Tools to observe innovation processes:

The AgriSpin experience

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Abstract: *In the AgriSpin project (2015-2017) fifteen organisations involved in innovation support tried to understand better how each of them made a difference in helping farmers to innovate. In principle, each partner organisation hosted a Cross Visits of 3 – 4 days, to present a number of interesting innovation cases in which it was involved. The visiting team, composed of colleagues from other partner organisations, interviewed key actors in each case, and gave feedback about pearls, puzzlings and proposals in these innovation processes.*

This paper reports about the methodological aspects of the AgriSpin project. How do you make observations with a team of 7 – 12 colleagues? How do you collect all these observations and how do you make sense out of it? And what did the innovation support agents who participated in the AgriSpin project take home from this adventure?

Keywords: *innovation, innovation processes, innovative farmers, innovation support services, methodology, knowledge brokering.*

AgriSpin: learning from and with each other

Good initiatives for innovations are everywhere, the environment selects. Compare microorganisms in nature: they are everywhere but the environment selects. Following this statement, stimulating innovation means creating an inducive environment where people with good ideas can flourish, and thresholds for getting assistance are low. This statement is in contrast with the assumption which is still common among many researchers and policy makers that new things come from research while innovation support agencies are there to translate messages and deliver them at the doorstep of end users, for example farmers.

The current European Innovation Partnership program (EIP, 2014-2020) signifies a paradigm shift: from the linear model as just described towards an interactive paradigm, assuming that innovations emerge from interaction between major actors in the knowledge system.

But what does this policy shift mean for practitioners who do the job? What do they actually do to support innovations at farm level? What are their ideas about what is needed to be successful in assisting innovative farmers? And what would happen if they engage in a joined learning process?

The EIP program for agriculture is funding different types of activities. Operational Groups, composed of farmers and other actors (researchers, extensionists/advisors, businesses, etc.) can apply for funds through their regional governments, to develop an innovation. Thematic Networks bring together specialists from different European regions for sharing experiences on a specific theme. AgriSpin was the first Thematic Network to be funded. The project consortium consisted of 15 partner organisations from 12 European regions, all involved in innovation support at farm level.

In line with the paradigm as adopted by EIP, the AgriSpin partners assumed that they all were applying interesting methods, while nobody pretended to know best how to support innovations. AgriSpin was about learning with and from each other. This was the starting point of a fascinating learning process through trial and error.

In this contribution, the following aspects will be highlighted:

[a] The Cross Visit as a method. Main features of the Cross Visit manual. After each Cross Visit the manual was revised with lessons learned, until it reached its 10th edition.

[b] The Spiral of Innovations. Halfway the Cross Visits the Spiral of Innovations was adopted as a helpful tool to reconstruct the story of an innovation case. In innovation processes different stages can be recognised, each with their specific activities to perform, actors to involve and pitfalls to avoid.

[c] Learning Histories. Innovation processes are discovery journeys, rather than operations that deliver products, which can be planned for. Therefore, reporting about such processes should be done differently as well. AgriSpin experimented with a form of story-telling to capture the essential elements of the 50 cases that have been analysed.

[d] Take home messages from the AgriSpin project. At the end of the Cross Visits participants were asked what they took home of this experience. This question was repeated at the end of the entire project: did AgriSpin lead to any changes, in thinking and in practices? The feedback was necessarily subjective and partial, but nevertheless most interesting.

Before reporting about these methodological aspects, we think it is useful to pay attention to the paradigm shift that created the context for this endeavour.

Innovation emerges from interaction: the paradigm shift of EIP

According to Röling (1982: 87), "*Extension means different things to different people*" since it is "*organised in different ways to accomplish a wide variety of objectives*" (Swanson and Claar 1984: 1) and has evolving definitions (Leeuwis 2004; Cristóvão et al. 2012). Nevertheless, "*Most people see extension as a government instrument to promote techniques for improving agricultural production* …" (Röling op. cit.); or, as Nagel (1994) and Blackburn and Vist (1984) argue, traditionally extension has been conceived of as the appropriate means for transferring 'modern' research results from innovation/ technology developers/ sources to the 'traditional' farmer. In sum, it can be argued that extension has, more or less, been identified with the Transfer-of-Technology (TOT) model and the Diffusion of Innovations (DOI) theory. As Lamble (1984: 32) asserts, in order to be able to facilitate the adoption of innovations by farmers (i.e. to fulfil their major function), extensionists must have a good understanding of the processes involved in DOI which, in turn, provide the basis for the development of effective strategies and extension programmes.

Diffusion of Innovations (DOI)

In the first place, it must be underlined that according to Rogers (1983: 134-162) the innovation-development process consists of six stages: recognizing a problem/need; research (basic/applied); development; commercialization; diffusion and adoption; consequences.

"*Diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system*" (Rogers 1983: 5), or "a special type of communication" (Lamble op. cit.: 33). In the diffusion process the information flows through networks. The nature of networks and the roles opinion leaders play in them determine the likelihood that the innovation will be adopted.

Then, the individual decision-making (adoption) process that occurs when individuals consider adopting a new idea, product or practice can be described as follows (Rogers 1983: 163-209):

- *Knowledge*: the individual is exposed to the new innovation.
- *Persuasion*: the individual is showing more interest in the innovation (becomes more psychologically involved) and is seeking more information about it/ forms a favourable or unfavourable attitude toward the innovation (affective domain).

- *Decision*: the individual evaluates the positive and negative aspects of the innovation and decide whether to accept/ reject the innovation/ engages in activities that lead to a choice to adopt or reject the innovation, including trial if the innovation is trailable.
- *Implementation*: the individual puts an innovation into use.
- *Confirmation*: the decision to adopt or reject is not the terminal stage of the process; the individual seeks reinforcement of an innovation decision that has already been made, but s/he may reverse this previous decision if exposed to conflicting messages about the innovation.

