Innovations in Agriculture – Implementation & Research

MSRA Convention

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Background

- Agriculture brings to mind outmoded images of a backbreaking industry.

- It’s an image that holds true in Most of Sub Sahara Africa where few farmers are able to utilize contemporary farming technologies and techniques.
Three-quarters of the world’s poorest people rely on agriculture to feed themselves and their families. Agricultural development has driven the economic growth of almost all of the world’s industrialized countries and has been shown to specifically improve the lives of the rural poor by increasing incomes, improving food security and reducing under-nutrition.

Bill & Melinda Gates Foundation Agricultural Strategy 2012

Improve productivity for 75 m poor farming households in Sub-Saharan Africa, Bangladesh and India by 2030.
A working group of professionals in academia, non-profits and corporate market research to understanding farmer needs and behaviour

Designed research and extensively analyzed data on farmer needs in two countries in Africa (Tanzania and Mali) which were chosen because they represent two extremes in many ways e.g. socio-cultural orientation, agro climatic conditions, farmograhics etc.
Revealing research findings...

- Half the people in farming today don’t view their farming activity as a business and are not proud to be farmers. They would rather be doing something else than farming.

- Many farmers would prefer if their ‘children did not end up in farming’. In Tanzania for instance up to two thirds of farmers don’t want their children to be farmers

- Up to one third of farmers are very risk averse and are not willing to try new ideas in their farms (Because they have very small farms and the opportunity cost for trying new things is very high).

- Some cultural practices are a hindrance to the introduction of new agricultural technologies and practices (Up to one third of farmers say that one has to take into account the possibility of witch craft before deciding to do something new’)

Less than 30% of youths are interested in agriculture related jobs but 40% are interested in ICT related jobs
Commercial segmentation approaches used to identify needs and behaviour segments to understand adoption of new ag technologies

<table>
<thead>
<tr>
<th>Segment</th>
<th>Description</th>
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<tr>
<td>Contented dependents</td>
<td>• Has very positive attitude towards farming but feels he/she requires the assistance of others</td>
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<tr>
<td>Competent optimists</td>
<td>• Seeks information and networks with others; very independent and truly enjoys farming</td>
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<tr>
<td>Independents</td>
<td>• Generally savvy information user; but not very engaged or experienced in farming; no excitement from farming</td>
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<tr>
<td>Frustrated escapists</td>
<td>• Looking to make the best out of farming &amp; improve, but if a better alternative came up, would easily stop farming.</td>
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<tr>
<td>Traditionalists</td>
<td>• Love the farming ethos, but is very low on information focus and doesn’t look for change</td>
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<tr>
<td>Trapped</td>
<td>• Doesn't enjoy farming, sees no hope in farming; doesn't want his/her children to follow him/her</td>
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Modeling of segments to better understand farmer behaviour

- Competent optimists
- Traditionalists
- Independents
- Frustrated escapists
- Trapped
- Contented dependents
- Resigned unhappiness
- Proud Heritage
- Change minded
- Change orientation
- Information focus
- Passive dependence
- Negativity
- Pro farming
- Anti Farming
Segments can be utilized to prioritize target populations as well as to better understand how to sequence investments to enhance reach.

The segments of Tanzania can be mapped by their ability and willingness to adopt

- Competent Optimists and Frustrated Escapists are the most likely to adopt.
- Independents are a small group and may therefore be a lower priority.
- Traditionalists and Trapped are the least likely to adopt.

Example sequencing: Competent Optimists could be targeted first, as they may influence the Frustrated Escapists, Independents, Trapped, and Traditionalists. [Further research is required to determine the most efficient path to mass adoption.]

Using a segment predictor tool we can quickly and easily enable programs to map target farmers into different segments.
Growing access to ICTs is increasing opportunities for reaching farmers in Program implementation and research

- Raise farmers’ incomes
- Increasing efficiency in agricultural marketing
- Lowering information costs
- Reducing transport costs
- Providing a platform to deliver services and innovate
Implications for research

- The farmer is more techno savvy (New technologies introduced by the development sector)
- M&E projects now using ICT to collect and share data with farmers
- As the farmer becomes more technologically accessible, it equally becomes easy to research the farmer and by extension market research is able to reach deep rural areas quickly and therefore have a complete documented perspective of their markets
- The farmer is the largest consumer entity in Sub-Saharan Africa

Some technologies

- **iForm**: A mobile data collection platform that features an application that requires no paper or connection and is available worldwide. This application is being used for data collection in over 110 countries and it allows real-time data upload and offline data collection, while immediately sending any updates to a mobile workforce with server assignment.

