

# Mobile Communications and Institutions - Challenges for Scalability

Gianluca Miscione

International Institute for Geo-  
Information Science and Earth Observation  
Netherlands

eMobility 4<sup>th</sup> workshop  
Madrid, May 19<sup>th</sup>, 2009

# Research Area

Technological and societal elements in their continuous entanglement

- *Empirically*: Large information systems, mainly in developing contexts
- *Theoretically*: Institutional theory, A.N.T. flavor
- *Methodologically*: Qualitative approach (Participant observations, longitudinal studies, interviews, shadowing, etc)

# Vignettes from Three Sources

- M-Pesa,
- H2.0,
- Voluntary  
GeoInfo

# Banking the Unbanked

- Prepaid segment of the population
- In Kenya since March of 2007 by Safaricom
- funded by Department for International Development (DFID - UK government) with Vodafone
- Rapid growth: in December of 2008 user base is 5 million (tot 38)
- Cumulative money transfers at October 2008 was over 10 billion KES (£87.5 million GBP)

# M-Pesa Service

1. Registration at a retail agent outlets and deposit cash
2. This cash is thereafter reflected as e-money in a virtual account that is managed by Safaricom.

This is called the non-bank led model of m-banking because the customer has no direct relationship with a bank

# Research Approach

- Fourteen month ethnographic study in urban and rural Kenya (by Olga Morawczynski PhD student at University of Edinburgh)
- Trust –central in people’s handling of their resources- as main research interest
- Question: what is the process of adoption?
  - How do global trends and local use encounter?
  - Does it scale up? Why? How?

# Setting

- The research began in Kibera, an informal settlement outside Nairobi. Kibera is situated close to the city centre and covers about 2.5 km<sup>2</sup> of land
- Over 1 million people reside in Kibera in mud walled houses with iron sheet roofs

- No formal bank branches in Kibera
- The scarce presence of these organizations could be explained by the lack of security
- There are over thirty M-PESA agents scattered around Kibera (According to Safaricom, this number is expected to increase in the coming months)

# Remittances and rural – urban relations

Unplanned use (along existing trustworthy relations)

According to many of the interviewees, these remittances make up a substantial part of the household income. Some even asserted that 50-100% of such income was derived from remittances

# Scaling up

...as outreach and functions: STORAGE

Customers were using M-PESA as a savings mechanism, increasingly

Reasons for the “bootstrap”:

- Increasing trust in the different actors related to the service
- Contingent conditions (ethnic tensions)

New regulatory setting (complaints from the banks which have stricter regulations)

- Customers did not store money in the bank because their “small savings” would quickly be “wiped out” by such fees. M-PESA only charged to withdraw money (deposits are free)
- No maintenance fee for storage (service was designed for money transfers, and not savings)

# Trust and Mistrust

- The women explained that before M-PESA they stored their money at home. However, this method was “risky” because the money could be found, and stolen, by their husbands.
- The trust relations between customers and agents changed over time. At latter stages of the fieldwork, many of the agents asserted that conflict with the customers had significantly decreased.

Institutional trust relations were also vital at an early stage (customers did not trust the agents, only Safaricom)

- The mobile operator (MO) has a history in Kenya, where is active since 1997, targeting the low income-segment in 2000
- By 2008, 70% of the Kenyan market
- Many customers have been using Safaricom as their mobile service provider before M-PESA was introduced.

