The governance of rural regional learning and innovation – Towards an analytical and reflexive research framework

Wiebke Wellbrock, Dirk Roep and Johannes C. Wiskerke

Rural Sociology Group, Wageningen University, wiebke.wellbrock@wur.nl, dirk.roep@wur.nl

Abstract: *By implementing the Lisbon agenda, the European Union has set itself the goal to "become the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion". This goal is aimed at in Europe's urban and rural regions alike. In analogy to the interconnectivity between DNA strings (triple helix thesis), the interconnectivity between industry, government and university are thought to be decisive for creating successful knowledge economies. Knowledge economies have therefore mainly been studied as the spatial (i.e. regional) cooperation and clustering of high-tech, knowledge intensive businesses around academic research centres (termed learning regions). This constellation does, however, not suffice to account for the high diversity of Europe's rural economies today. In this paper, and as part of the European project DERREG, we extend the concept of regional learning to the field of developing predominantly rural areas. To consider the specific issues, various actors and diverse public policies associated with rural regional development, a revised framework to study the governance of regional learning in rural areas has been developed. This framework enables us to a) explore and evaluate the operational interfaces arranged between public administration, knowledge institutes and development initiatives in a rural area and b) investigate how they can be improved to further enhance the (governance of) regional learning and thus regional capacity building. First results of using the framework will be presented in the paper, suggesting that the quality of operational interfaces and the founding (institutional) arrangements are decisive for the success of regional learning strategies in rural areas.*

Keywords: *rural development, governance of regional learning, public-private arrangements, knowledge economy, capacity building*

Introduction

By implementing the Lisbon agenda, the European Union has set itself the goal to "*become the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion*" (EU, 2000). This goal is aimed to be realised in Europe's urban and rural areas alike.

Knowledge-based economies are argued to be dependent on successfully implemented regional learning strategies (Lawson and Lorenz, 1999). These are meant to ensure a leading role in the globalising economy through creating innovations by facilitating a rapid exchange of new scientific, tacit, regionally embedded knowledge and human capital (Lawson and Lorenz,1999). Following the triple helix thesis (Etzkowitz, 2003), successful regional learning strategies require a close collaboration between the industry, university and government, which is facilitated through spatial proximity (Asheim, 1996).

As outlined in fig. 1, although all elements have clearly defined roles- the industry is associated with the site of production, universities act as sources of new knowledge and human capital and the government ensures stable and contractual relationships- they interact with each other similar to the DNA strings of a triple helix (Etzkowitz and Leydesdorff, 2000). Regional learning processes have thus been argued to take place in spatially clustered 'learning regions' (Rutten and Boekema, 2007; Storper, 1993), defined as "[the space where] *regional actors engage in collaboration and coordination for mutual benefit, resulting in a process of regional learning. Regional characteristics affect the degree to which the process of regional learning leads to regional renewal*"(Rutten and Boekema, 2007 p.136). There are two interpretations of learning regions:
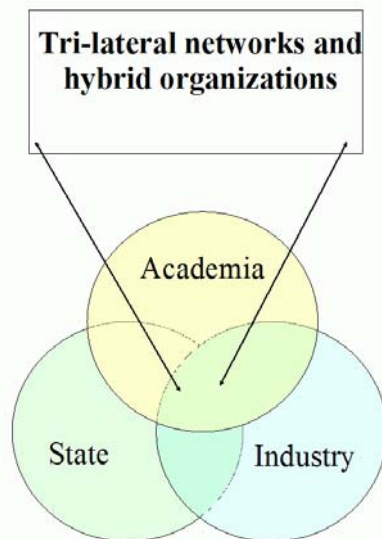
Figure 1. The triple helix thesis (Etzkowitz and Leydesdorff 2000).

The first interpretation is concerned with knowledge spill-over and volarization of knowledge from universities towards industries in order to commercialise it into innovative products (Morgan, 1997; Storper, 1993). In this regard, the role of Cambridge University in creating competitive advantages for regional businesses in Cambridge (Keeble et al., 1999) or the knowledge transfer between Stanford University and the science park of Silicon Valley, California (Rutten and Boekema, 2007) have been studied. This focus has also influenced the formulation of many regional (and to some extend rural) development policies, attempting to copy-paste the 'Silicon Valley' example (Gustavsen and Ennals, 2007). Accordingly, (Cooke, 2007) argues that 'learning regions' do not deal with learning but with transforming new scientific expertise into commercial goods.

