

16. The role of innovation brokers in the agricultural innovation system

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This section discusses the role of innovation brokers in bridging communication gaps between various actors of innovation systems. On the basis of recent experience in the Netherlands, it outlines the success of brokers in finding solutions adapted to the needs of farmers and industry, and thus their positive impact on innovation adoption. This section also examines some issues on how brokers function, particularly with regard to balancing interests, funding their activities, and the role of government.

Introduction

Innovation is regarded as key to survival in the current agricultural sector (Hall *et al.*, 2006). Support of innovation in the agricultural sector has undergone large-scale transformation over the last two decades, which in turn has affected the agricultural knowledge infrastructure in many countries. This has three important consequences: first, multifunctionality of agriculture entails a more heterogeneous knowledge demand. Tailor-made knowledge is needed. However, current research and extension systems still do not fully address these multiple demands (Laurent *et al.*, 2006); second, privatisation and other reforms of public agricultural knowledge infrastructures has entailed a switch from supply-driven to demand-driven knowledge provision. However, this has also increased strategic behaviour and closure of the knowledge system (Leeuwis, 2000; Garforth *et al.*, 2003); third, it is now recognised that the agricultural knowledge infrastructure is part of an agricultural innovation system, but not necessarily the principal driver. The innovation systems concept emphasises the need for broad network building amongst public and private actors, and focuses on the enabling and constraining factors for innovation other than knowledge. These included the physical “hard” infrastructure and the social “soft” infrastructure, for example informal norms, values, attitudes and practices, and formal rules embedded in legislation and policy (Hall *et al.*, 2006).

Challenges emerging due to this new context

The change to a heterogeneous market for research and extension, and the adoption of an innovation systems perspective requires institutional changes and capacity building in research and extension (Garforth *et al.*, 2003). This has implications for several actors preoccupied with agricultural innovation. For farmers and other agri-chain actors it implies that they need to articulate innovative ideas and visions into which they will integrate productive, economic and societal needs, and corresponding demands with regard to knowledge and other innovation enabling factors. All these actors must find suitable research and extension providers and other co-operation partners and interact with them during the subsequent innovation process. Many farmers experience an “information overload”, however, and find it difficult to perform successfully in the market for research and extension; they also sometimes lack the necessary skills to manage innovation (Garforth *et al.*, 2003; Laurent *et al.*, 2006). Research and extension providers must place greater effort into procurement in a market that is increasingly pluralistic and served by non-traditional, non-agricultural research and extension providers (Phillipson *et al.*, 2004); they must also become responsive to the needs of their clients. The paradigm of demand-driven research and extension service delivery implies a shift away from mere technology transfer to the provision of a broader range of communication functions and advisory services (Leeuwis and van den Ban, 2004). As a result, there are several “gaps” from a market and innovation system interaction perspective. With regard to the nature of these gaps, one can identify cognitive/cultural gaps (actors from different institutional backgrounds have too much cognitive distance to adequately learn together, or have different norms, values and incentive systems which hinder effective communication), information gaps (actors are imperfectly informed about possible cooperation partners), and managerial gaps (actors are unable to acquire and successfully implement new knowledge), and a “system gap,” which is related to issues such as the system lock-in, i.e. resistance of the present agri-food systems to accommodate innovations and deficient innovation system linkages.

The emergence of innovation brokers

As a response to suboptimal linkages in agricultural innovation systems, several authors have argued that, in the context of a pluralistic (market-based) research and extension system and from an innovation system perspective, “systemic intermediaries” are needed (Aflakpui, 2007; Spielman *et al.*, 2008). These should connect demand and supply for agricultural research and extension services, and fulfil other bridging functions with the broader innovation system (i.e. between farmers, education establishments, government, agri-industry (both suppliers and processors) and advocacy organisations). Howells (2006) introduced the broad term “innovation intermediary” for such a systemic intermediary; he defines this term as *an organisation or body that acts as an agent or broker in any aspect of the innovation process between two or more parties*. Basic functions include problem/challenge diagnosis (demand articulation), partner search, selection, and matchmaking (network composition) and facilitating the multi-stakeholder learning process (innovation process management) (Klerkx and Leeuwis, 2008; 2009a). To distinguish these intermediaries from extension and research providers who may also provide such innovation brokerage tasks as a side-activity (Howells, 2006), we adopt the specific term “innovation broker” (Winch and Courtney, 2007) for this type of organisation. Although some studies have been undertaken to describe and analyse such specialised independent innovation brokers or “free actors” in the agricultural sector (e.g. Phillipson *et al.*, 2004; Spielman and Von Grebmer, 2006; Hartwich *et al.*, 2007; Wielinga and Vrolijk, 2008), relatively little analysis has focused on providing an overview of the different types, their effects, and describe how they become embedded within the privatised agricultural knowledge infrastructure.

