

DIFFUSION, SOCIAL STRUCTURE AND FUNCTIONING OF SCIENTIFIC RURAL NETWORKS: COMPARISON OF EUROPEAN AND FINNISH EXAMPLES

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Abstract: A comparative analysis of two scientific rural networks was made for this study. The national level case study is the Rural Studies Network of Finland and the international case is the European Rural Development Network. Both networks started in 2002. The focus of this study is on comparing the emergence, diffusion and functioning of these two relatively new networks. The experiences and opinions of individual participants of these networks are highlighted instead of territorial aspects. The paper indicates several differences and similarities between case networks relating to the diffusion processes, social structures, functionality and effectiveness of the networks. Successful emergence of rural expert network is an innovative social networking process, which in ideal case results in to a knowledge society of experts who share some common ideas and goals by exploiting and reproducing their social capital.

Keywords: Scientific rural networks, diffusion, social structure of network, Europe, Finland

Abstrakti: Tässä artikkelissa vertaillaan kahta tieteellistä maaseutualan asiantuntijaverkosta. Kansallisen tason esimerkkinä on suomalainen Rural Studies-verkosto ja Euroopan tasoisena esimerkkinä on European Rural Development Network. Molemmat verkostot aloittivat toimintansa vuonna 2002. Tavoitteena on verrata näiden kahden aika nuoren verkoston syntymistä, laajentumista ja toimintaa. Alueellisiin eroihin perustuvan vertailun asemesta kohteena ovat verkostoihin osallistuneiden asiantuntijoiden henkilökohtaiset kokemukset ja mielipiteet. Verkostojen välillä löytyi sekä eroja että yhtäläisyyksiä, kun tutkittiin niiden diffuusioprosesseja, sosiaalisia rakenteita, toiminnan onnistumista ja vaikuttavuutta. Maaseutualan asiantuntijaverkoston onnistunut syntyminen ja kehitys voidaan tulkita innovatiiviseksi ja sosiaaliseksi verkostoitumisprosessiksi. Parhaimmillaan tuloksena

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on tietämyksen vaihtoon perustuva yhteisö, joka jakaa yhteisiä ideoita ja päämääriä hyödyntäen ja uusintaen sosiaalista pääomaansa.

Avainsanat: tieteellinen maaseutuverkosto, diffuusio, verkoston sosiaalinen rakenne, Eurooppa, Suomi

1. Introduction

Networks of science and science of networks are old themes in research contexts. The evolution of information technology has given rise to prolific increase of cooperation between academic and development experts and actors with multiple backgrounds from different spatial levels. Creation of expert networks aims to gather together development issues on the basis of the idea that by working together more can be achieved compared to introspective efforts. This has resulted in that also in the field of rural development and research international, national and regional networks have become increasingly more common (Murdoch, 2000; Green, 2007).

Some of these networks are based on official agreements and others are born of voluntary cooperation of like-minded people. Many networks operate inside the triangle of researchers, developers and policy-makers. A rough division could be made between regional networks, or networks of regions, and networks of individuals and organizations. In the former case, the lobbying of local and regional interests by participants is often emphasized, whilst in the latter the physical location of actors is of less importance compared to their professional communication.

It can be argued that although regional networks are regarded as the central operation models of cooperation in regional and rural development, they are not much more than outcomes of human networks based on personal connections. In other words, regions and organizations are not themselves thinking entities, but the defining goals of the individual experts and other members and maintaining functions of the networks are. Newish regional concepts like creative cities (Florida, 2005; Cohendet et al., 2010), learning regions (Hauser et al., 2007; Asheim, 2009) or innovative milieus (Camagni, 1991; Crevoisier, 2004), along with some others rely heavily on human actors and factors.

A comparative empirical analysis of two different scientific rural networks is made in this article. The first case study is the Rural Studies Network of Finland (later on abbreviated RSN), and the other is the internationally oriented European Rural Development Network (ERDN). Both networks started in 2002. We highlight here the role of the individual participants of these networks instead of territorial aspects, which brings our approach close to the ideas of community of practice (Wenger et al., 2002; Hildreth and Kimble, 2004) and knowledge community (Pinch, 2009).

The focus is on comparison of the development, diffusion and functioning of these two relatively new national and international scientific rural networks. How has the networking occurred and what characterizations can be made about the emergence of these networks? Are there differences in the stages of diffusion among participants between the networks? What kinds of actor types exist in these networks, and are there differences in the commitment of the actors inside the networks? Are the actors satisfied with the function of the networks and have they got (and what kind of) added value as a result of their participation?

The article is divided into four major parts after this introduction. First we discuss on some relevant theoretical concepts for our study. Then we introduce our case study networks. The most extensive part deals with the empirical results of our case study analysis, and finally some concluding remarks are made.

2. Key concepts of network analysis

Networks and networking have been common research themes in several disciplines for many decades. This has resulted in that there are numerous concepts and theoretical traditions

connected to the ongoing emergence of networking. We discuss here only on some approaches which we regard relevant for our empirical study.

In geographical research, networks have traditionally had a physical and visible meaning. Cooke (2009) made a review of the history of network research in geography. He says that the 'network paradigm' for regional economic development was first articulated in the early 1990s, but the network concept had been bubbling up even earlier than that (Cooke, 2009, p. 399).

