Innovation histories: A method for learning from experience

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Preparing an 'innovation history' is a method for recording and reflecting on an innovation process. People who have been involved in the innovation jointly construct a detailed written account (sometimes referred to as a 'learning history') based on their recollections and on available documents. The process of preparing this history stimulates disussion, reflection and learning amongst stakeholders. Subsequent planning can build on the lessons learned, formulate a shared vision and act as a catalyst for change. Based on the initial detailed account of the innovation process, more concise informational products can be prepared that summarize the innovation process for wider dissemination of findings. These may include public awareness materials, policy briefs or articles in professional journals.

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Introduction

Enabling rural innovation is one of the primary goals of research and development agencies throughout the developing world. To achieve this goal, we need to understand how innovation happens; yet innovation histories are rarely written down.

The innovation history method allows those involved in the process to reflect and use their experiences to improve future performance. Comparing and contrasting several innovation histories can also help to identify factors and approaches that lead to success, and those that may need improving. This Brief describes a methodology for recording and learning from innovation histories that is currently being developed at the International Center for Tropical Agriculture (CIAT).

Purpose and audience

Innovation histories have two purposes. Firstly, they allow the people concerned to reflect on their actions, how these are linked to the actions of others and how better results might be achieved in the future. Secondly, they allow external parties to learn, either by studying an individual case or by comparing experiences across several cases.

Innovation histories are constructed by a core group consisting of a facilitator, an analyst, a journalist (i.e. someone with good interviewing and writing skills) and at least one knowledgeable person from each of the stakeholder organizations. One person can fulfil more than one role. Others may contribute through interviews and by providing feedback on drafts.

The process of innovation is both driven and thwarted by individuals. Innovation histories can easily reveal successes, but they can also highlight conflicts, mistakes and other sensitive issues. People learn best when they feel safe enough to be candid. The core group should help create the right conditions by circulating the idea that the most innovative and successful organizations are those that can learn from what is working and what is not. Assurances should be given that quotes and interpretations will be properly verified with individuals before internal or external distribution.

The learning selection framework for innovation

CIAT uses two sets of concepts to guide data gathering and analysis. The first set comes from a model of the innovation process called the Learning Selection model (Douthwaite, 2002). The second set is derived from social network analysis (e.g. Cross and Parker, 2004). An understanding of these concepts helps those involved to see innovation as an evolutionary process that is driven by experiential learning cycles. The experimentation and learning leads to the generation of novelty, followed by its selection and promulgation. In the process, technologies become 'fitter', i.e. they perform better. The way this evolutionary learning selection process plays out is highly influenced by people's social networks.

How to construct and learn from innovation histories

Based on experience to date, CIAT has established the following step-by-step guide.

1. Clarify the objectives and expectations of stakeholders

In our experience, there are three main reasons for creating an innovation history: a) to learn from experience and draw lessons for programme improvement; b) to produce public relations materials; and c) to carry out research on innovation processes for publication.

Stakeholder expectations, including those surrounding authorship, need to be clarified at the outset. Expectations may change during the process, yet the method can remain relevant. For example, an institution may choose to create an innovation history for a successful project in order to raise the project's profile, but the process may reveal that things are not going as well as expected. In this instance, the priority changes from record-

ing an apparent 'success' with view to replicating it elsewhere, to identifying problem areas and improving project activities.

2. Define the innovation

This is an important time saver. We once began working on an innovation history of cassava mills in Colombia only to find that the innovation in question was actually a whole package of ideas and technologies that would supply the cassava mills with sufficient raw material, process the cassava and then market the output. A clear understanding of the innovation under study is essential and the innovation process should have at least reached the point where there has been some real uptake of the ideas/technologies by the intended end-users, beyond the point of researcher-controlled field trials.

3. Construct innovation timelines and actor network maps

Innovation histories provide causal explanations for two outputs: a) an innovation timeline that sequentially lists the key events (and any effects on the relationships between stakeholders); and b) actor network matrices and maps that show the links between stakeholders. Both outputs develop and change as the process unfolds.

A start-up workshop involving participatory group work is a good way to construct the first drafts of the timeline and network matrices and maps. When the workshop deals with more than one innovation history, learning from similar experiences will be enhanced. The workshop should also train participants from the main stakeholder groups on the innovation history method, clarify expectations, identify key people to interview and identify existing literature. After constructing the timelines (see Table 1 for an example), the participants then construct actor matrices (see Table 2) for two or more instances in the innovation history to capture the dynamics of changing partnerships. Matrices contain more information than actor network maps, but are harder to visualize. The matrices should be converted into network maps using a social network mapping program such as InFlow or Pajek (see list of further reading).

After constructing the timelines and actor network maps, participants then decide on themes they wish to investigate during the construction of the learning history, for example, 'Partnerships and their effect on the innovation process'. The participants then identify who they need to interview and what literature they need to collect. They elect a core group to manage the process and this core group may wish to employ a professional writer to carry out the interviews (one-to-one or group) or the participants can interview each other. The latter maximizes internal learning and builds capacity but, in either case, the inter-

Table 2. Format of an actor network matrix and the steps taken to construct one

	Actor A	Actor B	Actor C
Actor A		Relation of A–B	Relation of A–C
Actor B	Relation of B–A		Relation of B–C
Actor C	Relation of C–A	Relation of C–B	

1. Identify and list actors for a phase of the innovation history.
2. Actors may be NGOs, donors, etc.
3. Draw matrix describing type of relationship (collaboration, funding, etc.)
4. Identify relationships that were: a) crucial; b) problematic; or c) absent but needed.

