

# AN INTEGRATED PERSPECTIVE ON RURAL REGIONAL LEARNING

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Received 3 May 2011; Accepted 16 December 2011

**Abstract:** Regional learning and innovation is a key to promote more resilient, robust and inclusive rural areas. Current analytical frameworks focus on support for knowledge spill-over from academia to industry and sector-oriented learning. The high diversity of actors and activities contributing to rural regional development is thereby not addressed. In this paper, existing frameworks are revised to offer an integrated perspective on the support for rural regional learning. The revised framework is used to identify, map and analyse supportive arrangements and their operational interfaces. It also offers an analytical perspective for beneficiaries to evaluate the support received. The DERREG case study area Westerkwartier is used to illustrate the use of the revised framework and its relevance for empirical research. The revised framework can be used to compare supportive arrangements for learning across different rural regions.

**Keywords:** rural regional learning, place-based development, supportive policies, joint learning and innovation, public-private arrangements, capacity building, regional reflexivity

**Samenvatting:** Het samen leren en innoveren, waarbij alle belanghebbenden zoveel mogelijk worden betrokken, is een belangrijke sleutel naar veerkrachtige en robuuste plattelandsgebieden. Dit wordt onderkend en ondersteund vanuit beleid op diverse niveaus. Dit artikel geeft een integraal perspectief op het ondersteunen van het samen leren en innoveren in gebieden en biedt een raamwerk om te onderzoeken hoe die ondersteuning het beste kan worden gearrangeerd. De aandacht richt zich vooral op interfaces die ondersteunend beleid, praktijkinitiatieven vanuit gebieden en ondersteuning vanuit kennisinstellingen met elkaar verbinden. In DERREG is op basis van dit raamwerk onderzoek gedaan naar bestaande arrangementen en goed werkende interfaces in zes gebieden in zes landen. De potentie van een integraal perspectief op regionaal leren wordt geïllustreerd met voorlopige bevindingen uit een van de gebieden, het Westerkwartier.

**Trefwoorden:** regionaal leren, plaatsgebonden ontwikkeling, steun voor ontwikkeling, samen leren en innoveren, publiek-private arrangementen, capaciteitsopbouw, regionale reflexiviteit

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## 1. Introduction

In 2006, the OECD stated that rural development policies need to focus on places instead of sectors to ensure more robust and resilient rural areas in an era of globalisation (OECD, 2006a). The focus on places instead of sectors requires a coordination of actors across sectors and different levels of governance (OECD, 2006b). As Woods (2007) states: 'The impact of globalisation in reshaping rural places is manifested through processes of negotiation, manipulation and hybridization, contingent on the mobilization of associational power and conducted through but not contained by local micro-policies'. The coordination of different actors in different sectors and across different levels of governance requires partnerships, an active role and high commitment of stakeholders, as well as effective knowledge sharing and competences (OECD, 2006b, Tomaney, 2010). Successful place-based development approaches therefore place capacity-building and innovation at their centre (Tomaney, 2010).

Support for regional capacity-building has largely been studied with regard to the production and transfer of new, scientific knowledge and human capital within high-tech, science, media, and communication and information industry in urban, economic centres (Woods 2009). Studies have thereby focussed on the public support for knowledge spill-over and provision of related human capital from academia to industry (e.g. Asheim, 1996, Rutten & Boekema, 2007, Storper, 1993). The triple helix thesis (Etzkowitz & Leydesdorff, 2000) and the learning region frame the underlying government-industry-academia interactions in economic core areas (Rutten & Boekema, 2007). (Dargan & Shucksmith, 2008) and (Shucksmith, 2009), however, argue that since rural regions usually lack a high density of businesses and business networks, learning and innovation taking place in rural regions is not well incorporated into standard approaches defining and measuring learning and innovation.

With regard to rural areas, capacity building and innovation has mainly been regarded as sector-oriented learning and innovation processes. This sector-oriented approach to development, however, is making it difficult to recognize potential conflicts of interests and act upon them (Reimer & Markey, 2008). With regard to sector-oriented learning, the role of extension services for agricultural development has, for example, been studied extensively (e.g. Leeuwis, 2004). Other studies (e.g. Dargan & Shucksmith, 2008, Shortall, 2008, Shucksmith 2009) focussed on participatory processes and the formation of social capital through programmes such as LEADER, while others still (e.g. Ellström, 2010, Fenwick, 2010, Wals, 2007) looked at the underlying social learning processes and the role of knowledge or innovation brokers (Howells, 2006, Klerkx et al., 2009, Klerkx & Leeuwis, 2009, Suvinen et al., 2010). An integrated, regional approach as offered by the triple helix thesis (Etzkowitz & Leydesdorff, 2000) or the 'learning region' concept (Rutten & Boekema, 2007) is, however, still missing.

