

Navigating the unknown - practice-led collaborative research for the improvement of animal welfare.

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Keywords: Practice-led, Innovation, Collaborative learning, Innovation networks, Facilitation, Animal welfare

Abstract: There is a growing policy interest in agricultural innovation generated through practice-led collaborative learning processes. While there is a considerable body of work on how local innovation is generated and facilitated in the field of natural resource management, far less has been done in the area of farm animal welfare.

Using the egg-laying-hen sector as a case study, the EU-funded Hennovation project is testing mechanisms to facilitate practice-led innovation in sustainable animal welfare through development of 'innovation networks'. Up to 12 innovation networks, involving producers and laying-hen processors, have been mobilized at local, national and European level. These are supported by a variety of actors and moderated by external facilitators.

This paper presents a framework for the management and facilitation of practice-led collaborative innovation processes in sustainable animal welfare. This framework has been developed and is tested through action research and a Delphi- style consultation process and includes key steps and guiding questions allowing the facilitators to assess and monitor their intervention in innovation processes. Practice-led innovation processes are network specific and evolve as the actors within the network come together to share common problems, experiment with possible solutions and learn. The end-results of these processes, in terms of outputs, are often unclear at the outset and thus planning for them raises specific methodological challenges.

In focussing on collaborative approaches to innovation, this project contributes to the integration of science and practice leading to solutions designed to deliver lasting change in animal welfare practices.

1. Introduction

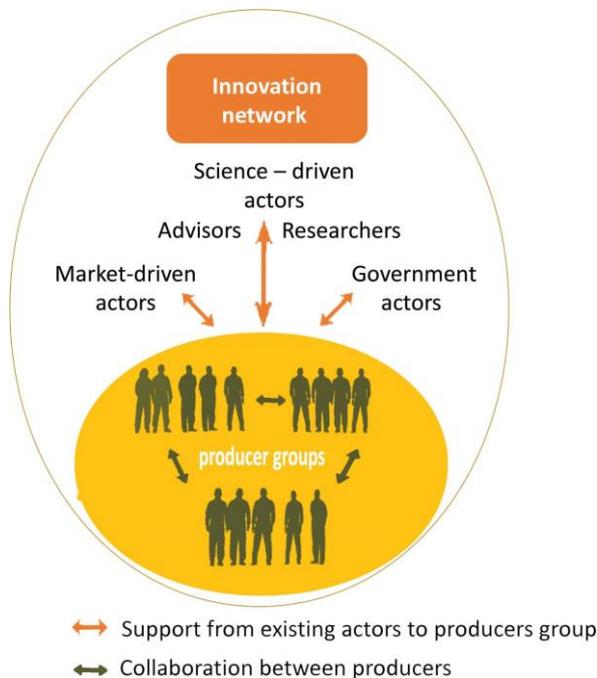
There is a growing policy interest in on-farm agricultural innovation generated through practice-led collaborative learning processes. The EU H2020 research strategy, for example, is currently promoting a multi-actor approach to innovation that includes a high level of farmer engagement (SCAR, 2013). The interest in practice-led innovation stems from the realisation that, despite large investment, there remains a significant gap between scientific research and the adoption of applied science into farm practice (Akrich, Callon, Latour, & Monaghan, 2002). Practice-led innovation responds to the demand for innovation in practice to solve problems using practical knowledge and creativity at the local farm level.

While there is a considerable body of work on how local innovation is generated and facilitated in the field of natural resource management, far less has been done in the area of farm animal welfare. Using the egg-laying-hen sector as a case study, the EU-funded Hennovation project is exploring and testing mechanisms to stimulate and facilitate practice-led innovation in sustainable animal welfare through development of 'innovation networks'. In short, the project's mission is to promote practice-led innovation, instigate innovation networks, develop the skills of participants and facilitate the interaction and learning of individuals within the network.

2. Formation of Innovation networks

Innovation networks, involving producers and laying-hen processors, are mobilized at local, national and European level. These are supported by a variety of actors such as veterinary surgeons, researchers and industry and moderated by external facilitators, see figure 1.

Figure 1 Schematic overview of the Hennovation innovation networks



Currently there are 12 innovation networks established and running in the United Kingdom, The Netherlands, Sweden, Czech and Spain. Network size varies from five to eight producers with a variety of support actors e.g. veterinarian, feed company, scientist, and pullet rearer, based on the specific topic addressed by the network. The laying-hen production system varies between groups, e.g. organic, free range and more conventional cage systems. One of the networks includes producers of several production systems. The networks are exploring a variety of topics based on their need and ideas such as: the effect of light on feather peaking, nutrition to prevent feather peaking, methods of feather scoring, increased communication between pullet rearers and producers, hen predation in relation to feather peaking and new ideas for marketing eggs of non-beak trimmed birds. Several networks in different countries have identified a similar topic to work on, and this provides opportunities for trans-national collaboration.

Most networks are formed from larger pre-existing groups connected to a specific egg packing company or veterinary practices. Reflection on network mobilization and facilitation by the facilitators after an initial three months implementation, revealed that the use of such intermediates are pivotal in enabling network mobilisation. It was also noticed that there is a great diversity within as well as between countries on what motivates producers to participate in a network. In some countries for example mentioning the upcoming EU ban on beak trimming in laying-hens is a motivational factors whilst in other countries it was too controversial to mention this. During the initial reflection, discussion also revolved around the challenge of overcoming a culture of receiving rather than collectively creating or producing knowledge. Thus some producers were expecting or were more motivated to learn from "experts".

