

The European Union ‘multi-actor’ approach to agricultural innovation: first steps and major challenges

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Reinvention of innovation

Innovation in agriculture is widely recognized as a key element for boosting economic and social development in both advanced and emerging countries. In recent years, this acknowledgement has gained momentum because of the rising awareness of 21st-century challenges related to food production on a global level. In this regard, there is consensus on a conceptual framework calling agriculture and food supply chains to feed an increasing (and increasingly wealthy) world population in a sustainable way, with sufficient, healthy and nutritious food, while coping with constraints such as the shrinking portion of agricultural land per capita at the global level, political unpreparedness for managing food price crises in a coordinated manner on a world scale, depletion of natural resources and the impacts of climate change¹.

The magnitude and complexity of these challenges require investments not only in research, but also in innovation, intended as the implementation and concrete application of research.

This perspective has led to a ‘revival of innovation’ in the narratives about agriculture and food, in both the global and the European Union debates. In Mediterranean Europe, especially, for several decades the dominating storytelling about agriculture and food has mostly relied on a dynamic reinvention of the tradition. This is something different from the Hobsbawm and Ranger ‘invention of the tradition’.² That powerful expression still resonates, but in their attempt to unveil the ideology in the social construction of tradition, the two historians overlooked the part that relates to invention as a collective creative act.

With the term ‘reinvention’ I mean the re-definition of old concepts, as part of their social appropriation and use. This has happened in the case of the narrative of innovation that is gaining an increasingly top position in the EU and global agricultural and food policy agendas. Innovation in agriculture is no longer what it once was.

The revival of innovation has come alongside regeneration of the agricultural innovation concept itself. One clear influence in this process comes from the impact of the thriving innovation economy in the ICT sector, the most famous epitome of which is Silicon Valley. This creates some misunderstandings. The digital economy impact on social life is undeniable, unavoidable and maybe desirable. We have seen the disruptive power of digital platforms in different sectors already, spreading from tourism (Airbnb) to transport (Uber), and agriculture and food production could be affected in the same way, if they are not being so already.

While it is certain that the Silicon Valley model and the digital economy innovation are worth studying and learning about, it is doubtful whether the simple transfer of that pattern to other geographic areas and economic sectors could work per se.

So, in talking about the reinvention of innovation in agriculture we should avoid misinterpretations stemming from the communication-economy circuit that is essential to the functioning of the US innovation economy model, based on the ability to attract private investors and capital.

¹ De Castro P. et al. 2012. *The Politics of Land and Food Scarcity*. London: Routledge

² Hobsbawm E. and Ranger T. 1983. *The Invention of Tradition*. Cambridge: Cambridge University Press

These misconceptions can be summarized as follows:

- Believing that only disruptive and global outreach innovation is worthy of consideration, while ignoring that innovation works also, if not mostly, through incremental change in localized areas. A corollary of this mental habit consists in fostering the mythology of geniuses (from Leonardo da Vinci to Steve Jobs), neglecting the collective and 'tinkering' nature of the creative process;
- Thinking that the ability to design a digital system means a faculty to understand and master any other system in the world;
- Considering innovation and technology as homologous. Technology displays transformative power at the condition of meeting some kind of social use. Technology can provide new environments enabling people to do things, but only when people interact and use these spaces to create they become lively ecosystems for innovation. This interaction, and not tools per se, can be socially disruptive³.

It has to be said that these misinterpretations are part of the game in the US approach to innovation economy. In that environment they work because a praiseworthy social acceptance of failure in business and the trial and error approach are genuinely fundamental parts of the process. In any case, we are talking about an innovation system based on private investment and minimal regulation. Agriculture and food supply chains instead constitute a sector that is strongly regulated and publicly supported in almost every part of the world.

Transition in agri-innovation patterns

From the 16th and 17th centuries onwards, after the development of modern science in Europe, innovation in agriculture has been structured in various knowledge transfer systems and models, the most dominant of which was the linear knowledge organizational pattern. It worked though a centre-periphery one-directional information flow mechanism.

Knowledge and new technologies were essentially generated by public research (research institutes or universities), transferred to the agricultural extension services and hence to the farmers for adoption. In recent years, especially in advanced economies, private firms have taken the lead in driving innovation on farms. This model has achieved successful results but its ability to provide an answer to complex problems, such as the challenges mentioned above, is widely questioned⁴.