Using an integrated approach to the study of how learning and innovation in rural areas is actually supported and how this support is arranged could help to provide an integrated view on how rural places deal with globalisation, taking into account differential geographies of globalisation across space (Woods, 2007). In addition, an integrated, regional approach will be able to account for the heterogeneity of activities caused by globalisation and account for the diversity of identities and interests in a particular space (Massey, 1991). It is therefore questionable whether the normative focus of the current theoretical frameworks on linkages between the industry, government and academia (Asheim, 1996, Buesa et al., 2006, Etzkowitz & Leydesdorff, 2000, Huggins et al., 2008, Rutten & Boekema, 2007) can account for the diverse support needed to ensure regional learning and innovation in rural areas (Tovey, 2008). Since current theoretical frameworks focus on industry-state-academia linkages as well as support for scientific, technological expert knowledge, their use for studying support for regional learning and innovation in rural areas must be challenged (Dargan & Shucksmith, 2008, Doloreux, 2003, Terluin, 2003).

With this paper, which is based on the EU FP7 project DERREG (Developing Europe's Rural Regions in the Era of Globalisation), we want to advance the theoretical as well as empirical understanding of regional learning and innovation in rural areas. We will do so by revising two existing frameworks - the 'learning region' concept and the 'triple helix thesis' - to develop

an integrated, perspective on the support for learning and innovation in rural areas. First, we will outline and critically discuss the two existing frameworks. Next, we will explain the particularities of learning and innovation in rural areas. This is followed by an elaboration of the integrated framework based on a revision of the existing 'triple helix' and 'learning region' frameworks. The potential of the integrated framework is shortly illustrated with preliminary findings from the Westerkwartier in the Netherlands, one of the DERREG case study areas. We will end this paper with a few concluding remarks about the use of integrated framework for studying rural regional learning and innovation.

## 2. Support for learning and innovation in economic core areas

In urban-centred, economic core regions, support for regional learning and innovation has received considerable scientific attention (Asheim, 1996, 2007, Asheim & Coenen, 2005, Buesa et al., 2006, Huggins et al., 2008, Lawson & Lorenz, 1999, Rutten & Boekema, 2007, 2009, Storper, 1993). Here, it is defined as the support of a rapid exchange of new, scientific, tacit, regionally embedded knowledge and human capital between academia and industry which aims to ensure a leading role of regions in the globalising economy (Lawson & Lorenz, 1999). Successful support for regional learning and innovation is argued to depend on well-working linkages between the industry, the state and academia (Storper, 1993). Their collaboration is facilitated through spatial proximity (Asheim, 1996).

The study of these linkages has given rise to the 'learning region' (Florida, 1995, Morgan, 1997, Rutten & Boekema, 2007, Storper, 1993) and the 'triple helix thesis' (Etzkowitz, 2003, Etzkowitz & Leydesdorff, 2000). Spatially clustered 'learning regions' are thus defined by Rutten and Boekema (2007) 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' (p.136). The authors of both theoretical frameworks argue, as illustrated by the example of the triple helix in figure 1, that the industry, the state and academia all have separate functions but they interact with each other similar to the DNA strings of a triple helix (Etzkowitz & Leydesdorff, 2000). The industry, for example, is associated with the site of production, academia acts as a source of new knowledge and human capital, and the state ensures stable and contractual relationships (Etzkowitz & Leydesdorff, 2000).

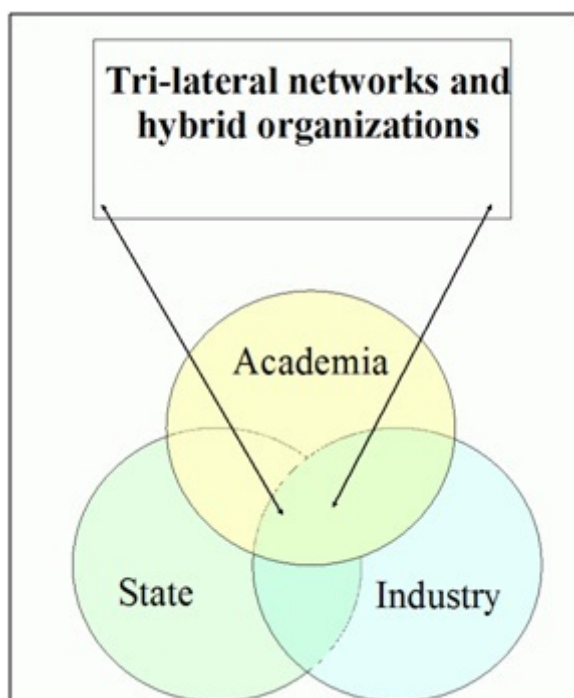


Fig 1. Triple helix thesis (Etzkowitz & Leydesdorff, 2000).

According to Asheim (2007) and Florida (1995), the success of support for regional learning and innovation depends on arranging effective, co-operative and operational partnerships between actors of the different strings. Thereby, it can be assumed that the various partners have different expectations and interests. To make compromises and to reach a constitutive agreement involves arguably an exchange and negotiation of meanings, goals, stakes and strategies as well as values, norm and codes of conduct. Codes of conduct, norms and values are referred to as institutions. Institutions are thus regarded as: 'a set of common habits, routines, established practises, rules or laws that regulate the relations and interactions between individuals and groups' (Edquist & Johnson, 1997 p. 46).

