

## #IFADiNNovationTalk no. 4



# Digital agriculture and the rural poor: Challenges and opportunities in delivering results

## Q&A REPORT

Question	Answer
<p>I am Shaik , Senior Technical Expert- Digital Agriculture@ IFAD. Have been interacting with PAD colleagues for sometime. My question to Michael is; Driving digital transformation for smallholder farmers require serious investments in this portfolio. There is a significant debate regarding the potential of the digital economy to generate productivity, economic growth and welfare gains, in general. Do you think, whether or not current economic measurement is appropriately capturing the benefits of the digitalization in agriculture, particularly the welfare gains? - Nagula Shaik</p>	<p><i>Answered live during the Q&amp;A session.</i></p> <p>See recording <a href="https://youtu.be/BG6S1JKAFJc">https://youtu.be/BG6S1JKAFJc</a></p>
<p>In Pakistan we are piloting a digital e-commerce platform to enable paddy farmers to purchase the right mix of quality-guaranteed inputs from reputable companies. The mix of input purchases will be based on soil test results of farmers. We have lined up banks to lend farmers for the value of their orders. On the marketing side we are making available contract farming, warehouse receipt financing through storage and direct sales to processing companies. Regards - Inshan Ali Kanji. Thanks. My number is 0300-5014004. Email is: <a href="mailto:inshanalikanji@gmail.com">inshanalikanji@gmail.com</a></p>	<p>Hi Inshan, my name is Adeel Shafqat and I lead PAD's work in Pakistan. I would be very interested in discussing your work in more detail. Please feel free to reach out to me over phone or whatsapp on +923111666462 or over email at - Adeel Shafqat, PAD (mailto: <a href="mailto:ashafqat@precisionag.org">ashafqat@precisionag.org</a>)</p>
<p>It would be interesting to know how PAD is "customizing" content delivered to farmers - local sensitivity takes effort and has cost! - Stephen Rudgard</p>	<p>Hi Stephen, I work on PAD's Kenya programs (primarily SMS services). One way that we customize is by developing Decision Support Tools where farmers can input specific information about their context and we can provide them with information that can help them to make decisions that address their challenges.</p> <p>We have a monitoring tool for Fall Armyworm that helps farmers to sample plants in different parts of their field to check for damage from the pest in order to determine the scale of infestation. Then, we can combine that with information about the stage of the farmer's crop to recommend whether pesticides are likely to be cost effective.</p> <p>Other ways we customize in our various programmes:</p>

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	<p>- we give farmers information about the specific crops they are growing and based on what we know about their land (e.g. soil type or geology)</p> <p>- we target the timing of messages on farmers growing seasons, based on their location</p> <p>- we provide up-to-date information about pest outbreaks in a farmer's locality</p> <p>- we can customize the timing of messages to a time that is convenient for the farmer</p> <p>- we customize for the farmer's language preferences</p> <p>In one context, we are exploring targeted help for farmers whose fields appear to be under-performing relative to their neighbours.</p> <p>All in all, there is huge potential for continuing to customise and target content - and we firmly believe that this is key to increasing impact.</p> <p>–PAD (mailto:<a href="mailto:development@precisionag.org">development@precisionag.org</a>)</p>
<p>Do you complement this digital SMS services and the surveying with “on the ground” gathering of information? (Meteorological stations, soil and tissue analysis, etc). - Javier Artiñano</p>	<p>yes, if farmer location data is available (approx location can be collected by asking farmers to select through an IVR menu, or more precisely via GPS-enabled smartphone), then it's possible to provide weather forecasts, customized fertilizer recommendations based on soil maps, warnings about pest infestations seen nearby, etc.</p> <p>–PAD (mailto:<a href="mailto:development@precisionag.org">development@precisionag.org</a>)</p>
<p>Does the digital platform respond to individual needs of smallholder farmers or simply broadcasts general information? In other words does the app provide feedback services to farmers? - Rewa Misra</p>	<p><i>Answered live during the Q&amp;A session.</i></p> <p>See recording <a href="https://youtu.be/BG6SIIKAFJc">https://youtu.be/BG6SIIKAFJc</a></p>