The concept of network is analysed and defined in several dictionaries of geography. According to Johnston et al. (2000, p. 551), "In human geography the term network is mainly used to refer a transport network either of permanent facilities (road, rail, canal) or of scheduled services (bus train, airlines). It has however been extended to cover many other types of line or linkage patterns including administrative boundaries, social contacts, and telecommunications". In the Hutchinson Dictionary of Geography (2005, p. 896) "Network [is a] system of nodes (junctions) and links (transport routes) through which goods, services, people, money, or information flow. Networks are often shown on topological maps". Furthermore, in Mayhew's dictionary (2009) a network is defined as "A system of interconnecting routes which allows movement from one centre to the others. Most networks are made up of nodes (*vertices*), which are the junctions and terminals, and links (*edges*) which are the routes or services which connect them." Cooke's (2009, p. 399) definition of a network differs from many others in that it puts more focus/emphasis on human actors: "[network is] a system of nodes and linkages among persons (and essential equipment) to evolve a discourse to achieve some purpose of consequence to the network's interests."

Social network refers to the everyday social life of people and families, or to "the kin, neighbours and friends to whom an individual is tied socially, usually by shared values, attitudes and aspirations" (Johnston et al., 2000, p. 759; see also Mayhew, 2009). Social networks are in turn based on the prominent concept of social capital, which has been developed by many well known social science scholars since the 1980s (Bourdieu, 1986; Latour, 1987; Coleman, 1988), along with their numerous colleagues. Social capital may be defined simply as "Exchange relations in society based on trust, reciprocity, and reputation resulting in favour, gift, and support actions largely outside market or state functions" (Cooke 2009, p. 399).

The multiple origins of the concept have naturally caused criticism concerning the vagueness or even vacuous content of the concept (e.g. Bebbington, 2009, pp. 168–169). Debaters have also reminded that social capital is in many cases approached in too positive terms which omits the "dark side" of the concept (Deth and Zmerli, 2010). However, social capital is a very widely used conceptual tool also for regional and other network analysis (Burt, 2000; Grabher–Powell, 2004; Lee et al., 2005; Lockie, 2006; Hauser et al., 2007; Casson–Della Giusta, 2008, Nardone et al., 2010). Actor network theory (ANT) (Law and Hassard, 1999; Callon, 2004; Latour, 2005) and social network analysis (SNA) (Granovetter, 1973; Scott, 1991; Wasserman and Faust, 1994) are established theoretical approaches in analysis of connections between network actors.

Networked exploitation of social capital takes place in communities where expertise and different opinions of participants meet in order to create something new or valuable. Two concepts of knowledge-based communities are of special interest here. First, the idea of community of practice highlights the fact that situated learning and knowing take place in a social world which is in the process of reproduction, transformation, and change. Communities of practice are outcomes of networked social processes where newcomers move to full participation in the communities and networks when they acquire new skills and knowledge (Lave and Wenger, 1995; Wenger, 2002; Wenger et al., 2002; Hildreth and Kimble, 2004).

Secondly, our case study networks may be viewed as knowledge communities (Barrett et al., 2004; Pinch, 2009). Pinch (2009, p. 29) defines knowledge community as "A group of people, typically a professional, technical, or scientific group, unified by a common set of values, norms, and working practices, who produce knowledge for a given purpose". He also argues that the concept of the knowledge community is one of the most important in human geography, helping to account for many features of the emerging space economy and the sociospatial

structure of contemporary society. Although knowledge communities have mostly approached as physically located groups or agglomerations of actors in case studies (e.g. Henry and Pinch, 2000), what people actually do together within their networks is increasingly becoming the focus rather than where they are located. Modern communication technologies have enabled networking irrespective of face-to-face meetings. However, many expert networks and communities exploit both virtual and physical means of cooperation, which is also the case in our example networks.

Networked communities of practice and/or knowledge communities are not (or at least they should not be) static but rather innovative groups of actors. The classic theory of diffusion of innovations is a useful framework for understanding how ideas in networks spread out (e.g. Hägerstrand, 1967; Rogers, 2003; Jones and Miller, 2007; Sternberg, 2009). Here we employ one of the most focal works of them, Rogers' (2003) theory of diffusion of innovations. Innovation as a concept refers both to concrete or handmade new inventions and abstractions. Brown (2009, p. 170), for example, defines innovation as "A new product, new idea, new technology, new organizational structure, new way of doing things, or a new phenomenon. In this context, new means new to a particular place by way of adoption, not necessarily that the innovation was created in the near past". This clarifies the approach applied here that we regard our case study networks innovative for their participants, even the idea of networking is old and not an innovation itself.

3. Case study networks and methodology overview

Two relative new and small scientific rural networks were chosen to this study. The Finnish case is the Rural Studies Network of Finland (RSN). The origins of this network are varied, but perhaps the two most important background factors were the initiative made by Rural Policy Committee of Finland and the foundation of Maaseudun Uusi Aika - yhdistys (New Rural Policy Society) in the late 1990s. The society collected many interested Finnish academics that started discussions on how to put the limited resources of academic rural education in Finland together. RSN started in 2002 as an unofficial consortium between seven universities. Its aim was to establish a multidisciplinary rural education programme for the master's level students of its partner universities. In 2009 there were in total ten Finnish universities involved in the network by official agreements (Muilu, 2007; 2010; Rural Studies Network RSN, 2011) (Table 1).

The second and international case is the European Rural Development Network (ERDN). It was established in Poland in 2002 based on an idea which emerged from discussions with the Institute for Applied Systems Analysis (IIASA) in Austria. There were six founding member organizations in Poland and also key associated institutions from Austria, Lithuania, the Czech Republic, Romania, and the Slovak Republic. The major aim of ERDN was to establish a rural development and research cooperation network between Polish and other European research institutes in order to exchange and promote the scientific experiences and achievements of the participants. The most important function of ERDN is its annual meetings. People from several countries have participated in the meetings, and the total number of partner countries was nearly 20 in 2009. Most of the papers presented in the meetings have been published as annual volumes (Voicilaş, 2008; Muilu & Kotavaara, 2010; European Rural Development Network ERDN, 2011) (Table 1).

