

Three keys to M-PESA's success: Branding, channel management and pricing

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Abstract

M-Pesa, a mobile-phone based electronic payments system, has been adopted by 8.5 million Kenyans in the relatively short span of 2½ years. Surveys of users show it is a highly valued service, and Safaricom continues to expand the range of applications it can be used for. This paper explores how Safaricom, the mobile operator that commercializes M-PESA, managed to create enough traction with both customers and retail stores, building trust and overcoming the adverse network effects that afflict new payments systems. We focus on three key aspects of M-PESA's success: (i) creating awareness and building trust through branding; (ii) creating a consistent user experience while building an extensive channel of retail agents offering cash in/cash out services; and (iii) a customer pricing and agent commission structure that focus on key drivers of customer willingness to pay and incentivized early adoption.

Who would have thought that over one third of adults in Kenya² would become regular users of a mobile phone-based electronic payments system that processes more transactions domestically than Western Union does globally? How do you *explain* such an innovative service to people, how do you get them to trust such an *intangible* electronic service and comfortable using the *technology*? How do you get the *snowball* going so that more and more people find value in joining the payments network? Mobile operator Safaricom has achieved all that with its M-PESA service – in only 2½ years.

M-PESA was developed by Vodafone and launched commercially by its Kenyan affiliate Safaricom in March 2007. M-PESA operates a system of low-value electronic accounts held by the mobile operator and accessible from their subscribers' mobile phones through a SIM card-resident application. The conversion of cash and electronic value is performed at a network of retail stores (often referred to as agents) which are paid for by exchanging these two forms of liquidity on behalf of customers. All transactions are authorized and recorded in real time using secure SMS, and are capped at \$500.³

M-PESA is useful as a retail payment platform **Exhibit 1: Outlets offering financial services in Kenya**

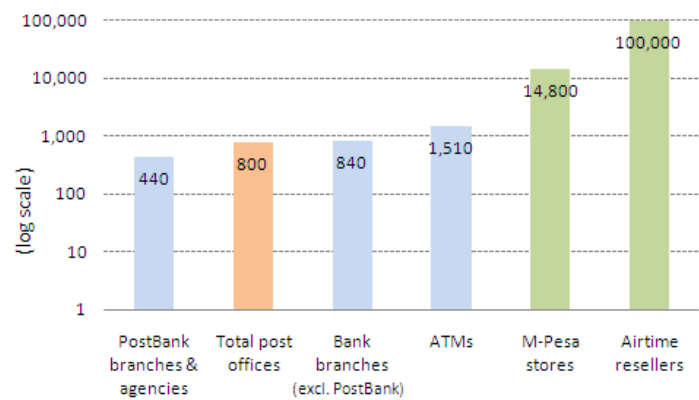
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² Kenya has a total population of nearly 40 million, with 78% living in rural areas and a GDP per capita of \$1600. 19% of adults have access to a formal bank account. See FSDT (2009a) for financial access data derived from the FinAccess survey, a nationally representative survey of 6600 households conducted in early 2009.

³ The Subscriber Identification Module (SIM) card is a smart card found inside mobile phones that are based on the GSM family of protocols. The SIM card contains encryption keys, secures the user's PIN on entry, and drives the phone's menu. The Short Messaging Service (SMS) is a data messaging channel available on GSM phones.

because of its reach into large segments of the population. Exhibit 1 shows the size of various retail channels in Kenya: the number of M-PESA stores is an order of magnitude higher than the total number of branches and automated teller machines (ATMs) made available by banks to their customers, or the number of post offices. Using existing retail stores as cash in/ out outlets reduces deployment costs and provides greater convenience and lower cost of access to users.

Source: Central Bank of Kenya, KPSB, Safaricom websites.



In order to establish itself M-PESA had to overcome three hurdles that are common to any new electronic payments system, namely:

- **Trust:** Making users comfortable with the reliability of the new system. In this case, customers had to be comfortable with three elements that were new at the time in Kenya: (i) a payment system that was operated by a mobile operator, (ii) going to non-bank retail outlets to meet their cash in/cash out needs, and (iii) accessing their account and initiating transactions through their mobile phone.
- **Network effect:** The value to the customer of a payment system depends on the number of people connected to and actively using it: the more people are on the network, the more useful it becomes.⁴ While network effects can help the scheme gain momentum once it reaches critical mass, they can make it difficult to attract early adopters in the early phase when there are few users on it.
- **Chicken-and-egg trap:** In order to grow, M-PESA had to attract both customers and stores in tandem. It is hard to sell the proposition to customers while there are few stores to serve them, and equally hard to convince stores to sign up while there are few customers to be had. Thus, the scheme needed to drive both customer and store acquisition aggressively.

These problems reinforce each other in the early-stage development of a payments system, creating a large hurdle to growth. M-PESA overcame this hurdle through a combination of three key factors:

- **Brand:** Safaricom built a strong service brand for M-PESA, which rode on strong customer sense of affinity with and trust in the operator.
- **Channel management:** Safaricom effectively leveraged its extensive network of airtime resellers to build a reliable, consistent store network that served customers' needs.

⁴ It has become habitual to illustrate network effects with reference to fax machines: the first set of people who bought a fax machine didn't find it very useful as they couldn't send faxes to many people. As more people bought fax machines, everyone's faxes became more and more useful. Network effects are sometimes referred to as demand-side economies of scale, to emphasize that scale affects the *value* of the service to each customer. This distinguishes it from supply-side economies of scale, which refer to situations where average *costs* per customer fall as volume increases. Davidson (2009) discusses implications of network effects for mobile money.

- **Pricing:** Safaricom designed a pricing scheme for both customers and stores that provided incentives for both to join M-PESA early on.

This paper does not provide a historical account of M-PESA's development, nor does it provide a detailed account of the M-PESA service.⁵ Instead it focuses more narrowly on the three success factors mentioned above: branding, channel management and pricing. But first we set the scene by reviewing the latest figures, developments and limitations surrounding M-PESA.