<p>Having worked in a Farmer SMS extension project in India, i am aware about the challenges of network and language. In this context how have you managed to address the duality of communication with farmers, because farmers need exact and unique solutions that they can "understand in their own language". I am saying this because a high majority of farmers do not possess the best of mobile hand sets and may not be literate to comprehend the language of the Mobile SMS. Can you site some concrete examples? - Sibabrata Choudhury</p>	<p>Hi Sibarata, I am primarily on the PAD Kenya team but have also worked with some of our India projects. Much of the services we offer there are IVR because of the challenges you have pointed out around SMS. The messages are recorded in the local language and consider the context associated with a farmer's location and the information that they have provided when they join the service.</p> <p>All our services are free to the end-user (the farmer).</p> <p>–PAD (mailto:<a href="mailto:development@precisionag.org">development@precisionag.org</a>)</p>
<p>A recent GSMA report shows the mobile gender gap in Pakistan. Women stated that fear of family disapproval is the main reason they do not have a phone. Is there a way to reach these women and give them access? - Katinka Duewel</p>	<p><i>Answered live during the Q&amp;A session.</i></p> <p>See recording <a href="https://youtu.be/BG6SIIKAFJc">https://youtu.be/BG6SIIKAFJc</a></p>
<p>I would like to learn more about the digital extension advisory project in Nigeria.I'm the ICT Coordinator of USAID FtF funded Agriculture Extension and Advisory Service Activity.How do you ensure sustainability of the digital solution- Commercialization of the extension services in Nigeria - David Edimu</p>	<p>Feel free to contact me (jlehe@precisionag.org) or Uzoamaka (uugochukwu@precisionag.org). We would love to share more information about our work in Nigeria and have further discussion!</p>
<p>As for traditional extension system, agricultural extension alone, without access to other services such as financial services and market access, may not actually make a difference for smallholder farmers. The real ground-breaking opportunity of digital services is to interlock extension with market platforms and access to financial services. Can we hear from the panelists on experience and research in combining these three elements/markets? - Alessandro Marini</p>	<p><i>Answered live during the Q&amp;A session.</i></p> <p>See recording <a href="https://youtu.be/BG6SIIKAFJc">https://youtu.be/BG6SIIKAFJc</a></p>
<p>Will certificate be presented to participates? - Rogers Garwoh</p>	<p>No</p>
<p>The problem in many remote parts of the world is that of poor connectivity not of its entire absence. How do you deal with that challenge that can be very frustrating for both users and providers? - Shalini Kala</p>	<p>Very true. For this reason, in the PAD program I'm involved in evaluating, push calls with recorded voice messages are sent multiple times, at different times of day, in case the phone is off or network isn't available the first time. In the same program, farmers can call, for free, anytime to record a</p>

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	<p>message, which an agronomist will then record a message to. Farmers can access responses, again for free, at any time.</p> <p>ekgaon's work in India is similarly addressing the issue...I am copying Vijay's response here:  We at <a href="http://www.ekgaon.com">www.ekgaon.com</a> have taken up a more evolved digital integration strategy in value chain in agriculture in India. As of now we have added over 200 crops in that values chain connecting 30,000 farmers in a traceability and advisory based ecosystem to help realise better returns as well as getting better production. Our online market place now connects customers (patrons across 650 cities in India)  <a href="https://www.youtube.com/watch?v=AbSyNAlIO60">https://www.youtube.com/watch?v=AbSyNAlIO60</a></p> <p>IFAD funded the very early proof—of-concept stage of some of this work</p> <p>—PAD (mailto: <a href="mailto:development@precisionag.org">development@precisionag.org</a>)</p>
