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The University of Manchester



**"Mobile Technology for Agricultural and Rural
Development in the Global South" Workshop
20th Oct 2016**

**Transformational vs. Incremental
Change Enabled by
Mobile for Agriculture (m4Ag)
Services:
Evidence from East Africa**

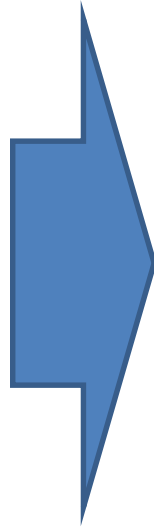
Richard Duncombe

Global Development Institute

Research Problem

Trends

- Expanding populations
- Low productivity - although this varies between regions and produce sectors
- Increased use of finite land resources to increase production
- Growing dependence on imported food



Causes

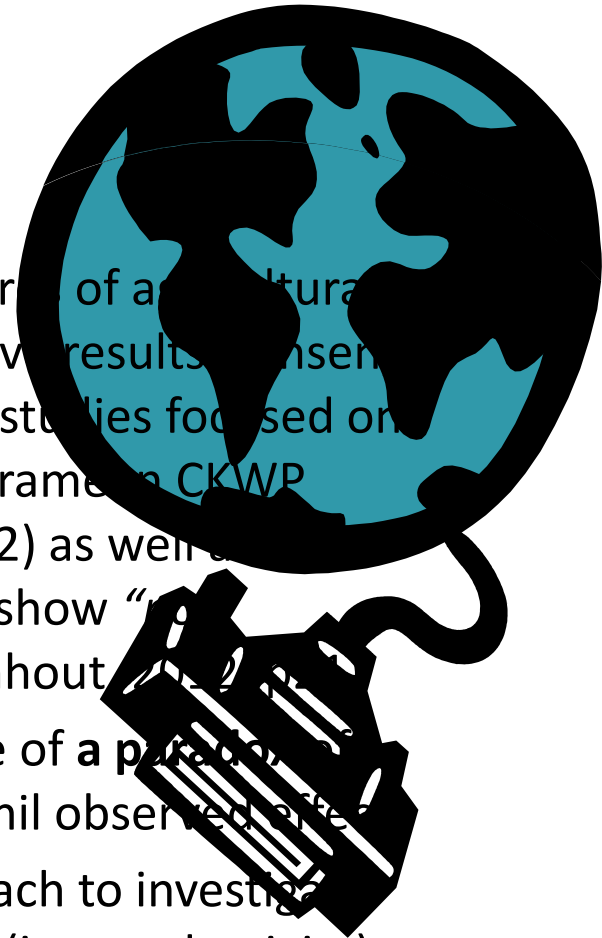
- lack of knowledge of up-to-date technologies and practices: seed/fertiliser
- inadequate irrigation
- lack of incentives for farmers in the absence of remunerative markets
- weak institutions of governance
- ineffective policies to address rural people's poor health



Solutions

- Shift from subsistence farming to an expanded role for market-oriented production
- Shift from small to larger farms
- Agri-business development – secondary processing
- New technologies and methods
- Access to finance
- Access to markets

Research Aims



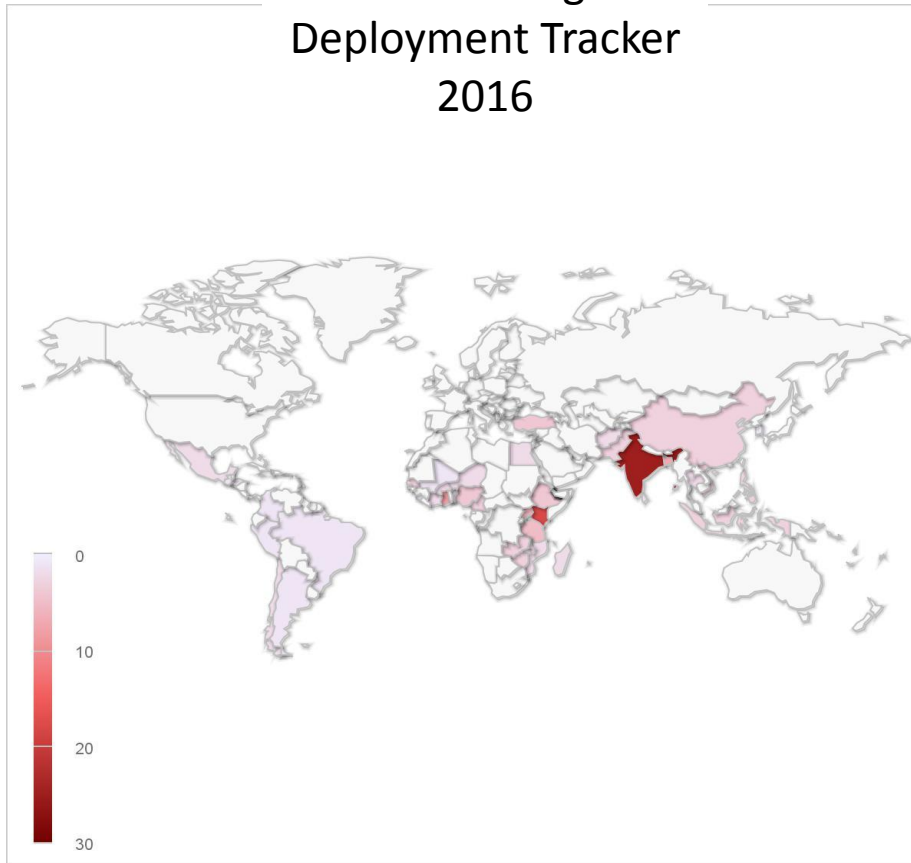
- Observed effect of mobile phone use on measurement of agricultural productivity - early quant studies showed positive results (Ansenin, 2007; Acker, 2008) whereas more recent quant studies focused on service provision - such as through Esoko and GramInfo CKWP (Hildebrandt, et al 2014; Van Campenhout, 2012) as well as Tadesse & Bahiigwa (2015) Zanello et.al (2014) show “no convincing effect for productivity” (Van Campenhout, 2012)
 - A reading of the ‘recent’ literature gives a sense of a paradox of high investment (in M4Ag Services) and low or nil observed effect
 - Aim of research was to take a qualitative approach to investigate reasons for the gap between expected benefits (inc productivity) and actual outcomes
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Data Collection and Analysis

