Designing and disseminating organisational innovations. What commitments should stakeholders in agricultural and food systems make?

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Abstract : Designing and disseminating organizational innovations. What commitments should stakeholders in agricultural and food systems make?

Some organizational innovations are a decisive lever for the agro-ecological transition. Many organisations are involved in these innovations, from agricultural professionals, public authorities, higher education and research, to the private sector. How are these different organizations acting in this direction? What convergences can be observed, and what controversies sometimes arise, on these uncharted paths towards more resilient forms of agriculture that are better integrated into society?

Keywords : Agroecology, transition, organizational innovations

Certain organisational innovations are a decisive lever for the agro-ecological transition. Many organisations are involved in these innovations, including farming professionals, public authorities, higher education and research, and the private sector. How are these different bodies acting? What does organisational innovation mean in practical terms?

1. What is organisational innovation?

In agricultural research, organisational innovation means, for example, new ways of working in networks, both between scientists and with the diversity of stakeholders in agricultural and food systems. The experience of the IDEAS (Initiative for Design in Agri-food Systems) network provides a better understanding of this type of innovation[1] . Created in 2016, and supported by INRAE and AgroParisTech, IDEAS is a national network of scientists developing three main types of activity: research, training and innovation support for stakeholders in the transition. IDEAS works for and on the design of innovations, which is a first for a network of scientists. Indeed, the primary mission of a research organisation is to

[1] Presentation by Marie-Hélène Jeuffroy (INRAE)

produce knowledge in order to understand something that already exists. But to innovate or design is to create something that does not exist! Doing research and innovating are activities that require quite radically different forms of reasoning and links between scientists and society. However, there are close links between design and the production of knowledge: design is based on knowledge, but this process also makes it possible to produce original scientific knowledge (Toffolini et al., 2020). The IDEAS network[2] has produced a set of methods for analysing and steering multi-actor innovative design processes in order to support the transition of agri-food systems. These methods are usually based on case studies, and cross-case analyses are used to specify the generic characteristics of these tools and methods, so that they can be easily transposed and adapted to new situations (e.g. Salembier et al., 2021; Jeuffroy et al., 2022; Meynard et al., 2023; Cerf et al., 2024). IDEAS, for example, has produced a method known as "diagnosis of socio-technical systems" (Casagrande et al., 2023), which makes it possible to identify both the stakholders who will be able to contribute to the transition and those who are contributing to the locking-in of current systems, even though these will have to evolve in line with the commitments made by France and Europe in various international arenas (climate, biodiversity, global health, etc.). Another method has been described for 'tracking down' innovations by stakholders in the field (Salembier et al., 2021).

Innovation also involves higher education, which helps to shape the new generations who will be thinking about tomorrow's innovations. We all remember the call from agricultural engineering students in 2022 to branch out, reflecting a desire for more far-reaching changes to agri-food systems. Higher education was strongly challenged, just as it is by the farming profession and public authorities: how can we develop training (content and training methods) to meet the challenges of food sovereignty today, but also those of renewing the generations of farmers, combating climate change and preserving the environment? Five years ago, AgroToulouse (INP-ENSAT) embarked on a project to reform its teaching, entitled ENVOL, which won the Responsible Campuses trophy[3] . The idea was to bring together teacher-researchers, school support staff, students and professionals to share a diagnosis of training needs. With more than 400 students going on placements every year in a wide variety of companies in the agricultural and agri-food sector, AgroToulouse, like other schools, is at the forefront of observing the weak signals of changes in agricultural and food systems. The discussions helped to build a shared vision of tomorrow's agri-engineer, a stakholder in change, as well as the paths to get there. Envol then innovated on an organisational level, by implementing the principle of validating skills such as diagnosing, designing and supporting; a model combining 'project' modules and 'resource' modules to equip students not only with knowledge, but also with know-how and interpersonal skills. Taking advantage of this opportunity, ENVOL reaffirmed the principles needed to be a stakholder in the transition: working together, decompartmentalising disciplines, combining knowledge and skills, a systemic approach to complexity, training through research, etc.