Status of and latest developments of M-PESA

M-PESA is going from strength to strength. The latest developments and figures reported by Safaricom as of November 2009 are:⁶

- 8.6 million registered customers, of which the majority are deemed to be active. This corresponds to 57% of Safaricom's customer base, 21% of the entire population or 40% of adults.⁷
- 14,800 retail stores at which M-PESA users can cash in and cash out, of which nearly half are located outside urban centers.
- USD 320 million per month in person-to-person (P2P) transfers. On an annualized basis, this is equal to roughly 10% of Kenyan gross domestic product (GDP). Although transactions per customer have been on a rising trend, they remain quite low, probably around 2 transactions per month.
- USD 650 million per month in cash deposits and withdrawal transactions at M-PESA stores. The average transaction size is around USD 33, but Vodafone has stated that half the transactions are for a value of less than USD 10.
- USD 7 million in monthly revenue (based on the six months to September 2009). This is equal to 8% of Safaricom revenues.
- 19% of Safaricom airtime purchases are conducted through M-PESA.
- There are 27 companies using M-PESA for bulk distribution of payments. Safaricom itself used it to distribute dividends on Safaricom stock to 180,000 individual shareholders who opted to receive their dividends into their M-PESA accounts, out of a total of 700,000 shareholders.
- Since the launch of the bill pay function in March 2009, there are 75 companies using M-PESA to collect payments from their customers. The biggest user is the electric utility company, which now has roughly 20% of their one million customers paying through M-PESA. It also includes donations to charitable organizations and the repayment of microcredit.

⁵ For these, see Hughes and Lonie (2009) and Mas and Morawczynski (2009), respectively.

⁶ See www.safaricom.co.ke/fileadmin/template/main/images/MiscUploads/M-PESA%20Statistics.pdf for key monthly statistics for M-PESA. Additional figures are taken from Safaricom's published half-year results for the period ending September 2009 and Central Bank of Kenya reports.

⁷ The 2009 FinAccess survey (FSDT [2009a], p. 16) confirmed that 40% of adults had used M-PESA.

These are very significant achievements. But the overall impact on access to formal financial services at the base of the pyramid is still relatively modest. This has to do both with who the typical users of M-PESA are and what they use it for:

- A survey of 3000 households in late 2008 showed that the average M-PESA user is, in comparison to non users, twice as likely to have a bank account (72% versus 36%). M-PESA users had annual expenditures about 65% larger than non-users, and 20% more assets. Users are also likely to be slightly more male, slightly older, more literate and better educated.⁸
- In terms of services utilized, one quarter of M-PESA users reported using their phones for storing money. However, the survey of M-PESA users in late 2008 revealed that less than 1% of accounts had balances of over KSh 1,000 (\$13). The average balance reported in following a government audit of M-PESA in August 2009 revealed that the average balance on M-PESA accounts was only KSh 203 (\$2.70).⁹

A logical next step for M-PESA is for it to provide the payment 'rails' on which a broad range of financial services can be delivered cheaply and conveniently to all. To do this, M-PESA will need to connect with banks which have the necessary vocation, customer insights and marketing (including product development) skills to serve the three quarters of the Kenya public that remains unbanked. So far, it has started with partial offers through a few banks:

- Family Bank uses M-PESA's bill pay function to allow customers to deposit into their bank account from M-PESA wallets.¹⁰ In the absence of Central Bank of Kenya (CBK) regulations on banking agents, this cash-in mechanism is meant to be used only for loan repayments.
- In addition, Family Bank has announced a new service whereby its customers can send money from their bank account directly to a registered M-PESA account, effectively providing a cash withdrawal channel through M-PESA. Customers can initiate such transactions from any of the 100 Family Bank ATMs using their bank card.¹¹ Family Bank charges its customers a flat rate of KSh 50 (\$0.67) for transfers that can range between KSh 200-35,000 (\$2.70-470).
- Kenya Commercial Bank (KCB) and NIC Bank use their own mobile banking software to enable customers to transfer money from their KCB account to their M-PESA wallet.¹²

Safaricom may explore connections with banks more aggressively once M-PESA customer numbers stop growing. At that point M-PESA will look to grow transactions per customer, rather than just customers, and savings might be a good transaction volume driver. But the process of connecting banks to M-PESA

⁸ FSDT (2009b), p. 6.

⁹ The data in this paragraph are from the FinAccess survey (FSDT [2009a]), FSDT (2009b), p. 8 and 39, and Okoth (2009).

¹⁰ This service is called *Pepesha Pesa*. For further details, see <http://familybank.co.ke/Info/Pepesha%20Pesa>.

¹¹ This new service, called *Chapaa Chap Chap*, is implemented through the Kentswitch ATM network, and will also be provided to the customers of other banks on Kentswitch including KCB, Consolidated Bank, I & M and CBA. For further details see Juma (2009) and <http://familybank.co.ke/Info/Chapaa%20chap%20chap>.

¹² Both KCB and NIC Bank use USSD menus for their mobile banking application.

will be gradual, since (i) the central bank needs to first issue its agent banking regulations;¹³ (ii) the banks need to negotiate proper access and pricing with Safaricom; and (iii) the banks need to do the proper marketing groundwork to create relevant propositions.

M-PESA's brand development

At the beginning, Safaricom was confronted with the challenge of developing trust in the new payment mechanism. This was all the more difficult because Safaricom was introducing not only a new product, but an entire product category to a market that had little experience with formal financial services. Safaricom also had to quickly achieve a critical mass of customers to defeat adverse network and chicken-and-egg effects mentioned previously. The internal launch target for M-PESA was about 1 million customers within one year, equal to 17% of Safaricom's customer base of about 6 million customers at that time.¹⁴

While Safaricom may not have had a fully articulated marketing plan, it nonetheless took a series of decisions which helped it to overcome these daunting challenges as it first introduced M-PESA to the market. Possibly most important, management recognized the potential impact of M-PESA, and committed the company to heavy investments in marketing *before* the proposition could be proven. The gamble paid off. Safaricom managed to develop a strong service brand, which some market research has shown is even stronger than Safaricom's corporate brand — itself already a powerful brand in Kenya with a dominant share of the mobile phone market.¹⁵ M-PESA amply surpassed first-year forecasts, quickly turning the network effects in their favor as new customers begat more customers and turned M-PESA into lucrative business for more stores.

In order to maximize the chance of acceptability in an unprepared market, Safaricom went for a full-blown national launch, and was deliberate in its messaging and marketing mix. Safaricom was able to leverage public goodwill that existed with the corporate brand, and treated M-PESA stores as valuable brand outposts. All this was supported by a service that was designed to be simple and easy-to-use. Below we review each of these aspects.

A single, simple message. M-PESA's brand development and awareness-raising were driven by clear and specific messaging. Safaricom had a clear understanding of the key customer need they were addressing. As Safaricom market-tested the mobile money proposition, they shifted the core proposition from repayment of microloans to helping people make person-to-person remittance payments to their friends and family. Unlike many other mobile money deployments, Safaricom has not set out to replace cash in day-to-day life; they simply offered a new solution for those situations —remote payments— where cash is not very effective and there are few convenient alternatives.

