

The Mobile Money Movement

Catalyst to Jumpstart Emerging Markets

Whenever I travel to various countries, I like to conduct informal primary research around mobile payments with my taxi drivers. Are they familiar with mobile money? Do they use it? How important is it to their daily lives? In the United States, when I tell people that I work in mobile payments, I am met with a confused response. In the United States mobile payments, or mobile money, is still a relatively unknown industry. At best, people may associate this industry with buying music or games over iPhones. In contrast, in some emerging markets, mobile money is so pervasive, that my taxi drivers can recount transaction fees from memory. On a recent trip in Kenya, I was startled to hear my taxi driver refer to Michael Joseph, the man associated with launching mPesa and former CEO of Safaricom, by name. How many CEOs of mobile operators in developed markets are household names? There is something profound taking place in emerging markets with mobile money movement... it is now a "Mobile Money Movement" with the potential to substantially alter the economic paths of the poor and emerging economies at large.

For this reason private and public sectors alike are now taking notice of this industry. Mobile finance is becoming an increasingly important topic for The World Economic Forum and for the G20 summit. Nearly 2/3 of the world's population lives in poverty: four billion people live on less than \$8.00 USD per day¹. Most do not have bank accounts, but do have mobile phones (1.7 billion

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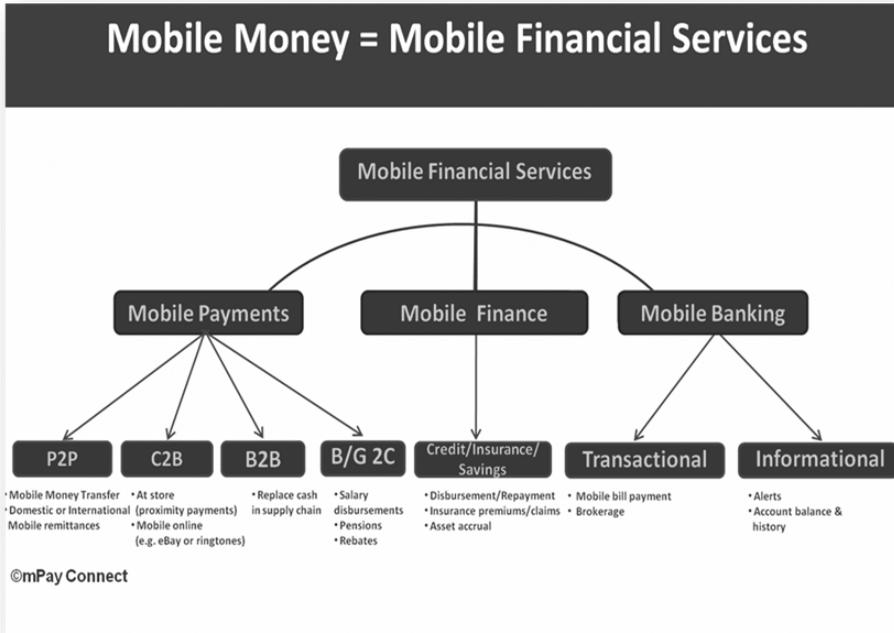


Figure 1. Mobile Financial Services

people by 2012.)² Mobile money provides an opportunity for financial inclusion to the unbanked base of the economic pyramid - the majority of the global population who has lived in the informal financial sector and who has relied on cash to conduct all financial transactions. As such, they lack access to credit, insurance, and savings. This wave of mobile money momentum, if not slowed down by other challenges inherent in these markets, will undoubtedly positively impact the course of economic growth in emerging markets for a number of reasons that are inherent within mobile money itself.

DEFINING MOBILE MONEY

What is mobile money? Ask this question to ten people in the mobile industry, and one will hear ten differing definitions. For the purposes of this discussion, I am defining mobile money as follows: In the simplest form, mobile money, or mobile financial services, is the ability to access and utilize electronic financial services, or digital cash, using the mobile phone. It is a unique money account that is separate from the airtime minutes or post-paid mobile billing account which are often used as source for micro-payments associated with services and applications used on the mobile phone. Mobile money, or mobile financial services, spans a number of financial categories including mobile payments, mobile savings, insurance, and credit, and mobile banking. Within mobile pay-

ments, “P2P” indicates payments between people domestically or internationally in the form of remittances; “C2B,” or consumer-to-business, indicates payments to merchants by customers (either online or in the store); “B2B” indicates payments between businesses to reduce cash in the supply chain upon inventory delivery; and “B/G2C” indicates business or government salary payments to its employees and government benefit and pension disbursements to its citizens.