# Tribes as local Institutions

Ethnic tensions affected trust relations:

- there were several problems with Equity (a bank)
- 'I don't mean to be tribal' he replied, 'but the president of Equity is too close to Kibaki [the President of Kenya]' (the president of Equity was Kikuyu like Kibaki, and was giving 'too much' of the 'common man's' money to support Kibaki's electoral campaign)
- spreading out your money in several accounts was a 'good idea'
- Safaricom would not involve themselves in 'tribal politics' because Micheal Joseph (the president of Safaricom) did not belong to any of Kenya's tribes

Ethnicity was vital determinant also during the post-election violence

# “Informed and Empowered” The Human Sensor Web

- A Human Sensor Web is a composition of
  1. a community of individuals who report observations by making use of mobile communication techniques and
  2. a set of (web) services which provides means for disseminating observations made by the community and provide feedback to individuals, specific user groups or the public.
- The aim of the “human sensor web activity” is to develop community driven services for geo-referenced monitoring of services



**NO WATER?**  
sms "no"  
to 4411

---

**DIRTY WATER?**  
sms "dirty"  
to 4422

Web server  
Processing

Google  
community

SMS alert  
community

June 2008  
No water

1   
10 

June 2008  
Dirty water

1   
10 

# Bottom up Accountability

- Google – U.N.Habitat propose that, services can be improved as citizens, are better equipped to make the right choices and find new solutions to meet their needs
  - Hence, access to relevant information has the power to empower citizens
  - it can assist service providers and decision-makers to become more responsive
1. HOW WILL PEOPLE BEHAVE?
  2. WILL THEY TRUST THE INFORMATION, THE SYSTEM, THE OTHER?
  3. WHICH ARE THE INSTITUTIONS PERCEIVED AS TRUSTWORTHY?

# Questions that cannot be answered in a small scale

- How to provide useful incentives to participate in the human sensor network?
- How to build methods that aggregate and filter the overload of information over time and space for different users?

1. How to bring local spatial knowledge in concordance with the extensive reach of virtual globe capabilities?
2. How to integrate arbitrary and uncertain data into the Sensor Web?
3. How to deal with issues of validation and credibility?

# Increasing Convergence of Three Phenomena:

1. Widespread use of GPS and image-based mapping technologies by professionals and expert amateurs;
2. Emerging role of Web 2.0, wikis, and standards based authentication processes to contribute information to the Web; and
3. Growth of social networking tools, practices and culture.

# Crowdsourcing

Voluntary Geo info (V.G.I.) based efforts are the example of information infrastructures of the future: based on open technologies and practices, NOT formal organizations, mainly

Using the experience of the crowds (customers, users, employees, dispersed set of professionals)

OPEN INNOVATION and spillovers...



**PROVIDED THE "PLATFORM",  
PARTICIPATION IS 'OPEN'...**

**BUT THE ASSUMPTIONS  
UNDERLYING OPEN  
PARTICIPATION CANNOT BE  
TAKEN FOR GRANTED  
EVERYWHERE**

# FLOSS-like projects in developing contexts

- No excess of resources
- Technical skills absorbed by private companies
- No “high trust” societies (like Scandinavian) or groups (academicians)

# Institutions are recognized social models

- Trust not only at the individual level, expectations regarding each other's future behaviour

To tackle Scalability: Switch of regulatory context (like bank rules in Kenya, large FOSS systems in development)

# Therefore...

- ...legitimation of what circulates on a communication network is a central issue, and
- Does NOT depend on information itself, only

Institutions as accepted social model  
(not just actors' authoritativeness and authority) legitimize info and behaviors

# “What is the current need for M&WCs in the area?”

Societal and Organizational Aspects are “entangled” in all aspects of IT implementation and use

What can be possible applications of M&WCs in the area that can really make a difference in the future?

**The ones which intercepts existing institutions and scale within/along them**

# “What can be done to increase the usage of M&WCs in people’s daily life?”

**Understanding people’s daily life!**

(with exploratory research methodologies, prototypes, openness, etc)

What are the biggest challenges you encounter/view in the area?

Separation of research disciplines

**“Concerning user acceptance, what are the social or cultural aspects that need to be addressed?”**

It's a matter of empirical exploration

**What might be the legal or regulatory challenges?**

The fragmentation of the regulatory settings when a system scales up

# Questions?

Thanks, (for any further issue:  
miscione@itc.nl)