¹³ The Finance Act 2009 contained an amendment to the Banking Act which permits banks to use non-bank retail agents. At the time of writing this paper in December 2009, the CBK was reported to be working on the draft implementing regulations.

¹⁴ Safaricom company results for the year ending March 2007.

¹⁵ A survey commissioned by Superbrands Kenya and conducted by TNS Research International in 2009 rated M-PESA number 14 in brand strength in the Kenyan market, whereas Safaricom fell below 17 (the lowest reported in the survey).

Moreover, in the early days they articulated the value proposition around a simple notion expressed with just three words: “send money home.” This single compelling use, which was well adapted to the common Kenyan phenomenon of split families, was the unique focus of all marketing for the first year, and remains the main (though no longer only) marketing message 2 ½ years later. The same TV ad was used for the first 2 years. While the M-PESA platform was able to provide a wider range of services, Safaricom chose not to clutter their message with multiple claims on the attention (and anxieties) of a public not familiar with the service.

Although people have proved creative in the use of M-PESA, sending money home continues to be one of the most important uses – the number of households receiving money has increased from 17% to 52% since M-PESA was introduced.¹⁶ Ethnographic research by Olga Morawczynski indicated that customers in the town understood that M-PESA was for sending money whereas those in the rural areas understood it was for receiving.

National launch at scale. After small pilots involving less than 500 customers,¹⁷ M-PESA launched nationwide, making the value proposition equal for all subscribers and increasing the likelihood that the service could reach a critical mass in a short time frame. At launch Safaricom had 750 stores, and had made sure to cover all of Kenya’s 69 district headquarters.

This was a high-risk strategy that not all operators or regulators are willing to countenance since the brand of the parent company was at stake across its entire user base. It was also a massive logistical challenge, that led to a great deal of customer and store confusion and, in the first months after launch, several days’ delays to reach customer service hotlines. User and store errors were frequent since everyone was new to it. But it achieved the purpose of establishing national visibility and top-of-mind awareness among large segments of the population. Logistical problems subsided after a few months, leaving strong brand recognition.

An appropriate marketing mix. Initial marketing featured and targeted the wealthier city dweller with the need to “send money home” (see Exhibit 2a). This choice of the richer urban dweller as the initial customer created an aspirational image for M-PESA and avoided the impression that it was a low-value product aimed at the poor. Over time the marketing moved from young, up-market urban dwellers with desk jobs to more ordinary Kenyans from lower-paid professions.

While M-PESA’s launch was associated with a significant advertising campaign in traditional media such as TV and radio,¹⁸ there was also massive outreach through road shows and tents that traveled around the country signing people up, explaining the product and demonstrating how to use it. This is a common marketing approach in Kenya for products that reach lower-end markets because the traditional media are not viewed by the poor as relevant or trustworthy, and Safaricom made best use of this channel.

¹⁶ This data is from the FinAccess survey, FSDT (2009a), p 16.

¹⁷ The earliest pilot project conducted in 2004/05 revolved around microloan repayments, and involved the Commercial Bank of Africa, Vodafone, Faulu Kenya and MicroSave, in addition to Safaricom.

¹⁸ A survey of 1210 users in late 2008 revealed that 70% of survey respondents claimed they had first heard about M-PESA from advertisements, TV or radio. FSDT (2009b), p. 6.

Exhibit 2a: Early M-PESA ad emphasizing sending money from urban to rural areas linking into family and social ties



Exhibit 1b: Recent M-PESA ad with more general emotional appeal



Over time, as people became more familiar with the product and how to use it, it was no longer necessary to do this kind of hands-on outreach. TV and radio were largely replaced by the omnipresent M-PESA branding at all outlets, supported with a few large billboards. Newer ads (like the one in Exhibit 2b) feature a general emotional appeal, with a wider range of services indicated.

Consistent store branding and customer experience. M-PESA stores carried the new M-PESA brand into local communities. The stores are immediately recognizable as they are painted Safaricom green with a prominent M-PESA logo. Today, with 14,000 outlets, the M-PESA brand has become omnipresent.

Once a customer enters any store, the experience is remarkably consistent. Safaricom achieved this by investing in store training and actively supervising the store network. Stores are chosen for their good knowledge of English and Kiswahili. Store clerks know how to use and explain the service to customers. In the early days, they were in the front line of dealing with customers' concerns and intimidation with having to deal with a new technology and a new range of financial services. As we will see below, maintaining the quality of the customer experience as the network has grown while at the same time containing costs has been a major challenge for Safaricom, causing it to reevaluate its approach.

The need for strong branding and consistent customer experience at the store led Safaricom to require operator exclusivity of M-PESA agents (i.e. they could not sell or promote the products of competing mobile operators). Safaricom had not required this of airtime resellers, but they thought it to be more important for the M-PESA business.

Service branding building on a strong corporate image. The heavy investment in branding was built on the already well-known and trusted Safaricom brand, using the same color scheme. As the mobile operator with a dominant market share (over 80% at M-PESA's launch and scarcely less today, despite the entrance of two new operators), Safaricom was already a broadly respected company that had

introduced products favored by the public including prepaid airtime accounts and per-second billing. It was perceived by ordinary Kenyans as a home grown, private sector success story, outside of the establishment and associated tribal rivalries; they took pride in it, and trusted it. Safaricom's image was bolstered by its charity work in Kenya, which involved small projects in every village that were directly tailored to local concerns. In addition to these brand assets with the public, Safaricom had a tried-and-tested marketing team that had a good understanding of its customer base, and a relationship with a marketing company (Top Image) that it could trust to deliver training and branding at the store level.

An easy, intuitive service design. The customer interface was simple, working on even the most basic phones. Its menu structure mimicked that of airtime transfers, a recently introduced product which served as a 'stepping stone' to introduce early adopters to the concept of transfer of electronic value. As M-PESA uses an application resident on the customer's SIM card, M-PESA customers needed to get a new SIM card, which Safaricom provided for free (including a SIM card transfer service that transferred stored address books from the old SIM to the new). While this was costly for Safaricom, it introduced a face-to-face opportunity for Safaricom to explain the service to new customers.

