

Using a co-innovation approach to support innovation and learning: Cross-cutting observations from different settings and emergent issues

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Abstract

Co-innovation has gained interest in recent years as an approach to tackle issues in agriculture and natural resource management. Co-innovation requires new roles for researchers supporting these processes and enabling settings in the programs they work in and the organizations they pertain to. The contributions to this special issue explore experiences with co-innovation in different settings from different angles. The special issue presents several studies on co-innovation in a large program in New Zealand, a study based on an EU Horizon 2020 project in the Czech Republic, The Netherlands, Spain, Sweden and the United Kingdom as well as co-innovation experiences from Uruguay and Tanzania. Cross-cutting findings and emergent issues include (i) the need to consider the issue of simultaneously scaling both co-innovation project results and the co-innovation practice, (ii) the issue of flexibility in pace of co-innovation to allow different participants to converge and the flexibility in learning space needed to enable reflection, (iii) the issue of changing the dominant logics of the innovation systems in which co-innovation is embedded and (iv) the need for reflexive monitoring to support processes of co-innovation and their institutional embedding.

Keywords

Agricultural innovation, transdisciplinary research, transformative research, reflexive monitoring, evaluation

Introduction

In recent years, there has been increasing scholarly attention paid to co-innovation, often denoted as a process in which researchers work together with stakeholders to realize innovations of different kinds, such as combined technological and institutional innovation (Botha et al., 2014; Dogliotti et al., 2014; Klerkx et al., 2017; Turner et al., 2016). Co-innovation goes beyond participatory and transdisciplinary research in the form of doing joint experiments but is aimed at supporting broader changes in farming systems, sectors, territories and value chains.

Co-innovation requires new roles for researchers who may support these processes in different ways: as experts, facilitators of interactions, designers of solutions and products, and by monitoring processes and supporting reflection (Sumberg et al., 2013; Schut et al., 2014; Wittmayer and Schöpke, 2014). Embedding these new roles is not always easy, as it challenges skill sets, identities and role perceptions of researchers. An enabling setting in organizations is also required to allow for emergent research designs in dynamic innovation processes as opposed to fully planned projects also requiring flexibility from funders regarding the type of activity needed at particular points in time and

the different ways of evaluating impact (Botha et al., 2014; Klerkx et al., 2017; Roux et al., 2010). Co-innovation requires change from multiple actors at different levels in agricultural innovation systems to embed these approaches (Klerkx and Nettle, 2013; Minh et al., 2014; Nettle et al., 2013; Schut et al., 2016; Turner et al., 2016).

This special issue presents a collection of papers illustrating contrasting experiences with co-innovation. They were presented at a workshop entitled ‘Using a co-innovation approach to improve innovation and learning’, during the 12th European International Farming System Association Symposium held at Harper Adams University (United Kingdom) from 12th to 15th July 2016. Below, we briefly introduce the papers included in this special issue and distil some cross-cutting findings and emergent issues.

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Papers in this special issue

In their paper entitled 'Co-innovation in family-farming livestock systems in Rocha, Uruguay: A 3-year learning process,' Albicette et al. (2017) show how a co-innovation approach was used to improve the sustainability of livestock family farms in Uruguay. The project used a co-innovation approach that combined complex systems theory, social learning and dynamic project monitoring and evaluation (M&E) at three interconnected levels: farm, region and research team. The paper discusses how M&E informed adaptations to project design and implementation through joint learning. Collective learning among the research team, farmers and other stakeholders was key to the success of the project. The authors conclude that a co-innovation approach enabled on-farm management and practice changes that included the uptake of new technologies.

Nine principles for co-innovation in practice are discussed by Coutts et al. (2017) in their paper 'Evaluating a space for co-innovation: Practical application of nine principles for co-innovation in five innovation projects'. They showed how the activities of five co-innovation projects in New Zealand were guided by nine principles that are based upon Nederlof et al. (2011). They conclude that the nine principles should be understood in each individual project's context because their appropriateness and usefulness are affected by the type of problem being addressed and the stage of the project. It was also evident that the principles need to be built into the process from the outset.

The paper by Vereijssen et al. (2017) entitled 'Addressing complex challenges using a co-innovation approach: Lessons from five case studies in the New Zealand primary sector' strongly links to the work by Coutts et al. (2017) in that both describe the context specificity of co-innovation practices. Vereijssen et al. (2017) point out that co-innovation can be effective for complex challenges – involving multifarious interactions among multiple stakeholders, viewpoints, perceptions, practices and interests across programs, sectors and national systems. The authors conclude that flexibility and adaptability were important in achieving positive results from a co-innovation approach and that the institutional setting and ability to create the space and buy-in for co-innovation also mattered. They point out that co-innovation practices are context specific and that the willingness and ability of project leadership to engage with a range of stakeholders, to change project scope or research approach, was crucial for continued stakeholder engagement. The authors conclude that co-innovation requires an adaptable mind-set rather than strict adherence to a single method.

