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The U.S. Government's Global Hunger & Food Security Initiative

Information and Communication Technologies within Agricultural Extension and Advisory Services

ICT – Powering Behavior Change in Agricultural Extension

MEAS Brief

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Contents

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Executive Summary

Of the more than one billion global poor, 75 percent live in rural areas and most of these people depend on agriculture to survive. Enhancing farmers' and agricultural workers' livelihoods is thus key to addressing global poverty. While there are many problems, poor farmers regularly identify the most important as: 1) access to credit, 2) access to better market prices and 3) access to credible, relevant information.

The aspect of information access has received increasing attention, especially in terms of the potential role of Information Communication Technology (ICT) to connect farmers with the information they need. ICT has already been shown to have the capacity to dramatically expand communication and improve access to information (and facilitate monetary transfers). However, the question more recently has been, how can the promise of ICT be realistically harnessed to help the world's rural poor?

Since the birth of the internet in 1994 and the dramatic spread of cell phones from the mid-1980s on, many "ICT for Agriculture" (commonly referred to as ICT4Ag) activities have been initiated and many are tracked on webportals such as www.e-agriculture.org or http://ictupdate.cta.int. Many ICT4AG initiatives have seemingly oversold themselves in terms of success or they ceased as soon as project funding dried up. Despite these many apparent false starts, there is a growing body of experience providing lessons on factors required for successful ICT applications in agricultural extension and on how ICT can lead to beneficial behavior change amongst poor farmers. While issues of sustainability of many ICT4Ag initiatives remain, people are learning how to apply these tools to better meet the needs of their audiences and thus promote behavior change in agricultural extension.

This review complements the full paper by the same name, as well as earlier Modernizing Extension and Advisory Services (MEAS) reviews on ICT in ag extension (Bell, 2011; Vignare 2013 a and b). The review focused on how ICT in agricultural extension can better promote behavior change in farmers and drew on:

1. behavior change principles as evidenced across various sectors such as health, business, advertising and agriculture,
2. lessons learned from various ICT for Development (ICT4D) players and reports, and
3. approaches used by a subset of leading ICT in ag extension innovators (Table 1).

Table 1. ICT4Ag initiatives used to assess the identified ICT and behavior change principles.

ICT mediums	ICT Initiative used [1]
Video	Digital Green (multi country)
TV	Shamba Shape Up (Kenya)
Radio	Farm Radio International (multi country)
Cell phone	ATA call centers (Ethiopia)
The internet as a knowledge resource	IRRI Rice Knowledge Bank (Global focus)
Social media	Facebook (multi country)

[1] *Note: the examples listed are just a subset of promising ICT initiatives.*

The study deemed various factors as essential in promoting behavior change. We present these factors under the acronym "AID" for easy recall (Table 2). (A self-audit sheet is included to help people assess their ICT approach (Appendix 1).)

Table 2. Summary of key factors in behavior change and how ICT can enhance change. (These factors are expanded upon more in the text.)

Element	Potential use of ICT and considerations
A Aware – Are people readily "Aware" of your information	
You need to know your audience and use multiple channels to make sure they know about your "product" or information.	ICT dramatically expands potential reach and access. However, promotion through multiple channels is typically needed so that audiences know about the information or service. **Farm Radio International** work with established trusted programs to quickly gain access to a wide audience. Their programs are complemented by cell phone and other media.
I Interested– Are people "Interested" and do they want to learn more?	
You need to emotionally connect with your audience, build trust, meet their needs and interests and respond to their feedback.	ICT (especially the use of video and visuals) dramatically expands the potential to build trust and make an emotional connection with the audience. In this respect, **Digital Green** (DG) and **Shamba Shape-Up** (SSU) feature people "just like me" so the audience can easily relate to the message. Further, mobile based GPS systems allow real-time feedback in the field. DG systematically and efficiently collect and monitor feedback on a dashboard in order to adapt their message and approach to better connect with and meet the needs of their audiences.
D Doable (Actionable) – Can people easily "Do" something to try your ideas?	
You need to provide information such that the audience want to (i.e., there is obvious benefit) and can easily test the product or information.	The use of video and visuals presents powerful ways to use ICT to make implementation easy. The proliferation of "how to" videos on **Youtube** is a simple example of the power of ICT.