This interpretation has received much criticism, amongst others from (Wolfe and Gertler, 2002) who argue that the development of skills and capacities within regions is crucial for understanding and using new, scientific knowledge that can lead to a successful competition in the globalising economy. Consequently, they argue that knowledge-economies should be referred to as 'learning economies' and that the key to success does not lie in knowledge spill-over and volarisation but in providing firms with the abilities to develop skills and capacities to filter and use new, scientific knowledge to their competitive advantage. There are also policies that follow this interpretation of 'learning regions', as for example the 'Lernende Regionen' concept in Germany, Austria and other European countries.

Importantly, in both cases, the term 'region' does not refer to administrative units but it frames the boundaries around different actors with shared problems or interested (Nyhan 2007). Accordingly, a learning 'region' can even cross administrative boundaries within and between countries and is usually smaller than an administrative unit to account for the spatial proximity of the actors involved (Gustavsen and Ennals, 2007; Nyhan, 2007).

How can learning regions contribute to rural development?

So far, the focus of learning regions has been on the production and transfer of new, scientific knowledge and human capital within high-tech, science, media, communication and information industry (Woods, 2009). However, to become a competitor in the global economy, also requires rural regions to be innovative and to have a strong support system for innovation, including structures that facilitate knowledge transfer between research, education and the industry (Crevoisier and Jeannerat, 2009; Doloreux, 2003; Doloreux, 2004; Skuras et al., 2005). At the same time, in rural regions local and lay knowledge is also important, for instance, to encourage novelty production and to develop endogeneity (Ploeg and Marsden, 2008) or to secure the enrolment of local resources in

global networks by using knowledge about local markets, cultural preferences and sustainable resource management (Jasanoff and Martello, 2004; Skuras et al., 2005; Woods, 2007).

Furthermore, rural regions and -consequently- rural economies are highly diverse. Some rural regions are referred to as "cold-spots" of development and are often faced with problems such as becoming interchangeable and losing their regional identity in the globalising economy (Wiskerke, 2007). The consequences are perceptible in multiple ways. For example, economic and non-economic activities become spatially disentwined (Wiskerke, 2007). Inhabitants feel less connected to their living area and are less interested in investing time and capital in sustaining the liveability of their rural habitat. Furthermore, possibilities for inhabitants to seek attractive employment opportunities in disadvantaged rural regions are small, forcing them to leave their areas in search for job opportunities (Stockdale, 2006). In this regard, it was argued that highly educated persons are often the first to leave, causing a so called "brain-drain". Left are rural areas with low potentials to develop and a lack of opportunities to participate in the globalising market (Stockdale, 2006). Other rural regions are performing well in seizing opportunities arising from globalisation and are thus referred to as "hot-spots" of development (Wiskerke, 2007). These regions are often characterised by population and economic growth (Terluin, 2003). In both cases, however, it is argued that in order to enhance rural economies, producers and consumers need to be reconnected within the region, products need to be re-embedded in the region, economic activities diversified and non-economic and economic activities entwined (Wiskerke, 2007).

In order to facilitate rural regional learning and innovation in rural development processes, (Roep et al., 2009) thus emphasise that development in rural regions is made up of a complex set of interactions between different actors and processes. Furthermore, the type of knowledge and human capital that is needed to facilitate and support innovative rural development activities depends, for instance, on cultural, social, economical and governmental differences. In contrast to industrial areas, the type of institutional arrangements needed to support regional learning and innovation can thus differ between different locations, goods and services and each rural area may show a unique dynamic (Roep et al., 2009). On the same lines, (Tovey, 2008) argues that regional learning and innovation processes in rural regions are highly context dependent and problem specific. Processes contributing to the quality and vitality of rural areas can thus be of natural, social and technical value (Roep et al., 2009). Furthermore, development processes co-evolve in rural regions with social, economic and ecological processes (Stagl, 2006).

It has thus been questioned whether the current focus of learning regions is adequate to ensure the competitiveness of rural regions in the knowledge economy (Tovey, 2008). It has been argued that rural development processes do not only require technological, expert knowledge but at the same time indigenous knowledge about local places and locally-embedded resources (Tovey, 2008). Studying rural regional learning therefore requires a shift from focussing on forms of knowledge towards focussing on knowledge processes, exploring dimensions of knowledge building, collaborative social learning and the re-emdedding of knowledge (Bruckmeier and Tovey, 2008). The current focus of regional learning and innovation processes on scientific, technological expert knowledge must therefore be challenged (Dargan and Shucksmith, 2008; Doloreux, 2003; Terluin, 2003).