As a consequence, a process of disintermediation and remediation is ongoing among the players within the agricultural research and innovation systems. In this perspective, the key element is the active participation of innovation's final users in the system in an attempt to establish a co-creation approach in order to replace the linear knowledge organizational pattern. This entails, inter alia, giving greater roles to information and communication networks in facilitating the interaction among the different components of the system. Against this background, in 2014 the EU launched a new framework for research and innovation, not only in agriculture. In this framework, the ability to establish 'multi-actor' and interactive platforms working with a collaborative method is one of the conditions for access to public funds for research and innovation is

Renewed European Union framework

The EU 2014–2020 framework for research and innovation aims to build up multi-actor innovation systems involving a wide range of connected sectors in order to enable interaction between researchers, businesses, producers, growers and consumers and to ensure a crosscutting approach in line with the main European policies.⁵ The scheme consists of the Horizon 2020 Framework Programme for Research and Innovation, and the European Innovation Partnerships (EIPs). While the first operates at the macro level, dealing with research infrastructures, the latter is focused on the micro level and involves local territories.

³ See Ashton K. 2015. *How to Fly a Horse*. London: William Heinemann. See also the remarks by Massimo Chiriatti at the SASE Conference in Berkeley, 26 June 2016. The text version is available here: http://idlewords.com/talks/sase_panel.htm.

⁴ Coudel E. et al. 2013. *Renewing Innovation Systems in Agriculture and Food*. Wageningen: Wageningen Academic Publishers.

⁵ Prete F. and Capone R. 'The European legal framework and rural development policies', in IAM Bari-CIHEAM, *Innovation in the Mediterranean Agrifood Sector: Concepts, Experiences and Actors in a Developing Ecosystem*. Options Méditerranéennes, upcoming publication.

The Horizon 2020 research and innovation programme will provide €84 billion during seven years (2014–2020) for research with the aim of reconnecting R&D activities with the real needs of enterprises and citizens. In the new framework, the existence of a consortium involving businesses and institutions and the ability to disseminate and communicate results not only to academia but also to society in general are relevant features for the approval of projects. Concerning agriculture and food production, the main topics identified in the Horizon 2020 framework are food security, bio-economics and sustainable agriculture along with other issues affecting agriculture (climate change, efficient use of natural resources, and safe, clean and efficient energy).

The European Innovation Partnerships (EIPs) for agricultural productivity and sustainability aim to establish a renewed connection between farms and research activities at the local, national and European levels. In particular, the agricultural EIPs are financed under the Rural Development Programmes (RDPs), that is, the setting of EU policies supporting rural areas. As the European Commission writes, the objectives of Agri-EIPs: include successful bridge-building between cutting-edge research and technology and stakeholders, including farmers, businesses, industry, advisory services and NGOs. This should help to translate research results into actual innovation and to transfer innovation into practice more rapidly, to give systematic feedback from practice to science about research needs, to enhance the exchange of know-how, and to raise awareness about the need for joint efforts to invest in sustainable innovation⁶.

The EIPs work through the so-called Operational Groups (OGs). These are groups of people who team up ‘to work on concrete, innovative solutions to a problem and whose project is funded by the EU Rural Development policy’.⁷ Farmers, scientists, institutions, private partners and citizens with common interest in a specific practical innovation project can form an Operational Group, in order to combine practical and scientific backgrounds. In this regard, the EIPs follow an interactive innovation model that focuses on demand-driven partnerships.

Within this bottom-up approach, the EIPs work to achieve their objectives with the help of the OGs in the context of a European innovation network aimed at connecting local and European levels, and coordinating with Horizon 2020.

The new system is starting extremely slowly. At the end of June 2016, more than two years after the launch of EIPs, the situation was as follows:

- Of the 118 national and regional EU Rural Development Programmes, 96 plan to finance Operational Groups in the 2014–2020 period. The total number of OGs planned in these programmes is 3205.
- Mediterranean European countries are leading the field. Taking into account national and regional data, France intends to launch 305 OGs, Greece 435, Italy 625 and Spain 849. Regarding the other EU countries, only Germany and the UK are performing close to the Southern Europe levels, with 203 and 120 OGs declared respectively.
- However, at the end of June 2016 only about 119 OGs were in place in three Member States, namely, France, Germany and Austria.