Beyond those factors identified under "AID" we identified three more elements needed by organizations to be successful in using ICT, namely:

1. Have acceptable upfront costs ,
2. Be flexible and agile and
3. Have competent team members Including those with access to relevant and accurate content

Each of these factors is expanded upon further below.

Introduction and Objectives

Many farmers – especially those in developing countries regularly identify three major farming challenges 1) affordable credit, 2) good market prices and 3) access to good farming information. Of these challenges, agricultural extension systems (in their pluralistic form spanning public, private and civil organizations) seek to help farmers especially in relation to providing actionable information for crop and livestock production, farm management, and marketing.

In lesser developed country contexts, there has been an increasing awareness of the many challenges agricultural extension systems face (e.g., low capacity of service providers, funding uncertainty, high client numbers, low client literacy, poor infrastructure, as well as constrained market, credit and input access). In association with this growing interest in extension systems, Information Communication Technology (ICT) is increasingly seen as holding great promise to improve farmers' conditions by significantly helping overcome many of difficulties faced by traditional extension systems. And there is good reason for such optimism. ICT is an increasing part of peoples' lives all across the planet, and it has the capacity to dramatically increase both person-to-person connections and their access to information. Already there are clear examples where cell phones provide simple opportunities for farmers to move money (e.g., m-Pesa in Kenya), to call local markets for prices and input availability, or even to just talk with their farm labor about on-farm tasks. However, despite the promise and some encouraging initiatives, many of the ICT projects to date have either showed limited benefit or the activity closed once project funding ended. As a result, these initiatives not only died, but they didn't reach the scale needed for widespread impact. The landscape is changing quickly, however. Practices are evolving, and we have the opportunity to learn from what has been done and so provide input to help enhance on-going and future ICT in Ag extension efforts.

While Ag extension covers a wide range of activities, we focus here on those elements that are looking to use ICT to result in **behavior change in agricultural production and management**. Thus, while recognizing there are many ICT-enabled agricultural services (e.g., digital financial and market services), this paper focuses on those ICT uses most closely related to helping 'farmers farm better'. To do this, we consider:

1. Challenges in extension today,
2. The potential role of ICT,
3. The theory and business of behavior change, and
4. How some of the more mature ICT4Ag services (i.e., some of the services or initiatives that are emerging as successful "leaders of the pack") include the identified elements to promote behavior change.

In selecting a subset of "mature" services, we are looking for those that seem to be having some degree of real impact as well as considering aspects of organizational and financial sustainability that will help the service scale to reach more farmers and continue.

Challenges in Agricultural Extension Today

Public (and private) extension services (especially in many developing countries) face tremendous challenges to not only reach the many and diverse farmers that require their services, but to reach them when and where the farmers need the services. The reasons behind these challenges are clear: small farms with limited resources; large client (farmer) numbers; poor infrastructure; high rates of farmer

illiteracy; extension workers with variable technical, diagnostic and extension skills; poorly funded extension systems; etc.

So given the many challenges, how many farmers can public sector extension expect to reach? Informal discussions with a number of public extension programs in various countries (including those that are considered to have relatively strong extension programs) suggest that often just 10 percent of the farming population can be reasonably reached directly (Javier Jimenez, personal communication, 2014; Babar Shahbaz, personal communication, 2015). Such numbers may be even less when operating funds are limited. As a result, some farmers may rarely, if ever, see an extension worker. From here extends the hope that ICT can expand the reach.

The Potential Role of ICT as a Tool in Extension

ICT is changing the capacity of people to communicate and access information. The number of cell phone subscriptions, as one example, have risen dramatically (Table 3a) – although not evenly throughout the developing world. As the devices become cheaper and mobile broadband internet access becomes more widespread and affordable (Table 3b), cell phones will increasingly become a powerful communication tool with and among farmers.