The key stakholders in agricultural innovation are the farmers themselves. The same applies to organisational innovation. Here are a few testimonials to illustrate the point. As Gilles Berthonneche points out[4] , "*innovation is part of our DNA, the DNA of the Cuma*! Created in the aftermath of the Second World War, CUMAs represented a genuine organisational innovation in the way agricultural equipment was used. More than 70 years on, CUMAs remain a breeding ground for initiative and innovation. "*They could have been called cooperatives for the use of agricultural equipment and intangible assets*", to underline their role in generating and putting new ideas into practice. CUMAs are often the first link with the local area, breaking the isolation in the countryside that does so much damage. This is a prerequisite for innovation. The example of CUMA Pollionnay, near Lyon, gives us a better understanding of their role in developing innovations. Approved as an Economic Interest Grouping (GIEE) in 2016, this CUMA, which groups together around 45 farmers, including a dozen dairy farmers, has introduced technical innovations

[2] https://ideas-agrifood.hub.inrae.fr/
[3] Presentation by Geneviève Nguyen (Agro Toulouse)
[4] Presentation by Gilles Berthonneche (FRCUMA Aura region, FNCUMA)

to improve their protein self-sufficiency in the face of recurring droughts (collective barn drying for very high quality alfalfa hay), as well as organisational innovations through collaboration with other local stakholders. In 2022, the Communauté de communes des vallons du Lyonnais is participating in the purchase of a plot of land on which the CUMA has built a 2,000 m² building with a photovoltaic system. The Rhône electricity union is also financing part of the connection, which is a major cost. Thanks to this initiative, the cost of buying soya cake was divided by four in the first year! These technical and organisational innovations have enabled this group of farmers to produce better and differently!

Another collective stakholder in the professional world, the Chambers of Agriculture play an important role in supporting the renewal of generations and the setting up of new farms, as well as research and development at local level, particularly through training and advice. While it is not the role of the Chambers of Agriculture to set up association groups, it does encourage farmers and livestock breeders to share projects together, and to set up think tanks to guide their development and support them through the transition. There are already many collective dynamics and groups, including GIEEs, GEDAs, CETAs and all the others... These groups sometimes need support in terms of technical, leadership or administrative skills to carry out projects and mobilise funding. Some of these groups are well into agro-ecological transition, such as the DEPHY groups, the 30 000 groups, etc. For example, we have a GEDA group set up in 2017 with 15 livestock farmers around the theme of quality fodder through barn drying, with a view to exchanging ideas and innovating to make a success of their transition and become more resilient.

As far as the Ministry of Agriculture is concerned, and in particular the Directorate General for Education and Research (DGER)[5] , the aim is to identify the type of organisation and funding needed to encourage innovation by a wide range of stakholders. This rich and diverse ecosystem includes academic research, public research, the “grandes écoles”, INRAE, CIRAD, CNRS and the universities, etc. But there are also technical institutes, chambers of agriculture, development and marketing organisations. The DGER works with all of them.

For the past fifteen years, the French Ministry of Agriculture has relied on collaboration within this ecosystem to support a number of organisations, not only in terms of scientific knowledge, but also in terms of adoption in the field and implementation... An idea that is not implemented is not an innovation. Well-known tools such as the National Agricultural and Rural Development Programme, financed by the CASDAR, joint technology networks (RMT) and certain calls for projects aim to stimulate this collaborative research approach. Europe is another lever, with the European Innovation Partnership (EIP), of which France can claim some paternity: innovation must be based on the co-construction of knowledge with practitioners. The aim is to encourage innovation "from the ground up", based on the people involved, on what farmers do. This is a very strong bias for the initiatives supported by the Ministry.

2. Barriers and levers for organisational innovation

Not everything is rosy either... Everyone knows that there are many obstacles to organisational innovation for the agro-ecological transition, but there are also levers that are not always activated.

In the world of research, a major obstacle is the difficulty that disciplines have in communicating with each other. There are dramatic gaps between certain disciplines. Take the example of agronomy and food processing (food engineering). For a very long time, there was virtually no collaboration between these disciplines, whereas the agro-ecological transition recognises the importance of strengthening the links between the agricultural and food sectors (Meynard et al., 2017; Brun et al., 2021). There has also been a distancing of the links between agronomy and genetics over the last 20 years: these disciplines have worked together usefully in the past but are finding it more difficult to do so today, while the question of varieties and species to stimulate the agroecological transition is a major issue. There are several ways

[5] Speech by Cyril KAO (Ministry of Agriculture, DGER)

of stimulating organisational innovation. The first is to train researchers in the mechanisms of innovation and the management of innovation projects, which are areas of know-how and skills that are very different from those expected of researchers. The IDEAS network offers research schools for this purpose and runs a scientific network in this area of innovation. The second lever is to strengthen the capacity of research to work with stakeholders in society, in the form of participatory research, which can take a wide variety of forms. Knowing what you are doing, exchanging experiences and learning from each other can facilitate organisational innovation. However, we must not underestimate the difficulties involved: many LIT initiatives, for example, do not produce obvious transformative results. Finally, a third lever is based on participatory workshops for the innovative design of research programmes to overcome the barriers between scientific disciplines, such as agronomy and food processing, for example, but also new programmes around waste management, animal health and welfare. By forging these links and co-constructing research questions that are shared between disciplines, it is easier to build innovative research that contributes to organisational innovations and the agro-ecological transition.

