



The DrumNet Project:

Lessons Learned from an ICT Initiative in Kenya's Agricultural Sector

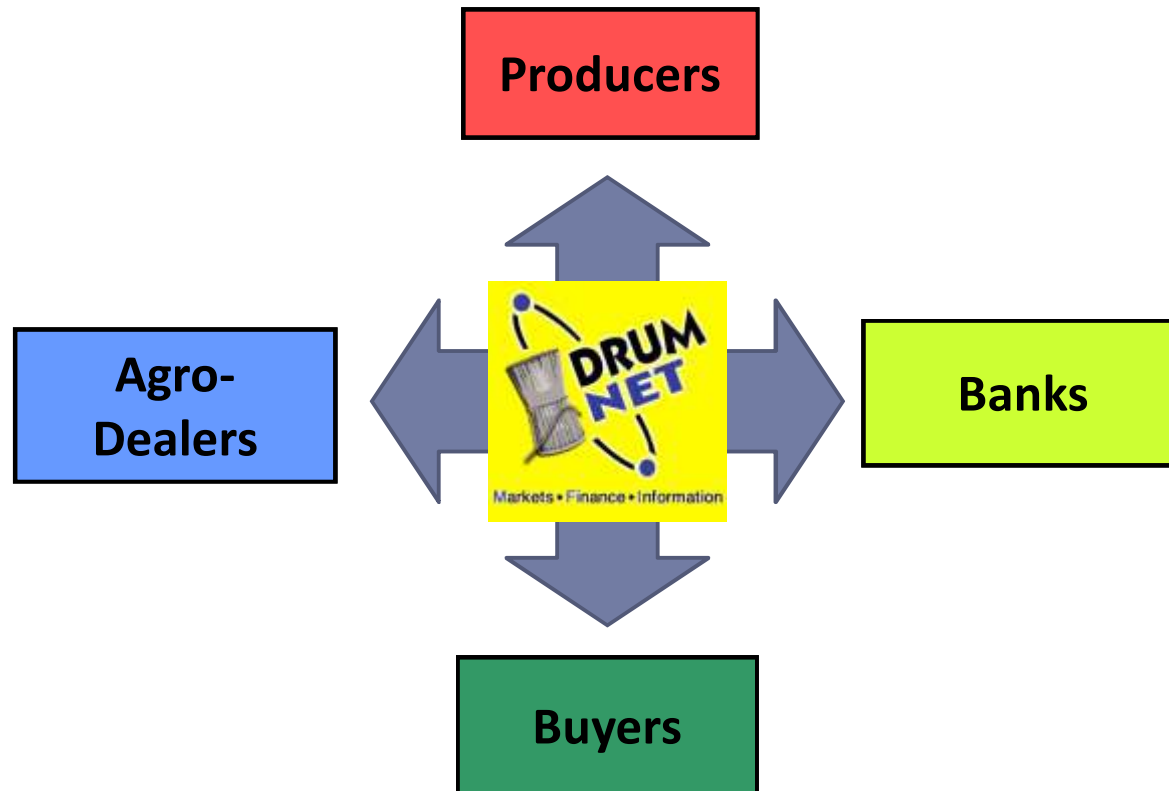
Tom Rausch, PRIDE AFRICA



AITEC East Africa ICT Summit,
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Project Rationale

DrumNet was launched because formal linkages seldom exist between actors in Kenya's agricultural sector; the project's objective was the creation of an ICT-powered platform that facilitated cooperation between producers, buyers, agro-dealers and banks