Table 3 (a). Mobile-cellular subscriptions (ITU 2015)

	Per 100 inhabitants									
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Developed	82.1	92.9	102.0	107.8	112.1	113.3	113.5	116.0	119.2	120.8
Developing	22.9	30.1	39.1	49.0	58.2	68.5	77.4	82.1	87.6	90.2
World	33.9	41.7	50.6	59.7	68.0	76.6	83.8	88.1	93.1	95.5

Table 3 (b). Active mobile-broadband subscriptions (ITU 2015)

	Per 100 inhabitants									
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Developed	N/A	N/A	18.5	27.5	36.6	44.7	56.8	66.4	75.1	83.7
Developing	N/A	N/A	0.8	1.6	3.0	4.5	8.3	12.4	16.8	21.1
World	N/A	N/A	4.0	6.3	9.0	11.5	16.7	21.7	26.7	32.0

While ICT has the capacity to expand information access, it may do so through different mechanisms and with different goals in mind. For example, in the case of agricultural extension, ICT can be used as a resource for the extension agents and other information intermediaries and/or to provide information directly to the farmers.

In terms of potential ICT application in agricultural extension, Bell and Payne (2014) summarized the major applications for ICT (Table 4) in relation to three aspects of agricultural work:

1. Identifying farmers' problems and opportunities – What do they need and want?

2. Promoting behavior change – What is practical and relevant to meet the needs?
3. Collect feedback – How can each step be improved?

While ICT can increase access to information, clearly not all information is useful and so access to information alone does not necessarily equate with increased action or behavior change. So how can this potentially powerful tool better lead to behavior change to help improve the livelihoods of poor farmers? To pursue this, we look at the factors involved in behavior change (both from the theoretical and business world perspectives) and relate this to how ICT is and could be better used to help people change their behavior.

Table 4. ICT can be used in a range of forms to support extension. The best use will likely involve integration across a range of options combined with traditional approaches (e.g., field demonstrations). Options in green (shaded) are considered the most promising (from Bell and Payne, 2014).

	Information communication technology and tools*				
Extension function	**Radio**	**TV and videos**	**Cell phones (text, voice)**	**Feature and Smart devices**	**Computer + internet**
Identifying farmers' problems and opportunities – What do they need and want?					
Diagnose problems	Some potential if dealing with general problems, or if capacity for interaction and expertise available	Visuals are very helpful as "seeing is believing." Even better if combined with ways to receive feedback.	Some potential if farmers can call or text in and sufficient expertise is available.	Additional potential to a simple cell phone as it enables web or App access to special diagnostic tools.	Good comprehensive diagnostic tools are available
Collect information	Some potential if capacity for interaction		Can use for data collection.	Good for data collection with GPS.	Some potential if internet available.
Promoting behavior change – What is practical and relevant to meet the needs?					
Raise aware of general opportunities or needs ; convince farmers to try something new	Very good especially with persuasive programming	Visuals are usually very helpful as "seeing is believing"	Is an option if users are registered to receive such messages (SMS)	Is an option if users are registered to receive such messages (SMS, email)	Is an option if users are registered to receive such messages (email)
Provide specific information needed for change. What is involved? What are the benefits/ Demonstrate or train?	Some potential – but limited information delivered. Can be enhanced with call in.	Good option as "seeing is believing"	Potential if farmers can call or text in and sufficient expertise is available	Additional potential to a simple cell phone as it enables web access and plays videos.	Good option for intermediaries to seek information and videos.
Facilitate access to credit and inputs	Can be used to inform of available services, but one-way communication	Can be used to inform of available services, but one-way communication	Mobile banking and negotiate directly with the suppliers	Mobile banking and negotiate directly with the suppliers	Online banking