In response to this criticism, we want to extend the concept of regional learning to learning and innovation activities related to rural regional development. The current theoretical frameworks will be revised in such way that account can be taken of a) the diversity of activities contributing to the development or rural regions, b) the variety and number of different actors and processes involved in rural regional learning and innovation and c) the different types of knowledge needed as a result of the different activities. To revise the existing frameworks, the following research questions will be considered:

1. What is the strategic backbone of successful learning regions?
2. What features characterise a revised theoretical framework that allows the researcher to investigate the support and facilitation of rural regional learning and innovation processes in rural regions?

3. How can the theoretical framework be revised in such a way that it can be used to investigate and compare different governance styles of rural regional learning in and across different rural regions?

Strategic backbone of a learning region

The strategic backbone of successful learning regions is the establishment of effective, co-operative and operational partnerships between those actors of industry, universities and government who are able to jointly support and facilitate learning and innovation processes (Asheim, 2007; Florida, 1995). Since the introduction of rural development into the European CAP, partnerships have also become an increasingly common mean to govern rural regional development processes (Derkzen, 2008). So far, however, the governance of rural regional learning and innovation processes in rural development has not been given attention.

Partnerships are based on agreements in which negotiated goals, values, norms, behaviours- hence a code of conduct- are manifested. Codes of conduct, norms and values are referred to as institutions: "[Institutions are] *a set of common habits, routines, established practises, rules or laws that regulate the relations and interactions between individuals and groups*" (Edquist and Johnson, p.4 as cited in (Wolfe and Gertler, 2002). The success of regional learning and innovation processes is therefore highly dependent on the quality of established institutional arrangements and their operationa-lisation. Instead of focussing on the commercialisation of knowledge and human capital, the key focus of the revised framework will be the (re)establishment of institutional arrangements and their operationalisation.

The process of (re)establishing and operationalising arrangements involves negotiations of different expectations and interests and requires compromises of the different partners involved in order to come to a mutual agreement on what and how to work together with regard to development of their shared territory or region. This process of coming to a mutual understanding and agreement in more or less formal partnerships regarding the uptake of rural regional development involves both exchange and negotiations on meanings, objectives, stakes and strategies as well as (social) learning among the participating actors. This ongoing process of negotiation and learning results in partnerships dedicated to certain joint activities, in jointly built social or collective capacities, in the course of which individual capacities are raised as well, and in general of new or renewed institutional arrangements. This process is also referred to as institutional learning (synonym for institutional reflexivity) as it requires the ability to reflect on existing shared ways of doing and thinking or prevailing institutions (Wolfe and Gertler, 2002). The importance of institutions and institutional renewal or innovation has been acknowledged by early scholars in sociology and economy incorporating an institutional perspective. According to (Gertler, 2010), Storper and Morgan were the first to highlight the importance of institutions in the field of economic geography and emphasised the importance of talk and discussions in the process of coming to institutional agreements and governing regional learning processes.

During institutional learning, actors reflect on their codes of conduct and change them accordingly. Institutional learning is therefore referred to as a learning-by-learning process (Wolfe and Gertler, 2002). Considering the high diversity of activities that contribute to rural development today (Roep et al., 2009), one can argue that changes in institutional arrangements are vital and must occur frequently. The focus of the revised theoretical framework is therefore on the learning-by-learning process through which institutional arrangements are (re)established and operationalised.

This learning-by-learning process is based on discussions and negotiations amongst actors who have established and/ or are supporting and facilitating regional learning and innovation processes according to certain institutionalised codes of conduct (Wolfe and Gertler, 2002). These learning-by-learning processes can therefore not be understood as formal learning settings with a sender and a receiver but they are informal, interactive, social, learning-by-doing processes (Asheim, 2007; Glasser, 2007; Roep et al., 2009). According to (Nyhan 2007), the learning region that embraces this kind of regional learning and innovation processes is a learning region with emphasis on situational, informal and collective learning processes that leads to innovation and institutional change. Although

social learning-by-doing processes are at the centre of attention, education, research and training facilities are still key nodes in the mediation processes, therefore taking an important role through supporting and facilitating learning and innovation processes (Nyhan, 2007). Education, training and research facilities are thus regarded as "spiders in the web", able to engage actively in facilitating and supporting learning regions (Nyhan, 2007). The focus of the revised theoretical framework is therefore on the underlying interactive, social learning process that leads to a questioning of thoughts and assumptions behind actions and decisions taken and providing the basis for seeking alternative action, decision modes, mutual understanding and shared conventions (Tilbury, 2007).
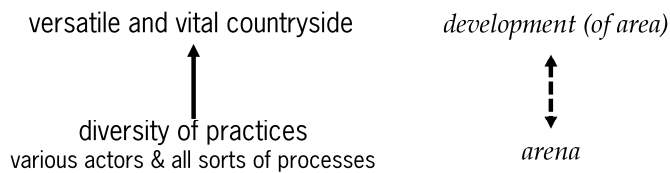
A revised theoretical framework