The speed with which each individual passes through these 5 stages varies depends on the particular innovation's characteristics which influence its adoption, i.e. relative advantage; compatibility; complexity; divisibility; and communicability (Rogers 1983: 210- 240). Furthermore, the communication channels used in the various stages of adoption process are differentiated (op. cit.: 197-201).

Innovation diffusion research has attempted to explain the variables that influence how and why users adopt an innovation. Based on innovativeness (i.e. earliness or lateness of adoption; Rogers 1983: 242) and the fact that "*adopter distributions closely approach normality*" (Rogers op. cit.: 246), five ideals of adopter categories are recognized, as follows:

(1) *innovators* ('venturesome'), the first ones to try out a new idea accounting for 2.5% of the adopters;

(2) *early adopters* ('respected'), who adopt a little later making up for 13.5%; some time later

(3) *the early majority* ('deliberate;), and

(4) *the late majority* ('sceptical') follow one after the other, accounting for 34% each; finally

(5) *laggards* ('traditional'), who make up for 16%, are the last ones to adopt.

Moreover these categories differ systematically in a number of ways, i.e. in the characteristics of individuals that make them likely to adopt an innovation (Rogers op. cit.).

Given that extension agents are not able to work closely with all farmers in their districts (as they are outnumbered by farmers), they can increase their impact by cooperating with opinion leaders (Rogers, 1983; Van den Ban and Hawkins 1988). Therefore, the so-called 'progressive farmer' strategy followed within the TOT (or the classical/centralised diffusion) model can be depicted as follows:

research -> extension -> progressive farmers -> other farmers (trickle-down process).

Progressive farmers coincide with opinion leaders who, in turn, largely coincide with early adopters (Van den Ban and Hawkins op. cit).

Critique to the TOT model and the DOI theory

Agricultural research and extension based on this Transfer-of-Technology model (TOT), have a long history of innovations and increased effectiveness in food production. However, this 'linear' model has limitations and has been severely criticized on a number of grounds; Nitch (1982) summarizes the critiques addressed to DOI in terms of its three basic assumptions: assumptions about content; assumptions about the dissemination process; and assumptions about learning (see also Rogers 1976).

Nowadays, according to Hubert et al. (2000: 17), "*The dominant linear paradigm of agricultural innovation based on delivery to, and diffusion among, farmers of technologies developed by science, has lost utility as an explanation of what happens*." This is due to a two-fold process. On the one hand, on the realisation of the inadequacy of linear and mechanistic thinking in understanding the source and thus the solutions of problems (Hjorth and Bagheri 2006). Prominent among its alternatives have been systemic approaches looking at a potential system as a whole (holistically) and focusing on the relationships

(important causal inter-linkages or couplings) among a system's parts and on system dynamics, rather than the parts themselves (see: Ison 2010).

On the other hand, the 'diffusion of innovations' model has been heavily criticised, as it fails to respond to complex challenges and rapidly changing contexts. In general, attempts to solve the current, increasingly complex problems with a view to sustainability make it clear that this is a particularly complicated task since, at the same time, there is no single privileged point of view for their analysis. Besides, when dealing with such problems (and sustainability) there may be little useable science, high levels of inherent uncertainty, and severe potential consequences from decisions that have to be made. Moreover, the awareness that real-world problems do not come in disciplinary-shaped boxes calls for the cooperation of diverse academic experts and practitioners. Such a problematique, in turn, reinforces new learning and problem solving methods; new concepts, theoretical contributions and metaphors are thus flourishing nowadays to help understand and predict the links between the social, ecological and economic systems, meet the real world challenges and address sustainability (see Koutsouris 2008).

Networked innovation; facilitation and brokerage

Crucially, according to Röling and Jiggins (1998), the move towards an 'ecological knowledge system' (vs. the 'conventional knowledge system') means the need to move from a praxeology (i.e., theory informing practice, and practices feeding new theory) of 'transfer of knowledge' to a 'facilitating knowledge' one focusing 'on enhancing the farmers' capacity to observe, experiment, discuss, evaluate and plan ahead'. The new praxeology, i.e. facilitation of learning processes, thus calls for an alternative extension pedagogy entailing stakeholders' participation in experiential learning and knowledge exchange (Woodhill and Röling 1998). Social learning (SL), an interactive (participatory) style of problem solving with outside intervention taking the form of facilitation lies at the heart of such processes (Leeuwis and Pyburn 2002: 11). Extension for sustainable agriculture therefore implies a (social) mechanism for facilitating SL (Allahyari et al. 2009) or the reinvention of extension (Leeuwis 2004), that is, the engagement of a wide range of stakeholders in networks allowing for and promoting social learning and the co-generation, dissemination and use of innovations (Klerkx et al. 2010, 2012; Cristóvão et al. 2012; Brunori et al. 2013; Hermans et al. 2013; Moschitz et al., 2015).

Contemporary Agricultural Innovation Systems thinking (AIS, see: Klerkx and Leeuwis 2008; Klerkx et al. 2010; World Bank 2006; EU-SCAR 2012) embraces all the actors and their interactions involved in innovation and extends beyond the creation of knowledge to include the factors affecting demand for and use of knowledge. AIS thinking claims that the process of innovation is messy and complex with new ideas being developed and implemented by actors who engage in networks and make adjustments in order to achieve desired outcomes. Nowadays innovation studies increasingly focus on learning itself, with emphasis on facilitation and the processes of human interaction from which learning emerges.