	Information communication technology and tools*				
Extension function	**Radio**	**TV and videos**	**Cell phones (text, voice)**	**Feature and Smart devices**	**Computer + internet**
Link farmers to markets	Good for providing general price reports		Access to price information (call in, subscription)	Can bring potential buyers and producers together; access price information	Can bring potential buyers and producers together; price info.
Collect feedback – How can each step be improved?					
Collect and respond to farmer feedback	Good if producers can call or text and sufficient expertise is available	Good if producers can call or text and sufficient expertise is available	Some potential if farmers can call or text in and sufficient expertise is available	Good option for intermediaries to seek information (if optimized for smart devices)	Good option for intermediaries to seek information
Assist with business planning	Some potential	Some potential		Simple farm management "Apps"; record keeping	farm management tools; record keeping

** From Bell and Payne 2014*

The Theory and Business of Behavior Change

What can the theory of behavior change and the worlds of health, business and agricultural extension teach us about change? In each case, behavior change is the goal although the actual desired change will vary. For example, in the health world, behavior change often relates to personal habit change; whereas, in business, behavior change is often related to the purchasing of a product (sales and marketing), and in agriculture, behavior change is usually associated with the adoption of an innovation (a change in farming practice).

We present here a summary of behavior change tactics used in the real world. For more detailed analysis, readers can see Bell (2015).

Learning from Health. Alive & Thrive is a program that works to enable children to lead healthier and more productive lives by ensuring good nutrition in the first 1,000 days. The program has seen considerable success using multiple communications mediums with a very clear message and having a targeted audience. The lesson to be gained here is that **behavior change is a process involving a clear understanding of the audience, their motivations and involves a series of communication media and steps** (Prochaska, DiClemente, & Norcross, 2012).

Lessons from Business. We look at three well-known strategies that have successfully led to consumer behavior change:

The "four P's of marketing" (Xerox.com)

- Product, Price, Promotion and Place. These "4 P's" teach us to 1) know the audience and their needs, 2) provide a product that appeals to them (both in terms of price and straight appeal), and 3) make sure your audience are aware of and 4) can access the product .

The "purchase funnel" (St. Elmo Lewis 1898 – wiki; Eduardo personal communication 2015)

- The purchase funnel dates back all the way to 1898 and shows the journey of consumers from 1) awareness to 2) interest to 3) consideration or desire, and 4) finally to purchase.

The "tipping point" Gladwell (2000)

- The "tipping point" is the point at which wider scale social change occurs. The take home message is to focus on early adopters to push your product/action to the tipping point.

Observations from Practitioners. Talking with CEO's and staff of organizations like Miaki (CEO Taro Aroyo), Publicis JimezBasic (Nikki Abrenilla) mPower (Mridul Chowdhury CEO) and FHI 360 (Josh Woodard) and drawing from the Melinda Gate's TED talk on "What Non-Profits can learn from Coca-Cola", success comes when you provide a product that creates an emotional response on behalf of the audience and when you are linked with, listening to and engaging with them.

Observations from Agriculture. Technology adoption in agricultural extension is more likely to be successful when two key factors are involved: 1) the technology is perceived to be superior to the idea or practice that it supersedes and 2) when the innovation is easy to test and learn about before adoption. (e.g., Pannell et al., 2006)

Further to the above studies, a series of ICT papers were analyzed for lessons learned (Appendix 2). These lessons were integrated with the above findings to distill a set of principles for promoting behavior change.

Principles for Promoting Behavior Change – The "AID" Model

Analyzing the various factors associated with introducing behavior change across the areas of health, business and ag extension, a series of key points emerge. For simplicity and ease of recall, we present these under the acronym "AID" (Figure 1).

1. **Aware** Do people know about your information?
2. **Interested** Do people care and want to learn more?
3. **Doable** Can people easily do something, based on the information, if they want to?