<p>A simple question, who pays for the SMS? And any indication of how much it costs to provide the extension services to farmers? Do you have any comparative study? Of course I understand that the cost will vary depending on the service provider and service package available in the country - Sibabrata Choudhury</p>	<p><i>Answered live during the Q&amp;A session.</i></p> <p>See recording <a href="https://youtu.be/BG6S1JKAFJc">https://youtu.be/BG6S1JKAFJc</a></p>
<p>Hi there. how can we encourage social media owners like facebook for instance to develop and introduce specific social media for farmers as their social responsibility perhaps? ps: agtube.com works as social responsibility of youtube.com. mdhrdad from iran. Thanks - mehrdad pouya</p>	<p><i>Answered live during the Q&amp;A session.</i></p> <p>See recording <a href="https://youtu.be/BG6S1JKAFJc">https://youtu.be/BG6S1JKAFJc</a></p>
<p>Digitalization in Agriculture had been there for quite some decades but it's reach to small holders is limited due to its accessibility and skill to derive results. Even today many growers are not aware about the soil health status of their lands on which they are growing. How can we address this?? - Rohit Lall</p>	<p>Indeed, digitalization in Agriculture has been part of the landscape for some time now, but it has often been part of some ad hoc or pilot programmes. With the lessons learned, we must work toward integrating digital solutions in National Agricultural Policies and Strategies. That would create an opening for donors interested in the sector.</p> <p>— Patrick Habamenshi, IFAD (mailto: <a href="mailto:p.habamenshi@ifad.org">p.habamenshi@ifad.org</a>)</p>
<p>I would like know how PAD is working for farmers bringing industry 4.0 to field - Sunil Patil</p>	<p>PAD's primary users are smallholder farmers in developing countries. The vast majority of our users are very poor, with limited access to technology and equipment. As a consequence, many of the farmers we serve continue to use traditional practices and equipment. Our advisory is validated by scientific experts and partners (often governments) and encourages farmers to adopt behaviours, tailored to their budget and risk profiles, that enhance agricultural productivity and incomes. In instances where farmers are able to access equipment and adopt practices that are labor saving and productive, we encourage them to do so.</p> <p>—PAD (mailto: <a href="mailto:development@precisionag.org">development@precisionag.org</a>)</p>
<p>Other than the digitalization of extension services, access to market and inputs also could be considered as an integral part of digitalization under value chain development approach. What's the scalability of such approach and penetration among smallholders? Any specific examples? - Nilushana Sooriyaarachchi</p>	<p>In Pakistan we have designed a digital platform and undertaking 1,000 farmer pilot with paddy small farmers. The platform hosts farmers, input supply companies, banks for production loan and WRF and processing companies. Regards, Inshan Ali Kanji.</p> <p>Great to hear Inshan. I'm involved in designing a new IFAD funded project in KP and we are planning to include digital platform to cater both up and down streams under this project.</p> <p>That is excellent. My email address is: <a href="mailto:inshanalikanji@gmail.com">inshanalikanji@gmail.com</a> and I am based in Islamabad. Our pilot is in Muridke and Hafizabad supported by ADB.</p>

Question	Answer
Could Digital Agriculture works in countries with high rate of illiteracy like South Sudan? - James Drfoun Amol Ajak	Absolutely. The system is geared towards smallholder farmers, most of who do have lower levels of literacy. Prior to setting up the service, PAD conducts surveys with the targeted population to ensure the solution is customised to their needs. The menu is really simple and we rely on pre-recorded messages in local language. In such context, voice calls/messages would be used as the main means of communication. –PAD (mailto: <a href="mailto:development@precisionag.org">development@precisionag.org</a> )
Punjab, Pakistan has 5 mln and not 50 Mln Farm according to Agriculture Census 2010. - Inshan Ali Kanji	I believe Dr. Zahoor misspoke, it is indeed around 5.2 million farmers in Punjab, Pakistan. –PAD (mailto: <a href="mailto:development@precisionag.org">development@precisionag.org</a> )
It would be great to see some reports and evaluations of the SMS-based system, when available. - Stephen Rudgard	More information on our research and learning activities is collated here <a href="https://precisionag.org/our-learnings/learning/">https://precisionag.org/our-learnings/learning/</a>  We currently have a large RCT in the field evaluating our largest service in India –PAD (mailto: <a href="mailto:development@precisionag.org">development@precisionag.org</a> )