Table 1. An example of an innovation timeline of the development of the flatbed grain dryer in the Mekong Delta, Vietnam (from Douthwaite, 2002)

1983	Phan Hieu Hien, lecturer at the University of Agriculture and Forestry (UAF), Ho Chi Minh City, Vietnam builds and sells first vertical bin dryer – based on an International Rice Research Institute (IRRI) design – to a seed company.
1983	Hien writes popular article and gets second order from ex-UAF student, Tran Van Hao, running government seed farm in Soc Trang Province. Soc Trang has huge drying problems. Hien chooses to use a flat-bed IRRI design.
1984	Dryer works but customer wants ten times the capacity.
1984	Main problem is the fan – Hien finds critical design graph in Ho Chi Minh Library; builds and supplies a 10 -tonne dryer.
1984	Hien supplies Hao with second dryer.
1985	News of dryer spreads – three state-run firms buy, but one goes bankrupt.
1987	Hao's father buys a dryer fan and builds a dryer in Phu Tam village, which has desperate need.
1987 to 1993	Phu Tam village becomes a cradle of technology as artisans copy; good and bad changes made.
1987	Rice mills impose 5% penalty on mechanically dried rice.
1987 to 1993	Design evolves, costs fall.
1993	Hien returns having done PhD and discovers 43 flatbed dryers in Phu Tam village and 260 elsewhere.
1993 to 1997	Hien works to improve dryer design based on modifications made in Phu Tam village.

views are based on a discussion of the timeline and actor network maps. The interviewer begins by explaining the timeline and actor network maps, then asks for: a) identification of new events to add to the timeline; b) additional information about events; c) identification of new relationships to add to the network maps; and d) additional information about relationships. Whenever an interviewee suggests a new event or relationship or wishes to comment on those already identified, the interviewer should attempt to draw out information by asking: Why was the event/relationship important? Who was involved? Why were they involved? How did they contribute or participate? What were the results? Finally, each interviewee should be asked to identify what, in their opinion, was the single most important event or theme, and why they think it was important.

4. Write up the learning history

Figure 1 gives an example of part of a learning history (the technique is borrowed from Kleiner and Roth, 1997). The introduction is followed by the first event identified on the timeline. The text is then split into two columns. The right-hand column contains quotes or paraphrases interviewees' comments. The left-hand column contains text that: a) explains why a particular quote was chosen; b) poses reflexive questions; c) makes implicit meaning explicit; d) provides a larger perspective, e.g. illustrating or challenging an existing assumption about how innovation processes work; and e) presents key information about particular quotes and their context. The same format is repeated for the next event on the timeline.

5. Use the innovation history as a catalyst for change

Discussion surrounding the innovation history culminates in a second workshop, in which participants should agree on emerging themes. These, and the knowledge acquired from the learning history, form the basis for arriving at a shared vision. Action plans can then be developed and implemented. The technique of 'appreciative inquiry' (described in ILAC Brief No. 6) is a suitable approach to use in this workshop.

6. Write up the publishable innovation history

The final document shares experiences, emerging understanding and conclusions with an external audience. Comparisons between several innovation histories can yield further insights and there is demonstrated demand for such publications. For example, a book based on innovation

Figure 1. The components of a learning history (content based on Douthwaite, 2002)

histories written by the first author (Douthwaite, 2002) is recommended or required reading on at least five undergraduate and postgraduate development and engineering degree courses in the UK and the USA. We recommend that an internal person involved in constructing the learning history should be first author on individual innovation histories, while an external analyst should lead any subsequent comparison between innovation histories.

The following report format is recommended:

1. Introduction – describes the background to the innovation and the rationale for creating the innovation history and explains why this approach is useful.
2. Methodology – describes the framework used and the data-gathering methods.
3. Case study or studies – this is the meat of the report; the narrative describing what actually happened based on the timeline and actor network maps.
4. Discussion and conclusions – describes the factors that fostered and constrained the innovation process. These findings are compared with existing literature – in particular that relating to the view that innovation is an interactive and experiential learning process mitigated by social networks.
5. Synthesis – compares and contrasts the main findings from each case study (if there is more than one), or discusses the implications of the findings for the project or future similar projects.

7. Disseminate the findings

An important role of the core group is to disseminate findings in their respective organizations. External dissemination (e.g. through workshops, journal papers and briefing notes) is crucial to influence policy and planning processes that foster rural innovation. This step should be planned and budgeted at the beginning of the project.

Further reading

Biggs, S. and Matsaert, H. 2004. Strengthening poverty reduction programmes using an actor-oriented approach: examples from natural resources innovation systems. Agricultural Research and Extension Network, Network Paper No. 134. London, UK: Overseas Development Institute.

Cross, R. and Parker, A. 2004. The Hidden Power of Social Networks. Boston, Massachusetts: Harvard Business School Press.

Douthwaite, B. 2002. Enabling Innovation: A practical guide to understanding and fostering technological innovation. Zed Books: London, UK.

Krebs, V. and Holley, J. 2004. Building sustainable communities through social network development. The Nonprofit Quarterly, Spring Issue.

Kleiner, A. and Roth, G. 1997. Learning Histories: A new tool for turning organizational experience into action: http://ccs.mit.edu/lh/21cwp002.html

PSO 2004. Learning Histories: A handbook for an exciting learning experience: http://www.pso.nl/asp/documentsite.asp?document=326

Whitney, D., Trosten-Bloom, A. and Cooperrider, D. 2003. The Power of Appreciative Inquiry: A practical guide to positive change. San Francisco, USA: Berrett-Koehler Publishers.

For further information on Inflow see: http://www.orgnet.com and for Pajek see: http://vlado.fmf.uni-lj.si/pub/networks/pajek/

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