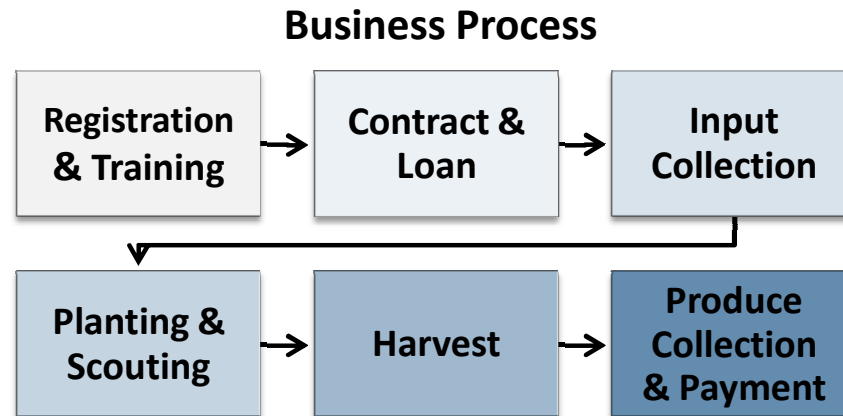
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DrumNet Platform

The DrumNet Platform consisted of two components: a rule-based business process and a prototype IT System

- End-to-end process with defined roles and responsibilities for supply-chain partners
- Created a standardized, predictable, rule-oriented environment in which partners can engaged and complete transaction



Prototype IT System



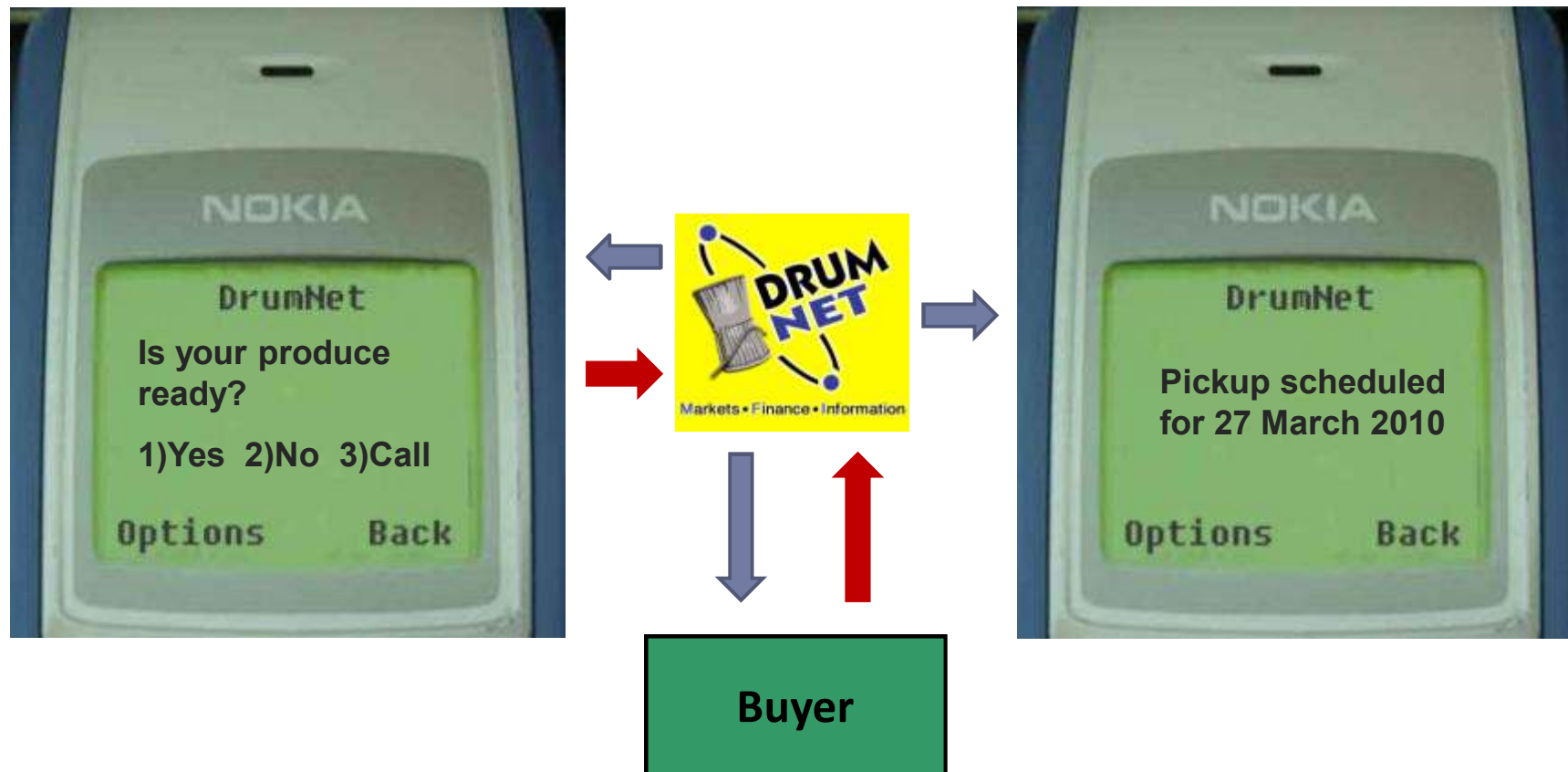
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- Single unified database (Postgres) connected to a web-based portal (Java)
- Interactive with mobile phone technologies through SMS Gateway
- Enabled business process by reducing communication and transaction costs