In higher education, increasing emphasis should be placed on the rapid transformation of our societies and the urgent need to act in an increasingly constrained and uncertain world. Curricula must constantly evolve to show the complexity of today's farming and food systems, to show that several models of agriculture and several forms of farming and agri-food businesses coexist. To support this extreme diversity, we need to revamp the frameworks for analysis and the content of training courses, and above all we need to be able to set up test areas where we can carry out projects in collaboration with professionals and researchers, so that we can reflect together on the search for new avenues adapted to the diversity of situations. In Toulouse, a Campus for Agroecology and Transitions is being set up, bringing together teaching, research and consultancy structures, to take the process of change and support even further.

Sharing experience is a powerful lever for stimulating innovation, as the CUMA network has been demonstrating for several decades now. There are several ways of doing this. First of all, innovations need to be spotted - this is known as "innovation hunting". It's the organisers who work closely with the innovators, who are necessarily at the grassroots, in the field. The CUMA network also regularly organises innovation days on different themes, such as employment, digital technology and energy, which facilitates exchanges and stimulates the circulation of innovations. At national level, CUMAs have an "innovation" committee of around thirty people, farmers and employees, which meets 4 or 5 times a year. This is the CUMA network's "armed wing", as it were, for disseminating and sharing innovation. For professional farmers, the lack of time and resources to take a step back from their practices and take part in sharing experiences, sometimes between regions or even at international level, is a serious brake on innovation.

Despite these initiatives, it's not all plain sailing either. We live in a highly individualistic society, where it is increasingly difficult to recruit volunteers to share, exchange and lead these dynamics described above. Groups can form locally, around innovation, sometimes developing but often failing, and the challenge is to bring these collective dynamics to greater resilience. The challenge goes well beyond the world of agriculture and undoubtedly starts at school: how can the national education system train young people to work more collaboratively? How can we reinforce the idea that "working together, we don't necessarily go faster, but we can go further"? These are profound changes that will be needed to meet the fundamental requirements of living together in a world that is experiencing multiple crises.

On the part of the public authorities, the same idea recurs: it is through dialogue and consultation that innovation can bear fruit. Around the agricultural bill[6] , there has been a great deal of work on innovation issues, with many ideas and avenues still to be developed and put into practice. One of the major challenges is disseminating innovations. There are pioneers, places where new perspectives are being

6 Press pack - Draft law on agricultural sovereignty and the renewal of generations in agriculture (03/04/2024). https://agriculture.gouv.fr/dossier-de-presse-projet-de-loi-dorientation-pour-la-souverainete-agricole-et-le-renouvellement-des

tested, but how can things be mass-produced? There are a few tools available, such as the DEPHY network farms, but there is an urgent need to speed up the process of innovation towards agro-ecology in the face of growing pressure from climate change. There is a major challenge in setting up young farmers in the next five to 10 years: how can we ensure that this new generation takes full advantage of innovations that may already exist, but are not always widely known? The other challenge is to support innovation: innovation means taking risks, sometimes with loss of income. There is a growing need to take on this risk, because the whole of society stands to benefit from certain innovations. This is a key issue that concerns many local and regional stakholders. This can take very practical forms, such as the investment tax credit, which is mainly dedicated to sole traders but could be extended to CUMAs, for example.

3. Conclusions

There was a certain convergence in the comments made at this round table. Faced with today's societal challenges, innovation, whether organisational and/or institutional, must be far-reaching, far-reaching and rapid. The agro-ecological transition, if it is to be effective, requires more than ever a genuine paradigm shift at all levels and among all stakholders.

More generally, inventiveness, the sharing of risks and efforts, the exchange of practices and experience, the desire to test and bring innovations to fruition and give them a practical reality are all essential ingredients for making progress towards an agro-ecological transition.

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