3. The role of the network facilitator

The role of network facilitator in the project is to mobilize the networks, guide the network through the innovation process, promote social learning and encourage engagement with support actors (Klerkx,

van Mierlo, & Leeuwis, 2012). The facilitators stimulate the co-creation of knowledge (H. Wielinga & Herens, 2013) which is different from more traditional advisory roles of knowledge dissemination (Roling, 1990). Practice-led innovation processes evolve as the actors within the network come together to share common problems, experiment with possible solutions and learn. The end-results of these processes, in terms of outputs, are often unclear at the outset and planning for them raises specific methodological challenges (E. Wielinga & Vrolijk, 2009). Thus the question arises how do you facilitate a messy process of which you do not know the end-result. Klerkx and Gildemacher (2012) indicate that facilitators can use existing methods and tools however facilitating the innovation process is learning by doing. The function and role of facilitators in the innovation process has been widely described in literature (Howells, 2006; Klerkx & Jansen, 2010) however much less is written on how to actually support the facilitator to perform this role. A framework for the facilitation and management of practice-led collaborative innovation processes was developed and is currently being tested by the network facilitators to provide more structure to the facilitation of the innovation process.

4. Development and testing of the framework for the facilitation and management of practice-led collaborative innovation processes.

4.1 Development of the framework

The initial framework was developed by ten facilitators from five different countries in Europe (the United Kingdom, The Netherlands, Sweden, Czech and Spain) during the first workshop for network facilitators in September 2015. The framework was developed to guide the facilitation of the innovation process and to stimulate learning by the facilitator on how to manage this process. The challenge in the development of the framework was that on the one hand it needed to provide enough structure to be useful for the facilitator whilst on the other hand the framework needed to be generic and flexible enough to accommodate the diversity and unpredictability of the process (Klerkx & Gildemacher, 2012). The framework was built on the experience of the facilitators and they identified six key process steps:

1. Problem identification,
2. Generation of ideas,
3. Action planning and resource mobilization,
4. Practical trialling and development,
5. Implementation and upscaling on-farm and
6. Wider dissemination of the innovation.

During the workshop the facilitators identified key activities for each step. These were captured in the framework as guiding questions to encourage facilitators to think through and reflect on the progress in each step of the process. Questions developed relate to the network functioning and capacity, interaction with relevant support actors, use of a diversity of knowledge and uptake and dissemination of the innovation.

4.2 Testing of the framework

The framework is currently being tested and refined through action research by the facilitators and a Delhi style consultation process in three rounds. Tools such as the learning history (Kleiner & Roth, 1996) are used to reflect upon learning. Over a period of 18 months data on progress and reflection is systematically documented by each facilitator in a wiki to stimulate reflection and peer learning amongst the facilitators. Although the framework is presented stepwise the innovation process is not linear and the time allocated for each step cannot be predicted (Klerkx & Gildemacher, 2012) and depends amongst others things on a variety of factors such as network capacity and the specific idea trialled by each network.

5. Conclusion

Overall there is a large diversity in capacity and functioning of the innovation networks, both within as between countries. This provides a great opportunity as well as a great challenge for the facilitators

learning to manage the innovation process. The framework developed supports the facilitators to navigate through the unknown territories of the innovation process. Further testing of the framework as part of the Hennovation project and in other livestock sectors will lead to further refinement and validation of the framework.

In focusing on collaborative approaches to innovation, this project contributes to the integration of science and practice leading to solutions designed to deliver lasting change in animal welfare practices.

Acknowledgements

The HENNOVATION project is a European level collaborative research project with 6 academic partners funded under the topic 'Closing the research and innovation divide: the crucial role of innovation support services and knowledge exchange' of the Horizon 2020 EU Research and Innovation programme.

We would like to thank the network facilitators, Paula Baker, Monique Mul, Francesca Neijenhuis, Marleen Plomp, Anette Wichman, Jenny Yngvesson, Deborah Temple, Jiří Žák and Jessica Stokes for their active participation in developing and testing this framework.

References

- Akrich, M., Callon, M., Latour, B., & Monaghan, A. (2002). The key to success in innovation part I: the art of intersement. *International Journal of Innovation Management*, 6(02), 187-206.
- Howells, J. (2006). Intermediation and the role of intermediaries in innovation. *Research policy*, 35(5), 715-728.
- Kleiner, A., & Roth, G. (1996). Field manual for a learning historian. *MIT Center for Organizational Learning and Reflection Learning Associates*.
- Klerkx, L., & Gildemacher, P. (2012). The role of innovation brokers in agricultural innovation systems. *World Bank. Agricultural innovation systems: an investment sourcebook, Module, 3*.
- Klerkx, L., & Jansen, J. (2010). Building knowledge systems for sustainable agriculture: supporting private advisors to adequately address sustainable farm management in regular service contacts. *International Journal of Agricultural Sustainability*, 8(3), 148-163.
- Klerkx, L., van Mierlo, B., & Leeuwis, C. (2012). Evolution of systems approaches to agricultural innovation: concepts, analysis and interventions *Farming Systems Research into the 21st century: The new dynamic* (pp. 457-483): Springer.
- Roling, N. (1990). The agricultural research-technology transfer interface: a knowledge systems perspective. *Making the link: Agricultural research and technology transfer in developing countries*, 1-42.
- SCAR. (2013). Agricultural Knowledge and Innovation Systems towards 2020—an orientation paper on linking innovation and research. *Brussels, European Commission*.
- Wielinga, E., & Vrolijk, M. (2009). Language and tools for networkers. *Journal of Agricultural Education and Extension*, 15(2), 205-217.
- Wielinga, H., & Herens, M. (2013). Monitoring Creative Processes: the Timeline and Learning History.