Are farmers incentivize to join digital tech? What are the challenges to meet farmers' interest? From field experience, I know that even literacy does not really matter if farmers benefit from the tech. I would like to hear some field/research based lessons. Thanks - Willy Mulimbi	This is a little dated but may be of interest: <a href="https://www.idrc.ca/en/book/strengthening-rural-livelihoods-impact-information-and-communication-technologies">https://www.idrc.ca/en/book/strengthening-rural-livelihoods-impact-information-and-communication-technologies</a>
It seems the focus of this collaboration between IFAD and PAD is mainly on digital extension/advisory services; do you also work on other aspects of digital agriculture, like on-farm digital technologies, precision agriculture, data provided by the farmers and related challenges like farmers' negotiating power with digital technology providers? - Valeria Pesce	For more information on the scope of IFAD's work on ICT4D, you can consult IFAD's ICT4D strategy ( <a href="https://webapps.ifad.org/members/eb/128/docs/EB-2019-128-R-5.pdf">https://webapps.ifad.org/members/eb/128/docs/EB-2019-128-R-5.pdf</a> ) or read this blog post: <a href="https://www.ifad.org/en/web/latest/-/blog/a-look-at-the-digital-technologies-transforming-agriculture">https://www.ifad.org/en/web/latest/-/blog/a-look-at-the-digital-technologies-transforming-agriculture</a> –PAD (mailto: <a href="mailto:development@precisionag.org">development@precisionag.org</a> )
IFAD funded Project Agriculture Value Chain Development Project (AVDP) in Sierra Leone in collaboration the Ministry of Agriculture is in the process of piloting ICT (E-Commerce) that will be translated into the major local languages with embedded e-extensional service messages to help farmers in agronomic practices, planting seasons, market access, cultivation time and access to planting inputs. The will be done in total collaboration with the mobile companies. - Abu Bakarr Sidique Bangura	Hi Abu. Please send more details if possible to <a href="mailto:aabramson@precisionag.org">aabramson@precisionag.org</a> (I can help link you to PAD)  Please contact: –PAD (mailto: <a href="mailto:development@precisionag.org">development@precisionag.org</a> )
I would to connect with Uzoamaka - <a href="mailto:David.Edimu@agextensionactivity.org">David.Edimu@agextensionactivity.org</a> - David Edimu	Please contact: –PAD (mailto: <a href="mailto:development@precisionag.org">development@precisionag.org</a> )
Digital agricultural system is a welcoming development since the world is now digitalized. But the need for the farmers to be given proper orientation will be very vital - Susanna Akata	PAD's services are informed by extensive testing and consultation to make them as accessible as possible. We convene focus groups and conduct surveys to solicit farmer feedback and routinely conduct A/B tests to advance our product development and improve service delivery. We use a range of training products and methodologies to assist farmers to make the most of our services and programming. For example, in some settings we work with traditional extension agents and agro-dealers to inform farmers about our services and how best to navigate them; we activate and utilize peer-to-peer farmer training; we conduct digital and in-person training with farmers; and in some settings we make helplines and call centers available to farmers to assist them with queries and concerns. –PAD (mailto: <a href="mailto:development@precisionag.org">development@precisionag.org</a> )
How can we integrate organic farming with digital technology? - Zakir Ali	We have recently started to provide farmers in Kenya with information to help them to prepare compost since most farmers rely heavily on chemical fertilizers. We are looking at other ways that we can link farmers with more natural solutions that can promote long term soil fertility on their farms  (We is referring to PAD--I work with PAD's Kenya programs)

Question	Answer
	<p>That's a great approach! Organic farming to improve the health of both ecosystem and human beings.</p> <p>–PAD (mailto: <a href="mailto:development@precisionag.org">development@precisionag.org</a>)</p>