- **Maggi (Episurveyor)**: A mobile app that lets users create an account, design forms, download them to their mobile phones, collect data and send it to a server.

- **Cropster**: Web-based Internal Control System for Increased competitiveness. An online software platform for professional farmer groups producing high-value goods such as coffee, cocoa or tropical fruits. It enables farmers and farmer organizations to organize and present their production data professionally to improve production, processes and quality control and — eventually — competitiveness.

- **Edutainment makeover for farms inviting experts to advice and viewers to comment**: Provides up-to-date market information and link farmers to buyers through marketplace and current agri-trends.

- **aWhere**: aWhere’s location intelligence platform enables integration of complex agricultural, environmental and public health data into local, actionable insight. aWhere handles big data, allowing development agencies to focus on saving lives and building healthy, sustainable communities.
There must be complementary investments and reforms

- Illiteracy (limits usage of technology)
- Financial services
- Compelling and value for money mobile applications (affordable and useful for rural poor)
- Bad roads

ICT is no silver bullet...
TNS Political & Social has a digital analytics offer

For public decision makers who want to understand what is being shared and said spontaneously about their policies, programs or behaviour

Helps them to anticipate potential crises and/or prepare specific communication strategies

Our P&S digital framework includes:
• Real-time analysis of social media content (e.g. during TV appearances, speeches...)
• Tracking online reputation
• Triangulation of various sources of data (social media, polling and macro data)
• Mapping the social web including the identification of specific topics and communities
• Pre and post-tests of arguments amongst targeted online communities (influencers, interested people...)
Increasing farmer income

**Purchasing a mobile phone results in increased income:** Access to information gives farmer bargaining power within existing trade relationships and ability to seek out other markets. (A World Bank study in Philippines and morocco)

**Commercialization of farm products.** Subsistence farming is notoriously tenuous, but smallholder farmers, lacking a social safety net, are often highly risk averse and therefore not very market oriented. Market participation rises with access to mobile platforms (Study in Uganda)

**Backbone for early warning systems.** Useful for mitigating agricultural risks and safeguard agricultural incomes. (study in Turkey)

**Rural employment**
- Using farmers to collect data hence low cost of collecting and transmitting data
- Mobile job boards (Txteagle). Advertising jobs when in need of extra labour for harvesting
Efficiency in agricultural marketing

Agricultural Markets are about distributing information through prices, but farmers have little information about market prices resulting in price dispersions.

ICTs, can overcome this problem by informing both producers and consumers of the prices offered for agricultural products in various locations. (mfarm in Kenya)

Niger case study (Aker 2010a)
• Lowest mobile phone penetration in sub-Saharan Africa, but agricultural markets already benefiting from mobile phone diffusion.
  ✓ Grain price differences have decreased by 20 percent
  ✓ Traders’ search costs have decreased by 50 percent
  ✓ Consumers paid, on average, 3.5 percent less for grain
Lowering cost of information

From an extended cost comparison study by the world bank in Sri Lanka, 15.2% of the total cost of farming was transactional, (i.e. costs associated with initial decisions about whether and what to plant, operations during the growing cycle, harvesting, postharvest and processing operations, and selling (to intermediaries, consumers, processors, exporters).

To small holder farmers, these are a significant proportion of the total available kitty for production

70% of the transactional costs are informational (as opposed to, say, the cost of transporting crops to market)

It is easy to understand how mobile phones could reduce farmers’ informational transaction costs at critical points in the production cycle.
Reducing transport costs

Substitute phone calls for travel. Where safety standards are minimal, roads are in disrepair, and distances are great, substituting phone calls for travel reduces farmers’ time and cost burdens.

*Farmers who use mobiles can also save on transport costs (Overa 2006)—an effect that is stronger the more rural the area (Muto and Yamano 2009)*

Transportation cannot be avoided entirely: Crops need to get to customers. Although mobiles can inform farmers where they should travel to market their crops, evidence suggests that the wealthy maintain an advantage in their ability to make use of this information (Fafchamps and Hill 2004).

In combination with improved rural roads, ICT will encourage larger truck-traders to visit harder-to-reach areas, connecting rural and urban regions.
A platform for service delivery and innovation

- Linking extension agents to knowledge banks (capacity building)
- Extension can reach more clients through mobile-based learning platforms—textual or richer platforms, such as video—that provide tips to farmers to improve agricultural skills and knowledge.
- Mobile banking and apps that facilitate quick payments
- Farmers get a voice to influence policy (advocacy)
- Campaigns for program implementation
THANK YOU