Authors

- NancyRose Njeri Njoroge
- Florence Maweu
- Dr. Michael Kimwere

ICT &COMMUNITY DEVELOPMENT

Boosting innovation through mobile phones

Case study of Laikipia County

Background of the study

- Information and communication technology application are currently practically in every aspect of humanity: they dominate our private lives as well as our daily work
- The successful uptake of the mobile phone throughout the developing world has significantly impacted economic development initiatives. From 1999 to 2009, mobile phone penetration rose from 12 per cent of the global population to nearly 76 per cent (ITU 2011)
- Similarly, the penetration of mobile service in Kenya has reached 64.2 per 100 inhabitants (CCK 2011). At the end of June 2011, Kenya had 25.27 million mobile subscribers.
- Kenya's high mobile penetration rate and subscription number indicates that mobile technology is a promising business opportunity, and an indispensible tool for empowering the country's citizens, especially its rural poor.

Problem

The poor are deprived of basic resources as well as

1. Lack access to information that is vital to their lives and livelihoods: Information about
   - ❖ Market prices for the goods they produce,
   - ❖ About health,
   - ❖ About the structure of public institutions and about their rights.
   - ❖ They lack political visibility and voice in the institutions and power relations that shape their lives.

- They lack access to knowledge, education, skills & development that could improve their livelihoods.

Problem Statement

- According to Donner and Tellez, (2008) people with access to mobile phones, and who have the money to pay to use them, can obtain and give information as and when the need arises.
- Despite their proliferation, the poor still lack access to information that is vital to their lives and livelihoods: information about market prices for the goods they produce, about health, about the structure of public institutions and about their rights.
- Notably, mobile telephony has brought new possibilities to the continent. Across urban-rural and rich-poor divides, mobile phones connect individuals to individuals, information, markets, and services. (Aker & Mbiti, 2010). However, results from Laikipia indicate that there is minimal or no use of ICT in these areas by residents
-

Objectives

- Main objective: boosting innovation through mobile technology
- Specific objectives:
  - ✓ To establish the prevalent information and communication technologies available in Laikipia County;
  - ✓ To explore the use of the available ICT by residents of Laikipia County
  - ✓ To determine ways of improving the use of mobile phones for community development by residents of Laikipia County.

Consequences of Mobile Phones for Economic Development

- Potential mechanisms through which mobile phones can provide economic benefits to consumers and producers
  - Mobile phones can improve access to and use of information, thereby reducing search costs, improving coordination among agents and increasing market efficiency.
  - The increased communication should improve firms' productive efficiency by allowing them to better manage their supply chains
  - Mobile phones create new jobs to address demand for mobile-related services, thereby providing income generating opportunities in rural and urban areas
  - Mobile phones can facilitate communication among social networks in response to shocks, thereby reducing households' exposure to risk
  - Mobile phone-based applications and development projects—sometimes known as "m-development"—have the potential to facilitate the delivery of financial, agricultural, health and educational services.

How Mobile Phones can Reduce Search Costs and Improve Markets

- Asymmetric information abound in markets in Africa. As a result, households and firms use numerous avenues to search for information in a variety of areas: input prices, output prices, jobs, potential buyers and sellers, natural disasters, new technologies, politics, and the status of friends and family members.
- Search theory predicts that lowering search costs for output prices will change market agents' reservation prices and increase the number of markets over which consumers and producers search (Baye, Morgan, & Scholten 2007), thereby improving market efficiency.
- Prior to the introduction of mobile phones, search costs were prohibitively high and traders (or farmers) did not engage in arbitrage between high (H) and low (L) production areas. Once mobile phones were introduced, traders are able to learn about prices in each region and begin trading

How mobile phones improves coordination among firms

- Information technology has the potential to increase productivity growth in Africa, especially of small-scale firms. In the literature from industrialized countries, Litan and Rivlin (2001) found that the Internet improved management efficiency of U.S. firms.
- By improving communication between firms and their suppliers, mobile phones can enable firms to manage their supply chains more effectively, streamline their production processes, and engage in new activities (Hardy, 1980; Roller & Waverman, 2001).
- This would reduce stock-outs and interruptions in production, which are of particular concern for small-scale firms in rural areas with limited supply options. Qualitative research in South Africa and Egypt suggests that mobile phones were associated with increased profits, significant time savings, and improved communication with suppliers for small-scale firms (Samuel, Shah, & Handingham, 2005).

How Mobile Phones Can Generate Additional Employment

- One of the most direct economic impacts of mobile phones in Africa is through job creation. With an increase in the number of mobile phone operators and greater mobile phone coverage, labor demand within these sectors has increased (CCK, 2009).
- Because most Africans use prepaid phones (or “pay as you go”), mobile phone companies had to create extensive phone credit distribution networks in partnership with the formal and informal sector. Thus, small shops that have traditionally sold dietary staples and soap now sell mobile phone credit (airtime), particularly in small denominations.