Each of these categories represents varying global market opportunities. Retail purchases are, by far, the largest market bringing approximately \$21 trillion in volume globally in 2007 and growing to \$30 trillion by 2014³. An additional large market includes international remittances, which will grow from \$230 billion in volume to \$1 trillion in volume by 2012.⁴ Many mobile money systems in emerging markets have focused on the P2P remittance space. This focus is driven by the informal P2P money flows upon which the people in those markets depend. Mobilizing remittances enables a substantially higher value proposition over existing cash transfer services due to more reliability, less likelihood of theft, and greater speed in reaching remote recipients. Mobile microfinance loan disbursement, repayment, micro-insurance, and asset accrual services are additional areas which are receiving significant attention in emerging markets and represent \$6.6 billion in assets⁵.

FORECASTING THE IMPACT ON EMERGING MARKET REAL GDP: THE M-PESA CASE STUDY

Although Kenya was not the first mobile money system to launch P2P mobile money services, it has become the most prolific case study. In March 2007, the mobile network operator Safaricom commercially launched m-Pesa mobile money system for the Kenyan market, where the vast majority of the population was unbanked (81%).⁶ While only 19% of the population had access to a bank, 55% had access to mobile phones.⁷ It was believed that mobile financial services, provided by the mobile network operator Safaricom, who had much better market penetration than banks, could reach customers who had been left out of the formal financial services system through their agent airtime top up networks - otherwise known as their human ATM system. They were correct.

By October 2010, the m-Pesa mobile money transfer system had over 12 million users out of 17 million mobile phone subscribers, representing over 70% penetration of the mobile subscriber market, or 57% of the adult population.⁸ The adoption rates of the payments system were so staggering, that Vodafone, the parent company of Safaricom, had difficulty meeting the demand.

Not only did the adoption rates of the system grow exponentially, so too did the volumes being transacted. By 2010, the equivalent of \$400 million USD, or

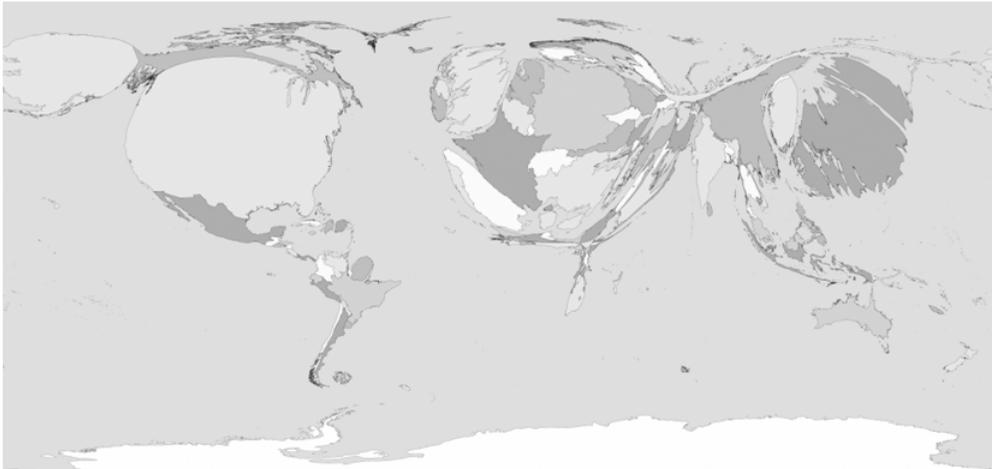


Figure 2a. Today's GDP Cartogram...