1. **Aware. Be clear on who your audience is, what their needs and interests are, and how to reach them**
    - Be clear on your audience and how to reach them.
    - Provide information that is easily and widely available and accessible.
    - Use multiple channels to provide reinforced messaging (i.e., use a range of relevant delivery channels – both new and traditional) to have greater impact. Linking one delivery approach with other forms of delivery to "reinforce the message" builds greater confidence in the message.
    - Keep in mind that the power of "seeing" is particularly strong in influencing behavior change.
2. **Interested (Connect). Be linked to your audience to appeal to their interests, build trust, make a connection and be responsive to their feedback.**
    - Provide information that responds to the interests and needs of the audience. Or if they are not yet that interested in what you have to offer them, package it in such a way that will make it more interesting (whether in layout, color, channel, etc.) and make them say 'Hey, I want in on that!'
    - Establish trust in both the message and the messenger. Ensure the message (content) is always correct and present it in a way that showcases approaches tested and proven by "others like me" rather than some esoteric person somewhere in the world.
    - Make a personal (emotional) connection. Make the target audience feel important like you know them personally and the information is just for them. It is human to react positively to a message that seems customized for just him/her.
    - Provide content that viewers identify with. Use consumer/audience life insights to make information highly relatable and rooted in cultural nuances. This approach makes for a more compelling message formulation and delivery come implementation.
    - Instant gratification. If you want people to pay for a service, willingness to pay is higher when gratification is immediate. Thus, consider how the product can be delivered under such conditions.
    - Interact with your audience to further build trust; be responsive; collect feedback in order to modify the approach, the message and the packaging; and identify emerging needs.

3. **Doable (Actionable). Provide information such that the audience want and can easily test the product.**
    - Have recommendations that are proven, clear, concise, show clear benefit and are easy to test. They should be relevant and practical. Provide the information in ways the audience can easily understand and act upon.
    - Provide content that enables learning through interactive means (rather than passive, one-way approaches) to provide more powerful messages in influencing change.

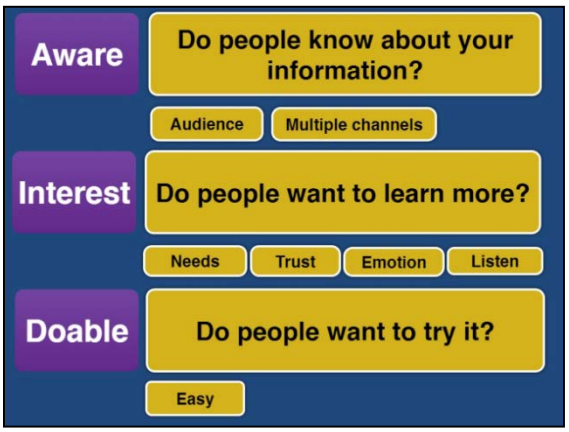

Figure 1. AID in one slide.

For practical application, we present the AID factors as a checklist (Appendix 1). The authors experience in doing a self-audit using this checklist highlighted clear areas in his own work where current ICT initiatives could be strengthened either directly or through partnerships.

Additional Factors for Success. As well as the factors described under "AID," we identified three additional factors needed by organizations to be successful in using ICT:

1. **Flexibility and agility.**
    - Successful initiatives use the principles outlined above, but they also typically show remarkable flexibility and agility of effort. They quickly change and adapt – responding to and building off both their implementation experiences (what worked and what didn't work) and on emerging promising options.
2. **Competent teams.**
    - Success will depend on competence throughout the team – where members understand the audience, their needs, what is practical and appropriate and how best to communicate with them.
3. **Acceptable upfront costs if wanting to sell a service.**
    - One observation related to people's hesitancy to buy a service upfront versus their willingness to pay as they go. For example, it was shared that while customers may hesitate to buy an on-line game up front, they will then spend much more while actually playing the game (e.g., paying to get a service to speed up part of a game).

In our analysis, we worked with a number of ICT leaders and leading organizations working with ICT in agricultural extension to assess the validity of the "AID" factors. The full paper (Bell 2015) shows the

specific responses of each organization in terms of their approach to each of the key factors where we engaged. Below is a list of the organizations and contact person(s) with whom we worked:

ATA – Elias Nure (Team Leader)
BIID - Shahid Akbar (CEO)
Catholic Relief Services – Shaun Ferris (Director Agriculture and Livelihoods)
Digital Green - Rikin Ghandi (CEO)
Farm Radio International - Dave Mowbray, Bartholomew Sullivan, Mark Leclair, Kevin Perkins
FHI360 - Josh Woodard (Regional ICT and Digital Finance Specialist)
GSMA - Tegan Palmer, Amol Jadhav and Victoria Clause
miaki - Taro Araya (CEO)
mPower - Mridul Chowdhury (CEO)
Publicis Jimenezbasic, Philippines - Nikki Abrenilla (Associate Creative Director)
Shamba Shape Up - Anne Marie Steyn (Series Producer)
UC Davis - Nick Madden, Elana Peach-Fine, Megan Mayzelle and Courtney Jallo
University of Illinois at Urbana-Champaign - Andrea Bohn (MEAS Manager and INGENAES Associate Director)
USAID - Judith Payne and Suzanne Poland

Out of interest, we chose to look at examples of IT success in the finance arena. We found incredible symmetry in particular with M-PESA, a mobile-money transfer service in Kenya. A comparison of the three major factors associated with the success of M-PESA with the three "AID" factors shows a high degree of similarity (Table 5).

Table 5. Comparing M-PESA with the "AID" model

Factors in M_PESA success	Key Principles in the "AID" model
• Create awareness and build trust through branding. • Create a consistent user experience while building an extensive channel of retail agents offering cash in/cash out services. • A customer pricing and agent commission structure that focuses on key drivers of customer willingness to pay and incentivized early adoption.	• Be clear on your target audience. • Use a diverse and relevant range of communication channels to make sure your audience(s) are readily aware of your message. • Provide proven (credible) information that has clear benefit and addresses specific needs and interests of the audience • Become or work with a trusted source of information (providing credible proven content). • Have your message appeal at an emotional level. • Build in feedback to respond to emerging needs and audience responses to your information. • Provide information which can be easily understood and tested.

ICT's Role in Behavior Change in Agricultural Extension

To look at how ICT specifically can better encourage behavior change, Table 6 shows the general opportunities for ICT to strengthen each of the three steps in "AID".

Table 6. General considerations in the use of ICT in the "AID" model.

"AID" Model Factors	ICT options and considerations
A Awareness. Do people know about your information?	
Be clear on your target audience. Use a diverse and relevant range of communication channels to make sure your audience(s) is readily aware of your product/service.	ICT (especially the web) dramatically expands potential reach and access. However, promotion through multiple channels is typically needed so the audience knows the resource exists! How can ICT better help identify the audience in need and their interests? While "Push" SMS are often promoted to directly reach the farmer, risk of being viewed as spam is an issue. **Example of application: Farm Radio International** works with established, trusted programs and so quickly gains access to a wide audience.
I Interest. Do people want to learn more?	
Provide proven information that addresses specific needs and interests of the audience. Become or work with a trusted source of information (credible proven content). Have your message appeal at an aspirational (emotional) level. Build in feedback to respond to emerging needs and audience responses to your information.	ICT (especially the use of video and visuals) dramatically expands the potential to build both trust and an emotional connection with the audience. **Example of application: Digital Green** (DG) and **Shamba Shape-Up** (SSU) feature people "just like me" so the audience can easily relate to them. Mobile based GPS systems allow real-time, in the field feedback. **Example of application: DG** and **SSU** have feedback mechanisms to quickly collect and monitor feedback and so adapt their message and approach to better connect with their audiences. Two-way communication, especially interaction through cell phones, helps build trust. **Example of application: Farm Radio International** **Note.** While ICT is powerful, farmers often want to see information field validated In their regions.
D Doable. Do people want to try it?	
Provide information that is easy to apply and has obvious benefit Provide information which can be easily understood and tested.	Interactivity on a web site enhances learning for ease of implementation, but connectivity can be a limiting factor. The use of video and other visuals presents powerful ways to deliver information so potential users can easily see what the end product looks like and make implementation easy. **Example of application:** The proliferation of "how to" videos on **Youtube**. Also **DG** and **SSU** use their videos to show how farmers can quickly and effectively implement a practice. Their messages are backed up with instruction through other media.