The selected case study networks differ on purpose in their backgrounds and orientations, though they were both started in the same year. The aim here was not to compare similar networks but to find basic differences and similarities in the emergence of quite different scientific rural expert networks. ERDN is based on voluntary international cooperation of individual scholars and research institutions, and it focuses on rural research cooperation. RSN of Finland is also based on individual experts, but they are all Finnish, and the network has concentrated on academic rural education, at least so far. It also has a more formal structure than ERDN, since the cooperation is agreed upon by signature of the rector of the respective partner university. Both networks are multidisciplinary and have a rather small number of network actors (Table 1).

| | Rural Studies Network of Finland (RSN) | European Rural Development Network (ERDN) |
|--|--|--|
| Year of foundation¹ | 2002 | 2002 |
| Aims of establishment¹ | To establish a multidisciplinary rural education network for the master's and post-graduate level students of partner universities, in order to pull together limited and scattered Finnish resources of academic rural education. | To establish a multidisciplinary rural development and research cooperation network between Polish and other European research institutes, in order to exchange and promote scientific experiences and achievements of the participants. |
| Regional scope¹ | Finland, national | International, about 20 central European/eastern-central European countries |
| Action¹ | Master's level education according to a common study programme | Annual conferences and conference publications, joint funding applications |
| Actors (in 2009) | 10 universities ² 30 teachers ² 13 executive board members ² 15 PR contact persons ² 4 representatives of the coordination unit ² | Mainly research institutions from about 20 countries ¹ Over 100 individual participants ³ |
| Network organs¹ | Executive board Coordination unit (Ruralia Institute, University of Helsinki) | No official organs Voluntary coordinators of meetings and editing publications |

Tab 1. Characteristics of Rural Studies Network (RSN) and European Rural Development Network (ERDN).

¹ European Rural Development Network ERDN, 2011; Rural Studies Network RSN, 2011

² Rural Studies Network, 2008.

³ ERDN e-mail lists

The empirical study of the case networks was carried out with Webropol web surveys that were organized for the actors of both networks in April–May 2009. The aim was to reach as many people as possible of those who had taken part in meetings or other activities of the networks since their establishment in 2002, or even before during the planning of the networks.

The first e-mail inviting the ERDN participants included in total 118 e-mail addresses, and, after two request e-mails to all addresses and several individual messages, the final number of accepted answers was 47. The number of participants (board members, coordinators and teachers) of the Finnish RSN who were asked to reply to the survey was 59 persons, of whom 25 replied after two requests. The questionnaires sent to each network were as similar as possible. The questions dealt with the respondents' background information, motivation for participating in the networks, and evaluation of action and effects of the networking. Both five-level Likert scale statements (Likert, 1932) and open questions were utilised. Since the amount of respondents is relatively small (72 in total), the analysis is based mostly on simple and cross tabulation.

4. Results

4.1 Diffusion of case study networks

The following sub-chapters are organized by the elements of the diffusion process (Rogers, 2003). They include 1) innovation, e.g. an idea perceived as new by an individual or other unit of adoption, 2) communication channels through which a new idea gets from one individual to another, 3) a social system within which diffusion occurs and 4) time, which is involved in other elements of the diffusion process. The characteristics of the innovation, in this case networks, affect the rate of its adoption among target group. The innovation will be adopted more rapidly than other innovations, particularly, if it has greater relative advantages in relation to the idea it supersedes and if it is compatible with existing values and norms (Rogers, 2003).

4.1.1 Case study networks as innovations for the actors

Before the establishment of Rural Studies Network, cooperation in the academic rural education field in Finland was based mostly on individual-based cooperation, and rural education was scattered among different universities. With Finland's EU membership in 1995, the need for research and education that promotes new multiform rural areas became more evident than before (Katajamäki, 2007). Rural academic education in Finland, however, suffered from financial problems and scarce resources in general. There was thus a need for networking and combining of existing resources. An interesting fact is that the initiative for developing and networking rural research and education was taken by the Rural Policy Committee of Finland, coordinated by the Ministry of Agriculture, and the New Rural Policy Society, not by the universities themselves.

On European level, rural scientific networking was not a new thing in 2002 when European Rural Development Network was established in Poland. It was, however, a bit uncommon that this network was multidisciplinary from its starting point. Before the establishment of the network, international rural research cooperation in the Central and East European ERDN member countries was carried out mainly between individual research institutions and through joint research projects. At the time when this network was being established, most of the member countries of ERDN were on the threshold of European Union membership and supposedly there was a need for re-orientation of rural research in connection to the EU rural policy tools soon to be adapted in these countries. The policies and objectives of the EU and the development process of the union formed the framework of ERDN (see European Rural Development Network ERDN, 2011).

The advantages of networking are not always clearly observable or visible to potential actors considering participation in a network. So, besides the evident advantages of the network, there are also expected advantages which affect the rate of its diffusion. According to our surveys, the actors who participated in the international ERDN expected that the network would mainly offer rural researchers new and better opportunities for exchanging knowledge and experiences (58%), getting new contacts (48%) or new forms of cooperation (35%). Almost a half (42%) of the Finnish RSN actors, on the other hand, considered participation in the network as simply part of their responsibilities, though only a few of them indicated no other motivation. Other major motivations of RSN actors were developing their research area or training programme (42%) and furthering one's own career (32%). (Table 2).