Agreeing on a common institution requires the partners to reflect on existing, shared codes of conduct and to change them accordingly (Wolfe & Gertler, 2002). Partnerships are thus characterised by an on-going process of negotiation. This process is referred to as institutional learning or institutional reflexivity and occurs through learning-by-learning and learning-by-doing (Wolfe & Gertler, 2002). Hence, in order to arrange the support and facilitate learning and innovation, supporters and facilitators engage in continuous learning-by-doing processes themselves.

Operational interfaces are needed to provide support for regional learning and innovation (Etzkowitz, 2003). These operational interfaces are defined as critical focal points, enabling people to learn together and from one another thereby acting as channels for dialogue and cooperation (Nyhan, 2007).

Regional learning and innovation is supported in two ways: by supporting knowledge spill-over and valorisation of knowledge from academia towards industries to commercialise it into innovative products in order to create competitive advantages for regional businesses (Keeble et al., 1999, Morgan, 1997, Storper, 1993). Examples are the close collaboration of Cambridge University and businesses in Cambridge business park in England (Keeble et al., 1999), the knowledge transfer between Stanford University and businesses in the science park of Silicon Valley, California (Rutten & Boekema, 2007). Recently, this model is referred to as the Golden Triangle by Wageningen University and Research Centre and the Dutch Ministry of Economy, Agriculture and Innovation to promote the valorisation of scientific knowledge through a close cooperation between science, business and policy. A second way is to focus on the support for developing human capital, arguing that it is crucial for understanding and using new, scientific knowledge that can lead to a successful competition in the globalising economy (Wolfe & Gertler, 2002). Wolfe & Gertler (2002) thus argue that the key to successful regional learning and innovation does not lie in supporting knowledge spill-over and valorisation but in providing businesses with the abilities to develop skills and capacities to filter and use new, scientific knowledge to their competitive advantage. Building competitive advantages that are based on specific assets and resources of a region, and in particular human capital (Barca, 2009) is also important for rural areas. Local knowledge appears to be a crucial factor for success (Reimer & Markey, 2008).

Both, rather normative interpretations of regional learning and innovation are mainly focussed on economic growth and have influenced the formulation of regional development policies and to some extent rural development policies. The focus of these development policies has thereby shifted from compensating disadvantaged regions to creating more competitive regions based on a re-appreciation of place-based resources and assets (see Barca, 2009). Some policies aim to facilitate a copy-pasting of the 'Silicon Valley' example (Gustavsen & Ennals, 2007). It is therefore argued that support for regional learning processes does not deal with supporting 'learning' but with transforming new, scientific expertise into commercial goods (Cooke, 2007). Other policies focus on support for developing human capital, as for example the 'Lernende Regionen' concept in Germany, Austria and other European countries (Resch, 2006).

### 3. Support for joint-learning and innovation in rural areas

In contrast to economic core areas, development in rural areas is characterised by a high diversity of actors and activities (Roep et al., 2009). As illustrated in figure 2, these different actors all operate within an “arena” and their actions contribute jointly to the development of a versatile and vital countryside (Roep et al., 2009).

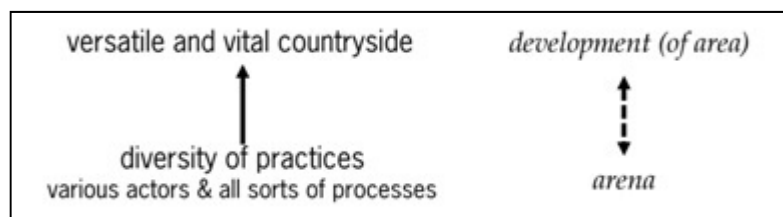


Fig 2. Diverse actors and processes engaging in rural regional development (Roep et al., 2009).

Rural areas differ from each other and show unique dynamics (Roep et al., 2009). Their specific development processes co-evolve with socio, economic and ecological processes (Stagl, 2006). Some rural areas 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 is argued that highly educated persons are often the first to leave, causing a so called ‘brain-drain’, resulting in 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 areas 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). Support required for learning and innovation in rural areas is therefore highly context dependent and problem specific (Tovey, 2008). Development processes that contribute to the quality of and vitality of particular rural regions can thus be of natural, social and technical value and the required support and facilitation may differ between different locations, goods and services (Roep et al., 2009).

According to the OECD (2006a) this ‘multi-disciplinary nature of rural development calls for comprehensive analytical frameworks to analyse and evaluate multi-sectored, place-based approaches.’ (p.3). The OECD (2006a) argues further that monitoring and evaluation are keys to an integrated rural policy: ‘Evaluation becomes an opportunity for actors at different levels to jointly assess how well they are doing and how the effectiveness of their actions can be improved’ (p.106). Monitoring and evaluation is also necessary because institutional arrangements often lack the power to deliver policy or to engage in networks of governance (Hajer, 2003). By monitoring and evaluating support for rural regional learning and innovation, one can thus argue to identify institutional voids which have ‘no clear rules and norms according to which politics is to be conducted and policy measures are to be agreed upon’ (Hajer, 2003, p.175).