Therefore, AIS thinking focuses on processes relevant to innovation networks as formed by heterogeneous actors (see Corsaro et al. 2012) with particular attention being given to (social) co-ordination. Particularly, in order to avoid or overcome gaps (cognitive, information, managerial or system) resulting in network and institutional failures (for a review see: Klerkx and Leeuwis 2009; Klerkx et al. 2012) growing attention is given to various types of (process) 'intermediaries/facilitators'. Such 'intermediaries' are involved, taking an independent systemic role, in process facilitation rather than in the production (i.e., source) or dissemination (i.e., carrier) of innovation (Van Lente et al. 2003). Or, according to Haga (2005) they are involved in 'indirect' innovation processes (i.e. in enabling individuals and enterprises) rather than in direct ones (i.e. on actual innovation projects).

In terms of AIS, a new extension approach aimed at participatory and group learning and networking with extension agents acting as 'intermediaries' is thus required. 'Conventional' extension, identified with the linear model of innovation/ TOT, has to do with 'exploitation', i.e. with the capturing, transfer and deployment of knowledge in other similar situations. On the

contrary, nowadays new extension approaches are emerging, operating on systemic perspectives and aimed at enhancing the interaction between a variety of actors; they thus focus on 'exploration', i.e. with the sharing and synthesising thus with the creation of new knowledge. A major role of the new extension is that of the co-learning facilitator (usually found in literature as 'facilitators' or 'brokers') aiming at the development of shared meaning and language between dialogue partners in order to stimulate change and develop solutions and innovation.

And while facilitation is rather well known, brokerage is new, particularly innovation brokerage. Brokers, in general, span structural holes, i.e. gaps in the social structure between groups of people or organisations (Burt 2005), by either introducing disconnected people, organisations, networks or by facilitating new coordination between already connected ones (see also Boari and Riboldazzi 2014). Especially an 'innovation broker' is defined as "an organisation acting as a member of a network … that is focused neither on the organisation nor the implementation of innovations, but on enabling other organisations to innovate" (Winch and Courtney 2007: 751) or "a type of boundary organisation that specializes in brokering or facilitating innovation processes involving several other parties, but does not itself engage in the innovation process" (Devaux et al. 2010), i.e. a 'facilitator of innovation' (see Winch and Courtney 2007; Van Lente et al. 2003).

Klerkx and Leeuwis (op. cit.) identify three major functions of an innovation broker: a) demand articulation, b) network formation and c) innovation process management (see Kilelu et al. 2011). A number of examples of innovation brokering is also found in Nederlof et al. (2011) in which, within the framework of innovation platforms, Heemskerk et al. (2011) identify and discuss a number of brokering functions: facilitation, linking and strategic networking, technical backstopping, mediation, advocacy, capacity building, management, documenting learning, championing. Brokers thus provide three lines of support, i.e. developing a common vision and articulating related demands; scoping, scanning, filtering and strategic networking; and innovation process management (see also Swaans et al. 2014).

Within such a 'transition' framework, a "new extension approach aiming at participatory, group learning and networking with extension agents acting as facilitators" (Cristóvão et al. 2012: 214) is sought. This is further enhanced by the recent concern about a number of issues/ bottlenecks pertaining the generation, dissemination and use of innovation in agriculture such as (see, EU-SCAR 2012, 2014; World Bank 2012):

a. Research is insufficiently related to practice, science-driven innovations remain on the shelf due to no/little dissemination activities
b. Farmers' needs are not sufficiently addressed during innovation generation, and hence innovations are not relevant (enough)
c. Innovative ideas from practice are not captured and spread, i.e. local or practiced generated innovations with strong potential for dissemination are not recognized or diffused
d. A shift from science-driven to innovation-driven research has not yet taken place, the institutional, methodological and behavioural changes that are required for such a shift are not yet comprehensively explored, findings and experiences are not systematically documented and assessed.

Therefore, in the latest reforms of the European common agricultural policy (CAP), two instruments were designed and gradually implemented since 2014 with the aim to more comprehensively and interactively tackle the complexity of innovation support processes. The two instruments are (i) the European Innovation Partnership 'agricultural productivity and sustainability' (EIP AGRI) and, (ii) the multi-actor approach that has become a key component to a number of Horizon 2020 projects. Within such a framework new innovation support service (ISS) approaches emerge. Based on the understanding that networks open wider 'windows of opportunity' for the generation of innovations (Corsaro et al. 2012) such approaches aim at supporting/ enhancing the interaction between a variety of heterogeneous

actors; they thus focus on 'exploration', taking the role of the co-learning facilitator (facilitator or broker) aiming at stimulating innovation.

The Cross Visit Method in AgriSpin

Looking over the shoulder of colleagues

The AgriSpin approach of learning from and with each other fits well in the new policy context of the EU/EIP program. Bringing it into practice was a challenge, however. What can you learn from colleagues doing the same work but in an entirely different context? And what should be organised to make such a learning experience worthwhile?

The key method for doing so was the Cross Visit. Small teams of colleagues visited each other, for studying innovation cases as proposed by each of the partner organisations. The teams interviewed key actors in each case, such as farmers, advisors, researchers and others, and tried to understand why this innovation developed as it did. The Cross Visits provided opportunities to 'peep into the kitchen' of colleagues. In return, they received useful feedback from foreign colleagues on their role in the cases in which they were involved.

The Cross Visit methodology

The importance of a good methodology and skilful facilitation should not be underestimated. Otherwise the visits risk to remain at the level of tourism with an alibi. The AgriSpin project did not take off with a well-established method, but developed it along the way. A manual was made and adapted after almost every new experience. Between September 2015 and September 2016 thirteen Cross Visits have been organised in different European regions, from Basque Country to Finland and from Ireland to Romania and even Guadeloupe (French oversees territory). Some key elements of the methodology are highlighted here[1].