Fielke et al. (2017) discuss the role of a reflexive monitor (RM) in New Zealand's Agricultural Innovation System (AIS). This research showed how despite changing their views on the role of a RM over time, co-innovation project participants did agree on the most important requirements for the role. The authors developed a framework for a RM decision-making showing that an RM should primarily focus on the aspects of a project they can

influence as that will be most productive, and which may most likely alter the AIS they are embedded in. Although some of these challenges may be out of the control of the RM, those that cannot be controlled need to be managed in a way that assists the project team and its partners to achieve their ambition for change.

Insights from a Community for Change in New Zealand are discussed by Turner et al. (2017) in their paper 'Triggering system innovation in agricultural innovation systems: Initial insights from a community for change in New Zealand'. This provides early evidence that involving multiple actors from the AIS in challenging underlying institutional logics and encouraging generative collaboration is stimulating project-level actions to enable co-innovation and recognition of AIS barriers and opportunities. The paper links well with Malley et al. (2017) in that it describes a process for stimulating engagement among potential change agents to develop a shared understanding of systemic problems in the AIS, challenge prevalent institutional logics and identify individual and collective actions that they might undertake to stimulate system innovation. The authors conclude that collective system analyses using an innovation systems perspective to identify and address structural changes in the AIS has been beneficial.

In their paper 'Facilitating practice-led co-innovation for the improvement in animal welfare', Van Dijk et al. (2017) present a framework for the management and facilitation of practice-led, international, multi-lingual collaborative innovation processes in sustainable animal welfare. This framework has been developed and tested and includes key steps and guiding questions that allow the facilitators to assess and monitor their intervention in innovation processes. The authors point out that 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. They show how the end results of these processes, in terms of outputs, are often unclear at the outset and that planning for them raises specific methodological challenges.

Srinivasan et al. (2017) conclude in their paper 'Just-in-case to justified irrigation: Applying co-innovation principles to irrigation water management' that the co-innovation process reinforces that decisions, controls and drivers for on-farm water use and management intersects with the values and perspectives of off-farm stakeholders, particularly those linked to environment, economy and regulations. They also highlight how the co-innovation process has helped researchers to develop a wider view of the complex problem of water use efficiency, which is a significant shift from the technology transfer approach. A wider view of the AIS has allowed researchers to effectively respond to the impacts of external stimulants that influence water use on farms.

Malley et al. (2017) discuss the use of learning and inclusive innovation development in Tanzania in the context of integrated agricultural landscape management. Their paper 'Integrated agricultural landscape management: Case study on inclusive innovation processes, monitoring and evaluation in the Mbeya Region, Tanzania' explains how agricultural expansion and charcoal burning

in the Mbeya Region of Tanzania caused deforestation and degradation which triggered detrimental human and environmental consequences. The AIS is characterized by development policies focusing on disciplinary sectors, which have different objectives and strategies along professional disciplinary lines such as agriculture, livestock, conservation, water and land. The authors discuss how the use of an Integrated Agriculture Landscape Management (IALM) process engaged a wide range of key stakeholders that created effective networking and co-ordination. Importantly, Malley et al. (2017) point out how IALM processes resulted in a common understanding and vision as well as shared goals. Key outcomes of the IALM activities include a co-developed village land use plan (VLUP) and development actions that are supported by participatory M&E. The paper links well with Turner et al. (2017) that shows the value of involving multiple actors to generate collaboration that has project-level impacts through co-innovation.

Finally, Botha et al. (2017) address the challenges associated with evaluating for multiple purposes and discuss the opportunities presented by reflexivity in logical frameworks to evaluate for learning and accountability. They argue that there is a case for flexibly applying logical frameworks to evaluation by comparing their documented experiences in New Zealand with the limitations and solutions suggested by the 'adapted accountability framework' of Regeer et al. (2016). Botha et al. (2017) explain that, when used adaptively, logical frameworks can improve line of sight between project activities and impacts.

Cross-cutting observations and emergent issues

The set of papers in this special issue is an excellent test-bed for co-innovation in practice and reflecting upon gaps. They span different types of economies and AISs in the northern and southern hemisphere in different countries, represent a range of sectors in the primary industries in those countries and they frame co-innovation in slightly different but complementary ways. The inclusion of the New Zealand case studies, which fall under the same program but are executed in different agricultural sub-sectors and regions of New Zealand is significant, as Vereijssen et al. (2017) indicate that, with some exceptions (e.g. Fischer et al. 2012; Klerkx et al. 2017), there is relatively limited comparative analysis unravelling how under a given overarching program, different co-innovation projects may work differently. Although not specifically written for the purpose of comparative analysis, the different studies on co-innovation in this special issue result in common themes emerging which merit attention and have been addressed in a limited way in extant work on participatory research and co-innovation (for an overview see Neef and Neubert, 2011).