Example - Harvest

Near harvest time, farmers receive SMS from IT System asking if their produce is ready; positive response triggers SMS from buyer confirming pick-up time/date



Source: PRIDE AFRICA



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Example - Collection Point (Goods In)

After receipt of SMS, farmers aggregate product at designated collection points (CP); produce weighed, graded and tagged at the collection point by a CP Manager



Source: PRIDE AFRICA

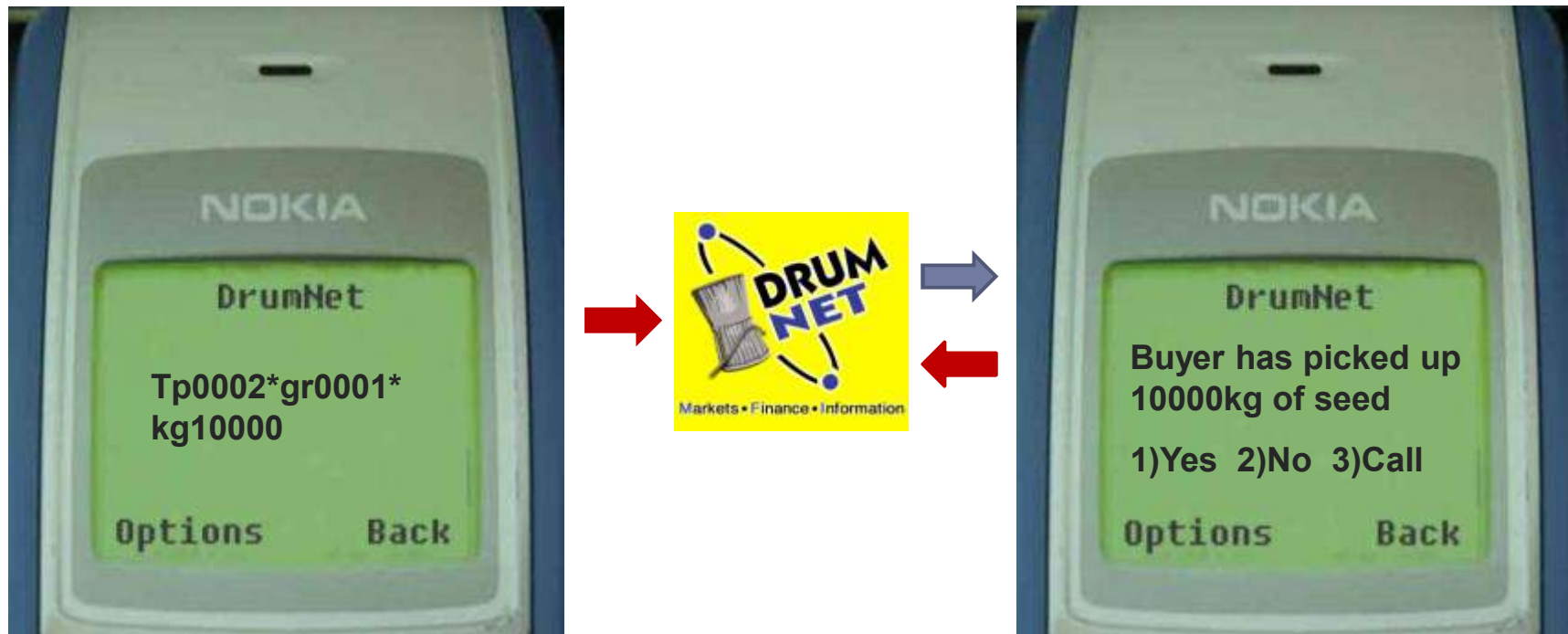


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Example - Collection Point (Goods Out)

Buyer reviews produce quality/weight at CP and takes title. Buyer sends structured SMS to the IT System. IT System updates its internal records and sends conformation SMS to CP Manager. A transaction record is filled and signed as a manual back-up



Source: PRIDE AFRICA



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Example - Payment

IT System forwards payment advice to buyer and bank to transfer payments to farmers' accounts within 48 hours; when transfer is complete, farmers are notified via SMS that account credited. DrumNet takes % commission

The screenshot shows the DrumNet web interface. The main content area displays a table of 'Buyer Invoices' for BICO Oil Refineries. The table lists 10 delivery tips with columns for Buyer, Particulars, and Total Amount. An inset image shows a Nokia mobile phone screen with an SMS message: 'DrumNet KES 17000 has been deposited into acct: 14434' with 'Options' and 'Back' buttons.

Buyer	Particulars	Total A
BICO Oil Refineries	Buyer Invoice 10 for Sunflower 2007 ...	14,032.00
	Buyer Invoice 6 for Sunflower 2007 ...	122,350.00
	Buyer Invoice 4 for Sunflower 2007 ...	13,720.00
	Buyer Invoice 3 for Sunflower 2007 ...	11,040.00
	Buyer Invoice 5 for Sunflower 2007 ...	11,130.00
	Buyer Invoice 6 for Sunflower 2007 ...	-122,350.00
	Buyer Invoice 1 for Sunflower 2007 ...	50,310.00