"... In the beginning of 2002 there was a lot of discussion about advantages of forming scientific networks. Generally one group of arguments was related to professional knowledge enrichment and the second with better position to have an access to finance resources. ..." (ERDN actor)

| Years | – 2002 | | 2003–2006 | | 2007–2009 | |
|---|---|---|---|---|---|---|
| Network | European Rural Development Network (ERDN) | Rural Studies Network of Finland (RSN) | ERDN | RSN | ERDN | RSN |
| Number of network actors ¹ | 13 authors of conference papers from 4 countries + other conference participants ² | 7 universities 25 teachers in academic year 2002–2003 ³ | 16-27 authors of conference papers from 7-10 countries + other conference participants ² | 8–9 universities 32–33 teachers in academic years 2003–2006 ³ | 45 authors of conference papers from 13-16 countries + other conference participants ² | 10 universities 30 teachers in academic years 2007–2009 ³ |
| Major reason(s) of new actors for participating ⁴ | own will (100%) | own will (56%) request or command (22%) | own will (79%) request or command (16%) | request or command (55%) own will (27%) | own will (87%) | own will (75%) request or command (25%) |
| Major personal motivation(s) of new actors for participating ⁴ | exchanging knowledge and experiences (60%) cooperation (60%) | developing research area or training programme (50%) | getting new contacts (73%) exchanging knowledge and experiences (67%) | topic(s) (67%) developing research area or training programme (50%) furthering career (50%) | exchanging knowledge and experiences (50%) | getting new contacts (50%) |
| Main source(s) of first information of network for new actors ⁴ | personal contact (80%) | personal contact (44%) internet/e-mail (22%) | personal contact (95%) | personal contact (55%) internet/e-mail (18%) | personal contact (65%) internet/e-mail (22%) | notice/newsletter (75%) |

Tab 2. Stages of diffusion of Rural Studies Network (RSN) and European Rural Development Network (ERDN).

Percentages (%) in parentheses refer to the share of respondents

¹ European Rural Development Network ERDN, 2011; Rural Studies Network RSN, 2011

² No available information on total number of conference participants

³ In addition 3-4 representatives of the coordination unit and members of the executive board (1 representative/university and representatives of the coordination unit), most of the executive board members act as a teacher in the network

⁴ Webropol survey for ERDN actors, April–May 2009; Webropol survey for RSN actors, March 2009

4.1.2 Communication channels

“The essence of the diffusion process is the information exchange through which one individual communicates a new idea to one or several others. ... A communication channel is the means by which messages get from one individual to another.” (Rogers, 2003, p. 18). The communication channels in the diffusion of networks are personal contacts, notices or newsletters, the internet and e-mail lists, of which personal contacts clearly seem to be the most common. Although mass media channels are fast, and by using them it is easy to reach a large number of people in one go, personal contacts seem to be the most effective channel when it

comes to persuading a person to participate in a network. Rogers (2003) discovered that the former applies to all innovations in general. He adds, however, that interactive communication via the internet has become more important for the diffusion of certain innovations in recent decades.

In RSN and ERDN, the internet and e-mail have not—at least yet—surpassed personal face-to-face contacts. In any case, the importance of different communication channels seems to differ in different types of networks to some degree. For example, almost four fifth (79%) of the European Rural Development Network actors from different countries had heard of the network through a personal contact. Also, in the Rural Studies Network of Finland, personal contacts was the most important single communication channel, but their share (42%) of all communication channels was clearly smaller than in ERDN. In the Finnish network, also notices or newsletters, internet and e-mail lists are a bit more important than in ERDN. Further, outstanding is that a fourth (25%) of the RSN respondents had heard of the network through some other way than the above-mentioned channels (Table 2).

4.1.3 Social systems

Diffusion occurs within a social system that “is defined as a set of interrelated units that are engaged in joint problem solving to accomplish a common goal” (Rogers, 2003, pp. 23–24). In our case a social system means all potential network actors containing all those who may have something to give to the network and/or those who may benefit from the networking in some way.

The social system of the Finnish RSN is academically and nationally delimited and can be defined at both an organizational and personal level. At an organizational level it consists of all the Finnish universities that provide rural education, and at a personal level it contains all the present and potential rural researchers, teachers and students in the said universities. There was, at least in some of the Finnish universities, an off-season in academic rural education and research after the active 1970s and 1980s. During this century, however, the field has been developed with significant investments, for example, by establishing nine temporary rural professorships in 2003–2005 and with the establishment of RSN in 2002. RSN is so far the only academic and interdisciplinary rural education network in Finland, and it has encompassed quite well those who are working in the field of rural academic education in Finnish universities and are willing to network. From 2010 onwards, however, three universities decided to withdraw from the network, at least temporarily, due to financial constraints which were caused by the new university legislation in Finland. Each member university has to pay an annual fee of 8000 € for their membership in the RSN, since the Ministry of Education cut out direct funding to university networks.

European Rural Development Network is one of the many European scientific rural associations and networks. One of the reasons for the many networks is that the Framework Programmes of research in the European Union are usually based on existing or project-based research networks. Usually the networks are based on one discipline. ERDN is, however, multidisciplinary and, in addition, participation in network action is not delimited. Even if the social system of ERDN consists, in principle, of all the rural researchers in Europe, the actual number of members of ERDN is, however, relatively small (Table 1).

