



# Kenya's ICT Sector, Mobile Money and the Transformation to a Middle-Income Country

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## Introduction

This article is a summary of a longer report researched during May-July 2012 through interviews and desk research and published in Japanese. Statistics used have been updated.

In 2010, the World Bank reported that Kenya's economy was at a "tipping point". A critical mass of positive factors had built up and the country seemed to be on the edge of a period of rapid growth. The Bank identified the expanding ICT sector and its influence on other sectors as key to this new period of development <sup>★1</sup>. However, Kenya's economy deteriorated in the period almost immediately the prediction was made. The global economic crisis and a series of internal problems including a highly volatile exchange rate, vulnerability to rising oil prices and a rate of inflation that stood at almost 20% in January 2012 reduced GDP growth significantly during 2011 and first half of 2012. As of early 2013, when this report was submitted, the economy is again stable and the rate of inflation reduced to single figures. However, the World Bank notes Kenya is still vulnerable to both negative international and internal pressures.

The ICT market is growing, but is still quite small, with the notable exception of mobile money, which has brought about a revolution in access to financial services for Kenyan citizens. The potential for rapid economic growth still exists, with strong indications that the foundations of the national development and growth strategy, "Vision 2030", are now in place.



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## **Background of Increased Confidence**

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In 2006, the Government of Kenya announced its Vision 2030, a blueprint for economic and social development and growth covering the period 2008 to 2030. The goal is to transform Kenya into a middle-income country<sup>★2</sup>. Many of the Vision's foundations are now in place and are becoming visible as examples that government programs can deliver tangible results on promises made, and that the envisaged transformation is underway. They include:

- The fact that infrastructure projects are producing results with new, modern highways linking the major cities. Within this, a program to expand and upgrade the road network throughout the capital Nairobi is near completion. In addition, ground has been broken on a new commuter rail network for the capital. Finally, energy generation capacity and energy delivery are being improved.
- Four submarine cables have landed, bringing 5.7 Terabits per second capacity, resulting in faster and cheaper connectivity to the Internet. There were 30.4 million mobile subscribers as of 30 September 2012; mobile penetration is at 77%, with an estimated 13.5 million Internet users<sup>★3</sup>.
- A new constitution promulgated on 27 August 2010 enshrined citizens' rights and modernized government and modes of governance. The constitution devolves power and accountability to 47 counties in a program the World Bank described as one of the most ambitious in the world<sup>★4</sup>. Supporting this devolution of power, the constitution requires transparency and accountability from all levels of government. Reflecting this requirement, the Government of Kenya has begun a national open data project, the first and most extensive of any developing country.



- New legislation has been rolling out updating the legal regimes of all sectors: In ICT, a comprehensive Communication Amendment Act (2008) introduced a converged regulator together with regulations to reform media ownership, and established both a modern competitive regime and consumer rights, among other provisions. Draft bills are currently tabled on freedom of information, data protection, and government open data, among others.

These positive developments have been strengthened by a commitment to a multi-stakeholder model of participation in ICT policy development that involves civil society, the academic community, communications industry and government.

### Kenyan ICT Sector

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Since 2000, Kenya's ICT sector has outperformed all other segments of the economy, growing by 23% during the decade to 2011. The ICT sector is dominated by the success of mobile phone penetration and concomitant innovative new services driven by this, especially that of mobile money and mobile apps, for which Kenya has a strong reputation. The IT services sector is less well developed; it is led by international companies rather than domestic players, and is much smaller in terms of revenue and influence on the economy. However it has great potential.

There were 30.4 million mobile subscriptions as of September 2012, representing 77% penetration. Safaricom (a member of the Vodacom group) is the dominant operator with a 63.2% share of subscribers. Airtel, Telekom Kenya (Orange) and Essar YuMobile had market shares of 16.8%, 10.2% and 9.9% respectively in the same period. Safaricom's revenue market share is approximately 80%, and its traffic market share more than 75%. Safaricom is very much the dominant player in the communications sector.

