealt with in CoP meetings. The persons present in the CoP development stages are administrative officers, entrepreneurs and democratically elected officials. The CoP is proving very suitable in Venlo, because of the general willingness to cooperate and awareness of the importance of learning. The CoP offers space and room for exchange and social networking.

The CoP Greenport Venlo has long intervals between open and closed working sessions. In the closed CoP meetings, decisions are made about appointments and work packages to deal with in the formal organizations. In the open phase, participants search for alignment strategies. In the next closed meeting, much time is needed for synchronization at the beginning of a meeting, because of the high dynamics and great engagement of the participants.

In Greenport Venlo CoP's have been used to discover together new and promising topics and themes for development. For instance, people from policy, business and knowledge institutes have been organized in a CoP to create common meaning, plans, solutions and projects on the topic of horticulture and logistics, a relatively unknown field of policy and project management (Kranendonk and Kersten, 2007). This CoP is helping to disentangle the complexity of interdependent and chained development schemes on agro logistics; it contributes to the debate and challenges decision making. Experts have been invited to inspire the CoP on content, process and learning and development.

The concept of CoP's has been incorporated into the reorganized regional knowledge infrastructure and the CoP's are proving to be instruments for public actors and managers of change.

Loose couplings with power networks

When people talk about learning and innovating they run the risk of neglecting the importance of power relations. And if power networks are taken into account, they are accused of frustrating joint innovations or of relapsing into old modes of hierarchical governance (Nooteboom, 2006). In his thesis Nooteboom introduced the concept of adaptive networks as relatively powerless networks which nonetheless influence the thinking and acting of a whole range of actors. He shows how these adaptive networks can cause small breakthroughs in existing power networks and how separate power networks become more connected. In Greenport Venlo the relationship between the adaptive networks (the open network, the CoP) and the existing power networks has been conceived of as loosely coupled systems. Both networks are useful; connections are needed, but mutual contamination must be avoided. On the other hand, when innovation was delayed, the good relationships with the power network could be activated, to cause some breakdowns. So, people active in the power network were invited to join in the CoP but were not allowed to govern it in a kind of formal steering group.

The provincial and regional governors in Greenport Venlo seem to understand the value of open networks and CoP's. They reserve space in the policy-making process for creating new prospects for the region, without strong elements of planning and control. The network that makes use of this space reports back about the progress and results. The governors can benefit greatly by using their position, instruments and ability to spread the message and publicize the successes. This modus operandi is unique. The Dutch Scientific Council for Governance stimulates the creation of new horizontal structures, because of the need for analysis, deliberation and judgment. These horizontal structures should be connected with vertically organized power structures. The challenge is to develop new, horizontally and vertically mixed politics (WRR, 2006).

5. Strategies of public leadership

A variety of government actors (ministries, provinces and municipalities) is involved in Greenport Venlo. How have these government actors acted in Greenport Venlo? What have they done to allow new ways of organizing to arise and what strategies have they employed? It goes without saying that Greenport Venlo offers no place for a government that considers itself to be the central actor for getting the social process of innovation under way, that knows what kind of behaviour is required from citizens and businesses and that believes it can control that behaviour using clever instruments from outside. A more suitable approach in the Venlo situation is a form of public acting that fits in with the varied process of learning and innovating. This shifts the attention of government partners from

central steering to participating in networks, chains and activities. Participating in this sense is not about social parties participating in the decision-making process of the government, but about government actors participating in the processes of social innovation. This makes participating a way of enabling continuous adaptation and innovation in an ambiguous world and of ensuring involvement in that process (Hosking, 2002: 15). On the basis of theoretical explorations and empirical observations during recent years we have uncovered the following alignment strategies: keying, improvising, certifying and integrating.

Keying. The strategy of keying has to do with rearranging existing routines as an answer to new problems (Baez & Abolafia, 2002). This strategy displays itself when public and/or private actors develop experiments that threaten to become bogged down in existing policy. For instance, more than one hundred rules were applied to New Mixed Farming, making its short-term realization difficult. This is the case with many innovations based on novel combinations. Civil servants who repeat their explanation of why a certain initiative is impossible are hardly helpful. Much more helpful are the public servants who search creatively for possibilities within the existing frameworks. In the end it was the Minister of Agriculture who used his power to assign special status to the development of the New Mixed Farm. Regional councillors supported the business initiative and organized formal democratic legitimacy. Another example is that provincial employees have been influencing the provincial agenda-setting, with the result that the development of Greenport Venlo is now highly supported by provincial policy plans, programmes and funds. The provincial governors have designated Greenport as one of the three provincial key-projects. It has also become an important project from the perspective of area development, innovation policy and sustainability. Three provincial governors support the project. The problem is the rigidity of the internal bureaucracy, the system of planning and control and the thousands of employees who do not yet know how to contribute by keying regulation, budgets and procedures in relation to innovative Greenport development.