In ERDN and especially in the Finnish RSN, the decision to participate in the network is often made by an organisation, not by an individual. In ERDN participation in the network occurred mainly (85%) voluntarily, but in RSN almost as often by request or command of a superior or background organization (40%) as voluntarily (44%). In RSN, individual-level participation is actually based on network contract between universities and departments as well as on common study programmes. An individual can make his/her decision to participate in RSN only after his/her background organization has accepted the network participation. That is what Rogers (2003, p. 403) calls a contingent innovation-decision. In a way RSN is an intermediate form of a network of individuals and a network of organizations (Table 2).

4.1.4 Time – stages of diffusion

The individuals in a social system do not all adopt an innovation at the same time. Rogers (2003, pp. 267–268) classifies individuals into adopter categories (innovators, early adopters, early majority, late majority and laggards) on the basis of when they first begin using a new idea. The classification is based on the innovativeness of members of a social system that Rogers (2003) considers as the bottom-line behaviour in the diffusion process. The diffusion process in RSN and ERDN as well is strongly affected by the principles of the action of the networks, and in RSN also by the financial limitations of the network.

The number of network actors in the Finnish RSN has not increased much, and there are no clear stages in the diffusion process of the network. RSN enlarged from 7 to 10 universities in 2002–2009. The number of faculty in the network enlarged, respectively, from 25 to about 30 teachers per academic year. The actors who participated in the network in the early years of network action were motivated mainly by developing their research area or training programme. The actors who have come in later have had also more personal motivation(s) such as interesting topics or furthering one's own career (Table 2). The development process of RSN is, in fact, better described by the development of action, e.g. study programme, and structure of the network than by the number of actors (see Rural Studies Network RSN, 2011).

The diffusion process of ERDN, on the other hand, consists of different stages each relating to the development of the number of the network actors. ERDN enlarged from a network of representatives from 4 countries to a network of representatives from approx. 20 countries in 2002–2009. One important turn in the diffusion process of ERDN was in 2007, when the annual network conference was held outside Poland for the first time. The number of authors of conference papers, for example, nearly doubled then.

In both networks, personal connections seem to be the major communication channels, especially in the early years of the network action. In RSN, however, the importance of personal connections seems to have diminished over time and, instead, notices and newsletters have become the main source of information for new actors in recent years (Table 2). This is, at least partly, due to the establishment of the network and, therefore, having no need for active recruitment of new members.

4.2 Social structures of the case networks

In order to condense and structure the empirical material and the emergence of case networks, participants were next roughly categorized into four different groups according to the level and intensity of their commitment to the network. The level of commitment can be divided into two categories (personal level and organizational level) based on whether the major motivation for participating in the network is personal initiative and interest or interest of the participant's background organization. Also the intensity of commitment to the network can be divided in two rough categories: strong and weak.

There are clear differences between the networks in the level and intensity of commitment of the actors: generally speaking in the international ERDN three out of four actors are personally committed and in the Finnish RSN more than half of the actors are instead organizationally committed to the network. In addition, three-quarters of RSN actors expressed strong commitment to the network with four-fifths of ERDN actors having weak commitment (Fig. 1).

The groups were named after their typical characteristics. Most of the Finnish RSN participants were so-called "*active users of the network*" or "*developers of research area or training programme*". Both actor types are strongly committed to the network. "Active users of the network" have participated in the network of their own initiative and/or their motivation for participating is mainly personal; the most common of their diverse motivations is furthering one's own career. They have acted in RSN as members of the executive board, representatives of the coordination unit or PR contact persons in universities and/or they have had more than one role in the network (Fig. 1). They have joined RSN at early stages of the diffusion process of the network (see Table 2); every third "active user of the network" has been involved from the beginning of the network.

| | | | | |
|----------------------------|-----------------------|---|---|---------------|
| LEVEL OF COMMITMENT | <i>personal</i> | <p align="center">“VISITORS”</p> <p align="center">57 % of ERDN respondents</p> <p>“I wanted to look at this kind of R&D seminar which was unknown to me before that. I was also looking for new contacts and networks in the area of development of rural livelihoods”.</p> <p>“I am young researcher and it is interesting for me to participate in different conference. Besides I am interested in scientific cooperation abroad.”</p> <p align="center">8 % of RSN respondents</p> <p>”It became necessary to create a study module [for RSN] ... Motivation was an interesting offer which was close to my own interests and expertise.”</p> | <p align="center">“ACTIVE USERS OF THE NETWORK”</p> <p align="center">15 % of ERDN respondents</p> <p>“[I wanted to] to present the results of my work to an European audience, to widen the network activities of my institute, to find potential project partners, to learn about research activities in other countries, to get personal connections to other researchers in my fields of work”</p> <p align="center">36 % of RSN respondents</p> <p>”I want to specialize myself as rural researcher, and RSN action is, in my opinion, excellent networking.”</p> <p>“[RSN is] An innovative and inspiring new network, that responded my own and department’s interests and prospects of development of research and education.”</p> | |
| | <i>organizational</i> | <p align="center">”COMMANDED BY BOSS OR BACKGROUND ORGANIZATION”</p> <p align="center">23 % of ERDN respondents</p> <p>“It was in a good interest of my Institute that our staff can participate”</p> <p align="center">16 % of RSN respondents</p> <p>”Earlier motivation was to help a friend who had to conduct a study module [in RSN]. At the moment motivation is employer’s commitment to RSN action, whereupon it is part of my responsibilities.”</p> <p>”it was given me as an assignment to produce and execute a course [in RSN]”</p> | <p align="center">”DEVELOPERS OF RESEARCH AREA OR TRAINING PROGRAMME”</p> <p align="center">4 % of ERDN respondents</p> <p>“It stemmed from my numerous involvements in work on agricultural and rural research problems ... I thought there is a lot to be done in such domains on the European level”</p> <p align="center">40 % of RSN respondents</p> <p>”[My] general motivation [for participating] was developing rural field in Finland. RSN is an important part of development of the field. ...”</p> <p>“I want to create, for education in my department, a new strong area that is based on e-learning . . . Network entails national contacts.”</p> | |
| | | <i>weak</i> | INTENSITY OF COMMITMENT | <i>strong</i> |

Fig 1. Categorization of the participants of the Rural Studies Network of Finland (RSN) and the European Rural Development Network (ERDN). The categorization is based on Webropol surveys for ERDN actors (April–May 2009) and for RSN.