Innovation brokers in the Netherlands

On basis of the integration of several separate analyses (see Klerkx and Leeuwis, 2008; Klerkx and Leeuwis, 2009a; Klerkx and Leeuwis, 2009b, for more detailed information), seven different types of innovation brokers (Table 16.1) in the Dutch agricultural sector have been identified at different levels of system aggregation. These brokers address different levels of innovations (incremental, radical, system innovation, societal transitions) and connect the different kinds of actors, such as farmers, input suppliers, processing industries, research and extension providers, government, and civic advocacy organisations, and enhance their interactions by acting as a neutral facilitator. Most of these organisations receive direct basic funding from government or collective funds, or receive indirect public funding through subsidised innovation projects. Only a few work with private funds.

Table 16.1. Different types of innovation brokers

Type	Examples
1) and 2) Innovation consultants aimed at individual farmers (1) and collectives of farmers (2) and aimed at incremental innovations	Agricultural Knowledge Centre Noord Holland**/Agricultural Knowledge Centre Flevoland**, Agricultural Knowledge Centre Zuid-Nederland**/Agricultural Knowledge Centre Zuid Holland**/Innovation Support Centre Wageningen**/Syntens Agro/Stimuland./LaMi./ Agro&Co/Food Valley Innovation Link/Horti Solutions*/Poultry Centre/Cropeye/ Innovation Support Point Zuid Limburg**/ KnowHouse/ Agri-chain Knowledge**/ Grower's Service Technology Department#/ Platform Agrilogistics/Support Point Care Farming#/ Knowledge Alliance#
3) Peer network brokers forging farmer networks for horizontal learning (comparable to e.g. farmer fields schools)	Dairy Farming Academy#/Horticultural Cluster Academy#/Pignet#/Program Networks In Animal Husbandry#/ Versatile Countryside Academy#
4) Systemic instruments for forging public-private multi-actor alliances for radical innovations	Courage/ Greenhouse Horticulture Innovation Foundation#/Innovation Network Rural Areas and Agricultural Systems#/ Transforum/ Eggnovation/ Germination Power#
5) Portal sites that offer an overview of relevant goods and services and enable virtual interaction	Ziezo.Biz/Knowledge on the Field #/ExperienceBox/Bioknowledge#/Knowledgefield #/AgriHolland
6) Research councils with innovation agency that programme and facilitate demand-driven participatory research	Bioconnect* / Transforum*
7) Practice-education brokers that provide education establishments with the latest insights from practice	Green Knowledge Cooperative#/Content broker#/Flower Bulb Academy#/Knowledge Counters Brabant#

Names have been translated from Dutch where appropriate.

* These organisations have ceased to exist.

Source: Derived from Klerkx and Leeuwis (2009a).

Positive contributions

Innovation brokers are valued because they operate from an independent and neutral “third party” position as regards the problems and challenges they address, the partners to involved, and their interests during the innovation process. In the sphere of demand articulation, innovation brokers helped farmers and other agri-food stakeholders to think

about new possibilities to sustain their businesses. Because of their unbiased position, innovation brokers offer a fresh look at diagnosing the constraints and opportunities of farmers or, at a higher level, production chains, regions, or sub-sectors. Due to their critical approach, brokers tend to force their clients to look for possibilities beyond their current situation and constraints.

In the sphere of network building, there are numerous examples where innovation brokers have helped farmers and others that want to initiate innovation projects to get in touch and negotiate with project partners and other relevant stakeholders. These partners can come from the policy, market, and civil society domain, as well as suitable knowledge providers who can assist in orienting farmers towards new activities. The variety of sources available is essential for developing new combinations that are central to innovation. At the system level, brokers have contributed to the development of innovation agendas, and radical and/or system innovations to meet future challenges by performing foresight exercises and initiating innovation projects that bear a high risk of failure. This has resulted in several new concepts, some of which were initially regarded with suspicion and disbelief, but now have become viable new development strategies.