	Buyer Invoice 2 for Sunflower 2007 ...	27,174.00
	Buyer Invoice 7 for Sunflower 2007 ...	14,500.00
	Buyer Invoice 8 for Sunflower 2007 ...	41,422.00

Source: PRIDE AFRICA



ICT Lessons Learned - Demand

DrumNet was implemented across Kenya and provides a good basis to draw lessons; first is that an ICT-enabled agricultural platform (like DrumNet) is in high demand



- DrumNet active in 5 Kenyan provinces in collaboration with 2 large buyers, a commercial bank and 3000+ smallholder farmers
- Facilitated several different supply-chains, including baby corn, French beans, passion fruit, sunflower and others



- High demand for DrumNet, approached by several buyers, banks, and farmer groups to participate in project; **feeling in agricultural sector that ICT can improve core business**
- At the same time, **few had a clear idea of what they wanted ICT to do for them**, making it difficult for to tailor products/services

Source: PRIDE AFRICA



DrumNet: Lessons Learned from an ICT Initiative in Kenya



ICT Lessons Learned - Field Operations

DrumNet's functionality was dependent on field participants' timely response to SMSs and, in some cases, their ability to complete structured SMSs; this yielded positive and negative results

- SMS process worked **when involved personnel who completed procedures multiple times and/or clearly understood the process' benefit**
- This the case at farm input distribution and produce collection, when dedicated staff/stakeholders present (i.e. agro-dealer and CP Manager)
- But **farmers aggregate SMS response rate never topped 40%** during a season, even with no cost SMSs and training of "transaction agents"
- Non-response due to: i) **Phones often turned off**, no regular access to electricity for charging, ii) **Shared handsets**, iii) Farmers **did not value responding to SMS**
- Farmers preferred voice communication and were slow to see phone as business tool