Following up on the previous discussion, we will revise the existing theoretical framework in such way that it can account for a) the diversity of activities contributing to the development of rural areas b) the variety and number of different actors and processes involved in rural regional learning and c) the different types of knowledge needed as a result of the different activities. Furthermore, the main focus of our revised theoretical framework is the institutional arrangements made between actors of different helix strings and the learning processes they are engaged in.

Institutional arrangements between partners of different helix strings are formed in so-called operational interfaces (Etzkowitz, 2003). Interfaces can be defined as "*critical focal points* (in systems which act) *as channels for dialogue and cooperation, enabling people to learn together and from one another*" (Nyhan, 2007). In order to study the process of (re)establishing institutional arrangements in the rural development context, we need to focus on the operational interfaces. Central to the revised theoretical framework as outlined in figure 2 are therefore the interconnections (i.e. institutional arrangements) made between the actors of the different strings (we term them pillars since they represent the backbones of a learning region skeleton) involved in a learning region. These are depicted as arrows a-c in figure 2.
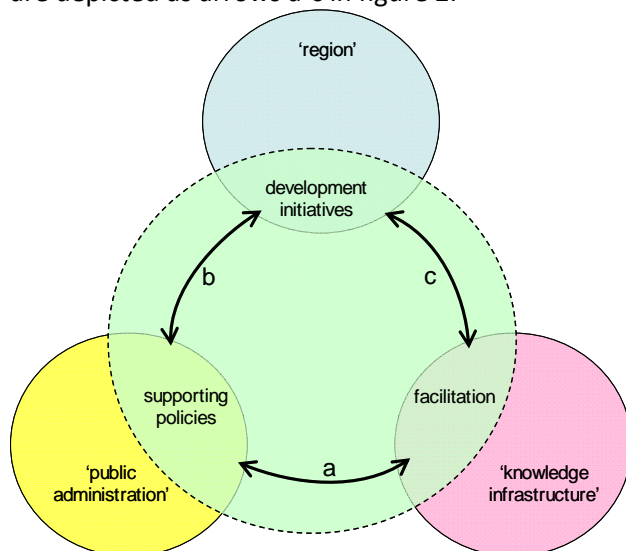
Figure 2. Revised theoretical framework.

Furthermore, following Roep et al. (2009), the pillars of the revised theoretical framework must be able to account for the wide range of actors and activities contributing to rural renewal processes. Relevant actors that are involved in rural development processes and hence need to be addressed by rural regional learning and innovation processes include, for example, citizens, municipalities and administrative functions, entrepreneurs, politicians as well as knowledge specialists. As illustrated in figure 3, these different actors all operate within an "arena" and their actions jointly contribute to the development of a particular rural region (Roep et al., 2009).

versatile and vital countryside   *development (of area)*

↑

diversity of practices
various actors & all sorts of processes   *arena*

Figure 3. Diverse actors and processes engaging in rural regional development (Roep et al. 2009)**.**

Following this thought, the different actors and their actions are connected through a shared problem or interest concerning a certain rural region. The string 'industry' of the triple helix thesis (Etzkowitz and Leydesdorff 2000), should therefore be replaced by a term that encompasses the activities of a wide range of actors in rural development processes. Following Nyhan (2007), the pillar referring to actors and activities contributing to rural development will be termed 'region', being defining the region as an arena which comprises different actors with shared interest and problems.

As stated by Nyhan (2007), education and training facilities are considered being the "spider" in the web of supporting and facilitating rural regional learning and innovation processes. Arguably, education and training- as well as research- cannot only be provided by universities as the triple helix thesis (Etzkowitz and Leydesdorff, 2001) suggests. Education, training and research are also carried out by other public and private education facilities, as well as private consultancy services. Instead of using the string 'university', the revised theoretical framework will include the pillar 'knowledge infrastructure' to be able to account for the different kind of ways in which knowledge institutes can facilitate rural regional learning and innovation processes.