The visiting teams were composed of 7 to 12 colleagues from the different partner organisations in the consortium. At least one of them was part of the Science Team of the project as well, just as at least one had facilitation skills to guide the process. Continuity is important: preferably colleagues participated in more than one Cross Visit only. Some partner organisations chose to give opportunity to several colleagues to join, some of them only once, while others sent one person to participate in as many visits as possible. It resulted in a good mix of experienced participants and newcomers. The planned budget allowed for 6-7 participations per organisation, but with clever calculations and bookings in practice this number per partner became higher. Colleagues were eager to participate.

Host organisations were responsible for preparing one Cross Visit. With a few exceptions each partner in AgriSpin hosted a visit. Hosts proposed innovation cases to the Science Team, and, after selection, upon certain criteria, of 3 to 4 cases, they made arrangements for the visiting team to meet with key actors. Here it is important to notice that these actors prepared themselves for answering questions, rather than telling their own story only.

The visit took usually 3-4 days and consisted of six steps:

1. Kick Off: A session for getting acquainted, oriented, updated and organised.
2. Field Visits: In meetings with major actors the visitors were responsible to collect the information they needed in order to understand what happened in this case.
3. Reflections: After each case the visiting team reflected on what had been observed.

[1] The tenth edition of the Cross Visit manual (Wielinga 2016) is available on internet.

4. Social Activity: For enhancing the team spirit a social activity was useful. Having a good time together was allowed.
5. Preparation of Feedback: The team drew conclusions in three categories: Pearls, Puzzlings[2] and Proposals.
6. Symposium: The team met with key players in the regional knowledge and innovation system for a dialogue about the feedback.

Personal Reflections were required from every participant after a cross visit. A guideline was provided.

Useful instruments for each step can be found in the manual. One example is the set of observation cards. Technicians are inclined to ask technical questions, e.g. a dairy specialist likes to know all technical details as soon as (s)he sees a cow. But that does not serve the purpose of this cross visit. Four fields of interests were considered to be of interest for understanding innovation processes:

- *Innovation*: What is it all about, what is new and for whom is it new?
- *Innovation process*: How did it come about? What were milestones and critical moments?
- *Actors and networks*: Which players where (are) important, when and why? What did the innovation support agents do, and what was the effect?
- *Environment*: What external factors played a role in stimulating or hampering the process?

In the course of the project, a set of eight observation cards was developed, each covering one theme of interest, and offering suggestions for questions to ask. Every team member selected two cards, and was responsible for collecting relevant information about the aspects to be observed. This worked well.

The Spiral of Innovations

After each case it was a challenge to get an overview of what all team members had observed. In the first cross visits the teams used Post-its and posters to be filled in, and 'rich time lines' for visualising the innovation process of each case. Such reflections turned out to be very time consuming while the harvest was not yet reaching the level of understanding that was hoped for. Yet, through all these cases certain patterns became visible.

In the seventh Cross Visit, in Greece, the team experimented with two frames for exploring the innovation processes at stake. One frame was based on the common view on innovation processes including three stages: the initial stage, the development stage and the dissemination stage. The other frame identified seven stages in the "Spiral of Innovations" (Wielinga et al, 2008). This more detailed distinction revealed important details of the innovation process being observed which remained hidden or underestimated in the first frame.

In each stage in Spiral of Innovations there are different key activities to be performed, actors to be involved and typical pitfalls to be avoided.

1. *Initial idea*: Someone has an idea in response to a problem or an opportunity. New ideas can also emerge from creative group interaction. Exposure to the world beyond the comfort zone is often a trigger for new initiatives.
2. *Inspiration*: Others become inspired and form a "warm network" around the initiative. These are likeminded people with similar ambitions.
3. *Planning*: The warm network of initiators organises itself, and negotiates space for development with managers and financers who are in control of the conditions.

[2] A jig saw puzzle has a fixed outcome. Puzzlings are open question marks. They leave room for dialogue.

4. *Development*: In the relatively safe environment thus created, the initiators develop new practices and evidence of their effectiveness. For doing so, connection is made with relevant experts from experience or/and science.
5. *Realisation*: The new practice is introduced in the world outside the safe pilot area. This usually involves competition or negotiation with stakeholders who are affected by the changes caused by the new practice. Once this practice is widely accepted as being valuable, it can be called an innovation.
6. *Dissemination*: Other people become interested and implement the innovation. This can occur by itself, and it can also be promoted.
7. *Embedding*: The innovation becomes common practice, and structures adapt to the new reality. In this stage, gatekeepers, managers and policymakers who control the structures are the actors involved.

The Spiral of Innovations is not a planning tool, but a means to visualise an innovation process as it unrolls itself. Such processes are messy, and it can be necessary to step back a few stages for taking a new run. That is why the stages are not presented on a straight line but in a spiral. It is a useful instrument for determining what stage is at stake at a given moment, and for being aware of the typical pitfalls one can encounter in a specific stage.

Just to mention one example of such a pitfall: the planning stage often involves the formulation of project proposals for funding. When the funding agency fails to see that space is needed for exploration with trial and error, and with disappointments and surprises, but instead requires detailed activity plans and calculable deliverables, nothing new can come out. The negotiating partners should not agree on the product to be delivered but on the questions to be answered at the end of the development stage.