Hence, given the aforementioned constraints of existing approaches, we argue that it is necessary to revise the current, normative frameworks of regional learning into a empirical research tool to analyse and evaluate to what extent existing (policy) arrangements are able to support regional learning and innovation processes in rural areas and to identify possible institutional voids.

#### 4. Revising the 'triple helix and 'learning region' frameworks

To address the discrepancy between existing frameworks to study the support for regional learning and innovation and the need for frameworks to address regional learning and innovation in rural areas, existing frameworks need to be revised. As a starting point, we will borrow from frameworks to study learning and innovation in urban, economic areas and take the triple helix thesis (Etzkowitz & Leydesdorff, 2000) and learning region model (Rutten & Boekema, 2007) as the basis for revision. To adapt the triple helix thesis and learning region model in such way that it can address support for regional learning and innovation in rural areas, three steps need to be followed:

First, the components of the framework need to be adjusted to account for the high diversity of actors and activities contributing to place-based development in rural areas. As figure 3 shows, the string 'industry' will be replaced by the term 'region' representing various actors and activities. Following Nyhan (2007) and Roep et al. (2009), the region can thus be regarded as an 'arena' which comprises diverse actors and their different grassroots development initiatives. The shift of focus from industry to region, and within the region towards activities of grassroots development initiatives, offers a tool for investigating neo-endogenous development in a rural area, which focuses on the needs and capacities of local areas from the perspective of local people (Ray, 2006).

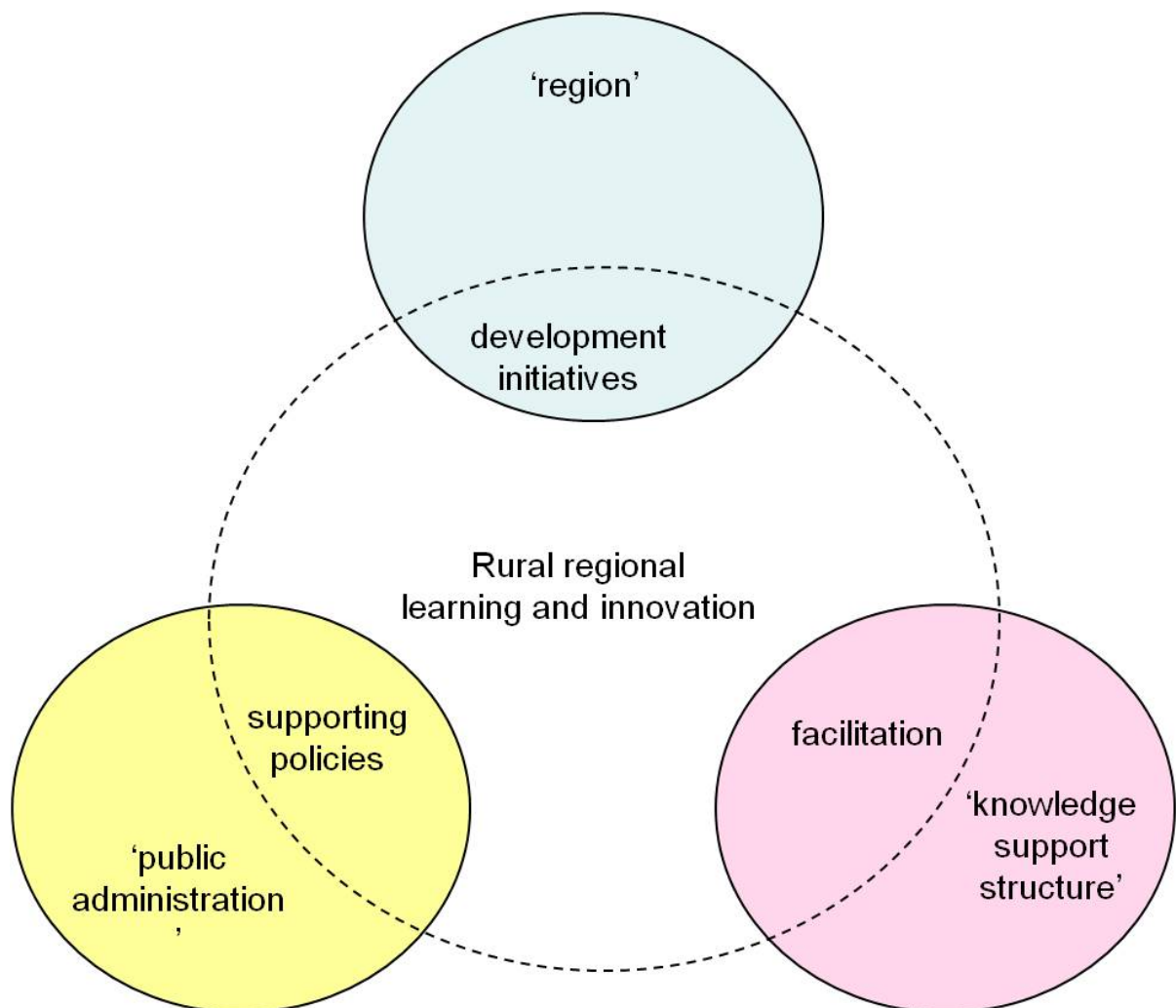


Fig 3. Integrated conceptual framework of rural regional learning.