<p>Despite the growth of mobile phone access in the global south, digital divide still exist and rural farmers continue to face numerous challenges in terms of technology, what is the best approach to address this divide and what role can the private sector play? - Duncan Chando</p>	<p>At PAD, we try to consider this on a country-by-country basis. We have been able to work with a large number of farmers in countries like Ethiopia, Kenya and Nigeria because the mobile phone penetration rate is quite high there. Since smartphone adoption is still low, we focus on SMS and IVR services in order to meet farmers where they are. But as Vivian was just saying, if a farmer does not have access to a phone, this solution is not going to work well in that context.</p> <p>–PAD (mailto: <a href="mailto:development@precisionag.org">development@precisionag.org</a>)</p>
<p>"I would love to hear more about the farmers engagement. Once they start using the platform do they stay on and consume more services and provide the data ? Also, curious to learn more about how the impact of the services is being measured." - Sharan JM</p>	<p>Hi Sharan, I work on PAD's Kenya programs. We see a range of user behavior. Some users will engage for only a single season, while others may continue to engage over different seasons, growing different crops and learning about different practices.</p> <p>On impact, I'm hoping that this will be answered after the call since we are coming to the end.</p> <p>–PAD (mailto: <a href="mailto:development@precisionag.org">development@precisionag.org</a>)</p>
<p>Our experience in Kenya with poor farmers is that mechanization, contract farming is the best ecosystem to adopt digital agriculture at the base of pyramid. Its no help when the farmer cannot sell their products. The biggest problem is a collapsed market channel at the base of pyramid. - James Kariuki</p>	<p>Agreed. IFAD partnership with PAD targets farmers who are receiving other type of support, including support to access markets.</p> <p>– Patrick Habamenshi, IFAD (mailto: <a href="mailto:p.habamenshi@ifad.org">p.habamenshi@ifad.org</a>)</p>
<p>Owen: This is a little dated but may be of interest: <a href="https://www.idrc.ca/en/book/strengthening-rural-livelihoods-impact-information-and-communication-technologies-asia">https://www.idrc.ca/en/book/strengthening-rural-livelihoods-impact-information-and-communication-technologies-asia</a> - Shalini Kala</p>	<p>This publication compiles work that was funded by IFAD.</p>
<p>Without intentional interventions to build local institutional technology, R&amp;D capacity and infrastructure and inclusion, it may inadvertently create farmer dependency in most vulnerable communities and economies on the extension service provider in ways that further marginalizes and disinvests in structural economic development contributions long-term. - Dana Francois</p>	<p>This is an excellent point. As a non-profit, we are concerned to build local capacity and infrastructure, and we work with local partners, often government. For example, our largest programme (in Odisha) is a build - operate - transfer model, which will transition to the state government this year (unless it is delayed by Covid). It is important not to create dependency (and also we need to avoid locking farmers in to private systems that aim to extract the value that is created).</p> <p>–PAD (mailto: <a href="mailto:development@precisionag.org">development@precisionag.org</a>)</p>
<p>"Hey ,Thanks Patrick Habamenshi for the good presentation. I would like to ask if you have thought of small holder farmers who did not attend schools but who need these solutions to serve them in the midst of COVID-19Kayitare Alexandre(Rwanda)" - Kayitare Alexandre</p>	<p>Thank you Alexandre. The programmes we are running in Nigeria are simplified so they are user friendly for people who have achieved lower educational achievements. The prompts are easy to navigate and the messages are given in Hausa. PAD conducted surveys to ensure the content is customised to the population. You can read more on Precision Agriculture for Development website.</p> <p>– Patrick Habamenshi, IFAD (mailto: <a href="mailto:p.habamenshi@ifad.org">p.habamenshi@ifad.org</a>)</p>