The service sought to offer reassurance to customers in several ways. Customers receive instant confirmation of their transaction, which is important in helping customers to learn by experience to trust the system. From an early stage, Safaricom invested in customer service to help people deal with and resolve the problems they faced using the system, including the things they most feared: lost SMSs, lost PINs and lost phones. Although customer service was overwhelmed in the early months, customers quickly learned that M-PESA transfers were secure. In fact, whenever there were issues with the service customers tended to blame M-PESA stores rather than Safaricom.¹⁹

M-PESA's store channel management

The initial set-up

For M-PESA to be broadly available to the bulk of the population, Safaricom had to design a channel structure that could support thousands of M-PESA stores spread across a broad geography to offer cash in/cash out services. Safaricom built a channel that was based on the key requirements of profitability (providing incentives for third-party retail players to get involved), scalability (achieving rapid growth) and control (over the brand, customer experience and geographic distribution of stores).

To support the customer-facing activities of M-PESA stores, the channel needed to support a range of activities, among the most important of which were:

- Identification, screening, contracting and training of new stores
- Supervision of existing stores
- Distribution of commissions across stores
- Liquidity management, enabling stores to periodically rebalance their holdings of cash and M-PESA balances.

¹⁹ Morawczynski and Miscione (2008).

Safaricom did not wish to directly manage thousands of retail stores. Hence, it sought to engage partners to help manage the individual stores, thereby reducing the number of direct contacts Safaricom had to deal with. While Safaricom wanted a scalable structure, it also wanted to maintain control over the customer experience. Safaricom opted for two parallel mechanisms for channel management.

First, Safaricom created a two-tier structure with individual stores (sub-agents, in Safaricom's parlance) depending from master agents (referred to by Safaricom as agent Head Offices [HO]). Agent HOs maintain all contact with Safaricom, and perform two key functions: (i) liquidity management (buying and selling M-PESA balance from Safaricom and making it available to individual stores under their responsibility), and (ii) distributing agent commissions (collecting the commission from Safaricom based on the overall performance of the stores under them and remunerating each store). Individual stores may be directly owned by an agent HO or may be working for one under contract. In the latter case, Safaricom does not prescribe the terms of agent HO-store contracts, so they are free to work out their own liquidity management arrangements and split of agent commissions. Stores are free to switch between agent HOs.

But Safaricom did not rely on the broad base of agent HOs to perform all channel management functions. In addition, Safaricom engaged a local firm, Top Image, to conduct the evaluation and training of new stores, as well as to do the periodic on-site supervision of all stores. Top Image was charged with visiting stores monthly and scoring them against a range of criteria. Top Image acted as direct sub-contractor to Safaricom, and not through the agent HOs.

Thus, we see that Safaricom delegated the more routine, desk-bound, non-customer-facing store support activities to a larger pool of agent HOs. At the same time, Safaricom retained direct, centralized control (through its contract with Top Image) over the key elements of the customer experience, including vetting and training new agents and ensuring that stores met guidelines and offered reasonable service. Thus, it created some degree of competition among agent HOs, but not on aspects that were crucial to maintaining quality and consistency of the customer experience.

As the M-PESA store base grew, this structure became too heavy and onerous for Safaricom. At the same time, lack of liquidity continued being a limitation for many stores. This prompted Safaricom to introduce changes into their channel management roles and structure, and to introduce a new liquidity management mechanism, as we discuss below.

Recent changes in channel management roles and structure

Safaricom is presently undertaking a major overhaul of its M-PESA store channel. This is to address two key concerns with the current system:

- **The channel is flat.** 60% of M-PESA stores belong to agent HQs with less than a dozen stores.²⁰ Thus, Safaricom has to deal with too many agent HOs to manage their channel, which is getting to be a challenge as the number of stores shoots past 14,800.

²⁰ FSDT (2009b), p. 28.

- **Safaricom absorbs too much cost directly.** Safaricom pays Top Image for on-site services directly, in addition to paying channel commissions through agent HOs. There is a costly duplication of channel players.

The first point is being addressed by creating a new class of players called **agent aggregators** sitting at the top of the agent channel. There will be no territoriality assigned to the aggregators: they can have sub-agents wherever they like. They have now appointed 10 aggregators (of which 8 are based in Nairobi), with the aim that each will manage 2k-4k agents. Safaricom have selected the aggregators on two key criteria: *(i) liquidity*, as aggregators are required to have a minimum deposit in their M-PESA account with Safaricom; and *(ii) performance*, based on the number of customers they are serving and the volume of transactions they are performing per day.

Safaricom expects a consolidation of the existing 14,000 agents under these newly appointed aggregators within 6-8 months.²¹ Safaricom have stipulated that only aggregators will be allowed to open up new agents, so anyone wanting to grow the number of agents they manage will have to “sign up” with an aggregator. We can expect that in a few months Safaricom will tell “independent” agent HOs and sub-agents that they have to sign up under one of the approved aggregators if they want to continue in business. The aggregators have not been given any set of targets yet, but we can expect that they will be targeted on two things: *(i)* minimum number of sub-agents they must have in order to retain aggregator status, and *(ii)* minimum number of new sub-agents they have to open up in rural, under-served areas.

The aggregators are being introduced fundamentally to take on the role now played by Top Image. Safaricom wants to make the aggregator fully and singly responsible for giving support to and supervising the agents. Under the new structure, the aggregators will select, train and supervise agents, in addition to performing the “traditional” channel roles of managing agent liquidity and distributing commissions. Sub-agents who are not assigned to an aggregator will, at least for a while, continue receiving support from a Safaricom-appointed company. This will be Top Image in the western half of the country, and another company will be brought in for the eastern half.

Along with this, Safaricom intends to increase the portion of agent commissions that go to the sub-agent. Today the agent HO decides how to split agent commissions between itself and the sub-agent. The split is typically 30% to the agent HO and 70% to the sub-agent, though some operate under a 20%/80% split. Safaricom wants the split to be 20%/80%, thus passing more of the commission down to the sub-agent level. This would help offset the reduced volumes of transactions sub-agents do as competition increases.

We expect these changes to help Safaricom reduce its cost, as it no longer needs to absorb the Top Image contract cost and their functions are pushed down to aggregators. Larger agent HOs who become aggregators will have expanded roles and responsibilities (absorbing Top Image’s on-site, more logistically complex functions) with reduced commissions (20%, down from 30%). Compensating that, they have a clear path to volume, since all existing sub-agents will need to sign up with one of the 10

²¹ Michael Joseph, CEO of Safaricom, quoted in Okkutah (2009).

aggregators. Thus, they should make up for the negatives with much higher volumes of transactions. Retail stores will experience tighter management by a single party, their aggregator.