According to Nyhan (2007) education and training facilities are 'spiders in the web' of support for learning and innovation. One can, however, argue that other knowledge support structures, such as public and private knowledge institutes, private consultancy services, public institutes, NGOs, private development experts as well as grassroots development initiators can act as

knowledge facilitators. Instead of using the string 'academia', the revised framework will therefore include the string 'knowledge support structure', attempting to comprise all kinds of facilitating agents and agencies within it.

The string 'state' will be replaced by 'public administration', including supporting policies and operational actors that implement these. In contrast to the term 'state', which refers to the political organization of society or the institutes of government, the term 'public administration' refers to the implementation (e.g. the planning, organizing, directing, coordinating and controlling) of government policies and operations (Encyclopedia 2011a, b). By exchanging the term 'state' for 'public administration', the focus of the framework thus shifts from describing the actors involved in providing support for rural regional learning towards the actions taken to support rural regional learning.

Secondly, it is necessary to consider the type of interactions studied. Etzkowitz & Leydesdorff (2000) and Rutten & Boekema (2007) both focus on studying interfaces between the state, industry from academia which aim to facilitate a knowledge and human capital spill over from academia to industry. Rural areas also need to be given support for innovation, including arrangements that facilitate knowledge transfer between research, education and the industry (Crevoisier & Jeannerat 2009, Doloreux 2002, 2003, Skuras et al. 2005). Here, however, place-based development depends highly on interactions between diverse actors and their on-going development processes (Roep et al. 2009). At the same time, however, the high diversity of actors and activities arguably also demands a higher diversity of knowledge and human capital than in economic core regions. Tovey (2008) thus argues that learning and innovation processes in rural regions do not only require support and facilitation of spill-over of technological, expert knowledge and related human capital from academia to industry, but support and facilitation also needs to address the use and acquisition of indigenous knowledge about local places and locally-embedded resources. It is further argued that local and lay knowledge is also important, for instance, to encourage novelty production and to develop endogeneity (Ploeg & 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 & Martello 2004, Skuras et al. 2005, Woods 2007).

In contrast to the need for developing skills and capacities to filter and use new, scientific knowledge (Wolfe & Gertler 2002), the study of regional learning and innovation in rural regions is thus argued to require a shift from focussing on forms of knowledge towards focussing on knowledge processes, exploring dimensions of knowledge building, collaborative social learning and the re-embedding of local knowledge (Bruckmeier & Tovey 2008). Since many, diverse actors are trying to carry out different development activities in the same rural place, they need to learn to work together (Roep et al. 2009). This occurs through "joint learning-by-doing" (Wielinga et al. 2009). These processes cannot be understood as formal learning settings with a sender and a receiver but they are informal, interactive, social, situational learning-by-doing processes (e.g. Asheim 2007, Franklin et al. 2011, Glasser 2007, Roep et al. 2009, Wals 2007).

As illustrated in figure 4, the key focus of the integrated framework is therefore centred on highlighting existing interfaces, as indicated by the arrows a, b, c, that aim to support and facilitate knowledge processes, exploring dimensions of knowledge building, collaborative social learning and the re-embedding of local knowledge in grassroots development initiatives as opposed to the transfer of new, scientific, expert knowledge.

The framework can be used as a heuristic tool to map, analyse and evaluate active interfaces through which support for joint learning and innovation is provided in a particular rural area, and analyse how these interfaces are arranged. In contrast to the triple helix thesis (Etzkowitz & Leydesdorff 2000), the integrated framework does not focus on what learning and innovation is supported or what type of support is given. Instead it focuses on how support for regional learning and innovation is actually arranged and how and by whom it is mediated, thus how interfaces are operating.