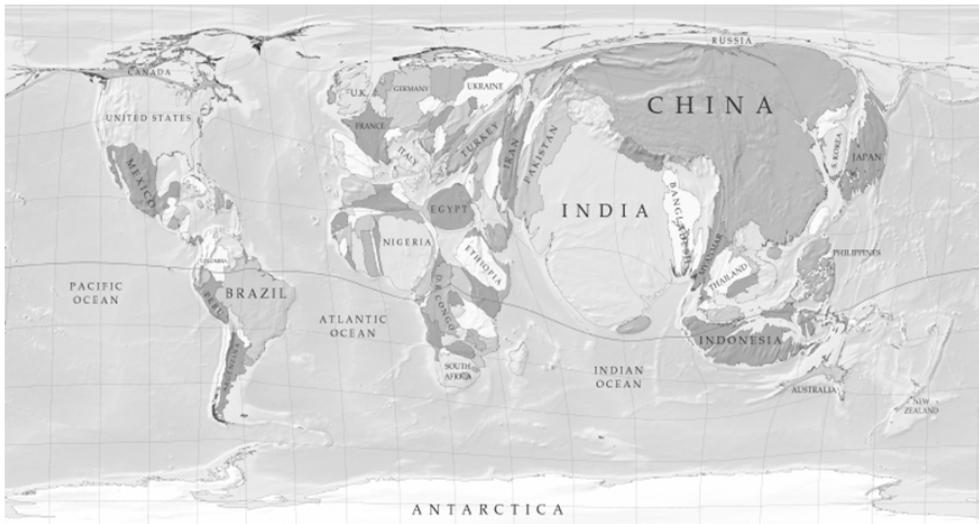


Figure 2b. Example of Future GDP Cartogram¹⁴

21% of Kenyan GDP⁹, was passing through the m-Pesa system monthly in a market where the per capita yearly GDP is approximately \$868.¹⁰ Compare this volume with PayPal Mobile's claims of \$600 million of volume passing through the mobile channel for the entire year of 2009¹¹ in a country where the per capita GDP is nearly 60x that of Kenya's¹².

Many argue that no other emerging market will enjoy the same level of exponential mobile money growth that Kenya has witnessed. They believe that Kenya had the "perfect storm" of demographic, socio-economic, political and business factors that led to this adoption rate. Whether this is true is yet to be

seen. However, regardless of the speed, mobile money adoption will occur in other markets with similar socio-economic factors including significantly high unbanked populations (dependent on cash) and high mobile penetration rates. Similar to the case in Kenya, the impact that mobile money systems will have in these other markets will positively affect the GDP growth for those markets as well. In fact, one can imagine that the relative GDP sizes of developed vs. emerging markets will change substantially in the next decade due, in large part, to the positive economic effects mobile money will unleash.¹³

LINKAGES BETWEEN MOBILE MONEY AND GDP

Mobile money is the intersection between mobile telephony and digital currency. Studies have shown that mobile telephony leads to a rise in GDP. Similarly, digital currency, as a replacement for cash, is recognized to have the same effect.

A number of studies done concluded that a 10% rise in mobile subscribers in emerging markets will lead to a .6% to 1.2% increase in GDP in those markets due to the productivity gains associated with communication as well as new jobs.¹⁵ The studies further noted that the effect mobile telephony has on GDP is greater in emerging markets where connectivity is critically dependent on mobile telephony (where computer-based Internet penetration lags significantly.)

Similarly, Moody's conducted a study in 2009 (mostly focused on developed countries with credit and debit cards) which cited that digital currency, as a replacement for cash, delivered an additional \$1.1 trillion to the global economy from 2003 to 2008, representing a .5% increase in GDP globally (during a period when the real global GDP rose only 3.4% on average.)¹⁶ This \$1.1 trillion increase represented 4.9 million new jobs and was influential in driving consumption. In China and Brazil, or in large emerging markets, the effects on GDP were even more substantial with an over 1% increase to their GDP. The study cites that the reasons why GDP increased were due to efficiencies that digital currency provided over cash including: an increase in convenience, the capturing of assets in deposit accounts rather than "under the mattress," the reduction of the untaxable "gray economy," and the reduction of fraud risk.

Specifically providing financial access to the poor has significant per capita GDP impacts as well. Economists Robin Burgess and Rohini Pande first published research in 2003 on the impacts of financial access to the poor in India. In this study, they indicated that every "1 percent increase in the number of rural locations banked per capita reduced rural poverty by 0.42 percent." In addition, they noted that economic activity increased by .34%.^{17,18}

Mobile money has many other secondary affects which lead to a rise in GDP including reducing costs of money transfers which can result in higher remittance inflows, and capturing cash in the market for savings, investment,

and further remittances. It also bolsters adjacent industries. For example, mobile money enables conditional cash transfers, performance-based funding, prepaid savings, credit, and micro-insurance. These financial tools significantly boost the healthcare industry by enabling better quality healthcare, better accessibility to services, and better affordability of those services. Better healthcare results in healthier people who can be more productive. More productivity boosts GDP. All of these affects stemming from mobile money, as well as others noted later, positively impact GDP growth.

At the time of writing this article, no quantitative research had been published directly linking mobile money with GDP growth. Studies had shown, however, that within 2 ½ years of launching m-Pesa, the income levels of Kenyan households using that mobile money service had risen by 5-30%.¹⁹ Combining the reach, connectivity, and cost benefits that mobile brings with the efficiencies of digital currency will lead to overall economic growth. In the next section, we explore the forces inherent in mobile money which affect the levers that drive GDP.