Finally, in the pillar 'public administration' the focus will be on regional learning policies and actors that implement these in order to facilitate necessary arrangements for regional rural learning processes in the rural region. In contrast to the element government in the triple helix thesis, the term public administration allows us to include a wider scope of actors able to formulate and implement policy objectives and instruments that are facilitating knowledge arrangements and hence governance of learning and innovation in rural regions.

The aim of the revised framework is to investigate the quality of institutional arrangements and their operationalisation, meant to contribute to the development of rural regions through supporting and facilitating learning and innovation processes. Accordingly, the focus in each pillar will only be on those parts that are relevant for establishing the respective agreements between the pillars. In the pillar 'region' the focus is thus on various initiatives meant to develop the region, in the pillar 'knowledge infrastructure' on facilitation activities of learning and innovation and in the pillar 'public administration' on learning and innovation supporting policies. Finally, a learning region will emerge from the interfaces created between the learning and innovation of diverse actors in regional development initiatives, the way these are supported by policies and facilitated by the engagement of research, education and consultancy.

By taking account of the high diversity of actors involved in rural regional development processes and the various ways in which they can come to a joint agreement and form institutional arrangements and partnerships amongst each other, the revised theoretical framework will also be able to account for the various types of knowledge needed to support and facilitate rural regional development processes.

Research methodology

In order to investigate the governance or rural regional learning and innovation using the revised theoretical framework, three research steps need to be followed:

1) Mapping of relevant initiatives, actors and policies

2) Identifying institutional agreements and partnerships that aim to facilitate rural regional learning and innovation processes to enhance initiatives which will lead to rural regional renewal

3) Comparative analysis and evaluation of institutional arrangements and partnerships aimed at facilitating rural regional learning and innovation processes within one and across different rural regions.

Mapping of relevant initiatives, actors and policies

Relevant stakeholders need to be identified in all three pillars of the revised theoretical framework. First, an overview of current development initiatives will be generated and the rural initiators identified. Initiatives and actors may be highly diverse and include members of the agricultural sector, the industry sector, service sector or voluntary citizen initiatives. Afterwards, knowledge facilities that are linked to the development initiatives are identified and outlined. These can be public, such as universities and higher education institutes, but also private agencies such as advice bureaus that enable a structural involvement of knowledge facilities in regional learning, thus facilitating 'additional' learning capacity (students, researchers, consultants) and learning about regional needs, as part of research, education programs and development plans. Finally, policies (schemes, instruments) and stakeholders which support regional and rural learning activities need to be outlined and described. Here, attention will be given to the way in which the different policies and actors support and facilitate rural regional learning and innovation and how the different actors can get access to support.

Information on relevant initiatives, actors and policies are collected through reviews of secondary data (e.g. policy reports, development reports, student reports, literature etc.) and by interviewing relevant stakeholders using semi-structured interviews. The use of semi-structured interviews will later facilitate a comparative analysis across different case study areas.

Identifying interfaces created to govern regional learning in rural areas

The second research step will focus on identifying and describing institutional arrangements and partnerships between the different actors that are aimed at supporting rural regional learning and innovation processes. The type of actors involved and the aims of different institutional arrangements and partnerships will be described. Furthermore, the underlying codes of conducts shall be unravelled.

Similar to research step one, data will be collected using secondary data (e.g. policy reports, development reports, student reports, literature, etc.) and by interviewing relevant stakeholders of different pillars using semi-structured interviews.

Comparative analysis and evaluation of governing rural regional learning processes

In the last research step, the quality of institutional arrangements and partnerships will be analysed and evaluated. To do so, it shall be investigated who is (not) included in the partnerships and why? For which rural initiatives is rural regional learning (not) facilitated and supported and why? How were the institutional arrangements established? What are the opinions about these by the different actors who established the institutional arrangements and those that have to act upon them? To deal with the last research step, focus groups with actors of different pillars involved in specific institutional arrangements and partnerships shall be formed and studied.

Data of all research steps will be of qualitative nature. Data will therefore be analysed through coding, categorising and interpretation methods. Furthermore, the results will be compared across different (and the same) case study regions (amongst others as part of the EU project DERREG), in order to highlight problems and good governance practises of regional learning and innovation processes. The revised framework will facilitate this analysis by providing a map to locate problems and good practises for governing regional learning and innovation in rural areas and by contributing actively to the learning-by-learning process.

