



How to support smallholder and women farmers with ICT₄Ag

Some general advice about building digital MIS and Ag Extension services to serve the least privileged directly

compiled by Jenna Burrell, Associate Professor, School of Information, UC-Berkeley



UC Berkeley School of Information

- 1) **remember that farmers and other agriculturalists do grueling, labor-intensive jobs.** Does your system alleviate that burden or add to it? Does it help them to save wasted trips and get home to their families and to rest?
- 2) **don't underestimate the language and technology literacy challenges.** Gradually the community of ICT4Ag researchers is coming to realize that voice is what makes the mobile phone so powerful and is why it has been so widely adopted. All other aspects of the phone, including text messaging and even the address book, present challenges to use for populations that are not versed with computing metaphors and models (menus, keyboards, etc). In particular, systems that use SMS to deliver agricultural and market information, while inexpensive, often require costly training for end-users.

3) **don't underestimate adoption challenges, part I: cost** - studies show that even a small financial outlay, for example (\$0.10 to make a phone call to an information service) is a barrier that can prevent tech adoption. Phone charging (and having to do so more frequently) is also a cost.

4) **don't underestimate adoption challenges, part II: perceived value** - what are the risks to users and the certainty of actual benefit in the short and long-term? What are the expressed needs and desires of farmers and can they be made to match with what the service offers? Is the information your service provides already provided elsewhere?



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5) **be aware of the proliferation of non-standard phones.** You cannot expect that either smartphones or Internet-enabled phones will be widely available unless you personally provide them. The kinds of phones and operating systems, including non-standard and knock-off versions of popular brands are prevalent throughout the Global South. Phones come and go after being lost, stolen, or broken, so re-registering for a service needs to be simple or automatic.

6) **recognize that women are often the lowest priority in their families for obtaining a phone.** If a man's phone is lost or broken often he will claim his wife's. If a child goes away to school, a mother may gift her phone to him as a way of staying in touch. Women often receive used phones and so have little choice over form and features. How can you design your service so that it can be used on any and all types and models of phone, on shared phones, or on available non-phone platforms?

6) **recognize that the use of a phone by women is often closely surveilled by family members.** Information services need to be represented in the phone (call log) etc. in a

way that is totally unsuspecting. Return calls should be picked up. Default voice selections should be female.

- 7) **determine whether price makes a difference to your intended users** before deciding to build a market *price* system. For what crops and for what categories of farmers, traders, or vendors is this information actionable, if any?
- 8) **to most effectively reach smallholder farmers, bundle 'pure' information services with other supports** for sourcing capital (microfinance), subsidies or discounts, facilities for storing or weighing goods, and connections to social networks or cooperatives. Information alone does not overcome the barriers posed by lack of capital, and lack of trusted connections.

NOTE: these insights draw from a now robust body of research conducted by ethnographers, economists, information scientists, human-computer interaction researchers, and computer scientists. What follows is a list of such scholars, which is undoubtedly incomplete: Jenny Aker, Leslie Dodson, Marcel Fafchamps, Elisa Oreglia, Bart Minten, Neil Patel, Tapan Parikh, Janaki Srinivasan, Charles "Chip" Steinfeld, Revi Sterling, Susan Wyche.