THE FIVE FORCES INHERENT WITHIN MOBILE MONEY THAT DRIVE GROWTH

Mobile money will spur economic growth in emerging markets because of the forces inherent to mobile money itself. Specifically, these forces include:

1. the ubiquity of data transmission that mobile provides;
2. mobile money as a new industry;
3. mobile money as an infrastructure supporting new businesses and other industries;
4. the infusion of new capital from the informal sector; and
5. the efficiency gains that digitization of money enables.

1. Mobile money leverages mobile devices/networks to reach people who were previously unreachable

Mobile money leverages another infrastructure, namely mobile, which is the most ubiquitous data transmission device in history. Indeed, mobile service reaches people far out of reach of traditional banks. In March 2009, there were 4.1 billion mobile users out of the global population of 6.5 billion.²⁰ In Africa, the number of mobile subscribers is now 450 million, larger than the aggregate populations of the United States, Canada, and Mexico.²¹ To put this in further perspective, by 2013 there will be over 5 billion mobile phones globally. In contrast, there will be only 2 billion computers, 1 million ATMs, 500,000 bank branches, and 250,000 Western Union outlets.²²

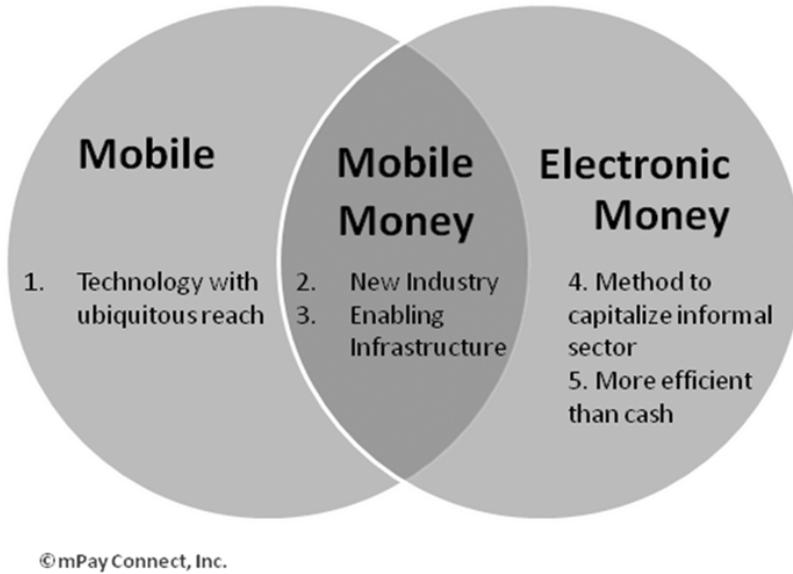


Figure 3. The Five Forces Inherent Withing Mobile Money

Not only do mobile payments have the ability to reach these customers, it can do so with a device that already exists in the customer's hands, utilizing a data connectivity network which already is set up with a cash-in (and, eventually, cash-out) network of agents that already exist. In other words, the cost to distribute the mobile financial service is no longer tied to additional hardware deployments, new ATMs, or new branch offices. This does not suggest the cost of mobile money is trivial. The upfront investment to set up mobile money services is non-trivial. However, these costs are lower than the costs associated with setting up branch stores, electricity infrastructure for those stores to operate, and the roads that would need to be built to support these traditional banking branches. In addition, the ongoing costs of doing business are reduced dramatically. A study released by Fiserv, a Fortune 500 financial services technology platform company, compared the costs to support a financial transaction. In the U.S. if the transaction was serviced by a bank branch, the cost to the bank was \$4.00. If serviced by a live customer service representative over the phone, the cost was \$3.75. The same transaction cost \$1.25 if serviced by an automated voice response system and only \$.08 if the mobile phone was used.²³ It is true that the bank and live customer service costs would likely be less in emerging markets due to lower labor costs, but the cost differential between branches and mobile even in these markets are still in the order of 100+ times.

Furthermore, the ROI of setting up a retail branch in remote geographies that lack basic infrastructure such as roads and electricity is a non-starter.

Of course, this cost differential becomes exceedingly important when considering financial inclusion for the base of the world economic pyramid. Low cost of setup and servicing is critical to support low-income people who are most likely to hold and transact small amounts. Because of mobile money, customers whose transactions were always unprofitable to banks become profitable. This is a substantial portion of the global population. CGAP estimates that by 2012, 1.7 billion people with mobile phone access will still have no bank account.²⁴ Note that the profitability of serving poor segments is heavily influenced by mobile network operator tariff prices and transaction fees in markets that are MNO-led.