Improvising. The strategy of improvising is much more active (Baez & Abolafia, 2002). These government actors approach innovations by taking initiatives and risks and seeing and using opportunities. In Greenport Venlo they include persons (mayor, civil servants from Venlo and the province) who from the outset were in the informal group of initiators and later became 'founding fathers'. They search out the zone of discomfort, seek out new relationships, new language, new meanings and new alliances. Their contribution is not so much about speaking the language of innovation as about following its course by stepping into it, acting, reflecting upon the outcomes, experimenting again, etc. They focus on new concepts like network organizing or cradle to cradle, before they have really understood their full implications. They solve uncertainty by discovering the meanings of the concept in acting with social actors. The Ministry of Agriculture, Nature and Food Quality has recently started to modify its research programmes in order to be able to support the regional development of Greenport. This means a lot in terms of procedures, subjects, research methods and participation. Greenport Venlo happens to be the guinea-pig for this experiment.

Certifying The strategy of certifying is about seeing what is happening with social processes of innovation and telling the world how important this is (Weick & Quinn, 1999; Hosking, 2002). It is a strategy that has been used at all levels of governance. From the outset, Greenport Venlo projects have been 'best practice' in formal national and provincial government plans. Other examples can be found in the many complimentary speeches made by ministers and provincial governors on Greenport Venlo. Greenport was showcased to the Euro Commissioner for Regional Development, Ms Hubner, when she visited the province.

But the ministers and provincial governors have done more: they have concomitantly made links with a number of the spearheads of their own policy, such as sustainability, innovation and the steering philosophy: from 'looking after' to 'ensuring that'. Certifying is not only recognizing new meanings in experiments and local adaptations and giving them names, but also framing and reframing them (Termeer, 2004). Of course, this strategy also runs the risk of seizing up. Greenport Venlo can be seen as a regional movement that is growing in terms of engaged organizations, projects and expectations. So, the designation of Greenport Venlo in the Spatial Policy Memorandum has stimulated innovative developments. Greenport will continue, but the important challenge and is how to keep expectations high and use the energy within the actors in smart ways.

Integrating. New ways of organizing and strategies like keying, improvising and certifying will introduce changes to existing routines, making it essential that people pay attention to the translation, repetition and sometimes also upsizing of these changes (Baez & Abolafia, 2002). The strategy of integrating is about connecting the new stories about innovation to the customary stories and identity of the existing organizations. Giving special status to the taskforce for Greenport legislation is well and good, but it is a missed opportunity if the learning experiences are not used for other dossiers. The same applies to new concepts of learning and organizing. Initially, the Greenport concept was the domain of a small group of public and private innovators. However, when more actors became involved and the number of Greenport projects expanded, it became necessary to legitimize these activities by connecting them with the activities of the existing organization, and temporarily replacing the language of co-innovating for that aim with the familiar language of programmes and year plans. Sometimes it is also necessary to restore harmony and stability to prevent innovations from losing their connection with existing configurations and then fading away. A connection should be made between so-called mode-1 (traditional) and mode-2 (innovative approaches) found in boundary objects. Public actors are becoming network, knowledge and change managers, who are increasingly discovering how to combine the innovation network and CoP's with strategies, structures and systems of existing organizations.

6. Reflections and conclusions

Our goal in this paper was to deepen understanding of the governance of regional innovation towards sustainability. Drawing on recent literature on governance, regional innovation and sense making we argued that variety acts as a major source of innovations. However, we also concluded that dealing with variety is a persistent question for governmental actors, as they lean towards suppressing variety or creating suffocating consensus. The challenge is to cherish variety in order to bring about vital processes or joined-up innovations. In Greenport Venlo we saw how the governance for regional innovation has been changed from governmental initiatives to networked partnership of regional and local government, business and civil society actors that take control of their own future activities and of the deliverables of the developing processes. As we are mainly interested in how such processes have been organized and how government actors acted in response, we focused on the main organizing principles and the main public actors' strategies.

Change and variety versus stabilization

We revealed four main organizing principles: providing minimal structure; encouraging new connections; learning in communities of practice; and loose couplings between the learning networks and the power networks. Together these

organizing principles provide basic conditions for processes of sense making that are crucial for learning, adapting, innovating and acting in a highly dynamic region. However, the questions of providing basis conditions proved to be far from easy.