Finally, it is evident today that innovation process management is an important function that can be performed by innovation brokers. Innovation processes tend to involve different groups of actors, with different expectations and interests determined by their institutional background. For example, farmers often want instant access to applicable knowledge and quick results; research providers have an interest in undertaking (publishable) research; and policy makers want to realise their policy goals and see the results of public investments. The interested parties thus differ with regard to the time horizons of projects and the desired output. Innovation brokers have clearly facilitated co-operation and managed to synchronize expectations of different actor groups for a number of innovation processes. They have made different project partners aware of their institutional backgrounds and expectations, and of the role they can fruitfully play in the innovation process. Moreover, they have been successful in making transparent the risks and benefits attached to engagement in the innovation process. This is especially useful because by doing so they contribute to reducing uncertainty in the early stages of the innovation process when the risk of failure is high. In addition, brokers act as a “translator” between the different cultural worlds and perform mediating roles in the event of conflict about, for example, the attribution of intellectual property rights, strongly diverging goals and visions, or the division of funds. The involvement of innovation brokers in innovation processes hence accelerates the innovation process by helping members to maintain their focus and energy during this process. Beyond the level of a single project, innovation brokers fulfil the roles of acting as a catalyst (to bring about change and stimulate co-operation), as a liaison (e.g. to inform policy) within the agricultural innovation system, and in the area of innovation capacity building.

Tensions with respect to how brokers function

Although brokers are seen to have a positive effect as a knowledge infrastructure and innovation system catalysts, there are tensions with regard to their status which have important policy implications. First, there is a “neutrality paradox:” innovation brokers often need existing parties and networks for referral and matchmaking purposes, but may also need to destroy existing networks to make new combinations and which threatens their credibility as neutral brokers. Furthermore, they have to balance the interests of different parties in their role of brokers (e.g. clients, financiers) to maintain their social

and financial resources, and hence future brokering flexibility. However, resource dependencies on certain financiers, such as government or research institutes, may force them to allow those parties to influence their work and which thus affects their perceived neutrality in the eyes of others, such as farmers and other research and extension providers.

Second, there is "function ambiguity": some functions, especially those that go beyond demand articulation and network formation and deal with the facilitation of established networks, are seen to be similar to those that existing research and extension providers offer. Also, innovation brokers have to balance the dilemma that they need sufficient topical knowledge to be credible for network participants, but too much knowledge on the subject makes them a threat to experts and may be conducive to too narrow a focus (lock-in). In view of the lack of a clear understanding as to what constitutes the actual role of an innovation broker, innovation brokerage having an autonomous role has not yet been fully accepted by the Dutch agricultural knowledge infrastructure.

Third, there is a "funding paradox", wherein innovation brokers who wish to tackle various market and system failures in the agricultural knowledge infrastructure, suffer themselves from the same systems and market failures. This includes the difficulty of clients and financiers to understand their activities, which seem invisible and intangible, and to assess the effect of their activities on innovation. Related to this, there is "funding impatience" due to funding being withdrawn too soon. This causes innovation brokers to collapse, or become "traditional" extension providers and hence lose their systemic function.

Conclusion

In many countries network building and facilitation for agricultural innovation is seen as a principal challenge and thus innovation brokers may be a valuable new type of actor in the agricultural knowledge infrastructure and the agricultural innovation system (Klerkx *et al.*, 2009c). This calls for policy with regard to innovation brokers as an agricultural innovation policy instrument. The tensions mentioned above prompt a critical evaluation of the role that government must play as an *innovation system facilitator* by supporting innovation brokers. Arguments in favour of government support include the difficulty to make the basic functions of demand articulation and network formation self-sufficient. In addition, the contribution to innovation system interaction and the role as catalysts of innovation, and the fact that innovation brokers can more neutrally fulfil the role of facilitator than parties that have a substantive stake in the subsequent research or innovation process also call for a government role. Nevertheless, there are also some dilemmas, which include 1) the justification for public spending on innovation brokers, as impact evaluation appears to be difficult; 2) the proper demarcation of the mandate of publicly financed innovation brokers, as activities that go beyond demand articulation and network formation are sometimes perceived as competition by traditional research and extension providers; and 3) the risk that due to resource dependencies, innovation brokers may become a more or less "hidden messenger" for government or another party, which would be detrimental to their credibility as a neutral facilitator and "free actor."

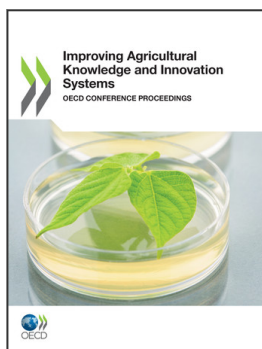
Note

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From:

Improving Agricultural Knowledge and Innovation Systems

OECD Conference Proceedings

Access the complete publication at:

<https://doi.org/10.1787/9789264167445-en>

Please cite this chapter as:

Klerkx, Laurens (2012), "The role of innovation brokers in the agricultural innovation system", in OECD, *Improving Agricultural Knowledge and Innovation Systems: OECD Conference Proceedings*, OECD Publishing, Paris.

DOI: <https://doi.org/10.1787/9789264167445-19-en>

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