“Developers of research area or training programme” have participated by request or command of a supervisor or background organization and/or their motivation for participating is mainly organizational. Their commitment to the network is, however, strong. Like “active users of the network”, also “developers of research area or training programme” have acted in RSN as members of the executive board, representatives of the coordination unit or PR contact persons in universities and/or they have had more than one role in the network (Fig. 1). Half of them have participated in the network from the early years of the network action.

Most of the participant of the international ERDN were categorized “visitors” who are personally but weakly committed to the network. These actors have participated in the network of their own initiative and they have personal motivation(s) for participating, most commonly exchanging knowledge and/or experiences and getting new contacts. However, “visitors” have generally participated in the network meetings only a couple of times, most of them only once, usually as a speaker or with a poster presentation (Fig. 1). More than half had participated in the network within the past couple of years (2007–09).

It seems that most of the ERDN actors have participated only in local ERDN meetings, and, in most cases, it has not lead to any greater commitment to the network. In fact nearly two-thirds (60%) of the actors had participated in an ERDN meeting only once, and almost every second (49%) actor had heard of the network or participated in a network meeting for the first time in 2007–09. Therefore, the core group of the ERDN actors, “active users of the network” and especially “developers of research area or training programme”, seems to be relatively small (Fig. 1).

4.3 Functioning of the case networks

Both RSN and ERDN are informal networks in that sense that they are not based on legislation or other tasks or duties given or specified by authorities. They are, however, structurally different. ERDN is based on the voluntary international cooperation of individual experts and institutions. It has no official organs except for a couple of voluntary coordinators. RSN was a partnership network of 10 Finnish universities in 2009. However, it had a more formal structure than ERDN, since the cooperation is agreed upon by signature of the rector of the respective partner university. RSN also has a management system with a coordination unit and executive board (Table 1). Most of the RSN and ERDN actors think that the present structures of the networks need to be more precisely dictated. RSN actors consider the present structure of their network a little more functional and effective than ERDN actors do (Fig. 2).

“The structure is functional and it has produced good results. It is, however, founded on the co-ordination unit and its financial and other responsibilities.” (RSN actor)

RSN is a national network with a rather small number of actors, whereas ERDN is an international network of over 100 researchers from nearly 20 countries. A great deal of ERDN actors meet in annual meetings funded by external grants. On the other hand, the internal distances in Finland are large and most of the RSN actors are therefore physically located relatively far from each other. Face-to-face contacts are therefore mainly occasional for RSN actors, excluding the board members. In social dealings, however, communication technologies have, at least partly, compensated for face-to-face contacts. RSN actors seem to be clearly more satisfied with the operation of the flow of information inside their network than ERDN actors (Fig. 2).

“... The time for the personal contacts (only two days per year) is very short.” (ERDN actor)

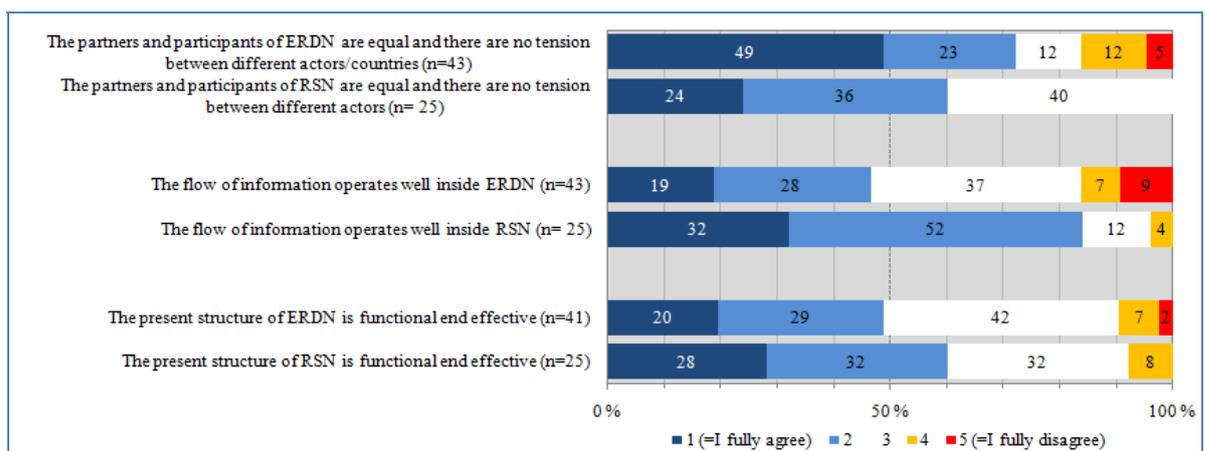


Fig 2. Functioning of the Rural Studies Network of Finland (RSN) and the European Rural Development Network (ERDN). Sources: Webropol surveys for ERDN actors (April–May 2009) and for RSN actors (March 2009)

Due the different orientations and organizational structures of the Finnish RSN and the international ERDN, there are also different roles for the actors in the networks. RSN actors act as members of the executive board, representatives of the coordination unit, PR contact persons or teachers, usually having one (56%) or two (36%) roles. Most of the ERDN actors have acted as a speaker in a network meeting or participated in a meeting without submitting a paper or a poster presentation. Only a few of the actors have taken part in the organization of

the meetings. Most of the ERDN actors (70%) have acted in the network in one role. Every second ERDN actor thinks that the partners and participants of ERDN are fully equal and there are no tensions between the different actors and countries. RSN actors are not quite as satisfied with the equality of network partners (Fig. 2).