The Greenport process both faced and induced great dynamics. Over time, the process has developed into a patchwork of projects, activities, networked relations and learning communities. Greenport is growing so fast that participants cannot oversee all initiatives; this has led to demands for new organizational structures, which have to be changed or adapted continuously, and to new varieties that have to be dealt with. For instance, the minimal structures needed at the start of the Greenport process cannot be compared with the actual structures. These dynamics not only result in vitality but also in unrest and impatience from participants, which results in a loss of energy. After all, people need to have the time and scope in their formal task description for experimenting, for seeing how things work out and sharing these experiences. But people should be helped with organizational structures, to prevent them from getting lost in the dynamics and expectations.

Here we touch upon dilemmas such as the continuously changing structures versus the stability needed to create common sense making, and the openness to new variety versus the risk that too much variety paralyses action. Maybe the level of variety and dynamics has an optimum. What's more, from an insider's perspective this optimum may be reached in an earlier stage than from an outsider's perspective. On all levels of learning and innovation there is a tension as well as a mutual dependence between stability and change (Hosking 2004). On the one hand the two build upon each other, or emerge from each other, but on the other hand they have different requirements, in terms of modes of governance. The question is how to deal with the combination and tension between stability and change. This line of thinking becomes very precise, for if actors lay down and stabilize too much beforehand, they also extinguish variation and risk that configurations will become closed, thus blinkering their perspectives and making them not open to new actors (Termeer, 2007). This still means operating with very little latitude. It is comparable to what Nijkamp calls the negative case: networks become conservative and inward-oriented, preventing any action, or they become subject to confusion, leading to high transaction costs and inefficient adaptation (Nijkamp et al., 2002).

Passionate humility versus heroic scoring

We have revealed a picture of governmental actors (public leaders) who participate in the Greenport processes of regional innovation and use a variety of strategies, such as keying, improvising, certifying and integrating. From the perspective of this picture, the changes are often relatively small: 'small wins' (Weick & Westley, 1996). They might end up generating radical innovations in the long run, but that requires time and patience. Public leaders who have an eye for emergent changes, act on them and are sensitive to the effects that their own actions bring about will not quickly achieve a reputation for grand heroic acts. They make sense of the small changes in the spirit of passionate humility (Yanow, 2003; Termeer 2007). That makes this image of leadership contrast with the high degree of impatience to score quickly that surrounds many public leaders. These 'more impatient' leaders often incline to take the quick option and interfere centrally. By doing so they run a risk of discarding some good innovations and adaptive processes. However, the distinction between the two types of leadership is not as clear-cut as delineated here. In the course of time, patience has decreased in Greenport Venlo. When concrete results failed to emerge, public actors were pressured to produce some results and by doing so legitimize the resources invested. The successes and with them the increased number of actors

involved with own (hidden) agendas reinforced this pressure to score, as actors feared others would steal their glory. This is an example of what can happen when the rules of the power network become dominant in the adaptive networks of the informal network of the 5 domains and the CoP. The different phases in Greenport Venlo were characterized by different topics and struggles. Now the spotlight is on the topic of making sense of the small and big wins and sharing the credits.

Governing innovation versus innovating governance

The government actors involved in Greenport Venlo are still learning how they can contribute to regional innovation process and deal with these new challenges and demands. They themselves call it a shift of culture. Many civil servants and councillors are struggling to connect their usual routines within these new practices. This example shows how innovative modes of governance relate to processes of change within the governmental institutions themselves. Innovations do not stop at the borders of government organizations. Governing for regional sustainable innovation concomitantly requires innovative regional governance and regional governmental organizations. It is important to recognize this mutual alignment, to avoid the risks that innovations will be blocked and public innovators become isolated from their mother organizations, and consequently become less effective. But as many authors have reminded us (e.g. Keast et al. 2007), we cannot expect the change to new modes of governance to occur overnight. Rather than feeling helpless or overwhelmed by the enormity of the task, public managers must find ways to convince and to achieve modes of contribution and participation each and every day in concrete instances. Integrating participation in the way they perform their core 'bureaucratic' tasks rather than threatening participation strategies as an extra or extraordinary routine can promote more sustainable change. (Feldman & Khademian 2007). New styles of 'steering' society, such as network steering and steering in communities, emerge during the search for new horizontal ways of deliberation and development.

Sustainable engagements towards sustainability

Finally, we raise the question of whether regional innovation towards sustainability differs from innovation merely to improve the regional economy. We lean towards a positive answer. As shown by the case of Greenport Venlo, a broad approach from the outset, with collaboration and participation from various domains, achieved a focus on balanced regional development strategies and organizational structures. This focus has generated new variety and, above all, new and enduring engagements, which are contributing to the sustainability of the network and of project development. The strong network has enabled this region to be the first in the world to adopt cradle to cradle philosophy. Thanks to the broad scope and the network approach, inclusions of new, formerly conflicting values, have contributed to communality and innovations. Furthermore, sustainability has provided a firm base for a common mission and shared identity.

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