How Mobile Phones Can Reduce Risk

- Sub-Saharan Africa is an inherently risky environment. Covariate shocks, such as natural disasters, conflicts, and epidemics, routinely affect households. Kinship ties play both important social and economic functions in African society, specifically in creating informal insurance networks, increasing access to credit and savings, and reducing risk (Grimard, 1997; De Weerdt & Dercon, 2006).
- At a basic level, mobile phones improve communications among members of a social network both within a country and across international boundaries. In dealing with environment risks and extremes of weather conditions; ICTs act as an early warning system. Arunachalam (2004), studying a micro-level ICT project focusing on knowledge centers in a cluster of ten villages in Southern India, found that the information obtained enabled fishermen in the coastal area to know when it was safe to venture into the sea.

Other Mobile Phone Development Projects (m-Development)

- Agriculture-By reducing communication costs, mobile phones may assist farmers in identifying potential buyers or facilitating the purchase of inputs in rural areas (Aker 2011). Mobile phones may also help with agricultural extension outreach.
- Health-According to WHO (2011), the collaboration with technologies and extensive adoption of social media has ensured the world that healthcare organizations are keeping pace with changes in patient needs
- Governance-Mobile phones have been used in other ways to foster good governance, mainly via voter education and citizen-based monitoring often called “crowdsourcing.”

M- development cont..

- Education and training-Simple and affordable mobile phones are being used as a means to promote literacy for adults in Africa (Aker, 2009). Such is the case in Niger, the use of text messages has been relatively limited, in part due to high illiteracy rates. In addition to the normal literacy curriculum, adult learners in Niger are taught where to find letters and numbers on a mobile phone and how to send and receive text messages
- Banking- A large body of theoretical and empirical literature suggests that the expansion of banking and financial systems can have significant impacts on economic growth and poverty in developing countries (Banerjee, 2004; Burgess & Pande, 2005; Levine, 2005).

Methodology

- Research Design- Descriptive (because it was concerned with conditions as they exit)
- Population and Sample size- residents of Laikipia County in Kenya, simple random to select a sample of 100 residents
- Data collection tools- Questionnaires complemented by interviews.
- Data analysis- Statistical package for social science

Findings

- The prevalent ICT is mobile phones (99%)
- Others ICTs were also in use though in decreasing numbers.
- Resident are not able to fully exploit the advantage ICT-mobile phones offer:
- They don’t use mobile for information search
- They still rely on their traditional methods of farming
- They agree that there is creation of additional employment
- The agree on mobile phone and risk reduction
- On m-development, few majority have not yet embrace the services that mobile phone offers. Only m banking was found to be popular with close to 99% admitting to be using the service.

Conclusion

- Although ICT is largely in use, in the county, it is only used for the basics.
- They resident use phones for calling and texting
- This is due to inability to use the other features of their phone
- The study recommends that ICT education should be addressed at policy level to ensure that it becomes a core component of the curriculum.
- Intervention training is required for the out of school population to increase ICT literacy if the county is to benefit from the high prevalence of ICT in the communities

References

- Aker, J., (2011). *Dial A For Agriculture: a review of information and communication technologies for agricultural extension in developing countries*. Agricultural Economics
- Aker, J., & Mbiti, I. (2010). *Mobile Phones and Economic Development in Africa*. Journal of Economic Perspectives, 24(3)
- Aker, J. C., Michael Klein, and Stephen A. O'Connell. 2010. "International and Intra National Market Segmentation and Integration in West Africa." Unpublished paper.
- Aker, J.C., Ksoll C., & Travis J.L., (2010*) "ABC, 123: Can You Text Me Now?*" Unpublished paper, Tufts University.
- Aker, J. C. (2009). *"Mobile Phones and Economic Development in Africa." Invited presentation at the Center for Global Development*, Washington, D.C. http://www.cgdev.org/doc/events /08.25.09/Cell_Phone_Survey_CGD_26aug09_ Final_Public.pdf.
- Anwer M. (2007). *ICT for a better society* in proceeding of 9th international Conference and
- Information Technology. (ICCIT) Bangladesh
- Arunachalalm, S. (2004*). Information and communication technologies and poverty alleviation, special section: Application of S & T to Rural areas*, Current Science.
- Bandiera, Oriana, & Imran R., (2006)."*Social Networks and Technology Adoption in Northern Mozambique*." The Economic Journal, 116(514): 869–902.

Q&A

- Thank you