

Information-gap in Modern Agriculture and ICT

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As farmers moved away from traditional farming

- “ Inputs were no longer Local
 - “ Large input costs
 - “ Need for finance
- “ Shift in Agri-knowledge towards Agricultural Scientists
 - “ Need of extension-services arose
 - “ Needed new agricultural machinery
 - “ Knowledge of their own farm-plot remained strong
- “ Prices impacted by global Markets

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Extension Services and future evolution

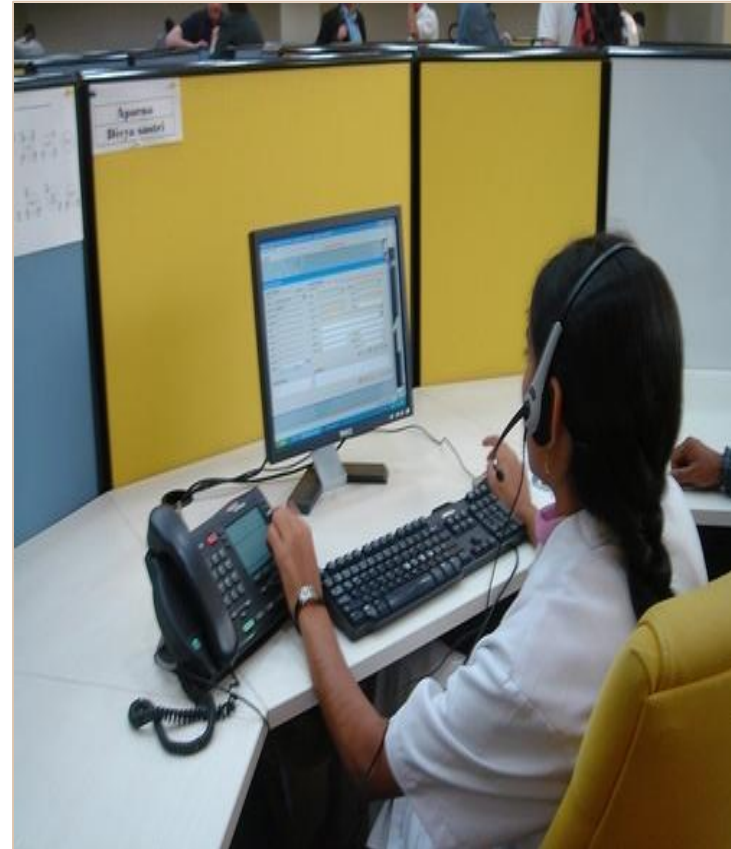
- “ Could only be generic
 - “ Applicable to district, crop-type
 - “ Can not take into account specific plot-condition
- “ Enhancing agricultural output and farmer's profits
 - “ require farm-plot specific advisory
 - “ Based on farmer's financial and risk-taking ability
- “ Advisory needs to evolve into farm-specific + farmer-specific
 - “ Problem of reaching large number of small / medium farmers

Information-gap at different stages

- “ What to Grow?
 - “ Soil type, Fertility of Soil, Climatic zone, Water availability, what was grown last year,
 - “ Expected Market prices and margins for a crop, Inputs costs, farmer's ability to bear it, Risks
- “ What and where are inputs available?
 - “ Seeds, Fertilizers, Fertilities, prices, quantities to be used; sensitivity to use of more or less and varying combination
- “ Growth Phase Advisory: 1st, 2nd, 3rd ÷ . week
 - “ Is my growth healthy? Can it be accelerated? Water to be used, What techniques should be used? Are more inputs needed? Is their disease? What should be done?
 - “ When to Harvest, Harvesting technique, Where to sell and at what prices? What are by products? What to do with them?
 - “ How does one manage risk? **Weather risk, disease risk and market risk** ÷

Leveraging Modern call-centres for farmers

- “ Customers data captured
- “ Past interactions and complete service history available
- “ Customer page pops up when the customer calls
- “ Multiparty Interactions enabling escalation



Can this be applied for agricultural

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Interactive Multimedia Agriculture Advisory System

Modern farming techniques have created an Information gap where knowledge lies not with farmers, but with agri-scientists

"Pesticides
"Fertilizers
"Market Prices
"Weather Information
"Farming Techniques
"Inputs



Agri Extension worker can bridge this gap by answering queries on mobile phone

Farmer Interaction through mobile



Text
Voice
Images

Agri Advisory System Database



Experts Interaction with Farmers through voice & web interface



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A web-page auto-created for each farm-plot

Data for each farm through mobile application by field workers – data such as farmer profile, plot and soil information, past crops grown and history of inputs as well as pest and disease information



Update of data through voice enabled mobile application by farmer – Farmer updates his/her relevant crop information for current crop in local language

Pest and Disease Image Upload (PDIU) application – Farmer captures and uploads images of infested-crops in real-time to obtain advisory from expert



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Multimedia Advisory System

Farmer specific dashboard for each farm-plot – displaying farm-data collected, crop history, inputs used, pictures of growth and infestations – enabling Advisor to provide advisory.



Call-center system – as farmer-calls land, CLI used to pop-up his / her page – Helping Advisor to observe all information while talking to the farmer.



Advisory timeline – All interactions between farmer and Advisor captured on the page using advisory timeline, helping tracking of issues and concerns raised by farmer



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Escalation when needed



Before
Okra crop turning white

Pictures sent to experts at Madurai Agricultural College: diagnosed as "Yellow Mosaic disease"



After

- “ If Advisor finds it difficult to handle certain issue, Escalation to an expert takes place
 - “ Crop-expert (agri-scientist)
 - “ Market-expert
 - “ Finance-expert

- “ Expert has same view of farmer's page as that of Advisor

- “ Three-party calls set up getting farmer to discuss with an Advisor and an expert

Who will Pay? Farmer? Government Subsidy? Advisors supported by Government?

Mitigation of Risks

- “ Crop disease: connect to an agricultural Expert
 - “ To obtaining answers before it is too late
- “ Rain-fall risk: Micro-weather Measurement and prediction
 - “ Low-cost Weather Monitoring Kit: Collects and uploads (using GPRS) Temperature, humidity, pressure, wind speed, wind direction, rainfall at each village
- “ Market risk: use of commodity exchanges, forward pricing and Options
 - “ Can one get small farmers to use it?



Developed at IITM

Some new IITM initiatives

- “ DC Solar-PV driven agricultural-pump
 - “ When sun is stronger, pumps more water
 - “ Rainy season needs very little water
- “ Dimensioning the pump correctly as sun is up for 10 hours (as opposed to rural electrical-grid)
- “ Solar-pump connected with drip-irrigation
 - “ Much smaller-sized pump; conserves water

Farm Crop Management System: VOICE APPLICATION

A Government of TN initiative:

How is it done?

"Farmer calls the Farmer Crop Management System using mobile or landline

"System interacts with the farmer in Tamil to capture the relevant information



Farmer Crop Management System

System: Welcome Arunachalam to Farmer Crop Management System; Please say district name

User: Vellore

System: Please say village name

Customer: Beemakulam

System: In which bank do you have account?

Customer: State Bank of India

[Sample Call](#) (click here)

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