Internet subscriptions increased from 7.7 million in June 2012 to 8.5 million, with a total number of Internet users estimated at 13.5 million, almost double that of the past year. Mobile Internet users continued to dominate the Internet market with more than 98% of total Internet data subscriptions<sup>★5</sup>.

Kenya now has more mobile phone subscriptions than adult citizens<sup>★6</sup>, and 80% of those over 15 years of age use mobile money, a very rapid adoption rate given that the first mobile money service was introduced in March 2007.

The ICT sector is important to the national economy, and the impact of mobile money services in particular has been enormous. In 2006, only 20% of Kenyan

adults had access to financial services. Over the last five years, the majority of the population has gone from being unbanked with no access to financial services, to having the opportunity to conduct financial transactions and save.

## Mobile Money Transformative Impact on Kenyan Citizens

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### MOBILE MONEY: THE M-PESA MODEL

No traditional bank infrastructure is needed.

A customer makes a deposit at a mobile operator's money agent. With funds now in their mobile money account, the customer can send money in the form of an SMS to anyone with a compatible account. The receiver can withdraw the funds from any of the mobile operator's money agents, buy airtime – a very common use – or use the money in an increasingly wide variety of online services, for example:

- Transfer mobile money from a bank account held with a bank partnering with their mobile operator, including loans and receiving interest on deposits.
- Register their funds with a prepaid ATM card and withdraw money stored in their accounts from standard ATM machines.
- Mobile money can be used to buy goods in some supermarkets and other stores that are part of the mobile operator's network.
- Mobile money transfers are increasingly being used to pay regular utility bills such as water and electricity bills, and school fees.
- Money can be sent from overseas to M-PESA accounts via Western Union, and prepaid Visa cards allow withdrawals overseas.
- Interfaces between mobile money services and online services are opening up opportunities for online Internet commerce.

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All four Kenyan mobile service operators have a mobile money product:

2007 - Safaricom launched M-PESA

2009 - Zain Kenya (now Airtel) launched Zap Money (now Airtel Money)

2009 - Essar/YuMobile launched YuCash

2010 - Telkom Kenya (now Orange Kenya) launched Orange Money

There are more than 19 million mobile money customers (see Table 1), 45% of the population and more than 80% of the adult population. The reduction in the



overall number of subscriptions is due to the decline in Airtel subscribers during the quarter.

Total mobile money deposits between June and September 2012 amounted to more than 205 billion KSh (approximately US\$ 2.35 billion), overall in 2012 the mobile money system transferred more than 800 billion KSh (US\$ 9 billion), representing almost 30% of Kenya's GDP<sup>7</sup>. On average, each mobile money user transferred almost 10,000KSh or approximately US\$ 115 during the quarter.

An important pattern of use is for money to be transferred from the larger towns, particularly Nairobi, to rural areas. The remittance of money to families and friends is a reflection of the high numbers of internal economic migrants moving from rural to urban areas. Many subscribers use mobile money to buy airtime to top up their mobile phones. Airtime can be sent to other users and is a way to ensure family and friends in remote areas can keep in contact.

This rural/urban use pattern has also caused the service and agent network, currently numbering more than 54,000, to spread across the country, which has provided a boost for employment and small business start-ups. As more sophisticated banking services have been added to the mobile money platforms, so the equipment quality, together with the literacy and skills levels of the agents has been raised. The agents themselves tend to be more entrepreneurial and are becoming important drivers of change and innovation.

Mobile money has also made possible "just-in-time" payments. Plyler, Haas and Nagarajan's (2010) study of M-PESA use found that "Many participants noted that agricultural productivity has gone up –even in areas experiencing drought– because M-PESA enabled the fast transfer of capital when it was most needed. In instances of a farmer running out of seed or a family needing to hire casual labor,

Table 1: Mobile Money Transfers

Mobile Money Transfer	Sept. 2012	June 2012	Quarterly Variation (%)	July-Sept. 2011	Variation (%) over the same period 2011
Subscriptions	19,318,684	19,505,702	-1.0	18,414,667	4.9
Number of Agents	54,409	49,079	10.9	44,922	21.1
Total Deposits (KSh) quarterly	205,665,717,834	192,732,972,370	6.7	117,369,930,600	75.2

Source: Communications Commission of Kenya (CCK) (January 2013).