Conclusions

Both the reviews and consultations across a wide range of players in multiple organizations and fields of endeavor (health, business, advertising and agriculture) identified a useful consistency in terms of the relatively simple yet common factors that people felt better help turn information in to action. For simplicity, these factors were structured as "AID":

1. **Aware** - Do people know about your information?
2. **Interested** - Do people want to learn more?
3. **Doable** - Do people want to try it?

Further, at an institutional level, successful organizations should have:

1. acceptable upfront costs,
2. flexibility and agility, and
3. a competent team.

It became clear that these factors, while not particularly revolutionary, formed a solid basis for building success. Using these factors as a self-audit of ones efforts can help strengthen initiatives in terms of what is needed. (See Appendix 1 for a project-ready checklist.)

Agricultural extension faces some serious challenges in providing needed services to farmers in developing economies, yet, ICT is providing much hope and opportunity for improving the livelihoods of farmers and others engaged in agriculture throughout the world.

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Appendix 1. Self-audit or program review

Use the following to evaluate your ICT program. Neglecting any one item can reduce your chances of success.

Major points involved	Self-evaluation	Any actions required?
Awareness. Do people know about your information?		
Do you have clarity of your target audience?	Who are they?	(e.g., consult the target group to identify their needs and interests
Do you know the best communication channels to reach your audience(s)?	List the range of methods you are using?	
Interest. Do people want to learn more?		
What evidence is there that the information is proven to be valid and addresses the specific needs and interests of your audience?	How is the information validated under farmers' conditions?	
How have you built a connection and trust with your audience (i.e., are you really a source of credible proven content)?	What are you doing to build trust?	
Are you connecting at an emotional level?	What are you doing to make an emotional connection?	
Are you collecting feedback and responding to emerging needs and improving your message delivery?	How do you collect feedback and how often? What's your method to adjust both the message and its delivery?	
Doable. Do people want to try it?		
Is the benefit of your message obvious?	How is benefit demonstrated?	
Can your information be easily understood and tested?	How do you check the simplicity of your message so people can easily test?	

Annex 2. Contributors

The following provided valuable comments and input:

Organization	Contact person
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Appendix 3. Recommendations and lessons learned – gleaned from various "ICT4D" and "ICT 4AG" reports

A. Melpolder, J. 2014. The Best Practices in the Use of ICTs in Development Are … ICT works by inveneo. www.ictworks.org/2014/03/28/the-best-practices-in-the-use-of-icts-in-development-are

1. It's about people, not technology.
2. Understand the local environment.
3. Use appropriate tools.
4. Use iterative project planning cycles.
5. Build in monitoring & evaluation from the start.

B. 2011. ICT in Agriculture Sourcebook *Connecting Smallholders to Knowledge, Networks, and Institutions. The World Bank. https://openknowledge.worldbank.org/handle/10986/12613*

1. Concentrate on the Demand, Not on the Technology
2. Use Appropriate Technologies
3. Focus on Affordable Access and Use, Not Ownership
4. Be Aware of Differential Impacts, Including Gender and Social Differences in Access and Use
5. Create an Enabling Environment for Innovation in Infrastructure Investment, Business Models, Services, and Applications
6. Promote Leadership and Find Champions

C. Batchelor, S., Evangelista, S., Hearn, S., Peirce, M. Sugden, S. 2003. Mike Webb (Big World) 2003. ICT for Development Contributing to the Millennium Development Goals. Lessons learned from seventeen infoDev Projects. infoDev. Information for Development Program. https://openknowledge.worldbank.org/handle/10986/14845

Lesson 1: Involve target groups in project design and monitoring.

Lesson 2: When choosing the technology for a poverty intervention project, pay particular attention to infrastructure requirements, local availability, training requirements, and technical challenges. Simpler technology often produces better results.

Lesson 3: Existing technologies—particularly the telephone, radio, and television—can often convey information less expensively, in local languages, and to larger numbers of people than can newer technologies. In some cases, the former can enhance the capacity of the latter.

Lesson 4: ICT projects that reach out to rural areas might contribute more to the MDGs than projects based in urban areas.