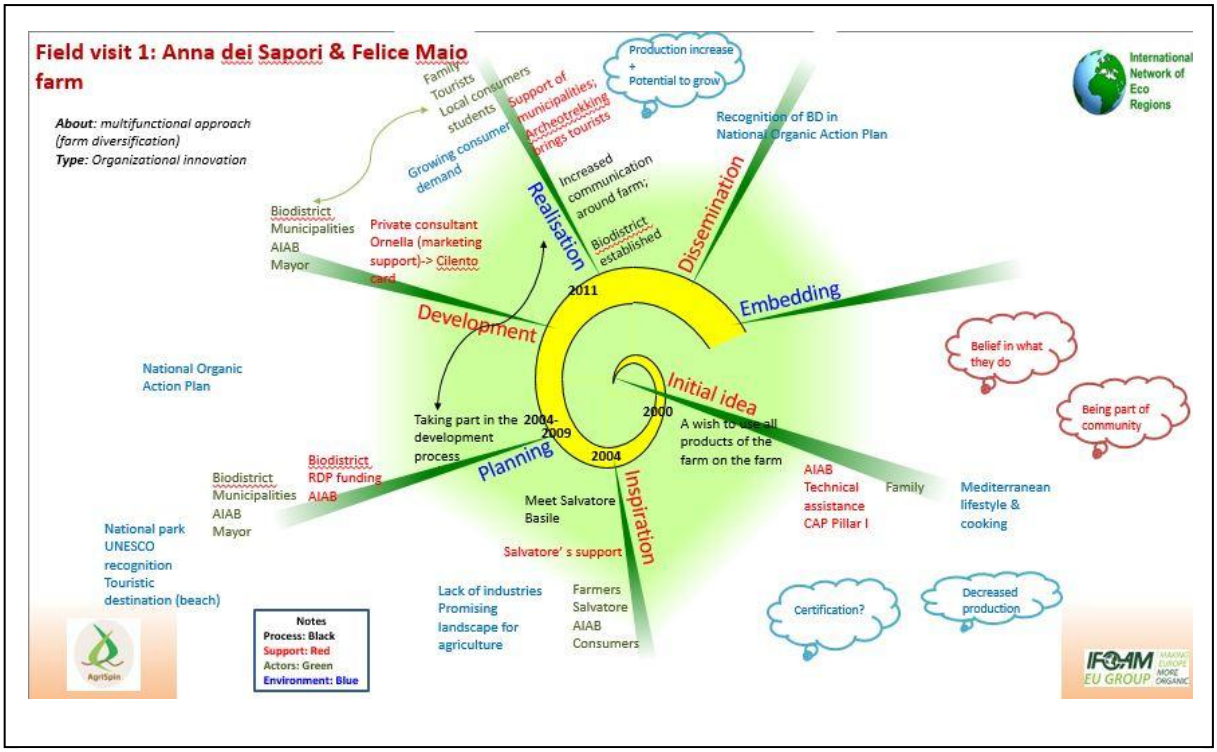

Figure 1: Example of a filled in Spiral of Innovations in a case study in Campania Region, Italy.

In the AgriSpin project the Spiral was used to reconstruct the story of the innovation, by putting the different observations in various colours in the corresponding stages (Figure 1). This became the basis for joint reflection.

The short visits did not allow for rigorous scientific studies from which generalised conclusions about the regional knowledge and innovation systems could be drawn. However, the

symposia with key players in the system about the Pearls, Puzzlings and Proposals were appreciated as very useful for both the visitors and the hosts with their regional partners.

The introduction of the Spiral of Innovations

The Spiral was introduced in AgriSpin halfway the cross visits. During the first series of visits the visiting team tried to reconstruct the story behind an innovation by drawing timelines. It appeared that some typical stages could be recognised in many cases, which did not fit into the classical scheme of 3 phases: initiation, development and dissemination (Godin 2006). In the 7th cross visit, in Greece, while trying to analyse the local innovation case studies a comparison was made between the three-staged scheme with the seven-staged Spiral. It became clear that various elements could be well overlooked in the simple scheme, while they appeared essential in the Spiral as, for example, the assistance that agents had been giving in the very early stages: stimulating ideas to surface, helping to create a 'warm' network of allies in the inspiration stage and mediating during the planning stage. Support agents had been active in create pathways: a task that usually was not part of their task descriptions.

The Spiral was one of the tools that were developed in the experiment 'Networks in Animal Husbandry' (NidV: 2004 – 2007) (Wielinga et al 2008). Then, farmers had been asked to propose innovative ideas for sustainable development in their sector, and to present themselves as a network. Once accepted, they received assistance from researchers from Wageningen University & Research (later on also from advisors) and a budget for hiring expertise when needed. The threshold was low: a good idea and a network with enthusiasm was enough: making project plans was part of the assistance provided later on. Every year some 50 networks were accepted in the program. After 3.5 years 120 networks had been assisted this way.

Reporting about the progress of these networks was a challenge. The action research team, who monitored the program, observed that practically all networks made good progress, but only few reached a stage of disseminating their successes within one year. Progress should be made visible in a different manner than in terms of concrete, measurable products.

During a large number of peer-to-peer meetings with the 25-35 project facilitators, the stages of the Spiral gradually became visible. The initial idea was already there, otherwise the network had not been in the program. The activities of the facilitators concentrated on the stages of inspiration, planning and development. In some cases, also progress in the stages of realisation, dissemination and embedding could be observed. By reporting about the progress in each stage, the monitoring team was able to justify that the public money on these projects was very well spent.

The Spiral also helped facilitators to orient themselves on where they were in the process, and what needed to be done there. Most network processes did not just follow a linear path through the stages. For example, when a network got stuck in the development stage, it had to return to the initial or planning stage for adjusting the idea and renegotiating the space for a next run, respectively. The Spiral provided insight in core activities, actors to involve and typical pitfalls to avoid, which appeared to be different for each stage.

The Spiral fits well with other tools, designed for facilitating multi-actor processes. The outcome of such processes is the result of co-creation, and thus unpredictable per definition. Therefore, approaches for step-by-step planning for reaching predetermined results are not applicable. This is also why approaches based on adoption curve of Rogers do not apply: they assume that in the desirable end situation the target audience has adopted the innovation that is already known. The network tools provide insights in typical phases, interaction patterns and positions that often occur in multi stakeholder processes, and provide options to act in response to what the situation requires. They help navigating in unknown areas. The first version of this set of tools emerged from the NidV experiment, and

was called the FAN approach (Free Actors in Networks). It developed ever since and is now offered as a training module for trainers and advisors in EUFRAS/CECRA[3].