M-PESA facilitated the fast and safe transfer of funds to deal with expenses<sup>★8</sup>.” This somewhat consistent with the economic ideas proposed by Abhijit Banerjee and Esther Duflo in “Poor Economics: A Radical Rethinking of the Way to Fight Global Poverty”, and their finding that the poor often resist up-front investment, even when supported by low cost or free loans, particularly in the agricultural sector, instead reacting as situations arise. Mobile money appears to support these natural behaviors.

Mobile money has also encouraged people to change their savings and financial habits, and also changed how the traditional financial sector views the market. A survey conducted in 2009 by MIT and Georgetown universities found that 81% of respondents (in a 3,000 person random survey) used M-PESA for saving<sup>★9</sup>. More entrepreneurial mobile money agents have begun offering additional financial services, for example selling insurance, further spreading the range of financial services available to poorer and rural areas. Furthermore, traditional banks have seen the success of mobile money and begun to offer services tailored to lower-income customers such as smaller loans, while lowering the minimum deposit needed to open accounts, among other measures. Banks have also started partnering with mobile operators to offer a range of online services. Mobile money has helped the traditional financial sector see new opportunities in serving lower income customers, and has made citizens more aware of the importance and accessibility of financial services.

Vision 2030 noted that to meet the plan’s growth targets, a new culture of saving must be created. National savings should almost double from 14% in 2007 to about over 25% of GDP by 2030<sup>★10</sup>. The mobile money movement and extension of financial services to the poor is making this culture of saving possible.

Table 2: Mobile Money Growth and M-PESA, 2007-2012

	2007	2008	2009	2010	2011*	2012**
Number of Agents	527	3,011	10,735	31,902	44,922	54,409
Number of M-PESA Agents	513	3,011	10,735	18,977	32,480	45,540
Number of Total Registered Mobile Money Customers/Accounts (Million)	0.18	3.04	7.39	10.44	18.41	19.31
Number of Registered M-PESA Accounts (Million)	0.17	3.04	7.15	10.23	14.87	15.23

\*September 2011, \*\*September 2012.

Source: Communications Commission of Kenya (CCK) and Safaricom.



## Mobile Phone Use

Research published in December 2012 by two Nairobi-based organizations, iHub Research<sup>★11</sup> and Research Solutions Africa (RSA), for the World Bank's infoDev project, describes the sacrifices Kenya's poor are willing to make to keep using their mobile phones<sup>★12</sup>. The study examined mobile phone use by Kenya's poor, the "Base of the Pyramid", which it defined as those living on less than US\$ 2.50/day, the World Bank's criteria of poverty. iHub and RSA provide convincing evidence that most Kenyans consider mobile phones to be a necessity.

The study identified that 60% of those surveyed owned a mobile phone, but 82% had an active SIM card, which meant they had their own number and credit to use when they were able to borrow a phone. All respondents said they made and received calls, 83% sent and received text messages and 77.9% sent and received money, while 48% said they transferred airtime to other users. To use these services many would regularly sacrifice buying some other good or service; for the majority this meant buying less food or walking rather than taking a bus. Such sacrifices were often made for practical reasons, for example a third of respondents said their phone gave them opportunities to find casual employment.

Of the respondents 46% said they used an Internet-enabled feature phone (9% of those a smart phone) while 25% of respondents used their phones to browse the Internet. However, very few use or are aware of data packages and instead use pay-as-you-go data plans.

A different message about the importance of mobile phones came from a discussion with the owner of a medium-sized flooring and carpet company who described how mobile phones and mobile money had helped his business. With employees traveling across the country to deliver and fit carpets and flooring, he had vehicles on the road all the time: they broke down, ran out of petrol, or a job took longer than expected and staff had to find accommodation, etc. Most manual labor employees carry very little money of their own, probably not enough to mend a tire or pay for extra time away. Mobile money transfers, including sending airtime so staff are always in-touch has made his business more efficient and saved money. It is more secure as staff do not have to carry additional emergency funds. In other words the ability to access mobile money provided both a quick and safe solutions to multiple problems.