2. Mobile money is a new industry that attracts investment and spurs new revenue

Mobile money is a new industry that is precipitating new investments for new ventures, new jobs and new revenue streams for existing companies. In Kenya, existing airtime top up agents are adding m-Pesa cash-in and cash-out services to their existing businesses. By October 2010, 20,000 agents joined the m-Pesa network to add this new revenue. By March 2010, Safaricom believed that over 36,000 new agent and telecommunications jobs had been created directly due to mPesa.²⁵ This statistic does not take into account ancillary new businesses that are now possible due to the digitization of payments.

With the substantial success that m-Pesa has seen in Kenya, large and small companies alike seek to emulate Safaricom's achievements elsewhere with new mobile money services. McKinsey & Co. and The Consultative Group to Assist the Poor (CGAP) estimate mobile operators will enjoy \$5 billion / year of additional direct revenue due to mobile money services and an additional \$2.5 billion/ year for indirect revenue streams due to mobile money.²⁶ 164 mobile money initiatives were underway in 2009 globally with 49 commercially deployed, driven not only by mobile network operators but also by banks and third parties.²⁷ Most of these initiatives have been targeting emerging countries.

New funds are emerging to invest in the mobile money industry from Silicon Valley to Africa. In addition, a range of strategic investments by large companies and grants by various non-profits are gaining momentum. In June 2009, IBM announced \$100 million in investments for cell phone research (mobile payments.)²⁸ Sybase purchased PayBox; and Nokia invested in Obopay.²⁹ On the grant side, the UK Department for International Development (DFID), the Consultative Group to Assist the Poor (CGAP), and the International Fund for Agriculture Development (IFAD) announced the Africa Enterprise Challenge Fund. The GSM Association (GSMA), CGAP and the Clinton Foundation announced the "Mobile Banking Call to Action" for

\$100 million to address financial inclusion for the unbanked with mobile financial services. The GSMA and the Gates Foundation pledged \$12.5 million for the “Mobile Money for the Unbanked” initiative to provide mobile financial services to 20 million people earning less than \$2 per day. By mid-2010, The Gates Foundation and USAID had set up a \$10 million “Haiti Fund” to motivate organizations to launch mobile money services in Haiti.

According to CGAP, “For the first time, Africa is becoming a bigger lure for investors than for aid donors. Africa’s poverty rate has been declining by 1 per cent annually since the 1990s, and investment is growing dramatically. A decade ago, Africa was receiving less than \$5-billion (U.S.) in foreign investment annually. By 2008, it was attracting nearly \$40-billion in direct foreign investment – more than it received in foreign aid. One survey found that 40 per cent of emerging-market equity investors are putting money into Africa today, compared with 4 per cent in 2006.” Most of this investment is coming from India and China.

The level of foreign investment by venture firms, large global companies, and non-profits is spurring new economic activity and bolstering new innovations and ventures around mobile money which, in turn, are adding new jobs and income within these markets.

3. Mobile money is a foundational infrastructure that supports the sustainability of new businesses

Iqbal Quadir, the founder of GrameenPhone in Bangladesh, states that “connectivity is productivity³⁰” because of the business efficiency gains that connectivity provides. Mobile money accelerates this phenomenon because it is the enabler of business. If mobile connectivity is the “how” to communicate information necessary to conduct commerce and business, mobile money is the “why”... *so that we can make money.*

The ability to remotely pay for goods and services through mobile payments is unleashing a new stream of profitable and sustainable businesses. Mobile and mobile payments enable a degree of automation and cost savings that substantially impacts the profitability of certain services. Mobile health, for instance, relies on payments in a variety of ways; from conditional cash transfers and micro-insurance for patients to performance-based funding and salary disbursement for healthcare providers. The ability to take payments using the mobile phone will enable new business models for healthcare to the poor, ultimately enabling these services to be self-sustaining by being able to charge and be paid for services remotely consumed. By creating an electronic financial account for the first time, small businesses that sell items such as pharmaceutical drugs will soon be able to access credit for inventory purchases to reduce issues around stockouts. In addition, off-grid energy initiatives in remote locations are now relying on mobile payments to provide more creative methods to