The Learning History

Another challenge in the AgriSpin project was to report about the case studies. One element of this challenge was to see the movie of the innovation process, rather than a static picture of what the innovation was about and who was doing what. AgriSpin was about understanding what support agents do to stimulate farmers to innovate. These support activities could differ in the various stages of the process.

A further challenge was to be receptive to the unknown aspects of innovation processes. Following a rigid format or questionnaire would impose limitations to what could be observed as being important for the innovation process. It is hard to process observations that do not fit into those frames.

Furthermore, the aim of the AgriSpin project was to collect inspiring examples of innovation support, rather than to draw conclusions that could be generalised in the strict sense. Learning from and with each other requires respect for what different partners believe to be important, and for the language they use to frame their approaches and experiences. This appreciation of diversity is the basis for co-creating new insights. Story telling provides useful means to this end.

Therefore the Learning History method (Kleiner, Roth 1997) was selected for further analysis. This method has been designed to stay close to the views of the actors upon what mattered most in a certain process. It separates the narrative story from the analysis. The analyst makes interviews with key actors, and draws up their narrative story as factual as possible, preferably with many quotes. The actors should agree that this narrative reflects what mattered most for understanding what has happened. Even if they do not agree among each other, these disagreements are part of the facts being reflected in the narrative. The second part of the Learning History is the analysis of the narrative. How can the facts be understood? Different theories-in-use might lead to different answers, and thus to interesting dialogues about underlying assumptions of how things work. The analysis should bring the actors to a higher level of understanding their situation.

In the AgriSpin project, the Learning History method was the source of inspiration for two rounds of collecting stories. Before the cross visits started, project partners were asked to write down a story about an innovation case in which they were -or had been- involved. They were free to write the story as they wanted, as long as it was a story, with a beginning and an end, and something happening in between. The result was the initial book “Stories from all corners, to start with” (Wielinga, Robijn, 2015) with 19 stories from all over Europe. It was not easy for most partners to write a story instead of a report, scientific paper or brochure as they were used to produce. But after some guidance, the stories were interesting to read, and served as a baseline study for the project, as they reflected the way partners were thinking before the period of intensive interaction and mutual learning.

After the series of Cross Visits, the partners were asked again to write stories, this time about the cases that had been visited. These stories should include the observations and reflections made by the visiting teams. Whenever the authors felt that important information was lacking, they still could consult the actors involved. This second book “Stories from all corners, to continue with” (Wielinga, Robijn, 2017) contains 50 stories.

Comparing these stories with those in the first volume, “Stories from all corners, to start with”, the most significant difference was that the partners explicitly wrote about their own role all along the way in the innovation processes. This shows that AgriSpin has stimulated their thinking about it.

[3] EUFRAS: European Forum for Rural Advisory Services. CECRA: Certificate for European Consultants in Rural Areas.

The stories show that the classical way of looking upon innovation processes, as separated activities with regard to development (read: research) and dissemination (read: advisory services and education) does not hold. Initial ideas came from everywhere: from a farmer or entrepreneur, from friends with different backgrounds who met each other, from an NGO, from administrators, from advisory services, from trainers, from experts, and also from research.

Innovation is not just a matter of inventing something and selling the idea to someone else. A real innovation with impact emerges from the interaction of many different actors. This something which cannot be seen by looking at static pictures, like for example what results from questionnaires about adoption rates that fit into tick box statistics. Looking closely at innovation stories reveals that innovation processes are messy, with two steps forward and one back, with unexpected events -sometimes lucky and sometimes regretful-, with different actors to get involved along the way, and all in all hard to plan for.

Practically always there are people involved who have a drive to bring an initiative further. Their passion does not fit in any tick box either. But such people are key for success. When they manage to involve the right actors at the right time, things will move further. This passion can be contagious. A network with passionate people generates the energy to get through difficult times and to find creative solutions.

Take home messages and recommendations

How to get the right people involved in the right time: that is the main challenge for the drivers of an innovation process. This is precisely where innovation support agents appear to have been most useful. They created pathways for key actors to connect. They usually had a position in which it was easier for them than for example entrepreneurs, to connect with experts, other stakeholders or administrators.

It was interesting to see that the partners in AgriSpin drew this conclusion to their own surprise. It was because of the exercise of bringing innovation stories to the surface that they became aware that their role in the early stages of innovation processes was so important.

Finally, a number of recommendations came out from the experiences gathered during the AgriSpin project. These recommendations were formulated, based on the following data:

- *Pearls, Puzzles and Proposals in the feedback seminars in the cross visits*: including proposals to take home.
- *Personal reflections*: required from each participant after a Cross Visit, including the question how this visit influenced his/her way of thinking about innovation support.
- *Consultation round*: after a summary of quotes was made, partners were asked to make suggestions for recommendations.
- *Group discussion in the General Meeting of December 2016*: following a discussion paper, the partners agreed on a list of 15 recommendations.

The recommendations are as follows:

1. Innovation support should nurture dedicated persons and their ideas.
2. Innovation support services are key actors in creating pathways for co-creative and co-creating innovation processes. Their position in the AKIS deserves more recognition.
3. Time for reflection within innovation support agencies on their own role and strategies is important, but it needs to be put on the agenda, because it tends to be forgotten.
4. Support agencies should identify different stages in innovation processes, and develop a range of strategies and services which might be different for each stage. The Spiral of Innovations is a helpful tool for doing so.