Source: PRIDE AFRICA



DrumNet: Lessons Learned from an ICT Initiative in Kenya



ICT Lessons Learned - Operating Environment

DrumNet started in 2003 and faced many environmental challenges; issues remain, but noticeable movement towards a kinder ICT atmosphere in urban and rural Kenya

- The platform suffered due to **poorly available, low-speed internet connections** in rural areas, high **SMS costs**, and **scarcity of mobile phones** amongst target groups
- Also legal issues, e.g. SMS not considered a legal document, leading to dramatic delays in contracting, banking transactions, etc.



Source: PRIDE AFRICA

- All relevant **indicators moving in the right** direction as ICT access is up and costs are down
- Even legal **infrastructure becoming more amenable to virtual transactions**; making DrumNet-like transactions increasingly easy and time-effective
- Not entirely solved, e.g. rural collection points and pockets in network coverage

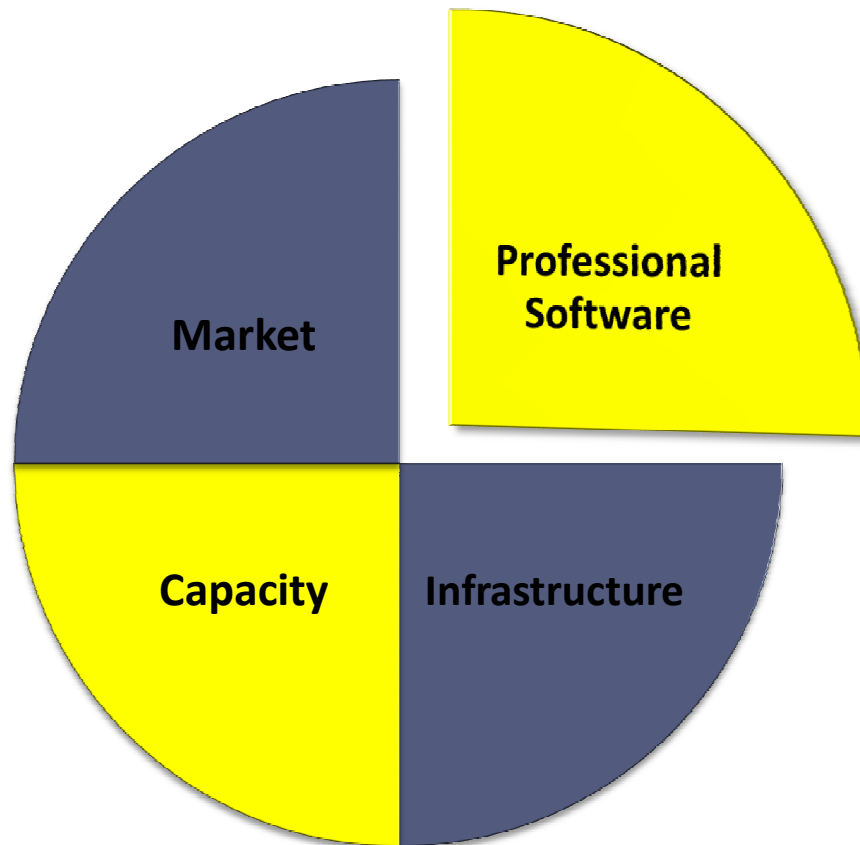


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Conclusions

The vision for DrumNet has always been a commercial, self-sustaining company; this vision is becoming increasingly possible given the trajectory of Kenya's ICT ecosystem



- Demand for this type of ICT product is rife among key agricultural players and the local environment is increasingly accommodating
- With the right processes and training, there is capacity to operate a similar platform on the ground
- The (large) **missing piece is the build of a more professional software** that can handle volume and reduce the need for extensive human input

Source: PRIDE AFRICA





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Thank You