<p>Is there currently any good initiatives looking into applications of blockchain technology for improved access in rural areas - such as aPayment, micro-loans etc.? -Teresa Liu</p>	<p>There are good examples in East and Austral Africa of Financial Institutions, including Microfinance, partnering with mobile network companies to help beneficiaries of loans make their payments using mobile money.</p> <p>This is a good read on that subject: HOW MICROFINANCE IS NAVIGATING THE FINTECH REVOLUTION IN AFRICA, Exploring the opportunities and challenges of Fintech for microfinance institutions, April 2018 (<a href="https://triplejump.eu/wp-content/uploads/2018/05/How-Microfinance-is-Navigating-the-Fintech-Revolution-in-Africa-1.pdf">https://triplejump.eu/wp-content/uploads/2018/05/How-Microfinance-is-Navigating-the-Fintech-Revolution-in-Africa-1.pdf</a>)</p> <p>– Patrick Habamenshi, IFAD (mailto: <a href="mailto:p.habamenshi@ifad.org">p.habamenshi@ifad.org</a>)</p>
<p>Almost 95% of all smallholder farmers purchase inputs on informal suppliers' credit. This restricts the farmer from</p>	

Question	Answer
<p>purchasing the more expensive inputs such as Potash / DAP / Zinc. The cause of accessing this informal and expensive suppliers' credit is due to lack of funds to purchase inputs. Unless we don't unlock the farmers from this value chain at the input stage, Will it be possible to make advisory effective? - Inshan Ali Kanji</p>	
<p>Family Farming and or Kitchen Gardening is effective during pandemic COVID -19. Is there any scope in IFAD's aim? Because we need to engage young members of the family, at the same time we need food. We can ensure technical support by using ICT. Is it possible ? - Mark Manash Saha</p>	<p>PAD has worked with women farmers WRT kitchen gardens in India <a href="https://spark.adobe.com/page/p8Zx9gBTxlWca/">https://spark.adobe.com/page/p8Zx9gBTxlWca/</a> -PAD (mailto: <a href="mailto:development@precisionag.org">development@precisionag.org</a>)</p>
<p>Agricultural Extension has to move from messaging to farmer decision-support (predictive extension), pre-season and in-season advisory. How do you address that in PAD? - Pier Paolo Ficarelli</p>	<p>Our advisory is designed to empower farmers with actionable information throughout the cropping season, from soil preparation and input selection to post-harvest processing and storage. An advantage of digital extension is that one can time the provision of information to the cropping cycle and communicate with farmers to align information provision with key decision-points. We are also able to customize our advisory content to farmers' individual needs to predict the type of information they will need throughout the season based on their crop, location, farming practices, previous usage, and other factors. Our programming also includes a range of decision-support tools and advisory that incorporate two-way communication with the farmer to better understand the user's needs. An example of how we plan advisory campaigns to align with a growing season is accessible here <a href="https://precisionag.org/here-comes-the-rain-again-team-moa-info-springs-into-action/">https://precisionag.org/here-comes-the-rain-again-team-moa-info-springs-into-action/</a> -PAD (mailto: <a href="mailto:development@precisionag.org">development@precisionag.org</a>)</p>
<p>Do you envision opportunities for South-South cooperation and Triangular cooperation as a tool for tech and innovations sharing, capacity building, etc? Do you have a repository of reliable, LOCAL digital services and capacity building/training providers you could share with IFAD to feed our partnerships database? - Sara Fornabaio</p>	<p>We believe in evidence-based decision-making and actively engage in learning to improve our services and advance the field of digital development more generally. We endeavour to make our data and learning publicly accessible, while protecting the privacy of our farmers and respecting the protocols of our partners, to advance digital development and innovation., Our partnerships are critical to our ability to scale quickly and help to advance our local knowledge and learning. We would be very interested in engaging with IFAD to promote information sharing and mutual learning. Please contact <a href="mailto:development@precisionag.org">development@precisionag.org</a> to advance this conversation. -PAD (mailto: <a href="mailto:development@precisionag.org">development@precisionag.org</a>)</p>
<p>@PAD; can you explicit how you calculated the delivery cost of your services? does it include initial investment and overheads? - Marie Aude Even</p>	<p>Yes this includes all our fully-baked costs, including overhead, R&amp;D, etc. It has come down from &gt;\$40 in 2016 to &lt;\$1.50 in 2020 -PAD (mailto: <a href="mailto:development@precisionag.org">development@precisionag.org</a>)</p>