“It is hard to say, because I haven’t been in an inner circle of the network. I believe, however, that there are some tensions, as all Finnish universities are gathered around one subject. On the other hand, RSN is unique, so in that regard, there is no direct competition between universities.” (RSN actor)

4.4 Effects of networking

Both Rural Studies Network and European Rural Development Network had been active for 8 years at the time of our survey. This chapter discusses the effects of the networking, and thus analyses whether ERDN has raised the level of rural research in Europe and/or in the actor’s organization, and, respectively, whether RSN has raised the level of academic rural teaching in Finland. Additionally, it discusses whether the networks have improved the possibilities for networking, increased social capital and communality, and produced personal and organizational benefits for network partners. Also considered is whether an actor’s own activity and motivation has affected the benefits he/she has got from networking.

The difference between the networks was remarkable. Almost all the Finnish RSN actors thought that the network had more or less raised the level of Finnish academic teaching in rural studies, but only less than half of the ERDN actors believed that ERDN had affected the level of rural research (Fig. 3). The major explaining factor is likely that the networks have a different position and significance in their field and operational environment. RSN was the only network in the field of rural academic education in Finland, whereas ERDN is one of several European rural research networks.

“At present ERDN seems to be too small and too unbeknown to have effects on European rural research.” (ERDN actor)

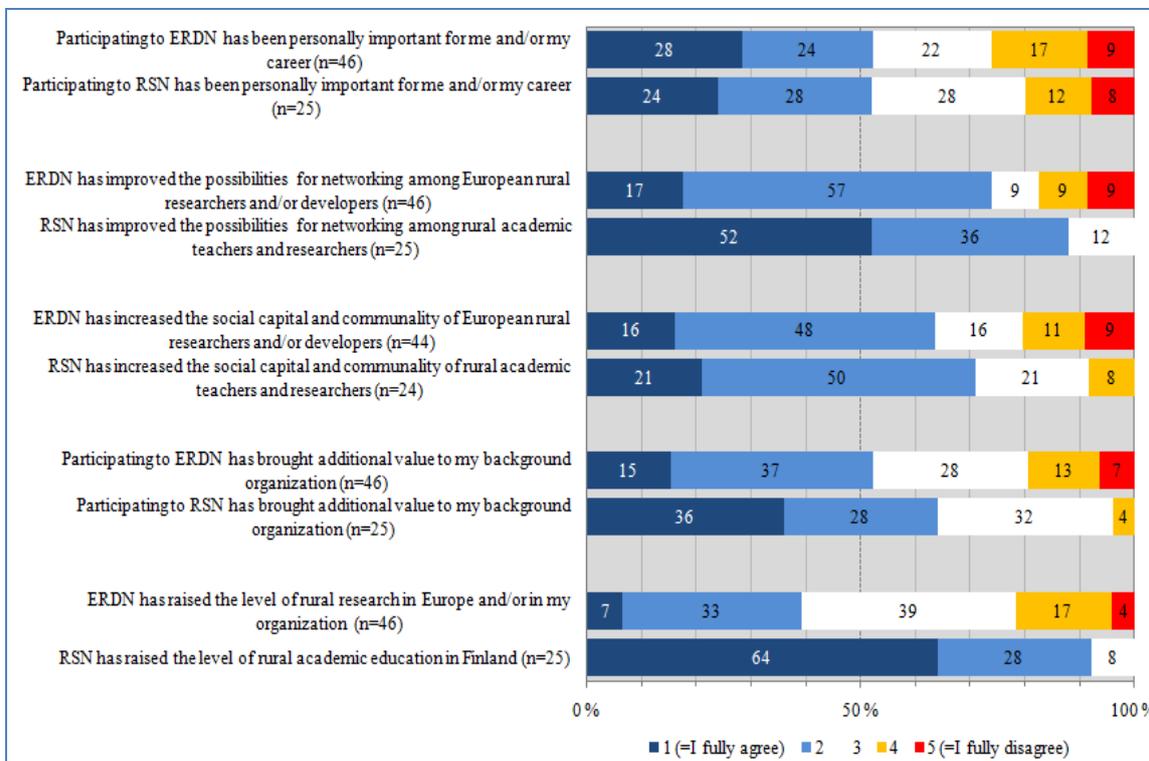


Fig 3. Effects of the Rural Studies Network of Finland (RSN) and the European Rural Development Network (ERDN). Sources: Webropol surveys for ERDN actors (April–May 2009) and for RSN actors (March 2009)

Three-quarters of ERDN actors were fully or partly of the opinion that the network had improved the possibilities for networking among European rural researchers and/or developers. RSN has succeeded even better, as nine out of ten network actors fully or partly believed that RSN has improved the possibilities for networking among rural teachers and/or researchers in Finland (Fig. 3).