financing of expensive investments such as solar panels for the rural poor. With the ability to prepay for solar electricity using mobile payments, rural villagers can now have access to “lease-to-buy” financing. Finally, mobile money is now being used by the micro-insurance industry for smallholder farmers, a segment which lacked insurance access in the past due to the cost-prohibitive administrative and management burdens associated with this group that made them unprofitable to service prior to electronic claims and premium payments. Now, with systems like those launched by Syngenta Foundation, mobile bar codes associated seed bags are easily sent and tracked via MMS.³¹ Farmers are able to register and pay for premiums using their mobile phones at the point of seed purchase. Claims payouts and notifications are made automatically to the mPesa account when weather station data and index insurance calculate adverse conditions for crops. Risk of crop failure and loss of assets is now reduced for farmers, enabling them to focus on investing in better fertilizer and farming methods, those increasing crop output³². As one can imagine, mobile money becomes the backbone to all commerce and economic activity. Eliminate the “friction” of cash, and new profitable businesses are possible.

Mobile money itself relies on foundational building blocks. In order to launch a mobile money system, certain elements must be in place. For instance, mobile money requires a level of identity management, or understanding of who the person is and tracking of data regarding an individual. In many of the emerging markets, mobile money initiatives are the impetus to develop such systems (including the regulatory policies and technologies underlying such systems.) One can imagine that the building blocks of mobile money, such as identity management, spur additional businesses. For example, ID Management and data tracking of individuals is critical for e- and m-Health.

The synergies between mHealth and Mobile Financial Services is a growing area of interest. Understanding common user bases, business operations, infrastructures, such as ID Management, Authentication, Security, and Fraud Management, and policy concerns can lead to cross-sector efficiency gains between mHealth and mobile money. The upcoming World Economic Forum publication “Amplifying the Impact: Examining the Intersection of Mobile Health and Mobile Finance,” (January, 2011 by Menekse Gencer, mPay Connect) identifies areas of commonality that can lead to cross-sector gains.

People in these markets already understand this phenomenon. A new wave of entrepreneurship is developing where mobile money infrastructure exists. In mobile money conferences, I am continuously approached by Kenyans who are starting new businesses that leverage the m-Pesa infrastructure. New incubators, similar to those in California during the dot com late 90’s, are hatching small businesses in Kenya.³³ Nairobi is becoming the new Silicon Valley.

The question of where entrepreneurs in emerging markets will receive seed funding and institutional funding is a topic that will become increasingly

important. Many of the biggest opportunities for entrepreneurs exist in markets deemed as ‘too risky’ or without good exit strategies. Thus, they typically fall outside of the typical Silicon Valley venture capitalist model. This will be an ongoing topic to address moving forward.

4. Mobile money formalizes the informal financial sector, enabling savings, loans, and investments in lieu of “cash under the mattress”

Bringing cash into deposits through mobile money services enables the use of that money for investments, lending, and savings (assuming the holder of the funds has the regulatory ability to enable such financial services.) In their research on “Mobile Money: The Economics of M-PESA”, Tavneet Suri and William Jack state that 77% of Kenyans stored their money informally around their homes prior to m-Pesa, but now find m-Pesa to be a much safer method for safe storing of their funds.³⁴

In 2005, Freund and Spataforma conducted research that estimated the size of informal remittances in more than 100 developing market countries to amount to 35% to 75% of formal remittances.³⁵ Capturing the equivalent of hundreds of billions of dollars in cash remittance inflows into deposit mobile money accounts will have a substantial impact in spurring GDP growth. In addition, by leveraging mobile as the channel for remittances, many believe that the cost structures of the agent network can be greatly reduced. Furthermore, increased entrants may put pressure on existing pricing rates. This cost savings can be given back to consumers. During the G8 summit in 2010, it was noted that if average end consumer transaction costs could be reduced from 10% to 5% in five years, then an additional \$15 billion / year would be available for potential inflows into emerging markets.

5. Mobile money enables efficiencies associated with digitization and reduces frictions associated with cash

Cash is difficult to move and store, unsafe (due to theft), and difficult to track. Mobile money relies on electronic transmission which eliminates these issues.

Eliminate Shoe Leather Costs

Economists often refer to the time and productivity wasted in physical cash movement as “shoe leather costs.” In the case of emerging markets, the term can be used quite literally as people have to walk for hours and transport cash for days via trucks to reach the intended recipient. For example, a Kiva fellow in Liberia had to ride his motorcycle for days to disseminate cash loans to micro-finance recipients in villages.³⁶ In the case of Kenya, 47% of people indicate that due to mPesa, they now save 3 hours, or the equivalent of \$3, per transaction.³⁷ This statistic is profound when considering an average per capita GDP of \$868. This is also the case for healthcare workers and others in remote villages who

must travel for their salary disbursements and pensions. For healthcare workers, the time spent traveling means less time assisting sick patients who, themselves, cannot be productive until they get healthy. Mobile money eliminates this cost by digitizing cash. By reducing this friction, more money is able to circulate in the system in a faster, more efficient way. Owners of businesses and healthcare workers depositing or receiving their cash from banks do not need to shut their doors during those hours when they would have walked to the branch. Money can be moved in a matter of seconds anywhere and at anytime.