First empirical findings from the Westerkwartier area

Within the activities of the European research project DERREG, the revised research framework shall be used to investigate "Capacity building, governance and knowledge systems" in rural regions across Europe. In the following, first experiences of using the theoretical framework in the Dutch case study area Westerkwartier, Groningen shall be presented.

Figure 4 demonstrates how the analytical framework can be used to map relevant initiatives, actors and policies in the different pillars and how it can serve to locate and describe operational interfaces between the different pillars.

As indicated in the inscriptions of the pillars in fig. 4, each pillar is characterised by a heterogeneous mix of different actors that are all involved in supporting and facilitating rural regional learning and innovation processes in the region. In the pillar public administration, for example, there are a range of actors involved in formulating and implementing policy objectives and financial support means. These include, for instance, the European Union, ministries such as the Ministry for Agriculture, Nature and Food Quality (LNV) and the Ministry for Education, Culture and Science (OWC), but also the province of Groningen and representatives of local municipalities and waterschapen. Also in the pillars "region" and "knowledge infrastructure" show a high diversity of actors. As fig. 4 shows, in the pillar region, there are nature organisations (e.g. (SB, Gr. Landschap, Boren en Natuur S.W. etc) and cultural organisations (Abel Tasman Kabinet) as well as business associations and others. In the pillare of "knowledge infrastructure" there are publically funded knowledge institutes as well as private agencies and consultancies. The high diversity of actors provides, of course, also difficulties as it is often difficult to obtain a complete overview of all relevant actors in each pillar. For example, we have acknowledged a wide range of advisory bureaus engaged in rural development initiatives in the Westerkwartier but it is impossible to obtain a full overview of all of them.
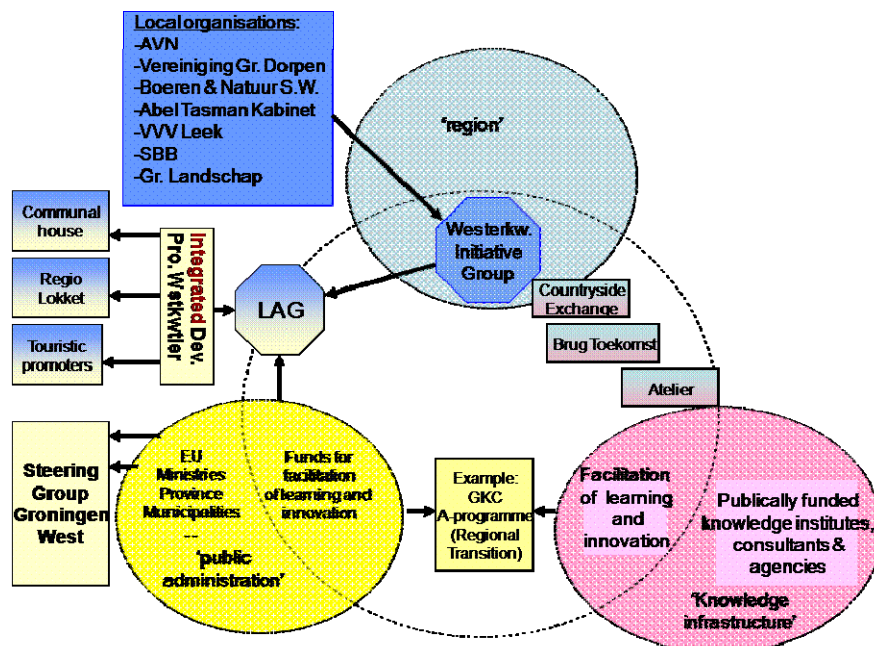

Figure 4. Synthesis of first empirical findings in the Westerkwartier, Groningen, Netherlands.

According to the high diversity of actors in the different pillars, operational interfaces between the pillars can also be numerous and highly diverse in appearance. These operational interfaces can take the form of formalised (institutional) arrangements. Here, we can distinguish between direct and indirect support of rural regional learning and innovation processes. An example of an institutional arrangement between the public administration pillar and regional initiators are Local Action Groups (LAGs).

Indirect support by the public administration centre is given by providing funds to (public) knowledge institutes, consultants and agencies in order to form arrangements with regional initiators to support

and facilitate regional learning and innovation processes. An example of an institutional arrangement between regional initiators and the knowledge infrastructure is, for example, the project "Atelier". An "Atelier" is a work and knowledge network that should bring people together, who are involved with regional questions in a particular area. These people may include students, researchers, lecturers, public administers, experts, citizens and other stakeholders (Wielinga et al. 2009).

