Scaling innovations: Do we know what makes contexts conducive?

Many policy makers, business partners and researchers often think about innovations related to food security as the natural outcome of best practices and that scaling can be easily done once it becomes the responsibility of some manager or engineer. However, work done by researchers from Wageningen UR found that the scaling of innovations has tended to be an unpredictable, complex process, depending on the interaction between the 'DNA' of the innovation and the context within which it is taking place.

Governments, donor agencies and some private companies are often strapped for funds to invest in agricultural technical or organisational innovation processes, so it is important for them to know whether a particular innovation will have the desired impact on the lives of people, especially the rural poor, and result in better access to food grown in a sustainable way. For innovations to come to scale, it is important to understand how an innovation takes hold. The central issue therefore, is not whether it works, but whether an innovation will scale, how it works, for whom it works and the context – under what conditions is the innovation likely to achieve scale? To analyse the scalability of innovations, a group of researchers led by Jolanda van den Berg, a development expert at LEI Wageningen UR, drew on the 'realist' methodological framework for inspiration. They adapted and developed it, under the KB1 'Innovation systems and scaling in practice' project, to help them identify the processes triggered by a programme or innovation, taking into consideration that the context has a bearing on outcomes (Figure 1). Cases in three countries made use of this methodology: Benin (Integrated Soil Fertility Management), Kenya (Dairy Business Hubs), and a case from Denmark on integrated pest management, illustrating the wide-scale applicability of the framework, in very different agricultural and innovation settings in providing insights into the innovation process.

Research on Integrated Soil Fertility Management in Benin showed that with innovation, new and increased levels of transaction came about and that the accompanying feedback mechanisms triggered interactions between different innovations at the local level. The emerging combination of technical and organisational changes, as well as the growing involvement of different players in the selection of options, encouraged the spread of an integrated approach to managing soil fertility. The level of cooperation between farmers in Ifangni, South East Benin, in growing yellow maize and regional chicken farmers who buy it for feed, is a good example of this. Yellow maize was introduced to

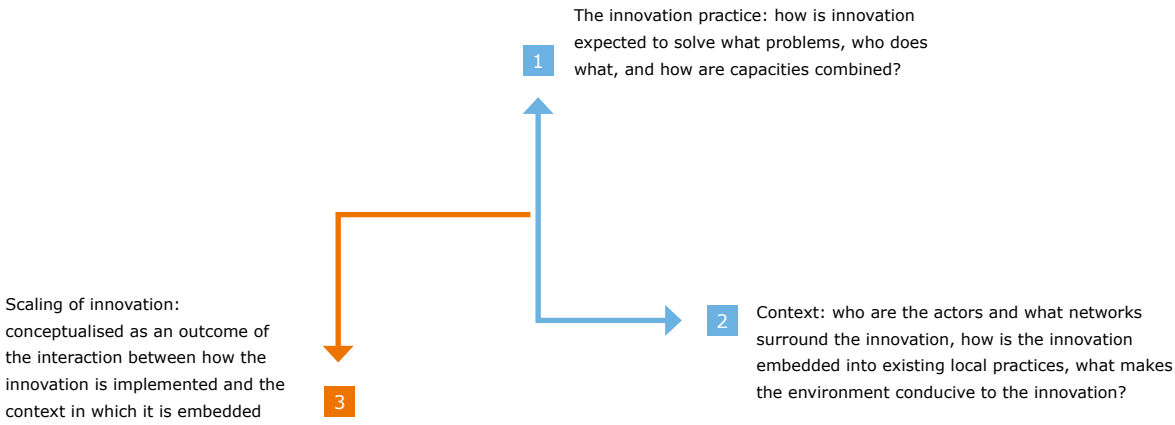

Figure 1 Scalability as an outcome of an interplay between innovation and context
Adapted from Pawson and Tilley (1997)

farmers to produce chicken feed and assistance was given to develop local small-scale chicken farms. The resulting chicken manure is then sold back to the maize farmers as fertiliser. The growing interdependencies between buyers and sellers, who previously did not interact, triggered an evolving process of selection, improvisation and technical change altering soil management in a larger area.

The case study in Kenya on the scaling of Dairy Business Hubs (DBH), an input and service provision model that led to the strengthening of linkages between input supply and milk marketing around milk collection centres, showed the interaction of the DBHs along with several contextual factors were key to the success of scaling. These factors included: a robust, urban demand for quality dairy products; availability of sufficient feed and fodder to meet that demand cost-effectively; the presence of farmers and entrepreneurs with the management capability to gradually expand the set of services offered by DBH in line with smallholder farmer demand for inputs and services; and a business climate that facilitates stronger linkages between value chain actors, in which development organisations play an important role in facilitating investments in hardware and capacity building. These factors resulted in stimulating the rapid expansion of DBHs throughout in Kenya. For example, over the course of a decade, 35 DBHs sprung up, providing tailored services to some 25 percent of the 800,000 Kenyan dairy farmers.
In Denmark, the Integrated Pest Management (IPM) case provides an added perspective to scaling. Although IPM solutions were being tested in the field, it was the very process of advisors supporting farmers to analyse future problems, experimenting with possible solutions that set the scene for innovation and IPM. Three so called scaling forces are identified:

1 broadening the time horizon and directions of search,
2 stimulating farmers to take the lead and experiment with solutions,
3 the changing role of advisors from solution supplier to becoming the sparring partner of farmers.

It is these scaling forces that might have a more sustainable effect on the reduction of pesticide risks than the scaling of a specific IPM technology. So, besides asking how a certain technology can be scaled, perhaps the thought process should be reversed, to start from the intended impact, 'backcasting' (a way of describing how you would want the future situation to be), to determine which scaling processes are needed to achieve the desired outcome.

Innovations unfold in unexpected ways

The cases highlight how useful the framework has been in understanding innovation processes. Further, they show how innovation is a continually evolving bundle of technological, organisational and institutional processes, involving networks of multiple actors whose ideas and knowledge lead to adjustments and improvements to innovations along the way. There is also the suggestion that scaling can be engineered if the innovation already has clear boundaries and a strong functionality for managing supply of inputs and outputs. The cases in Benin and Kenya indicate that scaling seems to be less easy to steer in settings where the innovation is more open, where different actors seek to combine or select bundles of technical and organisational options.

Advisors and farmers interacting with each other in the field

Technologies are often seen as central to innovation, transferable from one context to another, but in practice, technologies are shaped by people using them within their social, economic and institutional context. Social and institutional changes are always needed so that new technologies can be fully integrated into local practice. Scaling then becomes more dependent on a selection of 'recipes' and on how induced interventions find a fit with established processes of problem-solving and handling risks. Hence, whether a technical or organisational innovation achieves scale is hard to predict or plan. Some of the cases also showed that innovations are more likely to scale if rigid pre-planned prescriptions about what to do are avoided and if these innovation processes are supported over a long time in a flexible way adapted to the specific context and the evolving opportunities. The scaling of innovation therefore centres on building the capacity of institutions to interact closely on the ground with diverse stakeholders and to acquire the skills needed to support making the fit between intervention and context conducive to scaling.

Figuur 2 Dairy business hub associated services in Kenya

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References and further reading materials

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