



DIGITAL STRATEGIES FOR  
DEVELOPMENT SUMMIT **2015**  
*Accelerating Inclusive Development through ICT Innovation*  
A Knowledge Exchange Forum for Asia-Pacific Region and Beyond

# Use of ICTs to Increase Small Farmer Income

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*"With the right investments, we can deliver innovation and information to enough farmers in Africa to increase productivity by 50 percent for the continent overall..."*

*Investing in extension so that it helps more farmers in more places — women as well as men, smallholders as well as more commercial farmers — is the only way to reap the full benefit of innovation. One promising trend is that, as more farmers have access to mobile phones, they will be able to receive all sorts of information, from weather reports to current market prices — via text messages."*

<http://www.gatesnotes.com/2015-annual-letter?lang=en&page=2>

ICT's can in principle make a significant difference in two important areas:

- i. Improving the performance of agricultural produce markets and lowering intermediation costs.
- ii. Reducing the costs of providing agricultural extension and enhancing its effectiveness.

# Market Performance and Intermediation

(1 of 5)

## **Seminal study by Robert Jensen (2007).**

Fish farming in Kerala employs about a million people.

Until 1997 fish marketing was high risk. Fisherfolk would catch fish & sell at landing markets along the coast. Fuel costs and difficult road conditions limited fisherfolk to visiting and selling their product in only one market each day. It was not uncommon to find several fishermen with their catch unsold while in nearby markets buyers were left without fish.

They could go farther and perhaps find many buyers, but this was risky: fuel is costly and fish markets open only 2 hours a day. 5-8% of the catch would be wasted.

# Market Performance and Intermediation

(2 of 5)

## **Seminal study by Robert Jensen (2007).**

Mobile phones revolutionized fish marketing in Kerala.

Between 1997-2000 towers were built and mobile phone coverage expanded along the coast.

As these towers were built, fisherfolk and traders began to coordinate purchases and landings.

Fisherfolk now call merchants while they are still at sea. They arrange to meet with fish merchants at a predetermined landing site.

# Market Performance and Intermediation

(3 of 5)

## **Seminal study by Robert Jensen (2007).**

The price of fish is now uniform along the coastline and excess supply or insufficient produce has disappeared.

Fisherfolk venturing beyond home markets to sell went from 0 to 35%.

Fisherfolk profits increased 8% (because of lower wastage) at the same time that consumer prices fell by 4%.

# Market Performance and Intermediation

(4 of 5)

## Market Information Systems (MIS)

Private companies and governments have developed **Market Information Systems** (mobile-based and Internet-based applications) to help farmers market their produce.

Many claims have been made, but careful studies have been inconclusive regarding impact (Baumüller 2015).

1. Obtaining and disseminating information is expensive.
2. Uptake has been limited to only a few farmers.
1. Context (existing marketing arrangements, transportation costs) and product type (e.g. perishability) are critical determinants of impact.

# Market Performance and Intermediation

(5 of 5)

## Market Information Systems (MIS)

We are still in the learning stages. There are many initiatives, many pilots, many applications, many trials. An high impact MIS application may yet appear.

We already have the essential instrument: **the mobile phone**. When farmers interact with traders through mobiles, a lot of information is exchanged, beyond prices. Trusting commercial relationships develop.

→ To improve market functioning and reduce the costs of intermediation, the best interventions appear to be: expand connectivity and mobile phone coverage, and reduce transaction and transportation costs



# Agricultural Extension

There is wide gap in the productivity of developing and developed country agriculture. This is seen as an opportunity. If we close this gap, we can make a dramatic improvement in farmers income and welfare.

This is the argument made by the Bill and Melinda Gates Foundation make in their 2015 letter on agriculture.

# Agricultural Extension

The principal challenge that agricultural extension services have posed is how to organize them sustainably. Ag extension services tend to be large (e.g. India has over 100,000 extension workers).

Managing large numbers of extension workers has not been easy. Many systems have been tried, notably:

- Training and Visit – World Bank 1970-80s (\$ 3 billion)
- Farmer Field Schools – FAO, NGOs 1990s, 2000s  
(Integrated Pest Management)
- Community-based demand driven extension 2000s

# Agricultural Extension

“A 2001 review sponsored by the Food and Agriculture Organization of the United Nations (FAO)... characterized extension services across the developing world as ‘failing,’ ‘moribund,’ and in ‘disarray or barely functioning at all’.”

(Feder, Anderson, Birner, & Deininger 2010)

# Agricultural Extension

New approaches to extension are demand driven with farmers taking center stage, identifying problems and identifying solutions. In essence: **interaction and exchange between farmers and agricultural specialists and between farmers themselves.**

Extension has always been about educating farmers.