The delay in the implementation of the new framework is mainly owing to the delay of the 2014–2020 RDPs approval procedure (consisting of a ‘structured dialogue’ between the Commission and the national managing authorities).

One potential risk in the EU policy approach should also be taken into account. The EU seems to be suggesting the creation of a bottom-up innovation system through a top-down decision process. This is not entirely true, since the idea of the EIP approach is the result of a long-lasting consultation process at EU level carried on by the Standing Committee on Agricultural Research (SCAR), originally established in 1974 and re-launched in 2005.⁸ In addition, the experience of Local Action Groups for LEADER programmes, even in a scale that is smaller than the intended EIPs scope, constitutes an example of how EU Rural Development policy can trigger bottom-up and collaborative approaches.

⁶ European Commission. 2012. Communication from the Commission to the European Parliament and the Council on the European Innovation Partnership: ‘Agricultural Productivity and Sustainability’. Brussels: COM(2012)79.

⁷ EIP-AGRI. March 2014. Factsheet: EIP-AGRI Operational Groups.

⁸ EIP-AGRI. March 2014. Factsheet: EIP-AGRI Operational Groups.

This said, the success of the renewed EU agricultural innovation policy – even in a strongly regulated and public-funded environment such as agriculture and food – depends mainly on the acceptance and overcoming of the difficulties the new legal framework poses for each of the actors in the hopefully rising innovation system, which calls for radical change in the organizational patterns.

Connecting the dots

Putting the farmers at the centre of an innovation ‘constellation’ of subjects means overturning the trend of the last 150 years in which proposals for new solutions came from academia and public research institutions or, more recently, from private firms selling production inputs (agrochemicals, fertilisers). Changing this game is posing multiple challenges for all the components that are supposedly part of the system. The following paragraphs are a quick and not exhaustive overview of these challenges in relation to different stakeholders.

Research bodies

Having once played a lead role in the agricultural innovation system, universities and research institutes ought now to learn to act as ‘responsible partners’.⁹ This entails the ability to listen to the needs of farmers, to develop skills to identify innovation opportunities in the field and to increase knowledge-sharing capabilities. The last – being able to disseminate results in plain language thereby enhancing the effectiveness of communication – should be done not only with peers, but also, more importantly, with other innovation platforms and citizens. In order to achieve these results, encompassing professional figures as innovation brokers, visual and network communication experts in the consortia might be considered.

Farmers

Farmers are supposed to be the main demanders of innovative solutions to their problems. However, in particular in a shrinking and ageing farming population, as happens to exist in the EU and in most advanced economies, recognition of the need to innovate is not to be taken for granted. Also, farmers are required to be available to experiment, test and adapt new technologies.

Some innovative solutions proposed in specific territories can require slight changes to scale up. These can be achieved only with the active participation of the farmers and through collaboration among them.

Business

The participation of private companies other than farms in the EIPs is of utmost importance, on condition that they recognise the long-term benefits that collaborative and free-access philosophy can have on their business. Within the EIPs there is no room to manoeuvre for approaches based on patents or intellectual property rights.

Consultants and services

Agronomists and the so-called ‘extension’ services are already the most common link between farmers’ needs and available innovative solutions. This bridging activity could improve if it shifts from a vertical view (single farm based) into a horizontal view (network of many farms).

Public administration

PAs should deal with coordinating the networks, which entails stepping back from direct control of the process. This does not mean ‘laissez-faire’. As for the research bodies, maybe it is worth dedicating human resources with specific brokering skills to the task of developing GOs and maintaining them lively.

Newcomers

‘Approaching the world as a software problem is a category error that has led us into some terrible habits of mind.’¹⁰ The digital economy applied to agriculture is capable of paving the way for many newcomers to provide devices and services for farming. This has the potential to expand the freedom of choice of farmers and change the balances on offer that for too long have been the prerogatives of a decreasing number of providers that continue to fuse and merge. However, the newcomers should have a solid awareness of the particular characteristics of the agriculture and food sectors.

9 Sonnino et al. ‘The role of research bodies: from leaders of the system to responsible partners’, in IAM Bari-CIHEAM, Innovation in the Mediterranean Agrifood Sector. Cit.

10 Remarks by Massimo Chiriatti, cit.