5. The connecting role of support agents in innovation processes deserves more recognition.
6. It is helpful to refer to "Multi Actor Approaches" to give legitimacy to this role, and to create space for such agents within their task descriptions that allows them to do what appears necessary in the situation.
7. The cross visit methodology is a good way to stimulate such reflections between professionals with similar tasks in different environments.
8. For Multi Actor Approaches, the tools commonly used for project management are insufficient. Additional language and tools are needed. This should to get attention in activities for training, reflection and monitoring.
9. If authorities wish to stimulate innovations, they should lower the threshold for actors with initiatives for novel ideas to get access to funds.
10. The Operational Group approach should be more widely used in innovation support.
11. For supporting groups of different actors who work together on an innovation (Operational Groups), project management skills are not sufficient. There is a need for training and guidance of professionals who facilitate such groups.
12. Targeting specific categories of actors, such as young farmers and other high potentials is a useful strategy.
13. Innovation support agencies should systematically investigate reasons for lack of engagement of entrepreneurs.
14. The perfect innovation support approach that fits all circumstances does not exist. Criteria or checklists for organisations that offer such services are of limited use.
15. Never waste a good crisis. As crisis is often the driver for innovation processes, recognising tensions in the system and creating awareness about the need for change are important elements for innovation support services to take into account.

Epilogue

The AgriSpin project was not primarily a research project, although there was a scientific component as well. The main aim was to bring innovation support agents together in search of inspiring examples for supporting farmers to innovate. This has worked out well: colleagues took home a good number of ideas to be implemented there. In addition, the project influenced their thinking about their role as innovation support agent. As someone said: "*In the daily business as usual we never take time to reflect on what we actually do*". The methodology that has been developed along the way has shown to be useful for these reflections. Most project partners have adopted some of the tools already for use in their own work, and also the Cross Visit approach is being applied by several partners.

The opening statement of this paper was confirmed in many cases. Good ideas are everywhere and the environment selects. Good ideas might come from entrepreneurs, from researchers, from policy makers, from civil society activists and others. The difference is being made by people who are able to connect people with ideas with others who are in the position to create space for such ideas to develop. AgriSpin focussed on the role of innovation support agents, who often appeared to play that role. Some 'heroes' with good ideas will find their way anyway for getting done what they have in mind. But for those who care about the innovation system as a whole, it pays off to lower the threshold for people with good ideas to find the proper assistance. Here, innovation support agents as well as their funding agencies have a role to fulfil.

References

Allahyari, M., Chizari, M. and S. Mirdamadi (2009). Extension-Education Methods to Facilitate Learning in Sustainable Agriculture. *Journal of Agriculture and Social Sciences* 5: 27-30.

Blackburn, D. and D. Vist (1984). Historical roots and philosophy of extension. In D. Blackbourn (Ed.) *Extension handbook*. Guelf: University of Guelf, pp. 1-10.

Boari, C. and F. Riboldazzi (2014). How knowledge brokers emerge and evolve: The role of actors' behaviour. *Research Policy* 43: 683–695.

Brunori, G., Barjolle, D., Dockes, A.C., Helmle, S., Ingram, J., Klerkx, L., Moschitz, H., Nemes, G. and T. Tisenkopfs (2013). CAP Reform and Innovation: The Role of Learning and Innovation Networks. *EuroChoices* 12, 27-33.

Corsaro, D., Cantù, C. and A. Tunisini (2012). Actors' Heterogeneity in Innovation Networks. *Industrial Marketing Management*, 41, 780–789.

Cristóvão, A., Koutsouris, A. and M. Kügler (2012). Extension Systems and Change Facilitation for Agricultural and Rural Development. In I. Darnhofer, D. Gibbon and B. Dedieu (Eds.), *Farming systems research into the 21st century: The new dynamic*. Dordrecht: Springer, pp. 201-227.

Devaux, A., Andrade-Piedra, J., Horton, D., Ordinola, M., Thiele, G., Thomann, A., and C. Velasco (2010). *Brokering Innovation for Sustainable Development: The Papa Andina Case*. ILAC Working Paper 12. Rome: Institutional Learning and Change (ILAC) Initiative.

EU-SCAR (2014). *Agricultural knowledge and innovation systems towards 2020*. Brussels: Standing Committee on Agricultural Research (SCAR), Collaborative Working Group AKIS-2.

EU-SCAR (2012). *Agricultural Knowledge and Innovation Systems in Transition - a reflection paper*. Brussels: Standing Committee on Agricultural Research (SCAR), Collaborative Working Group AKIS.

Godin, B. (2006). The linear model of innovation: The historical construction of an analytical framework. *Science, Technology & Human Values*, 31(6): 639-667.

Haga, T. (2005). Action research and innovation in networks, dilemmas and challenges: two cases. *Artificial Intelligence and Society* 19: 362–383.

Heemskerk, W., Klerkx, L. and J. Sitima (2011). Brokering innovation. In S. Nederlof, M. Wongtschowksi and F. van der Lee (Eds.) *Putting heads together: Agricultural innovation platforms in practice*. Amsterdam, KIT Publishers, pp. 43-54.

Hermans, F., Stuiver, M., Beers, P.J. and K. Kok (2013). The distribution of roles and functions for upscaling and outscaling innovations in agricultural innovation systems. *Agricultural Systems* 115: 117-128.

Hjorth, P. and A. Bagheri (2006). Navigating towards sustainable development: A system dynamics approach. *Futures* 38: 74-92.

Hubert, B., Ison, R., and N. Röling (2000). The "problematique" with respect to industrialised country agricultures. In LEARN Group (Ed.), *Cow Up a tree, knowing and learning for change in agriculture – Case studies from industrialised countries*. Paris: INRA, pp. 13–30.

Ison, R. (2010). *Systems Practice: How to Act in a Climate-Change World*. London: Springer and The Open University.

Kilelu, K., Klerkx, L., Leeuwis, C. and A. Hall (2011). *Beyond knowledge brokerage: An exploratory study of innovation intermediaries in an evolving smallholder agricultural system in Kenya*. RIU Discussion Paper 13. London: DFID.