In the Westerkwartier, institutional arrangements between regional initiators and the knowledge infrastructure were identified by questioning initiators in the Westerkwartier Initiative Group about their arrangements with facilitators. The Westerkwartier Initiative Group is a platform for numerous development organisations in the Westerkwartier. Although there are many organisations represented in the Westerkwartier Initiative Group, arguably not all initiators can be reached by collaborating with such an organisation and the image of knowledge arrangements in the Westerkwartier is hence incomplete. Future research is therefore necessary to identify initiators who are not involved with the group and moreover identify the reasons for their lack of involvement. Furthermore, it is necessary to identify what criteria are used to decide which rural development initiatives receive learning and innovation support and which are not addressed. Hence, in order to complete the investigations of support and facilitation of rural regional learning and innovation processes, it is necessary to analyse and discuss the quality of the operational interfaces created.

Conclusion and Implications

Previous frameworks to investigate regional learning and innovation processes failed to take account of the diversity of actors and activities contributing to rural regional development and hence failed to acknowledge the diverse types of knowledge and human skills needed to sustain rural regions in the globalising knowledge-economy. In this paper, a revised theoretical framework was introduced that emphasises the need to investigate the institutional arrangements underlying partnerships between different actors who are able to support and facilitate rural regional learning and innovation processes. Unlike previous frameworks, the presented revised framework accounts for the high diversity of actors and activities contributing to rural regional development processes and hence shifts its focus onto the issue of how to support and facilitate learning and innovation processes requiring diverse type of knowledge and human capitals. The revised theoretical framework has the following implications for future research:

- It allows an analysis of current efforts to govern rural regional learning and innovation processes by conducting comparative empirical studies.

- It provides involved stakeholders the opportunity to reflect on their institutional agreements formed.

- It provides opportunities to evaluate and compare governing styles of rural regional learning within and between different rural regions order to identify good governance practices and provide recommendations for improvement.

References

Asheim, B. T. (1996) "Industrial districts as 'learning regions': A condition for prosperity." *European Planning Studies*, 4(4), pp. 379-400.

Asheim, B. T. (2007) "Learning and innovation in a globalising economy: the role of learning regions", in B. Gustavsen, B. Nyhan, and R. Ennals, (eds.), *Learning together for local innovation: promoting learning regions*. Luxembourg: Office for Official Publications of the European Communities, pp. 218-234.

Bruckmeier, K. and H. Tovey (2008) "Knowledge in sustainable rural development: from forms of knowledge to knowledge processes." *Sociologia Ruralis*, 48, 313-329.

Cooke, P. (2007) "Critique of the learning region concept and reevaluation of regional innovation systems", in B. Gustavsen, B. Nyhan, and R. Ennals, (eds.), *Learning together for innovation: promoting learning regions*. Luxembourg: Office for Official Publications of the European Communities, pp. 198-217.

Crevoisier, O., and H. Jeannerat (2009) "Territorial knowledge dynamics: from the proximity paradigm to multi-location milieus." *European Planning Studies*, 17, 1223-1241.

Dargan, L., and M. Shucksmith (2008). "LEADER and Innovation." *Sociologia Ruralis*, 48, 274-291.

Derkzen, P. (2008) *The politics of rural governance*, Wageningen University, Wageningen.

Doloreux, D. (2003). "Regional innovation systems in the periphery: the case of the Beace in Québec, Canada." *International Journal of Innovation Management*, 7(67-94).

Doloreux, D. (2004) "What should we do about regional systems of innovation." *Technology in Society*, 24, 243-263.

Etzkowitz, H. (2003) "Innovation in Innovation: The Triple Helix of University-Industry-Government Relations." *Social Science Information*, 42(3), 293-337.

Etzkowitz, H., and Leydesdorff, L. (2000) "The Dynamics of Innovation: From National Systems and 'Mode-2' to a triple helix of University-Industry-Government Relations." *Research Policy*, 29(2), 109-123.

EU. (2000) "Lisbon European Councli 23 - 24.03.2000: Conclusions of the Presidency", E. Parliament, (ed.). City: European Parliament.

Florida, R. (1995) "Towards the learning region." *Futures*, 27(5), 527-536.

Gertler, M. S. (2010) "Rules of the Game: The Place of Institutions in Regional Economic Change." *Regional Studies*, 44(1), 1-15.

Glasser, H. (2007) "Minding the gap: the role of social learning in linking our stated desiure for a more sustainable world to our everyday actions and policies", in A. E. J. Wals, (ed.), *Social learning, towards a sustainable word*. Wageningen: Wageningen Academic Publishers, pp. 35-61.