Lesson 5: Financial sustainability is a challenge for ICT-for-development initiatives.

Lesson 6: Projects that focus on ICT training should include a job placement component

D. The UK report: Harnessing the potential: ICTs and Knowledge Sharing in Agriculture www.appg-agdev.co.uk/images/documents/ICTs__and_Knowledge_Sharing.pdf

The All Party Parliamentary Group on Agriculture and Food for Development recommends that national governments, Donors, the private sector, NGOs and wider stakeholders:

1. Recognise that for rural communities and smallholder farmers to benefit from ICTs in agriculture, rural infrastructure development must be incentivised.
2. Prioritise effective evaluation of the impact of ICTs and strengthen the evidence base. A database cataloguing successes and failures should be developed to help with learning and avoid repeating unsuccessful practices.
3. Harness the potential to combine delivery channels, including face-to-face interaction, to reach an even wider audience.
4. Promote user-driven services and supporting government policies. Addressing women's time and financial constraints to access the technology and act upon the services, should be given the highest priority.
5. Harness the potential to combine multiple delivery channels to reach disadvantaged populations.
6. Explore ways to enhance informal farmer-to-farmer mobile supported discussion for co-creation of knowledge and increased behavioural change.
7. Ensure that ICTs are linked to existing extension services, including government-run programs. Engaging national governments in ICT4Agriculture programmes to promote a sense of ownership and to facilitate the development and approval of supporting policies.
8. Ensure that the content of extension messages disseminated via ICTs is based on sound and appropriate science in an open and transparent manner.
9. Promote sustainable and innovative business models, ensuring that revenue models cover real costs.

E. Information and Communications Technology 8 Policy Recommendations For the advancement of Knowledge Societies across Africa. A Product of African Leadership in ICT course. www.gesci.org/assets/files/ICT_leaflet_policy_recommendations%201.pdf

1. Build a solid National Telecommunications Infrastructure
2. Ensure Access for All
3. Provide a Proper Cyber-legal Environment
4. Integrate e-Governance across all Citizen Services
5. Strengthen the ICT4D Value Chain
6. Build ICT Ecosystem Resilience
7. Promote ICT Literacy to all Citizens
8. Ensure Policy Coherence

F. Stienen, J. Bruinsma W., and Neuman, F. 2007. How ICT can make a difference in agricultural livelihoods, International Institute for Communication and Development (IICD). Information and Communications Technologies. The Commonwealth Ministers Reference Book.

1. Foster strategies and programmes with a long-term perspective.
2. Create multi-stakeholder mechanisms for learning
3. Raise awareness on the role of ICT4D in poverty alleviation
4. Ensure availability and access to relevant information
5. Enhance rural access

G. Raftree, L., and Bachan K. 2013. ICT with a youth and gender focus. Integrating Information and Communication Technologies into Communication for Development Strategies to Support and Empower Marginalized Adolescent © UNITED NATIONS CHILDREN's FUND (UNICEF) August 2013 www.unicef.org/cbsc/files/ICTPaper_Web.pdf

Program Design

- Understand local context.
- Make sure communication channels are accessible
- Use multiple platforms and channels
- Ensure programs are community-driven
- Use real-time feedback from girls
- Conduct a gender analysis
- Provide girls with inspiring mentors and opportunities to lead
- Use an ecological framework to assess circles of influence and program effectiveness.

Privacy and protection

- Conduct a strong risk analysis of proposed approaches
- Establish additional protection measures for adolescent girls
- Build conditions for girls to become self-reliant, independent and aware of the risks

Program Research

- Establish an evidence base for the use of ICTs in C4D strategies with adolescent girls.
- Develop robust indicators that can be measured against program results to determine impact.
- Evaluate, learn and share.

Capacity Building

- Improve management, staff and partner capacity.
- Create an "ICT for C4D Tool Box"
- Acknowledge failures and learn from them.
- Encourage partnership

Policy

- Use open source software.
- Update child protection measures and guidelines.
- Acknowledge failures and learn from them.
- Encourage partnership

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