Kleiner, A, and Roth, G (1997): *Learning History. How to make your experience your company's best teacher.* Harvard Business Review, Sept. 1997.

Klerkx, L. and C. Leeuwis (2008). Balancing multiple interests: Embedding innovation intermediation in the agricultural knowledge infrastructure. *Technovation* 28: 364-378.

Klerkx, L. and C. Leeuwis (2009). Establishment and embedding of innovation brokers at different innovation system levels: Insights from the Dutch agricultural sector. *Technological Forecasting and Social Change* 76: 849-860.

Klerkx, L., Aarts, N. and C. Leeuwis (2010). Adaptive management in agricultural innovation systems: The interactions between innovation networks and their environment. *Agricultural Systems* 103: 390–400.

Klerkx, L., B. Van Mierlo and C. Leeuwis (2012). Evolution of system approaches to agricultural innovations: concepts, analysis and interventions. In I. Darnhofer, D. Gibbon and B. Dedieu

(Eds.) *Farming Systems Research into the 21st Century: The New Dynamic*. Dordrecht: Springer Science, pp. 457-483.

Koutsouris, A. (2008). Higher Education Facing Sustainability: The Case of Agronomy. *International Journal of Learning* 15: 269-276.

Lamble, W. (1984). Diffusion and adoption of innovations. In D. Blackbourn (Ed.) *Extension handbook*. Guelf: University of Guelf, pp. 32-41.

Leeuwis, C. (2004). *Communication for Rural Innovation: Rethinking Agricultural Extension*. Oxford: Blackwell.

Leeuwis, C. and R. Pyburn (Eds.) (2002). *Wheelbarrows full of Frogs – Social Learning in Rural Resource Management: International Research and Reflections*. Assen: Van Gorcum.

Moschitz, H., Brunori, G., Roep, D. and T. Tisenkofs (guest Eds.) (2015). Learning and innovation networks for sustainable agriculture: Processes of co-evolution, joint reflection and facilitation. *Journal of Agricultural Education and Extension* 21: 1-89.

Nagel, U.J. (1997). Alternative Approaches to Organizing Extension. In E. Burton, R. Swanson, A. Bentz and J. Sofranko (Eds.) Improving agricultural extension A reference manual. Rome: FAO, pp. 13-24.

Nederlof, S., Wongtschowksi, M. and F. van der Lee (Eds.) (2011). *Putting heads together: Agricultural innovation platforms in practice*. Amsterdam: KIT Publishers.

Nitsch, U. (1982) *Farmers' perceptions of and preferences concerning agricultural extension programs*. Uppsala: Swedish University of Agricultural Sciences, Dept. of Economics and Science.

Rogers, E.M. (1983). *Diffusion of Innovations.* N.Y.: Free Press.

Rogers, E.M. (Ed.) (1976) *Communication and development: Critical perspectives.* Beverly Hills, Ca.: Sage Publ.

Röling, N. (1982). Alternative approaches to extension. In G. Jones and M. Rolls (Eds.) *Progress in rural extension and community development* (Vol. 1). Chichester: John Wiley and Sons, pp.87-115.

Röling, N. and J. Jiggins (1998). The ecological knowledge system. In N. Röling, and M.A.E. Wagemakers (Eds.) *Facilitating Sustainable Agriculture: Participatory learning and adaptive management in times of environmental uncertainty*. Cambridge: Cambridge University Press, pp. 283-311.

Swaans, K., Boogaard, B., Bendapudi, R., Taye, H., Hendrickx, S. and L. Klerkx (2014) Operationalizing inclusive innovation: lessons from innovation platforms in livestock value chains in India and Mozambique. *Innovation and Development* 4: 239-257.

Swanson, B. and J. Claar (1984). The history and development of agricultural extension. In B. Swanson (Ed.) *Agricultural extension: A reference manual*. Rome; FAO, pp. 1-19.

Van de Ban, A.W. and H.S. Hawkins (1988) *Agricultural extension*. Harlow: Longman Scientific and Technical.

Van Lente, H., Hekkert, M., Smits, R. and B. Van Waveren (2003). Roles of systemic intermediaries in transition processes. *International Journal of Innovation Management* 7: 1-33.

Wielinga E. (2016) The cross visit method. WP1 AgriSpin, deliverable 2.4. Southern Dutch Farmers and Horticultural Organisation (ZLTO). The Netherlands. Online resource: http://agrispin.eu/wordpress/wp-content/uploads/2016/11/Cross-Visits_Improved-Methodology-1.pdf

Wielinga, H.E., Zaalmink, B.W., Bergevoet, R.H.M., Geerling-Eiff, F.A., Holster, H, Hoogerwerf, L., and Vrolijk, M. (2008): *Networks with free actors: encouraging sustainable innovations in animal husbandry by using the FAN approach*. Wageningen University and Research.

Wielinga, H.E. and Robijn, S. (eds) (2015): *Stories from all Corners, to start with*. AgriSpin deliverable 1.7. Aarhus, SEGES.

Wielinga, H.E. and Robijn, S. (eds) (2017): *Stories from all Corners, to continue with*. AgriSpin deliverable 3.4. Aarhus, SEGES.

Winch, G. and R. Courtney (2007). The organisation of innovation brokers: An international review. *Technology Analysis and Strategic Management* 19: 747-763.

Woodhill, J. and N. Röling (1998). The second wing of the eagle: The human dimension in learning our way to more sustainable futures. In N. Röling and M.A.E. Wagemakers (Eds.) *Facilitating Sustainable Agriculture: Participatory learning and adaptive management in times of environmental uncertainty*. Cambridge: Cambridge University Press, pp. 46-71.

World Bank (2006). *Enhancing agricultural innovation: How to go beyond the strengthening of research systems*. Washington DC: The World Bank.

World Bank (2012). *Agricultural Innovation Systems: An investment source book*. Washington: World Bank.