Gustavsen, B. and R. Ennals (2007) "Designing a European project on learning for local innovation", in B. Gustavsen, B. Nyhan, and R. Ennals, (eds.), *Learning together for local innovation: promoting learning regions*. Luxembourg: Office for Official Publications of the European Communities, pp. 16-34.

Jasanoff, S. and M.L. Martello (2004) "Conclusion: knowledge and governance", in S. Jasanoff and M. L. Martello, (eds.), *Earthly Politics: Local and global in environmental governance*. Cambridge, MA: MIT Press, pp. 335-350.

Keeble, D., Lawson, C., Moore, B. and F. Wilkinson (1999) "Collective Learning Processes, Networking and â€˜Institutional Thickness' in the Cambridge Region." *Regional Studies*, 33(4), 319 - 332.

Lawson, C. and E. Lorenz (1999) "Collective Learning, Tacit Knowledge and Regional Innovative Capacity." *Regional Studies*, 33(4), 305-317.

Morgan, K. (1997). "The learning region: institutions, innovations and regional renewal." *Regional Studies*, 31(5), 491-503.

Nyhan, B. (2007) "Building learning regions for innovation in Europe: a challenge for education and training", in B. Gustavsen, B. Nyhan, and R. Ennals, (eds.), *Learning together for innovation: promoting learning regions*. Luxembourg: Office for Official Publications of the European Communities, pp. 16-34.

Ploeg, J. D. v. d., and Marsden, T. K. (2008) *Unfolding Webs: the dynamics of regional rural development*, Assen, NL: Van Gorcum.

Roep, D., Horlings, I. and W. Eelke (2009) *De werkvloer van een Kennisnetwerk Vitaal Platteland. Kennis maken met regionale kennisarrangementen*. LEI Wageningen UR, Den Haag, the Netherland.

Rutten, R. and F. Boekema (2007) *The Learning Region: Foundations, State of the Art, Future*, Cheltenham, UK: Edward Elgar Publishing Ltd.

Skuras, D., Meccheri, N., Moreira, M. B., Rosell, J. and S. Stathopoulou (2005) "Entrepreneurial human capital accumulation and the growth of rural businesses: a four-country survey in mountainous and lagging areas of the European Union." *Journal of Rural Studies*, 21, 67-80.

Stagl, S. (2006) "Theoretical foundations of learning processes for sustainable development." *International Journal of Sustainable Development & World Ecology*, 14, 52-62.

Stockdale, A. (2006) "Migration: A Pre-Requisite for Rural Economic Regeneration." *Journal of Rural Studies*, 22, 354-366.

Storper, M. (1993) "Regional "worlds" of production: learning and innovation in the technology distrcts of France, Italy and the USA." *Regional Studies*, 27(5), 433-455.

Terluin, I. J. (2003). "Differences in economic development in rural regions of advanced countries: an overview and critical analysis of theories." *Journal of Rural Studies*, 19(3), 327-344.

Tilbury, D. (2007) "Learning based change for sustainability", in A. E. J. Wals, (ed.), *Social learning, towards a sustainable world*. Wageningen: Wageningen Academic Publishers, pp. 117-132.

Tovey, H. (2008) "Introduction: Rural Sustainable Development in the Knowledge Society Era." *Sociologia Ruralis*, 48(3), 185-199.

Wielinga, E., Horlings, I. and D. Roep (2009) *Kennis maken met regionale kennisarrangementen: Naar de werkvloer van een Kennis Netwerk Vitaal Platteland in wording.* . Wageningen UR, Wageningen.

Wiskerke, J. S. C. (2007) "Robust regions: Dynamics, coherence and diversity in the metropolitan landscape", W. University, (ed.) *Inagural lecture at Wageningen University*. City: Rural Sociology Group: Wageningen, the Netherlands.

Wolfe, D. A. and M.S. Gertler (2002) "Innovation and Social Learning: An Introduction", in M. S. Gertler and D. A. Wolfe, (eds.), *Innovation and social learning: Institutional adaptation in an era of technolgical change*. New York: Palgrave Macmillan, pp. 1-24.

Woods, M. (2007) "Engaging the global countryside: globalization, hybridity and the reconstitution of rural place." *Progress in Human Geography*, 31(4), 485-507.

Woods, M. (2009) *Literature Review and Conceptual Framework. Synthesis and Contextualisation of Research and Development of an Interpretative Model*. Aberystwyth University, Aberystwyth, UK.