The new channel management structure represents a shift from one that emphasized control and consistency of the customer experience to one that emphasizes channel scalability and efficiency. This shift represents a natural shift in strategic priorities as the M-PESA system takes root. As the number of agents surges, avoiding management bottlenecks and reducing unit costs become more important. At the same time, competition between agents can be relied upon increasingly to ensure proper service at the store level. Once customers have a certain expectation of service, they rather than Safaricom can take the lead in disciplining agents. And as awareness of the service grows, store-level branding becomes less relevant and Safaricom will become increasingly focused on driving more nuanced, targeted marketing messages through broad-based marketing channels.

Store liquidity management options

M-PESA stores provide the critical nexus between digital or electronic money (the balances held in individual M-PESA accounts) and physical cash. It is their job to take customers' cash and to provide cash to them, on demand – effectively buying and selling M-PESA float for cash. Their key task is therefore to maintain enough liquidity in terms of both cash and M-PESA balance to be able to meet customer requests for cash in and cash out. If they take too many customer cash deposits, stores will find themselves running out of M-PESA e-float with which to fund customers' accounts; if they do too many withdrawals they will accumulate plenty of e-float but will run out of cash. Thus, they frequently have to rebalance their holdings of cash versus e-float. This is what we refer to as liquidity management.

Stores can in principle manage their liquidity in one of four main ways, depicted schematically in Exhibit 3. Two are non-bank based and rely on agent HOs' physical deployment:

- Having the store clerk come to the agent HO's head office and bringing or taking out cash.
- Having the agent HO send cash runners to deliver/take out cash from stores' premises.

The third liquidity management mechanism is through the respective bank accounts of the agent HO and the store. There are two scenarios:

- If the store has excess cash and wants to buy M-PESA e-float from the agent HO with it, the store would deposit the cash into the account of the agent HO. To do this the store clerk would need to find a branch of the agent HO's bank. Once the agent HO confirms reception of the funds into its account, the HO transfers M-PESA e-float to the store's M-PESA account.
- If the store wants to sell e-float to get cash, the agent HO deposits (or transfers) money into the store's account at the branch of the store's bank and receives the M-PESA e-float from the agent HO; the store can then withdraw the cash at the branch or ATM of his own bank.

These three liquidity management options place the agent HO in a central role. In the early days of M-PESA, Safaricom's intent was indeed for agent HOs to aggregate a number of stores in multiple, diverse locations so that they would be as self-sufficient as possible for liquidity management purpose, thereby minimizing the number of e-float transactions they would need to do with Safaricom itself. Accordingly, Safaricom requires agent HOs to have at least 3 outlets offering M-PESA in at least 2 different provinces

(although this has reportedly not always been enforced).²² On the store side, Safaricom requires a minimum M-PESA e-float per store of KSh 100,000 (\$1300). The expectation is that the agent HO would 'recycle' e-float between locations experiencing net cash withdrawals (which accumulate positive e-float) and locations with net cash deposits (which require e-float to meet demand).

The final liquidity management mechanism was introduced in early 2009, when Safaricom created the figure of the **superagent** (not to be confused with the agent HO or aggregator). Safaricom has since signed superagent agreements with six banks: KCB, Cooperative, Equity, Family, PostBank and Gulf. In this option the agent HO does not get directly involved in liquidity management.

Note that the superagent just helps the store manage their liquidity, but is not involved in payment of agent commissions or other agent management functions – that is still done through the store's agent HO (or by the aggregator under the new model). Thus, the superagent model is not a full channel management function, just a subcontracting of the liquidity management function to a specialized player.

Under the superagency arrangement, stores have an account with a superagent bank with a branch near them. For a store, rebalancing their cash entails two steps: *(i)* depositing and withdrawing cash against their bank account at the branch or ATM of the bank, and *(ii)* buying and selling e-float in real time against their bank account.

In return for this service, the superagent gets paid KSh 100 (USD 1.33) for transactions of KSh 35k-100k (USD 470-1300), and 0.1% of the transacted amount for transactions of KSh 100k-400k. This fee is paid by the agent HO through Safaricom (i.e. the banks don't bill the agents directly). This fee is considered high by agent HOs, when compared with the third option in which agents incur no cost for cash deposits and a KSh 50 withdrawal fee at ATMs (half the minimum superagent fees). On the other hand, superagents argue this gives them meager remuneration for doing the heavy-lifting on cash logistics (transporting cash, counting and checking the validity of bills, use of bank tellers, etc).

One drawback of the bank-based superagent mechanism for the store is that it can only use it during banking business hours; this presents a problem for stores in the evenings and especially on Saturday afternoons and Sundays.

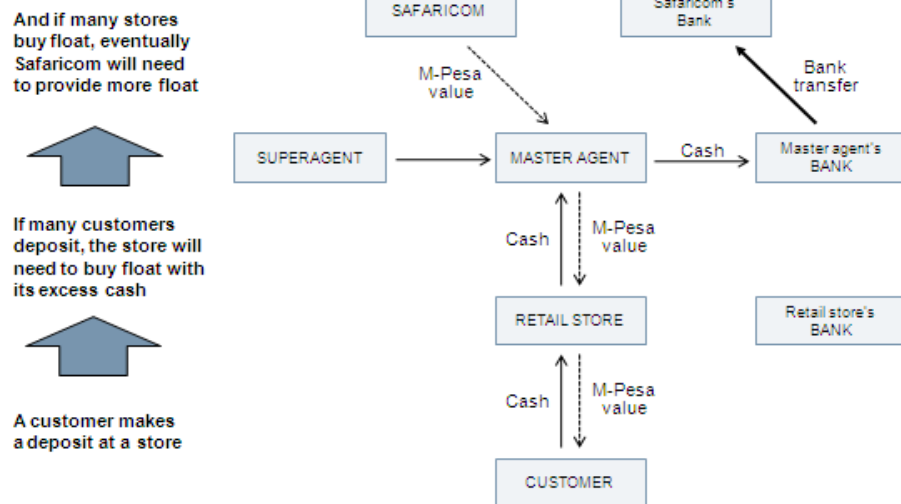
The introduction of the superagency model represents the continued leveraging of M-PESA of the banking system as a source of liquidity. First it signed up banks as agents, so that M-PESA customers could cash in and cash out at bank branches, where (unlike at stores) they would be assured of enough liquidity. Then M-PESA partnered with Paynet to allow customer withdrawals from M-PESA accounts at any of its 110 PesaPoint-branded ATMs, adding convenience and extending opening hours for customers. With their appointment as superagents, banks now further bolster M-PESA liquidity by making it easier for retail stores to rebalance their cash and e-float.