**→ By engaging farmers in their own lifelong learning and lowering the costs of one-to-one interaction with specialists, ICTs can bring about a revolution in farmer education.**

# Agricultural Extension

India – n-logue, videoconferencing with agricultural expert (approx. 2005)

The screenshot displays a videoconferencing application interface. At the top, there is a menu bar with options: 'See', 'View', 'Address Book', 'Options', and 'Help'. Below the menu bar is a toolbar with icons for 'Hangup', 'Speak', 'Full Screen', 'Audio', 'Video', and 'Exit'. The main interface is divided into several sections:

- Chat Window:** Located on the left, it has tabs for 'Chat' and 'Address Book'. The 'Participants' list includes 'Agri College' (highlighted in green), 'Melur Office', 'saruguvalaiyapatti1', 'Ulagupitchanpatti' (highlighted in yellow), and 'ulpm\_sari'. The chat log shows the following messages:
  - Agri College: suganya
  - Agri College: u type
  - Ulagupitchanpatti: S
  - Ulagupitchanpatti: brinjal problem in village, sirAt the bottom of the chat window is a text input field with the placeholder text 'Type the message to be sent here and hit <Enter>' and a 'Send' button.
- Video Thumbnails:** On the right side, there are two video thumbnails. The top one is titled 'B: Ulagupitchanpa...' and shows a man in a blue shirt. The bottom one is titled 'B: Agri [15.71 Kb...' and shows an older man with glasses in a white shirt. The background of the interface is a large image of a building with a tiled roof.
- Status Bar:** At the bottom left, there is a green status indicator, a timer showing '00:07:38', and the name 'Ulagupitchanpatti'.

# Agricultural Extension

## **Sustainability is a challenge:**

India's n-logue communications was a franchise telecenter initiative started by IIT-Madras. It aimed to be self-sustaining and had a successful run for several years. By October 2004 n-logue had 31 projects connecting 1,900 villages to the Internet (Paul 2004).

N-logue provided a wide variety of services, including video extension. Unfortunately, the franchise failed to achieve financial sustainability (Proenza 2015).

# Agricultural Extension

Chile – Advice Online (approx. 2005)

Buscar pregunta por palabra clave

**Asesores por Areas**

- [Ver Preguntas Frecuentes](#)
- [Ver Preguntas Personales](#)
- [Ver Preguntas del Area](#)

**Seleccione Area de Consulta**

Area de Consulta




*Capacitación :*

**Asesores en esta área:**

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Como usuario registrado usted podrá realizar preguntas a los asesores. Antes de realizar una pregunta, le recomendamos revisar las Preguntas Frecuentes.

Este servicio es de orientación básica, nuestro compromiso de respuesta es de dos (2) días hábiles.

 <p>Antonella Beneventi D. Sercotec Región Metropolitana</p>	 <p>Oliver Rojas O. Sercotec VI Región</p>	 <p>Servicio Nacional de Capacitación y Empleo Sence</p>
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*Capacitación :*

**Lista de Preguntas del Asesor : Antonella Beneventi D. en el Area : Capacitación**

- Capacitación a Mype
- ☆☆☆☆ creación de OTEC por Asoc. Gremial
- ☆☆☆☆ dudas microempresa, franquicia, imposiciones
- Necesito estudiar gasfiteria y electricidad domiciliaria codigo sence.
- ☆☆☆☆ Sobre Consultora

# Agricultural Extension

## **Sustainability is a challenge:**

Chile's Advice Online service was the initiative of a government agency that provided support to SMEs.

When the government changed, the incoming administration replaced the system's champion and cut off the service.



# Agricultural Extension

## India – Avaaj Otalo

Farmers receive prerecorded voice messages once a week with detailed information on weather and crop conditions.

Farmers can also call a toll-free number with specific questions that concern them. Staff agronomists then prepare and record a voice response that is delivered to the farmers.

Farmers can call as frequently as they want and at any time of the year, and get prompt answers to their queries with qualified advice.

A controlled experimental study by Cole and Fernando (2012) showed that farmers who use the service turn to other farmers and input traders less often for advice. They also observed greater adoption of effective pesticides and lower expenditures on expensive hazardous pesticides.

# Agricultural Extension

India – Avaaj Otalo, Mobile Consultation



# Agricultural Extension

India – Digital Green, Videorecording of Farming Demonstration



*Figure 1. An extension officer prepares to record a demonstration for setting up a low-cost, vermicompost unit, featuring local farmers in Bhanavasi, Karnataka.*

# Agricultural Extension

## India – Digital Green

4 to 6 people in the community are trained on how to produce short videos addressing showcasing better practices. These videos are then shown in the community using mobile projectors. Frontline workers are themselves members of the communities where these videos are made.

As of April 2015 they have worked in 7,645 villages and produced 3,782 videos.

In a four month trial preliminary study Digital Green's approach showed adoption rates of new practices 7 times as high as traditional extension approaches.

Sources: Gandhi, Veeraraghavan, Toyama, Ramprasad 2009

<http://www.digitalgreen.org/about/>

# Concluding Remarks

Sebastian Thr n, the inventor of the driveless car, and Google Glass is also the Stanford teacher who, together with Peter Norvig, taught the first MOOC and founded UDACITY one of the prominent MOOC academies.

Thr n's Universal Law of Innovation is:

**Build It, Break it, Improve It.**

For this law to work you must **monitor and evaluate**. Otherwise you are bound to repeat mistakes, and you will not be able to improve and innovate successfully.