The issue of scaling co-innovation project results as well as co-innovation practice

The paper by Vereijssen et al. (2017) discusses whether the wider context of a co-innovation project could influence

the adaptation of existing technologies and practices, drawing upon Douthwaite et al. (2001). This outward-in impact of co-innovation also begs the question of whether inward-out co-innovation purposes could be achieved (Garb and Friedlander, 2014) particularly to support broader sectoral or value chain changes. The issue of scaling and co-innovation is raised by Srinivasan et al. (2017) who point out how being 'aware of the wider context and multi-stakeholder involvement conceptualised an irrigation landscape that extended far wider than the farm... [to determine] how co-learning and self-organisation opportunities could be sustained within the increased complexity associated with scaling out'. Turner et al. (2017) call it the challenge of 'how to simultaneously resolve innovation project-level actions with AIS actions, reflecting niche and regime relationships in the multi-level perspective' (Geels, 2010). Several papers in this issue touch upon the issue of co-innovation and scaling, with potential solutions like communication plans (Albicette et al., 2017), opinion leaders (Malley et al., 2017) and frameworks for networkers in practice-led innovation (Van Dijk et al., 2017). Following ideas by Howells and Edler (2011), Turner et al. (2017) discuss the challenge of developing interventions in the AIS in order to institutionalize policies to stimulate co-innovation. They used a case study of a 'Community for Change', designed to impact the AIS, and included tactics to support boundary-crossing processes such as Value Add Documents (drawing upon Beers et al. 2015). They found that moving from project impact to broader AIS change remains a challenge that has been indicated in the opening paragraphs of the editorial, scaling in the context of co-innovation requires further investigation.

The issue of pace and space in co-innovation

Vereijssen et al. (2017) point out that a number of co-innovation projects in the same New Zealand program experienced project "slow down" related to practical considerations such as the need to communicate, negotiate, organize meetings, follow-up and other logistical issues around engagement, adding cost in terms of time and resources. These issues were particularly troublesome where contract timing and milestones were in place with little scope to act on what emerged from further engagement.

The intentional nature of co-innovation was implicitly addressed by several authors. Albicette et al. (2017) explain how a space for learning has to be created, while Malley et al. (2017) discuss the need to create a space for stakeholder interactions. Fielke et al. (2017) noted how RMs deliberately allowed for the actors involved to create space, where they could enact their own collective transitions toward project outcomes and how RMs created the space for reflection within the project teams. Vereijssen et al. (2017) discuss the need for creating a space for broadening the context of a project into an 'innovation space' and learning about innovation across scales. Van Dijk et al. (2017) also refer to deliberately creating space for 'joint

learning and knowledge sharing through innovation networks, which bring together different actors, with different (forms or sources of) knowledge’.

One of the common threads in the papers is the cyclic nature of co-innovation. The ongoing plan-do-reflect cycle is intentional and could require new ways of working for co-innovation project participants, leading to tension (Schut et al. 2016). Co-innovation requires new roles for researchers, and embedding these roles is challenging, takes time and can slow down the process of co-innovation. Co-innovation is intentional, but its pace can be controversial; Van Dijk et al. (2017) and Coutts et al. (2017) remark that the process is evolutionary but for some it may be too revolutionary. Deliberately managing the pace of co-innovation is challenging, but it is important to retain stakeholder engagement.

The issue of institutional logics of the innovation systems in which co-innovation approaches are introduced

Institutional logics are ‘the socially constructed, historical patterns of material practices, assumptions, values, beliefs, and rules by which individuals produce and reproduce their material subsistence, organize time and space, and provide meaning to their social reality’ (Thornton and Ocasio, 1999: 804). In several papers, it is evident that an understanding and a common language on what institutional logics are and imply, in terms of enabling or disabling co-innovation, is missing. Malley et al. (2017), for example, mention that ‘organizational innovation’ is critical for effective and efficient coordination and engagement of multiple stakeholders, while Coutts et al. (2017) discuss how ‘organizational boundaries and peoples’ personal characteristics were a barrier to learning’. Van Dijk et al. (2017) talk about the influence of ‘institutional context’ on co-innovation and Vereijssen et al. (2017) mention that ‘institutional setting’ is important. Institutional logics seem to be a very relevant concept for co-innovation (see also its application in Turner et al. 2016) and requires more attention in co-innovation scholarship and the practical design of co-innovation projects.

The issue of co-innovation and monitoring and evaluation

Co-innovation is not the same as technology transfer or participative research; hence, it requires new roles and ways of thinking, for example, concerning reflexivity and the role of RMs (see also Arkesteijn et al. 2015 and Regeer et al. 2016). Fielke et al. (2017) discuss the importance of being open about what reflexive monitoring can achieve and how the role should be made very clear at the beginning of the project. Moreover, all stakeholders should clarify their roles at the start of a co-innovation project since it may be very foreign. The importance of being honest, open and constructive and how co-innovation can create uncertainty was also mentioned by Van Dijk et al. (2017). This challenge is underlined by Coutts et al. (2017) whose

evaluation shows honesty – about having to change – caused some stakeholders to leave the co-innovation process as they had no intention of changing.

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