When a job is complete, staff use their mobile phone camera to take pictures of the finished work and send the images back to the main office for review to make

sure the floor or carpet is cut and laid correctly: if the manager is satisfied, they leave the site. Complaints from customers and the need for expensive revisits to make minor alterations have decreased significantly. These two simple and now almost ubiquitous services, mobile money and mobile phones, had greatly improved his business. SMEs are having experiences of this type in all sectors.

## Regulatory Light-touch

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The ICT sector generally and mobile money specifically have both benefited from a favorable regulatory regime. The Ministry of Information and Communications (MIC) has taken the view that markets should be allowed to develop and innovation should be encouraged before regulation is introduced. For example, comprehensive reform of communications legislation was only introduced in 2008, by which time rapid growth of the mobile sector was well underway.

MIC also influenced the Central Bank of Kenya (CBK) to take a wait-and-see approach to the use of mobile money, allowing Safaricom initially to self-regulate. CBK officially opened banking channels for non-bank agents with an amendment to the Banking Act passed in 2009, around the time other operators began providing mobile money services in competition with Safaricom. CBK issued a Guideline on Agent Banking in 2010, which describes agents' and other entities' "requirements, responsibilities, and permissible activities"<sup>13</sup>. By 2010 Safaricom had already developed its own agent guidelines describing the expected conduct of its agents.

ICT policy has been developed in a strong multi-stakeholder environment since 2004, supporting a number of government initiatives to promote ICT use:

- Arrival of four submarine cables between 2009 and 2012 (three between 2009-10), first to land being the government-led TEAMS.
- Investment in terrestrial infrastructure, most important being the government-led National Optic Fiber Backbone Infrastructure (NOFBI).
- Introduction of a unified licensing regime, which simplified the market structure, allowing operators to provide different types of communications services (mobile voice, data/Internet, international gateways).
- Introduction of maximum mobile termination rates resulted in mobile voice tariffs drop to half the previous costs. Kenya now has among the lowest mobile tariffs in Africa.
- Through the ICT Board, initiatives have been launched to encourage local



content and applications development, and community ICT projects.

Government has stepped in with positive measures when required, more often than not partnering with industry rather than going it alone, and done this within a light-handed regulatory framework. This approach has served the sector well.

## Kenya's IT Service Sector

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The ICT sector is dominated by the success of mobile phones, mobile money and to a certain degree, the development of apps. The IT services sector is less well developed, it is led by international rather than domestic companies, and is much smaller in terms of revenue and influence on the economy.

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### KENYA'S REGIONAL ADVANTAGE

Among its East African Community (EAC) neighbors Kenya has the most sophisticated economy: the workforce is the region's most educated, it has the most diversified market, enjoys good access to capital, and, after recent investments, the best communications, energy and transport (domestic and international) infrastructure. Local and international businesses have commented that Kenya is private sector-driven, has a well-developed risk capital market and provides a good environment for nurturing entrepreneurship and financing new small and medium-sized business.

Kenya's domestic market of approximately 40 million people is increasingly integrated with the EAC, a market of 130 million with a middle class estimated at 30 million consumers. With connections to Ethiopia being opened up, adding that country's 84 million population creates a connected regional internal market of more than 220 million people.

Nairobi is becoming a popular headquarters location for multinational companies. For example Bharti Airtel, Google, Coca-Cola and Toyota as well as the World Bank and IMF all have their Africa headquarters in the city. Companies such as Visa, PriceWaterhouse, MasterCard, Pfizer, Nokia, Citibank, Cisco, Microsoft, Ericsson, Nokia/Siemens, Huawei, Procter & Gamble, Beiersdorf, Barclays and Standard Chartered Bank all have their regional hubs or hubs serving sub-Saharan Africa in Nairobi. African multinationals such as Ecobank, Stanbic, United Bank for Africa and Equity Bank are also located in Nairobi. This growing collection of multinationals, many in the service sector, also have a high demand for IT services.