²² Safaricom also requires agent HOs to be a Limited company and must provide bank statements for the last semester.

Exhibit 3: Schematic representation of M-PESA liquidity management options

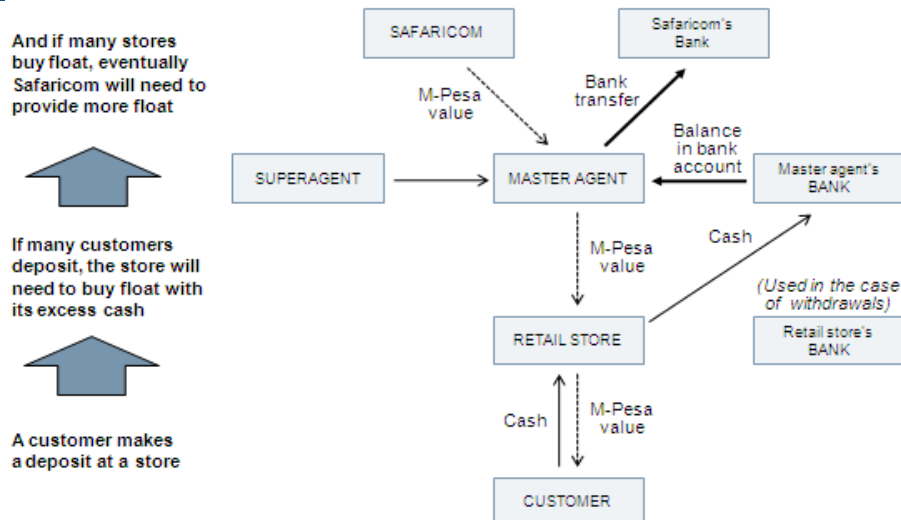
CASES 1 & 2:

Agent HO provides direct cash support to stores



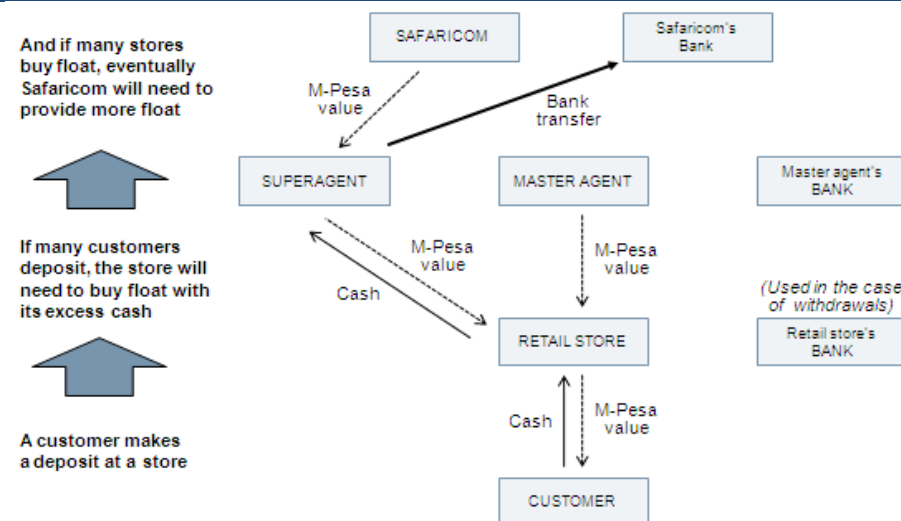
CASE 3:

Agent HO and stores use their bank accounts



CASE 4:

Stores use superagents



The introduction of the superagency model can also be interpreted as a ‘virtualization’ of M-PESA’s bank account across a larger number of banks. The totality of customers’ M-PESA balances are held in two banks.²³ Agent HOs (on whom the liquidity management task had been centralized) buy and sell M-PESA e-float by paying into/receiving from M-PESA’s accounts at these banks. With the appointment of other banks as superagents, stores can now buy and sell M-PESA e-float directly from them, and these banks can then settle with M-PESA’s two custodian banks.

The e-float-cash nexus will remain the key constraint to the further development of M-PESA since it is the least scalable part of the system. When an agent HQ and a store decide on a liquidity management mechanism that allows the store to exchange cash for M-PESA float, they would likely take into account the distance between their respective locations, and the distance of each of these to a bank branch. Geography is likely to be the main driver of the cost and convenience of the various options.

M-PESA Customer Tariff and Store Commission Structure

Exhibit 4 shows the M-PESA customer tariff structure as posted on the web and at each store location, in Kenyan Shillings (KSh). The minimum cash transaction size is KSh100 (\$1.3). Some of the fees are a flat rate, others are stepped according to the size of the transaction. The top-left box in Exhibit 5 restates these fees, while the top-right box shows the equivalent values in USD cents (using an exchange rate of KSh75 per USD).

The middle two boxes in Exhibit 5 represent the total commission that Safaricom pays to the retail channel, in both KSh and US cents. The difference between the customer tariffs and the total channel commissions is kept by Safaricom. Note that all customer commissions are charged by Safaricom against the customers’ mobile wallet account; none are paid by customers in cash to the store. Safaricom pays agent HOs according to the commissions noted here, and the agent HO passes on the fees through their store channel.

The bottom two boxes in Exhibit 5 represent the value of the commissions typically retained by retail outlets. Each agent HO is free to distribute their commissions down their retail channel as they see fit, but most pass on 70% of the commissions they receive from Safaricom to the retail outlets. In addition, there is a 21% tax levied on cash transactions at retail stores – 16% as value added tax and 5% withholding against income tax.²⁴ Thus, the bottom two boxes in Exhibit 5 represent the after-tax take by typical M-PESA outlets.

²³ Originally all balances were held at the Commercial Bank of Africa (CBA). The M-PESA account came to account for a sizable proportion of CBA’s assets, which exposed Safaricom and hence M-PESA customers to CBA default risk. Recently Safaricom diversified the banking risk by also maintaining balances in Standard Chartered Bank. We can expect further diversification into more banks in the future as M-PESA continues to grow.

²⁴ M-PESA services became VAT-exempt in the new national budget law that came in effect July 2009. Thus, the channel has in effect seen an effective 16% increase in their revenues. However, this exemption was for a year, so in this analysis we assume the VAT is still applicable.

Below we summarize the customer pricing and agent commission structure by type of transaction, for transactions under \$31 which represent the bulk of transactions in M-PESA.


Transactions against cash

Deposits are free to customers. But each deposit transaction costs Safaricom 13.3¢ in total commissions, of which 7.4¢ goes to the retail outlet after tax.