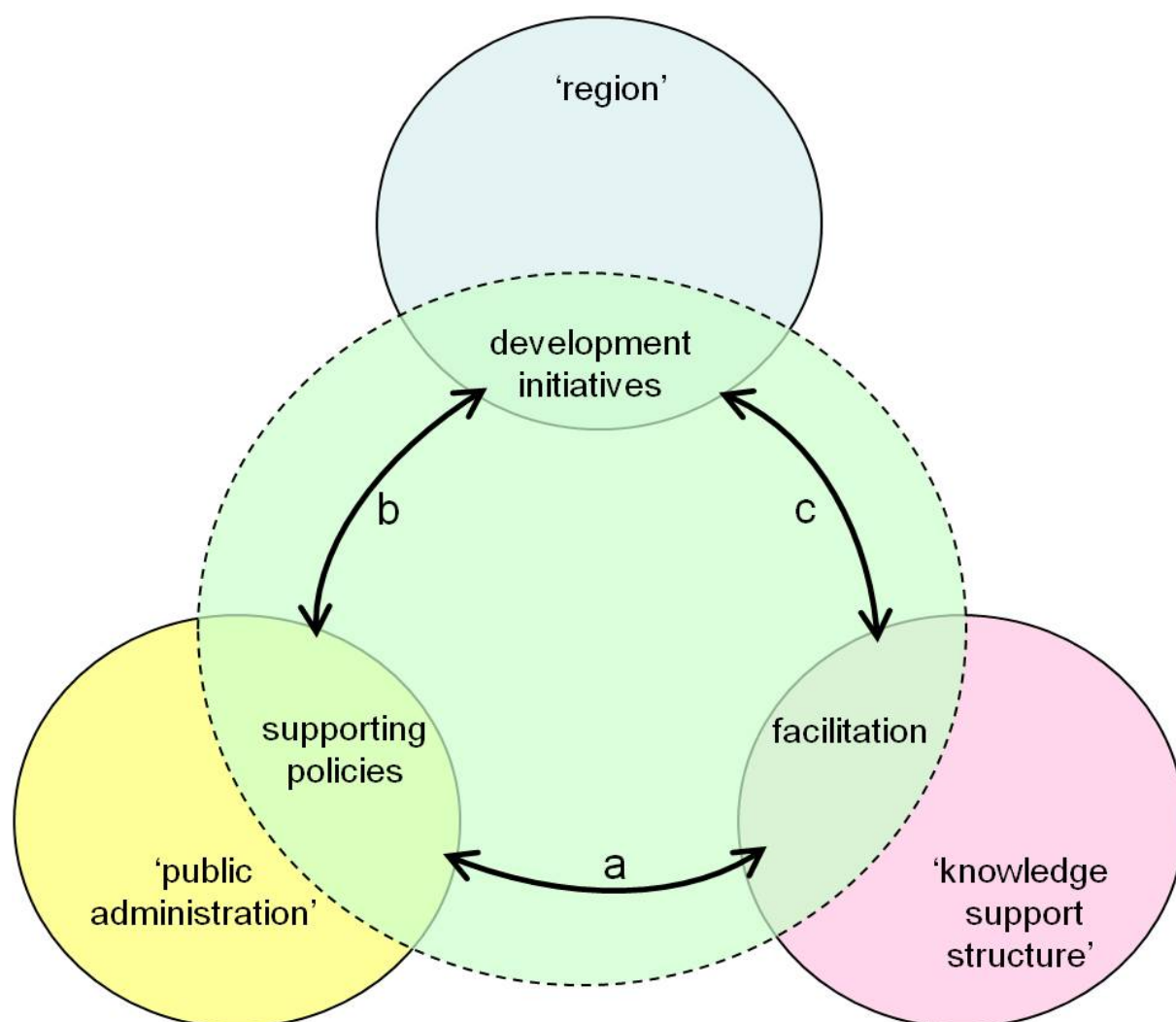


Fig 4. The arrangement and operation of interfaces: core of the rural regional learning.

According to the OECD (2006b), place-based development requires an integrated coordination of support at governmental and local level. To find out how and by whom the interfaces are operated, the revised framework is able to guide research along four lines. First, it helps to map supporting policies and actors as well as the support provided in the three domains identified: supportive policies, grassroots development initiatives and the knowledge support structure. Secondly, it helps to map any existing interfaces and analyse how these are arranged. Thirdly, the heuristic framework can be used to evaluate existing arrangements. The second and third steps can also be done in an interactive way, jointly with supporters and beneficiaries. This can be done by first mapping existing supportive arrangements and interfaces and then discussing how these operate. Finally, based on the mapping, analysis and (interactive) evaluation, well and less well-working operational interfaces can not only be identified, but also an understanding of why some interfaces work better than others can be generated. On the basis of these findings, lessons can be drawn on how to improve existing arrangements or how to create new ones.

The integrated framework has the potential of a multifaceted tool that can enhance the reflexivity of the respective stakeholders involved in the development of a rural area and helps to support regional learning and innovation processes leading to capacity building. In doing so, it enables us to identify institutional voids as 'discrepancies between the existing institutional order and actual practises of policy making' (Hajer 2003, p.176).



## 5. Preliminary findings from the Westerkwartier, Netherlands

Guided by the integrated framework, research was carried out in six case study areas to investigate how support for rural regional learning and innovation is actually arranged and, subsequently, how it can be best arranged. In this section, the potentials of the integrated, analytical framework on rural regional learning will be briefly illustrated with preliminary findings from the Westerkwartier case study area, as part of ongoing research (Roep et al. 2011, Wellbrock et al. 2011a). The Westerkwartier is a predominantly rural area in the province of Groningen in the North of The Netherlands (see figure 5). It comprises four municipalities and has been a LEADER region since 2003 and has one Local Action Group which advises the municipality on questions regarding the socio-economic development of the region.

Three research steps were followed. First, policies and available knowledge facilitators were mapped. Secondly, place-based grassroots development initiatives and supportive institutional arrangements were inventoried. Finally, existing arrangements to support rural regional learning and innovation were evaluated using discussion rounds. The research was conducted through qualitative interviews with key stakeholders amongst the beneficiaries and supporters as well as through interactive discussion rounds with both, supporters and beneficiaries, over a period of two years. Specifically, the findings of the first two research steps will be illustrated: 1) mapping supporting policies and actors as well as the support provided in the three domains identified: supportive policies, grassroots development initiatives and within the knowledge support structure; 2) mapping and analysing existing interfaces and how these are arranged.