- 30 Semi-structured Interviews carried out in March/April 2014 across both case studies in Kenya and Uganda
- Triangulated to cover service provider staff, local NGO staff, local consultants, mobile service providers, agronomists/agents and government extension organisations
- Observational time (1 week for each case)
- Analysis of Secondary Data sources (reports, evaluations, etc)

Mobile4Agriculture Case Studies

GSMA M4Agric
Deployment Tracker
2016



Kenya – 18 Services
m-Farm - active since 2010 - farming information and trading portal/subscription-based /agronomists in the field/
<https://www.mfarm.co.ke/>

Uganda – 6 Services
AgMIS - active since 2011 – farming/ commodity information portal/market/commodity prices at market/district level/agents in the field.

Conceptual Approach

- Brynjolfsson(2003) first identified a productivity paradox – a discrepancy between measures of investment in information technology and measures of output at the sector level. Turban (2008, p56) suggests that... *"an understanding of the paradox requires an understanding of the concept of productivity within the context that it is being measured"*.
- Both Brynjolfsson and Turban suggest that : a) extracting productivity benefits from ICTs requires many complementary investments; b) it also requires changes in complementary processes and structures (i.e. just changing the technology is insufficient); c) both a) and b) can take many years.
- Venkatraman (1994) provides a staged model of how changes in processes and structures are driven by investment in ICT

Case Studies: Developmental Transitions

2010		2014		
<i>Inception</i>	<i>Integration</i>	<i>Process re-Design</i>	<i>Network re-Design</i>	<i>Transformation</i>
Initial stand-alone application developed for an improved service (e.g., weather forecasting/market prices)	Further development of a mobile platform to integrate multiple services	Changing the way the production process is organised	Changing the way the transaction process is organised along the value chain	Re-defining the business model
m-Farm				
-SMS service introduced to provide farmers with up-to-date market prices	-Mobile payment and other agricultural information services added to the platform	-Group selling tool introduced that allows farmers to collaborate and sell larger quantities	-Agronomist-grader model introduced that allowed farmers to integrate further into the m-Farm supply chain	-m-Farm redefines its role as a <i>knowledge broker</i> and <i>financial intermediary</i>
AgMIS				
-On-line platform (AgMIS) developed to provide agricultural prices and commodity offers	-Additional services added - input prices, fuel, organic prices, contacts of buyers and sellers - -Incorporates SMS for access by farmers	-LAMIS introduced with focus on local value chain -Farmer Group Accounts -Training provided	-Genuine Input Suppliers -Trading Platform for buyers and sellers introduced -- -FARMIS introduced	-Redefines role as an information aggregator and value chain integrator



Facilitating **economies of scale** collaborative structure between farmer groups – small holders are able to bring produce to designated collection points.



Problem re-definition - From the outset the 'problem' was perceived as 'price transparency', rather than '**low volume**' and that buyers in urban centres are not inclined to source the volume they need from multiple small-scale farmers.

mFarm: Process Re-design

Re-designing marketing/transactional processes – farmers-mFarm mFarm-Buyers



mFarm developed **Group Selling Tool** integrating logistical and transactional processes – linking small-holder to buyer



Transformational vs. Incremental change

The type of change observed in the case studies is not yet transformational. However, potential for transformation is demonstrated in a number of ways across a number of dimensions...

Structures- both Mfarm and AgMIS (social enterprises) are substituting for the top-down role of the state, and the bottom-up role of farmer collective action – re-intermediating

Processes - moving from a quantitative, tech/data-centric to an informational/praxis-centric approach – so that through complementary inputs - including trust – digital data becomes usable.

Governance - penetration of new buyer-driven value chains into rural areas - some produce areas (such as organic) will be more conducive to ICT application, whereas others less so.

Power and value - changing locus of power to new digital intermediaries - changing where value is captured

Embeddedness – small-holders lack the incentives to grow because they remain embedded into a particular physical and institutional context, that mAgric may or may not transform?

"the value we bring is being able to reach millions of farmers at a time, whereas face-to-face has its limitations, so enabling farmers to have access to the large amount of research that is being conducted that previously they have not been able to access" (GSMA, 23/03/14).

Scaling – rather, scaling should be viewed as how technology can enable the scaling of agricultural production/marketing