Withdrawals cost customers 33.3¢. Safaricom pays 20¢ to the channel, of which 11.1¢ goes to the retail outlet.

Thus, a **round-trip savings transaction** (one deposit + one withdrawal) costs the customer 33.3¢ (0¢ on deposit + 33.3¢ on withdrawal), which is in fact equal to what the channel gets (13.3¢ on the deposit + 20¢ on the withdrawal). So, assuming equal volumes of deposits and withdrawals, Safaricom doesn't make any money on cash transactions: Safaricom merely "advances" commissions to the channel when customers deposit, and recoups it when customers withdraw (this works on aggregate, not store by store). The average agent channel commission per cash transactions is 16.7¢ (average of 13.3¢ and 20¢), of which the retail outlet gets 9.2¢ (average of 7.4¢ and 11.1¢) after tax.

Exhibit 4: Posted customer tariffs for M-PESA




Transaction type	Transaction range (KShs)		Customer Charge (KShs)
	Minimum	Maximum	
Value Movement Transactions			
Deposit Cash	100	35,000	0
Send money to a registered M-PESA user	100	35,000	30
Send money to a non-registered M-PESA user	100	2,500	75
	2,501	5,000	100
	5,001	10,000	175
	10,001	20,000	350
	20,001	35,000	400
	100	2,500	25
Withdraw cash by a registered M-PESA user at an M-PESA Agent outlet	2,501	5,000	45
	5,001	10,000	75
	10,001	20,000	145
	20,001	35,000	170
	200	2,500	30
Withdraw cash by registered M-PESA user at PesaPoint ATM	2,501	5,000	60
	5,001	10,000	100
	10,001	20,000	175
	100	35,000	0
Withdraw cash by a non-registered M-PESA user	100	35,000	0
Buy airtime (for self or other)	20	10,000	0
Pay Bill Transactions	—	—	0 - 30
<ul style="list-style-type: none"> Transaction fees of between KShs 0-30 applicable depending on the organization you are paying to Confirm that the company you intend to pay to accepts payment via M-PESA before transacting 			
Information Transactions			
Show Balance			1
Change Secret Word			0
Change PIN			20
Update Menu			0
Change Language			0
SIM Replacement			20

- FREE REGISTRATION
- No minimum balance required
- Maximum Account Balance KShs 50,000
- Maximum daily transaction value KShs 70,000
- No monthly fees / No hidden charges
- All SMS sent to and from M-PESA are FREE
- To use M-PESA, your Safaricom phone needs to be ACTIVE

- All charges are deducted by M-PESA from your M-PESA account
- To send PESA you must first deposit money into your own M-PESA account. You cannot deposit money directly into another person's M-PESA account.

To register or transact at any M-PESA agent you will need your original identification document:
National ID, Passport, Military ID, Diplomatic ID or Alien ID.

Customer Care: Dial 800-4073234 (Toll-free) or Dial 234 7966 from your Safaricom Mobile
 Registered Customers: Safaricom Ltd, Safaricom House, Ngara Road, P.O. Box 40000, 00100 Nairobi, Tel: (020) 427 3072
 www.safaricom.co.ke Terms and conditions apply





Withdrawals from M-PESA at ATMs are slightly more expensive than at a retail outlet (40¢ versus 33.3¢). This is in fact a recent price change: it used to be the same as regular withdrawals at a store. But PesaPoint, the provider of the ATM network, renegotiated its deal with Safaricom (at the same time as it raised its fees to banks) to get more commission as it claimed to be losing money on such transactions.

Electronic transfers of value

Person-to-person (P2P) transfers cost a flat rate of 40¢. This is where Safaricom makes the bulk of its revenue. Thus, customers pay more than twice for a purely electronic transfer than what they pay for the average cash transaction (17¢) – despite the cost to provide being lower for purely electronic transactions than those involving cash. This reflects a notion of optimal pricing that is less based on cost and more on customer willingness-to-pay: enabling remote payments is the biggest customer pain point which M-PESA aims to address. For remote payments, M-PESA is cheaper than the other available mechanisms: money transfer by the bus companies, Kenya Post's Postapay or Western Union.²⁵

But this pricing limits the suitability of using M-PESA for face-to-face transactions for which the alternative of cash is much less costly.²⁶ This limits the frequency of use of M-PESA: in a survey of users in late 2008, only 8% reported using M-PESA daily or weekly.²⁷

M-PESA customers can **send money to non-M-PESA customers**, including any person with a GSM mobile phone in Kenya, whether they are subscribers of Safaricom or of any of the other three competing networks (Zain, Orange and Yu). The ability to send money to any mobile phone subscriber was particularly important at the launch of the service when only few customers were registered, and proved to be an effective customer acquisition mechanism. This increased the speed at which technology 'laggards' registered with the service.

Under this service, money is debited from the sender's account, and the recipient gets a code by SMS which it can use to claim the monetary value at any M-PESA store. Thus, it's an account-to-phone service, with the receiver's experience being similar to how Western Union works today. The pricing on this service is interesting: it's a lot more expensive for a customer to send to a non-customer than to a customer (\$1 versus 40¢), but at the other end cashing out is free for a non-customer which is not the case for a customer. This may seem odd: the customer is penalized while the non-customer gets a free service. The logic, though, is to put the pain on the sender, who has the money and the understanding of how M-PESA works – and hence the clout to insist that the receiver register as an M-PESA user.

²⁵ In her field research, Olga Morawczynski finds that sending KSh 1000 through M-PESA was 27% cheaper than the post office's PostaPay, and 68% cheaper than sending it via a bus company. See Morawczynski and Pickens (2009).

²⁶ And yet, despite this, it is reported that M-PESA is quite often used to pay for taxi rides and late-night beers. Indeed, in certain circumstances the higher transactions costs of M-PESA in face-to-face transactions are outweighed by the greater convenience and security it offers.