Smooth Out Transactions by Enabling Profitable Micropayments

In addition to eliminating the shoe leather cost phenomenon, the ease of money movement and the reduced cost structure associated with digitized cash enables more transactions to happen more often and as needed. This is critical for enabling frequent transactions among the poor with uncertain cash flows and for reducing risk associated with their businesses.

For unbanked customers with unreliable cash flows, being able to pay and receive small amounts of money when they most need it is critical. In their research, Suri and Jack studied the changes that occurred in the Kenyan market as it related to money flows before and after m-Pesa's launch.³⁸ What they found was that many of the informal networks used for lending among closed networks continued (for instance, in the agricultural segment where banks viewed farmers as too risky for credit, but where they would lend to one another as needed during erratic weather conditions.) What did change upon m-Pesa's introduction was the elimination of the friction that was caused by the physical distance among those lending to one another. This, in turn, led to a "smoothing out" of lending at the point that the money was needed, (not when the cash could be attained, sent, and received.) In fact, a similar pattern was noted by Olga Morawczynski, a PhD graduate of University of Edinburgh who has studied the transactions taking place between urban and rural family members with m-Pesa.³⁹ She noted that senders of m-Pesa money sent more often in smaller amounts, leading to an increase in overall volumes sent. CGAP notes: "On a positive note, users report increases of 5 to 30 percent in their incomes thanks to transfers through M-PESA. By making smaller, but more frequent transfers, urban migrants on average are sending more money home than before. This represents a significant boost for rural recipients, for whom remittances can represent up to 70 percent of their household income."

If farmers can receive money when needed, then that farmer may not miss the time window to buy and plant the seeds for his crop before the weather changes. Similarly, if retailers can receive money from friends or get access to credit when they have stock outs, then they can ensure that they have sufficient inventory to sell to customers at the point when the products are needed. This, in turn, leads to more output in the economy.

With per transaction costs being lower, people are able to pay smaller amounts more often, thus reducing emergencies for low-income populations particularly impacted by crisis situations that may require large cash outlays. This certainly applies in the case of micro-insurance for smallholder farmers that could be affected by adverse climate conditions and in healthcare. Similarly, in Kenya expectant mothers can now use mobile financial service tools to prepay into savings accounts as a method to plan for their upcoming delivery rather than opting out of care facilities due to the costs and risking home birth that result in higher mortality rates.

Provide a safer, more traceable, and less risky method to store value and make payments

The value of mobile money to consumers is highest in those markets with the least banking penetration. These markets can be the most unstable economically and politically. Where people are desperate, crime may be rampant. To add to the safety issue, people may have little to no alternatives to carrying cash. Storing assets and transacting electronically rather than carrying cash (or storing it at home) can mean the difference between not only loss of wealth, but also loss of life in some of these countries. Suri and Jack noted in their research that 11% of Kenyans storing money have had it stolen whereas only 2% have had issues with m-Pesa (due to accidentally sending it to the wrong recipient.)⁴⁰ So, too, is the tragedy witnessed with the loss of assets due to flooding, fire, or other natural disasters as was seen in the Bangladeshi floods of 2007, the Haitian earthquake of 2010, and the Thai tsunami of 2004. Digitization and safe storage of assets will ultimately reduce GDP loss during these times. In addition, digitization enables better tracking of money which can reduce fraud and enable better ability to track business revenues for tax collection.

Digitization of transactions and the traceability of those transactions alone do not prevent fraud. Rather, such systems will require a robust authentication and ID Management system. These core functions will become increasingly important areas of concern not only to the mobile money industry, but also to other adjacent industries such as mHealth.