Fig 5. Location of Westerkwartier (Western part of Groningen Province) in the Netherlands. Source of Map: [www.world-geographics.com](http://www.world-geographics.com)

**Ad1) Mapping of supporting policies, actors and available knowledge facilitators**

In the Westerkwartier, the investigations have shown that development is predominantly guided by rural development policies. Regional development policies influence the Westerkwartier mainly indirectly by creating extra-regional development circumstances. Regional policies only target small areas of the Westerkwartier, which are involved in development projects of the region North Netherland. Support for place-based development in the Westerkwartier can thus mostly be expected from rural development policy. Here, the LEADER programme appears to be particularly relevant (see also Dargan & Shucksmith 2008, Shucksmith 2009).

A wide range of public actors is involved in formulating and implementing policy objectives and financial support means for the Westerkwartier. These include, for instance, the European Union, ministries such as the Ministry for Economy, Agriculture and Innovation and the Ministry for Education, Culture and Science, but also the province of Groningen, representatives of local municipalities and water boards.

Also with regard to knowledge facilitators, a wide range of actors and agencies can provide support for rural regional learning and innovation in the Westerkwartier. These include publically funded knowledge institutes, such as Wageningen University, as well as numerous private agencies and consultancies. Finally, in the Westerkwartier, as well as in other DERREG case study regions, it has been shown that grassroots development initiatives can cover a wide range of development aspects, such as nature, landscape & environment, civic & community development, SME support and culture & history. To a lesser extent, the inventoried initiatives also deal with (multifunctional) agriculture, agriculture & forestry, tourism, and education, training & employment (Wellbrock et al. 2011a). All of these contribute to place-based development in the Westerkwartier and need to get involved in an integrated, place-based development vision for the region.

**Ad2) Mapping and analysing operational interfaces and how these are arranged**

Figure 6 demonstrates how the analytical framework can be used to map supportive arrangements on the basis of the empirical research in the Westerkwartier (Roep et al., 2011, Wellbrock et al., 2010, 2011a).

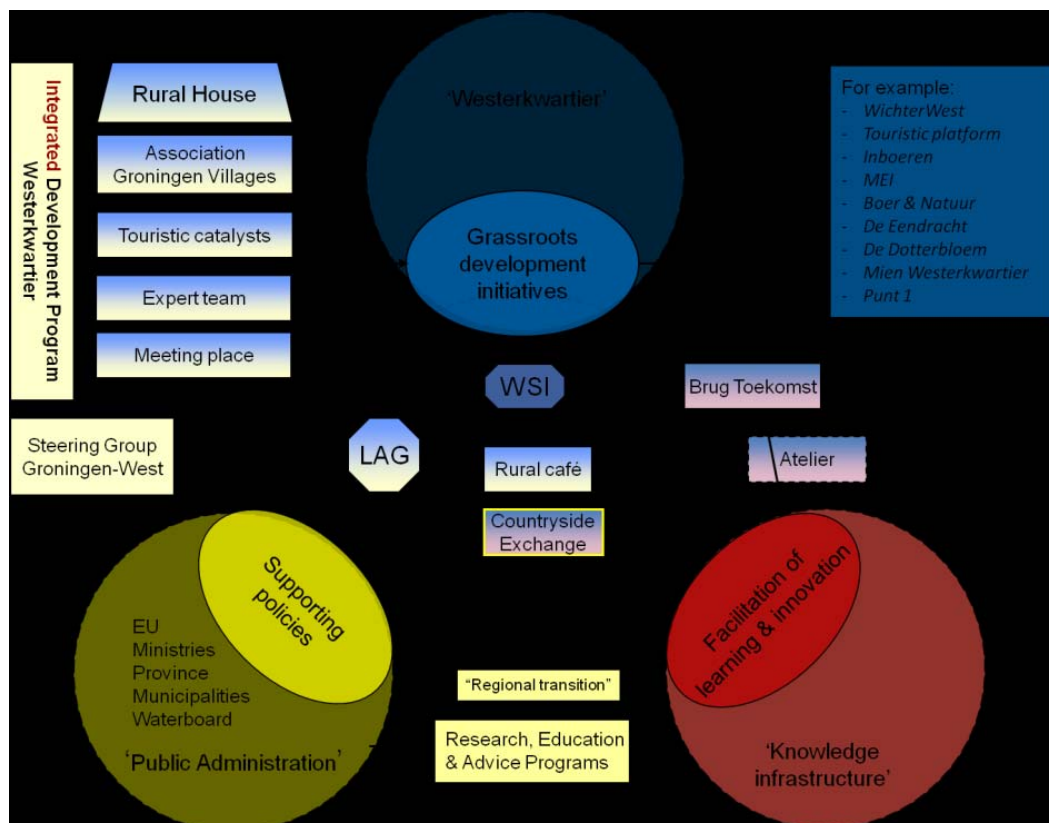


Fig 6. Map of the support and facilitation for joint learning and innovation in the Westerkwartier.