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The total spending on ICT during 2010 was US\$ 3.5 billion, with telecommunication services accounting for US\$ 2.7 billion and IT (hardware, software and IT services) totaling US\$ 746 million. IDC estimates the IT sector would grow to US\$ 868.7 million in 2011, with a compound annual growth rate of 15.5% to reach US\$ 1.5 billion in 2015. Between 2001/02 and 2009/10 US\$ 3.2 billion was invested in mobile services, US\$ 3 billion in fixed telephone services, and investment in three fiber optic cables estimated at US\$ 700 million. An additional US\$ 60 million was invested in Internet at data services between 2006 and 2010<sup>★14</sup>.

The top five vertical sectors contributing to IT spending in 2010 were communications (20.5%), consumer (14.9%), government (14.7%), finance (12.9%) and manufacturing (7.2%). The communications and finance sectors are strong, reflecting demand from the arrival of new multinationals. While there are many new government IT projects, when, in 2010 the government announced it would move to shared services and consolidated systems across ministries and agencies, this led to an increase in spending in the short term on hardware, software and services. However longer-term growth is expected to mainly come from services.

There around 15 vendors at the top of the supply-side pyramid, all are multinationals and include hardware, software and services companies: IBM, Cisco, Microsoft, Oracle, SAP, Nokia/Siemens, Huawei, and others. They use Kenya as a hub for operations to serve East Africa, sub-Saharan Africa and wider regions of the continent. Vendors are growing rapidly at 15-25%/year since 2008, with the number of employees increasing by between 25-100% annually.

These vendors are serviced by local dealers, either Kenyan companies or local subsidiaries of an international firm. There are perhaps 10-15 tier 1 VARs. They include foreign owned and some partially foreign owned companies. The group also includes Kenyan companies that also do business internationally, usually in East and Central Africa. They attract most of the ICT business, between 50-60% of the ICT total, including most central government tenders.

Tier 2 players are mainly Kenyan companies, there are around 100 and they focus on the SME and SOHO markets. They often serve the domestic provincial market, they usually do not have country-wide presence and account for approximately 25% of the ICT market share. They find it difficult to retain skilled employees. Building the capacity of these local companies is one of the key challenges facing the IT sector.

Reforms of the tax code and company regulations have made it easier for foreign companies to invest in Kenya, but there are still barriers. The tax framework



on ICT imports is unclear, some types of goods are exempt, others not, sometimes VAT is applied, sometimes not. Customs procedures can be extremely slow. Complaints about inconsistencies in bureaucracy are still common, and these are problems government is actively trying to address.

The biggest challenge is the availability of qualified IT talent. In 2010, the total IT employment was around 27,000 IT professionals. IT support represented the largest portion (27%), followed by applications systems analysts and systems engineers (13% each). The ICT Board, the state corporation responsible to the ICT sector under the MIC, expects significantly more than 10,000 new professional IT jobs to be added to the workforce in the period 2011-2013.

The number of students graduating from Kenyan universities with IT related degrees should be able to satisfy demand, but students are leaving without the required skills and need on-the-job retraining, particularly in business and soft skills. There are some initiatives to bridge these skills gap through use of internships and improved linkages and cooperation between business and public sector organizations with universities.

The best students often take advanced degrees abroad and do not return. It is hoped that once the opportunities of the domestic ICT sector become more apparent, that there is more money to be made, more overseas Kenyans will return. Successful returnees have boosted other economies in transition, but Kenya has not yet seen such benefits.

A 2011 survey conducted by IDC for the ICT Board found that 80% of companies said staff attrition had an important impact on their organization. IT professionals are viewed as lacking loyalty, being migratory and subject to poaching by other firms. The nature of the sector where much of the work has been based around contracts and tenders tends to exacerbate this situation: people join a company that has won a tender, and then move on once the project is complete. The survey found that people believed there were not enough large and frequent IT projects that allowed professionals to develop their skills or to hold them in their jobs. The tendency of international vendors and VARs to bring in labor to meet specific skills, rather than training local staff was also noted as a problem<sup>★15</sup>.