THE POSITIVE SPIRAL OF GROWTH

The five forces described above affect the levers of GDP, igniting a spiral of growth of the economy. Mobile money as an industry is attracting new investment. Mobile money as an infrastructure is enabling new businesses which, in turn, are producing more jobs and income that can be consumed, saved, or taxed. The outputs of these businesses will lead to an increase in net exports. Mobile technology is reaching new segments of the population with money services in a cost-effective method which is stimulating new businesses to offer

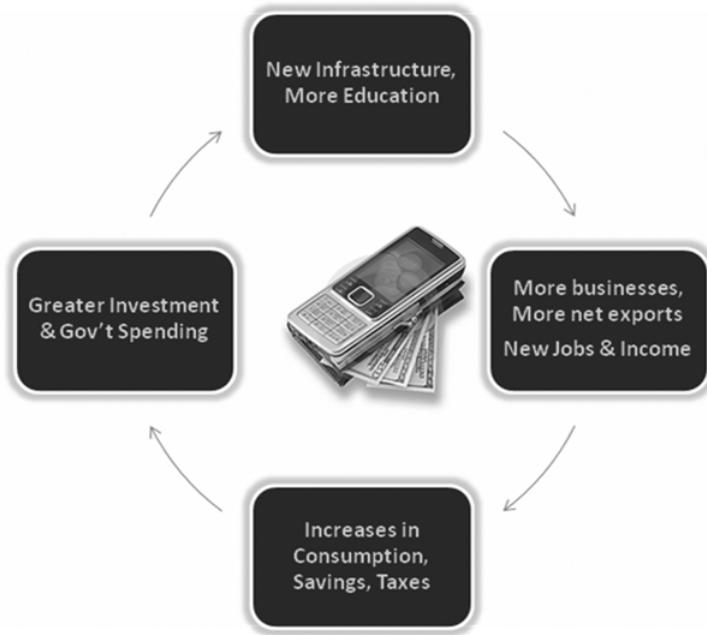


Figure 4. $GDP = Consumption + Investment + Government Spending + Net Exports$

financial services and capture new deposits from the informal sector. Capturing these deposits is further stimulating additional savings, loans, taxes, and investments. Finally, the digitization of cash is eliminating the frictions and costs associated with cash which is increasing consumption, money transfers, supply chain payments, and reducing business risk. This, in turn, is smoothing out transactions and increasing the velocity of money circulating within the market.

CHALLENGES REDUCING MOBILE MONEY'S IMPACT

Of course the reality of this situation is still less optimistic than it may appear. The optimism expressed in this paper does not, by any means, seek to trivialize the challenges ahead in expanding these services and achieving GDP growth throughout the globe. On the contrary, there are many hurdles. Kenya is the mobile money success example that all other countries strive to replicate, but none have done so yet. Kenya's success has set high expectations by investors who may soon grow impatient without similar outcomes in other markets. In addition, the growth of sectors spurred by mobile money will be hindered by the lack of infrastructure such as electricity, roads, etc. Until other infrastruc-

tures are addressed, GDP growth will be affected.⁴¹ Similarly, policy makers may significantly limit what can be done in many markets should the regulatory bodies decide to take a significantly conservative stance on AML/CFT and KYC documentation required to open an account or in other relevant regulatory areas. In such instances, services will likely not reach the poor. Government corruption is another key area of concern that can prevent GDP growth. From the perspective of infrastructure, mobile money is a new channel that relies on existing IT infrastructure to enable it. However, IT systems may be lacking in organizations. If these organizations do not address the underlying IT issues, the mobile money services will have less impact. Successfully launching mobile money systems is no small feat... one which requires a deep level of understanding of what it means to combine and execute mobile, payments, and emerging technology operationally and in a manner that will be adopted by a new customer base. As of May 2010, of the 164 pilots and 49 commercially deployed mobile money systems, only 10 have reached adoption levels of 1 million customers. The ability to replicate successful models is yet to be achieved. Most payments professionals will admit that to be successful in the payments business, "the devil is in the details." This level of complexity is further exaggerated when combining payments with mobile since the complexities span two industries. Finally, the fragmented nature of these new mobile money systems, mainly due to mobile network operators who choose to roll out closed systems, will continue to limit the usefulness and likelihood of success. In the absence of interoperability at the domestic and international levels, required scalability is unachievable.

CONCLUSION

Similar to the hype that was witnessed in Silicon Valley in the late '90s during the dot com boom, so too is there a high degree of hype in this industry, this time in a much more global arena. Make no mistake, as was seen in the dot com aftermath in the early 2000's, there will be many failures and consolidations in the mobile money industry, but the few who do survive will drive the industry forward. It has been said that people overestimate the impact of a new industry/technology in the 5-year time horizon, but underestimate its impact over a decade. Although in the short term The Mobile Money Movement™ will continue to face challenges noted above, I am optimistic that, with the focus the world is seeing in the mobile money industry, over the next decade we will see the profound impacts on GDP that mobile money will have on those markets most in need of economic growth and development.

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