As figure 6 shows, the investigations in the Westerkwartier have revealed a number of different operational interfaces. With regard to direct support from public administration, these range from regional development networks (such as associations, NGOs or individuals) to public-private partnerships (such as the Local Action Group), to public institutes (such as governmental services and public knowledge institutes) and professional services (e.g. development advisors) (Wellbrock et al. 2011b). With regard to support from the knowledge support structures, interfaces were operated by public and private knowledge facilitators, private consultancy services, public institutes, NGOs and private development experts. In addition grassroots development initiators themselves were also seen to provide education, training and research (Wellbrock et al. 2011a, b).

The support and facilitation provided can be grouped into five categories: “financial support” (i.e. different kinds of subsidies and procedural support), “knowledge and skills” (for example advice, facilitation, education and research activities), “physical infrastructure” (for example meeting spaces, biosphere reserves and information centres) and “social infrastructure” (for example in the form of network incubation and cluster forming) (Wellbrock et al. 2011a).

As figure 6 shows, most of the operational interfaces were providing support from administration. LEADER money was, for example, used to hire catalysts in the form of independent development advisors, in order to incubate networks of touristic entrepreneurs in the region. Their aim was to stimulate economic development within the Westerkwartier by promoting its visibility inside and outside the region. To do so, the touristic entrepreneurs needed to be associated in order to work for a common, place-based development agenda instead of focussing only on individual benefits. In addition, a local NGO called the Association Groningen Villages has been assigned by the local government to incubate entrepreneurial networks and to develop vision plans with villages in the region.

Operational interfaces engaging the knowledge support structure with grassroots development initiatives in the Westerkwartier, however, were less frequently found. The operational interface “Brug toekomst” as shown in the framework, for example was a temporary, terminated research project (Wellbrock et al. 2011 a, b). The project “Atelier” is a new 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 administrators, experts, citizens and other stakeholders (Wielinga et al. 2009).

Finally, the investigations in the Westerkwartier have also shown that grassroots development initiators themselves can create operational interfaces. As figure 6 shows, the Westerkwartier Initiative Group (WSI) is a platform for numerous development organisations in the Westerkwartier and represented in the Local Action Group. Together, they act as a “think tank” for development ideas in the Westerkwartier and organize, amongst others, a rural café which serves as an informal exchange of information and ideas between denizens and imitators.

Interestingly, all operational interfaces mentioned are located in a ‘rural house’ (see fig. 6) situated in the case study area. This house acts as a single window to all types of public support, hence reducing the amount of bureaucracy for beneficiaries and increasing inter-sector communication and development cooperation.

The empirical results of the Westerkwartier show that operational interfaces to support regional learning and innovation can be numerous and highly diverse in appearance. Furthermore, they can be informal or formalised (institutional) arrangements. The results further suggest that two types of operational interfaces can be distinguished, those through which public administration provides direct support to grassroots development initiatives and those operational interfaces through which public administration enables the knowledge support structure to engage with grassroots development initiatives. The conceptual framework has worked as a heuristic, research tool to identify, map and analyse the different interfaces operational in the Westerkwartier.

## 6. Conclusion

In conclusion, the presented, analytical framework of rural regional learning and innovation enables an integrative, empirical perspective on rural areas and facilitates an analysis and evaluation of the active support for joint learning and innovation in rural areas.

As a research tool, the integrated framework offers the possibility to map, analyse, evaluate and compare how support for rural regional learning and innovation is arranged in different rural areas. The core focus of the framework is on identifying what interfaces work well, given the contextual differences across rural areas. The integrated perspective on rural regional learning presented in this paper offers a tool to monitor and evaluate the design of existing arrangements and the actual working of interfaces. The basic assumption is that better working interfaces will render supporting policies more effective. The framework further enables reflexivity among the practitioners from the three domains (e.g. policy makers, initiators, facilitators), which facilitates an integrative approach to joint learning and innovation in rural areas. Thereby, it enhances regional reflexivity, which is widely seen as key to enhancing an inclusive, place-based development in rural areas across Europe. It highlights once again the crucial facilitating role of education, research and advice in enhancing regional reflexivity and regional capacity building.

The integrative framework has been introduced and developed in the context of the DERREG project. The first, rather explorative, empirical application of the newly developed, integrated, heuristic perspective on rural regional learning and innovation has clearly revealed the inextricable web of interrelations between supportive policies, grassroots development initiatives and facilitators of learning and innovation, the many stakeholders involved and the various activities employed. An unambiguous unravelling and categorisation of the different threads and arrangements, as nodes in the web, appeared to be difficult. Nevertheless, the potentials of the perspective are clear and promising. Both, the theoretical and empirical grounding of the integrated perspective on rural regional learning, will be further elaborated as part of an ongoing research in and beyond the DERREG project.

## Acknowledgements

This paper is based on research undertaken within WP4 Capacity building, governance and knowledge systems of the EU-funded project DERREG. We would like to thank our DERREG research partners for their engagement, their comments and suggestions. Finally, we like to thank the reviewers for their valuable comments and suggestions.

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