Not all agree that only technical IT staff are lacking; a number of Internet service companies interviewed during our research commented on the need for digital marketing talent, content creators and managers who understand how to utilize technology.

## ICT Services in Kenya, Road to Middle Income

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Kenya is positioning itself as a global ICT hub; it is able to attract investors who want to take advantage of the ICT growth domestically, and to use Kenya as a testing ground for applications and services for use in other developing countries. Kenya is also a strong base from which to serve East African, Central African and continental African markets. If these surrounding markets continue to also grow, then Kenya will be at the heart of a nearby region with a population of up to 220 million increasingly wealthy and demanding people.

Kenya also clearly has challenges: government is still inefficient, corruption takes funds that should be used for investment in business and creating jobs<sup>★16</sup>, and until the March 2013 elections pass peacefully, the country's political future will be in doubt. However, government is improving, the level of corruption, while still high, is lower than before, and projects are actually completed. People are gaining confidence in government projects.

In the ICT sector, Kenya is a world leader in the area of mobile money, and has a global reputation for it innovation in mobile applications. However, while a name like “iHub” has become a global brand in the tech world, the very limited connections between traditional Kenyan businesses and these new start-ups and innovation centers might explain why so few of the good ideas reach the market. More local business involvement in iHub and similar centers of excellence, and more business mentors might help speed growth from the good ideas. However, there is no denying the success of mobile money and the astonishing transformation it has produced for a country where the majority of citizens lacked almost any form of financial services before 2007. Access to financial services, with all their benefits, has been brought to all but the poorest in the country and is transforming lives and perhaps the economy.

### Notes

- ★1 — World Bank, Kenya Economic Update, December 2010.
- ★2 — Government of Kenya, Vision 2030, October 2007.
- ★3 — Communications Commission of Kenya (CCK), Quarterly Report, January 2013.
- ★4 — World Bank, Kenya Country Report, 2012.
- ★5 — All statistics, Communications Commission of Kenya (CCK), Quarterly Report, January 2013.
- ★6 — Population over 15 years approximately 24.6 million, FY2011/2012, source: World Bank.



- ★7 — The Central Bank of Kenya Annual Report 2012 estimates total mobile money transfer for the year ending 30 June 2012 to be more than 1,375.8 billion KSh.
- ★8 — Megan Plyler, Sherri Haas and Geetha Nagarajan (2010), Community Level Economic Effects of M-PESA in Kenya: Initial Findings.
- ★9 — William Jack, Tavneet Suri, Mobile Money: The Economics of M-PESA, August 2010. <<http://www.mit.edu/~tavneet/M-PESA.pdf>> (last accessed June 2012)
- ★10 — Government of Kenya, Vision 2030, October 2007.
- ★11 — iHub <<http://www.ihub.co.ke/>> is a community facility focusing on young technology entrepreneurs, it offers an open community workspace, acts as an incubator and provides the opportunity to meet with investors and advisors. It also has a research section. The center is one of a number of similar innovation collectives in Nairobi.
- ★12 — Mobile Usage at the Base of the Pyramid in Kenya, infoDev World Bank, December 2012. <<http://www.infodev.org/en/Publication.1194.html>> (last accessed February 2013).
- ★13 — Central Bank of Kenya, Guideline on Agent Banking (CBK/PG/15) of 2010.
- ★14 — Source: ICT Board interviews, IDC East Africa Kenya ICT Market Survey, and World Bank.
- ★15 — Source: Kenya ICT Board, ICT Monitoring and Evaluation Indicators, March 2012 (Kenya National ICT survey Results), IDC East Africa and the Kenya ICT Board, supplemented by interviews.
- ★16 — World Bank, Kenya Economic Update 2012 estimates “if the private sector could redirect the money it now spends on corruption to creating jobs, it could create 250,000 jobs, sufficient to hire most unemployed urban Kenyans between the age of 15 and 34.”