"[Rural] Education and teachers have been scattered in different universities of our country. The programme has networked teachers and made them aware of each other and each other's fields of know-how and research." (RSN actor)

Though the social and organizational structures and orientations as well as the regional scales of RSN and ERDN are very different, there are no clear differences between the networks concerning the incensement of social capital and communality. In the actors' opinion, ERDN had to some extent increased the social capital and communality of European rural researchers and/or developers and, correspondingly, of rural academic teachers and researchers in RSN. Both networks seem to have better results in improving the possibilities for networking than in increasing social capital and communality (Fig. 3).

"Not for the European researchers in general, but for the participants. As ERDN is a small community the personal contacts are very close, which means an advantage in my mind." (ERDN actor)

Participating in the Rural Studies Network and the European Rural Development Network had brought some personal benefits for the network actors. Half of the actors in both networks consider participation in the network personally very or quite important for themselves and/or their careers (Fig. 3). In both networks, participating in the network had been personally more important for those actors who had participated in the network mainly for personal reasons and for those actors who were strongly committed to the network than those who had participated mainly for organizational reasons and for those whose commitment to the network is weak.

"It doesn't very much affect to my career because my career is more dependent on educational work and personal research work just now." (ERDN actor)

Participating in the networks has not only brought personal benefits for the actors but also additional value to the background organizations of the actors. In Rural Studies Network, organizational benefits were, in the actors' opinion, even more considerable than personal benefits. Generally speaking, RSN had clearly produced more benefits for the actors' background organizations than ERDN (Fig. 3). An actor's level of commitment (personal or organizational) does not seem to affect the attainment of organizational benefits. But, rather, in both of the networks an actor's strong commitment to the network clearly seems to help in getting additional value for the actor's background organization.

5. Conclusions

In this article a comparative analysis of two purposely different scientific rural networks was made. The focus of the study was on comparing the development, diffusion and functioning of these two relatively new networks. The idea was to find out which kind of common features and differences there are among experts of rural research and education who have created networks in order to gain benefits for their work.

We have highlighted the role of the individual participants of these networks instead of territorial aspects, which brings our approach rather close to the ideas of communities of practice (Wenger et al., 2002) and knowledge communities (Barrett et al., 2004). Pinch (2009, p. 29) argues that the concept of the knowledge community is one of the most important in human geography, helping to account for many features of the emerging space economy and the sociospatial structure of contemporary society. Rogers' (2003) theory of diffusion of innovations was employed to aid in understanding how ideas in the networks spread out. The idea of networking is of course quite old and not anymore an innovation itself, but creating new networks and participation in them may be regarded innovative on individual level.

The emergence of the European Rural Development Network (ERDN) represents, to some extent, the classical diffusion process presented by Rogers (2003), whereby diffusion is determined by the innovativeness of an individual or other unit of adaptation. In the Finnish Rural Studies Network (RSN) there are also other factors that had set significant limitations on the diffusion processes. In RSN, individual-level participation is based on network contracts between universities and departments as well as on a common study programme. An individual can make his/her decision of participating in RSN only after his/her background organization has accepted the network participation. That is what Rogers (2003, p. 403) calls a “contingent innovation-decision”.

An innovation will be adopted more rapidly than other innovations, particularly, if it has greater relative advantages in relation to the idea it supersedes and it is compatible with existing values and norms. However, the advantages are not always observable or visible to potential actors considering participating in a network, which may consequently slow the diffusion. Besides the evident advantages, there are expected advantages of networks which also affect the rate of their diffusion. The results of the study show that, partly due to the different functions and orientations of the networks, in the international ERDN advantages of the network are expected to be at a personal level and in the Finnish RSN both at a personal and organizational level. There was also both in Finland and in the Central and East-European ERDN member countries a clear need for the networking of rural scientific expertise in the beginning of this century. That is, in many respects, the cause for both the networks having been relatively successful in improving the possibilities for networking rural expertise among their social systems.

A key debate in contemporary human geography on knowledge communities concentrates on the role of particular places such as offices, cities, regions or nations in the formation and action of these types of communities. There are two opposite perspectives as to what extent knowledge communities are scale dependent, one stressing the importance of geographical proximity and other, more plausible, the relational proximity for functioning of knowledge communities (Pinch, 2009, pp. 25–26). In our case networks the effects of geographical proximity on networking are difficult to evaluate because there are several other differences between the networks which also affect the functioning of the networks. In any case, even if the communication technologies (ICT) can partly compensate costly face-to-face contacts in social dealings, at least in the field of academic rural expertise the actors highlight also the importance of “physical” personal contacts. The results of our study support Rogers’ theory and show that personal contacts still seem to be the most common communication channels in the diffusion process of the networks. In the future, with the coming of younger generations who are increasingly familiar with exploiting new technologies and virtual forums, the significance of ICT in networking will certainly grow.

This paper indicates clear differences between the national and international network in the commitment of the actors. The European Rural Development Network actors are mainly personally but rather weakly committed to the network, whereas most of the Finnish Rural Studies Network actors have a strong commitment to the network. It seems that most of the ERDN actors participate in local ERDN meetings and, in most cases, it does not lead to any greater commitment to the network. The study also shows that personal and strong commitment helps an actor to obtain the personal benefits of networking. In addition, an actor’s strong commitment to the network clearly seems to help in creating additional value for the actor’s background organization as well, but it does not seem to matter whether an actor has a personal interest in participation or not.

Finally, we conclude that the scientific expert network can be seen as an innovative social networking process, during which individual participants join and, in an ideal case, commit themselves to the network for reasons connected to their background, motivation and other factors. The result is a knowledge society of experts who share some common ideas and goals by exploiting and reproducing their social capital.

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