

Why do simple ideas don't diffuse easily?

Most innovators solve local problems not for seeking rewards but to pursue their inner happiness. Only a few are able to generate commercial returns from their innovations. Others share them as open source ideas with the wider society. And yet, by merely putting them in open domain, innovations do not get adopted by the communities around the world. Unless we find effective ways of reducing the transaction costs for those who need such ideas, the ideas remain unused. These cost include the costs of accessing the innovation databases, translating them into local languages, and if illiterate, find someone who would search and provide the essence of the innovation to them, and pursue distributed on-farm trials of farmers' innovations. After getting information, one may or may not find it feasible. The translation of available innovation into operational practice is not a simple step. It may involve further experiments and co-creation or collaborative adaptive trials.

Not every innovation may actually have the potential for diffusion. But, the spirit and the struggle behind every innovation can indeed spur the efforts by those struggling with similar problems. While evaluating the impact of an innovation, we seldom measure the inspirational and instrumental impact of it. Therefore, the full potential of an idea remains unharnessed. Farmers use different plants to attract predators of the pest affecting their crop. It is quite possible that the same pest may be affecting same or different crops in other regions. If we diffuse this creative solution in areas where the relevant plant attracting the predators does not exist, some farmers may find the information irrelevant. If we don't share such seemingly 'irrelevant' ideas, those who would have used this information either as a heuristic, metaphor or as a trigger for searching other plants having the same property may be prevented from unleashing their experimental spirit. It is also possible that if the information was shared, some people, while rejecting it, would have provoked others to try and improve upon it. By focusing too much on the artefactual, instrumental or practical utility of an innovation, we are refusing to tap tremendous potential of the multiplier effect. The time has come for a paradigm shift in the entire approach to recognition and diffusion of innovation. The conventional extension system needs to change not just from lab-to-lab to land-to-lab-to-land but, rather from solution-transfer to trigger-transfer.

There are several other reasons why open source ideas do not diffuse on their own or are not picked up by many private or public intermediary organisations. There is a cultural belief among some that things given for free are of lesser value. When such ideas are developed by the less educated or the farmers

and artisans from the unorganised sector, the disbelief may increase even further. National Innovation foundation (NIF) had recognised a very interesting practice of irrigation by a farmer, Harbhajan Singh, Haryana. His idea was to irrigate cotton in alternate rows to reduce water usage by half and also minimise use of pesticide without losing productivity at all. In fact, there are studies which show that with reduced irrigation, productivity may even go up besides saving water.

Despite so much crisis of water, why has this idea not picked up? Is it because it is very simple and easy to prove wrong? Should the complexity of an idea necessarily enhance its credibility? Why would policymakers and extension workers not encourage simple experiments? The irony is that in a knowledge economy, knowledge-based advice is most neglected while material input-based messages flow smoothly. This is a long overdue correction in this strategy for revitalising Indian and rather global agriculture. Given the high cost of input, reduced margin and reduced resilience, one cannot overstate the need for amplifying management lessons. The small farmers who might not be able to afford costly inputs, can improve their productivity through such lessons. For the innovators, the adoption of their ideas by other farmers is one of the most appreciated incentives. Let me give another example of a simple solution. For a long time, it has been established that milk can be used for viral control in vegetables and a few other crops; there is a lot of scientific literature to back this. But, why can't this innovation be popularised by scientists? Is it because such an innovation, simpler and easier to implement for a farmer, would ideally empower them. They will then explore more and more "do-it-yourself" solutions? But, would not that be good from a self-reliant and sustainable development perspective? Why this kind of solution or other simpler ones have not been investigated further? We need to re-orient our thinking from the notion that if an innovation isn't complex enough then the job is not well done.

When Gujarat Technological University appointed over a dozen grassroots innovators as adjunct faculty, it increased the motivation of those innovators by a great amount. Many of them were invited to various colleges for lectures on the journey of their frugal innovations. The program did not continue subsequently but it was a good idea. May be, other academic institutions should consider inviting grassroots innovators as adjunct faculty. Science and technology students will thus learn the art of frugal engineering and technology development process from those who are materially constrained but not intellectually limited in their imagination. The art of thinking simply, making complex machines with simple design principles will

hopefully become apparent.

The President of India hosts innovators as a part of Innovation Scholar-in-Residence programme at Rashtrapati Bhavan. This is one of the greatest recognition that any country can bestow upon a grassroots innovator or a student. And yet, this by itself may not ensure that their ideas will diffuse faster and wider. An attempt is made to connect the innovators with various policymakers, technology leaders and other experts in the field so as to expand opportunities for their ideas to grow, mature and diffuse. The opportunity of showcasing their innovations at international trade fairs also gets them significant traction in the market place. Shodhyatras provide another opportunity for disseminating ideas. Public and private media have not paid much attention towards diffusion of innovations by farmers, mechanics, artisans, etc. The diffusion has remained constrained also because the supply chains do not favour open source ideas.

The structure of the Honey Bee Network, evolved over past two and a half decades, essentially dealt with scouting, documentation in early years and, to a limited extent, value addition and diffusion through local language newsletters and other means. The structure will have to be renegotiated so that the stake-

holders, having a greater role to play in value chain development in future, also acquire more importance without sacrificing the strength, motivation and commitment of the existing collaborators.

The complexity of technology must be matched by simplicity and frugality of supply chain for its dissemination. We will have to find out new ways in which dissemination of knowledge as well as material-based innovation through market and non-market channels can take place as vigorously as that happening in the case of scouting.

We have to learn all the lessons which led to the cases where diffusion has indeed taken place such as several farmer-developed crop varieties, herbal pest control, motorcycle-based plough, etc. It is not the innate cost effectiveness or profitability of an idea that explains its eventual diffusion but, it also has to do with the credibility of the channel through which it diffuses, how easy it is to practice, whether other costlier alternatives are still effective or not, and to what extent the local communities wish to experiment and try a given idea, not just as a practice but as metaphor or heuristic.

We should start working backwards, by learning from successful farmers who

innovate. Bringing grassroots innovative farmers and more importantly the workers, including women, at the centre of agricultural research to blend formal and informal science is required. This has been tried to some extent by the Honey Bee Network for the past 26 years. We need to first find out from them how they deal with certain agricultural challenges, including climate change adaptations they face. Scientists can then continue working with them using their innovations as a starting point to develop simple, practical solutions that are easy for farmers to adopt. So, it should be farmers and workers first, farmers and workers last. Let's keep it simple.

I look forward to hearing from the readers about new ways of engagement with public, private and civil society actors. Unless a good idea diffuses, the cost reduces, the productivity, conservation of environment and the quality of life of knowledge-rich economically poor people improves, mere recognition may not help enough. However, niche-based diffusion has its own advantage of meeting the unmet needs of those communities which otherwise might have got alienated.

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Treading towards inclusive innovation