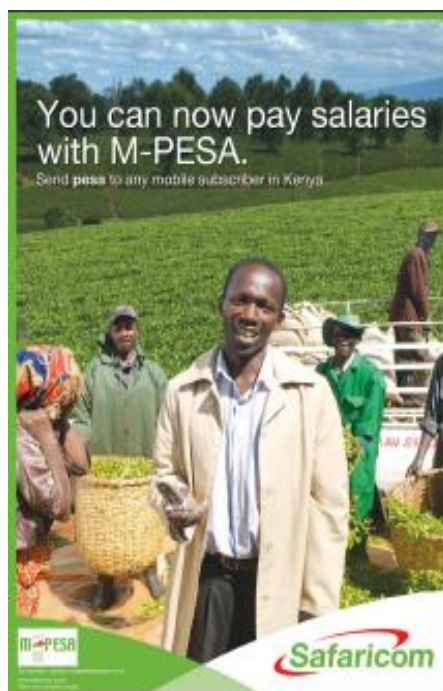
²⁷ FSDT (2009b). Jack and Suri (2009), p. 15, further report, on the basis of the same survey, that households send and receive remittances on average once every three to four months. Monthly remittances sent are smaller, amounting to approximately 4.5% of monthly expenditure, while those received are about 5.6%. About a third of remittances are sent and received via M-PESA, and they tend to be smaller than the average remittance, amounting to about 1.5% of monthly household expenditure on average.

Bill payment is a new service launched in 2009 (see Exhibit 6 for ad). It is analogous to a P2P transfer, except that customers send money to the M-PESA account of the recipient institution. Customers must enter the biller code (a number that uniquely identifies the biller) on the M-PESA phone menu, and also have the option of entering an account number (which is necessary if the biller cannot associate the customer's phone number with their bill account number). M-PESA charges the same amount for transfers of money for bill payment as for P2P (i.e. KSh 30 per transfer). However, in the case of bill pay the cost of the transfer can be shared between the biller and the customer in the proportion defined by each biller. For instance for electricity bill payments, the utility and the customer split the charge (i.e. customers pay KSh 15 per bill paid). Safaricom does not offer bulk discounts to billers at present, partly because it is still not seeing sufficiently large transaction volumes.

Customers can **buy airtime** directly from their mobile wallet, at zero cost – but without a discount either. There is some channel conflict here: when a retail outlet sells a prepaid card, the channel gets 5% on the value of the card sold; if the customer buys the airtime through M-PESA, there is no direct channel commission (though at some point there may have been a cash-in fee of 13.3¢). M-PESA is aware of this cannibalization risk for the channel, and does not actively promote the purchase of airtime through M-PESA – unlike many other mobile money schemes, for which airtime purchases is their primary driver of transaction volume. The fear of cannibalization actually drives main airtime resellers to sign-up as M-PESA outlets, but Safaricom has been careful not to undermine their subsistence.

Though not shown on the standard pricing sheet, M-PESA can be used to send **international remittances** from the UK to Kenya (Exhibit 6 shows a Safaricom banner ad promoting this service). Safaricom has partnered with Western Union and two Kenyan diaspora companies (one that shows Kenyan TV channels on UK cable) to provide a cash-in network in the UK. The cost is high –GBP 4 to send GBP 100–, offering only a small discount from standard Western Union pricing. As a result, traffic on M-PESA's new international remittance channel with the UK is low.

**Exhibit 6: Ads for three new M-PESA payment services:
billpay, salary distributions and international remittances**



Non-monetary transactions

Users can **register** for M-PESA for free, and initially customers requiring a SIM card upgrade got a new one for free. As all new SIMs are now M-PESA enabled, Safaricom now charges customers 27¢ (KSh 20) for a SIM card replacement.

Despite the free customer registration, the channel gets \$1.07 per customer registered.²⁸ This constituted a powerful customer acquisition incentive for stores during the early days of M-PESA when there were few customers (and hence relatively little transaction commissions to be had). Registration commissions were initially paid entire upfront but were subsequently split—50% given when customer signed up and the other 50% after the customer made the first deposit—in order to avoid the incomplete registrations that occurred during early stages.

Balance inquiry costs the customer 1.3¢. Initially this had been free, but fairly early on Safaricom decided to impose this modest fee because they found that customers were checking their balance unreasonably frequently. To reduce the cost to customers of checking their balances, Safaricom started stating available balances in the SMS receipt following any transaction.)

²⁸ It is important to highlight that these registration commissions have cost Safaricom \$9 million. It is a figure that any service provider needs to think about in their attempt to build critical mass.

Exhibit 5: Analysis of customer tariffs and retail commissions for M-PESA transactions

Transaction size ranges	KSH						USD cents					
	Non-cash transactions	100→ 2,500	2,501→ 5,000	5,001→ 10,000	10,001→ 20,000	20,001→ 35,000	Non-cash transactions	\$1.3→ \$33	\$31→ \$67	\$63→ \$133	\$125→ \$267	\$250→ \$467
Customer tariffs (paid out of their mobile wallet account)												
Customer registration	0						0.0					
Show balance	1						1.3					
Change PIN	20						26.7					
Deposit		0	0	0	0	0		0.0	0.0	0.0	0.0	0.0
P2P (to customer)		30	30	30	30	30		40.0	40.0	40.0	40.0	40.0
P2P (to non-customer)		75	100	175	350	400		100.0	133.3	233.3	466.7	533.3
Bill payment		15	15	15	15	15		20.0	20.0	20.0	20.0	20.0
Withdrawal (customer, at agent)		25	45	75	145	170		33.3	60.0	100.0	193.3	226.7
Withdrawal (customer, at ATM)		30	60	100	175	n/a		40.0	80.0	133.3	233.3	n/a
Withdrawal (non-customer)		0	0	0	0	0		0.0	0.0	0.0	0.0	0.0
Buy airtime		0	0	0	0	0		0.0	0.0	0.0	0.0	0.0
Total gross channel commissions (pre-tax, shared by superagent and retail outlet)												
Customer registration	80						106.7					
Show balance	0						0.0					
Change PIN	0						0.0					
Deposit		10	10	15	20	40		13.3	13.3	20.0	26.7	53.3
P2P (to customer)		0	0	0	0	0		0.0	0.0	0.0	0.0	0.0
P2P (to non-customer)		0	0	0	0	0		0.0	0.0	0.0	0.0	0.0
Withdrawal (customer)		15	25	35	60	70		20.0	33.3	46.7	80.0	93.3
Withdrawal (non-customer)		15	25	35	60	70		20.0	33.3	46.7	80.0	93.3
Buy airtime		0	0	0	0	0		0.0	0.0	0.0	0.0	0.0
Net commission for retail outlet (after-tax)												
Customer registration	44						59.0					
Show balance	0						0.0					
Change PIN	0						0.0					
Deposit		5.5	5.5	8.3	11.1	22.1		7.4	7.4	11.1	14.7	29.5
P2P (to customer)		0	0	0	0	0		0.0	0.0	0.0	0.0	0.0
P2P (to non-customer)		0	0	0	0	0		0.0	0.0	0.0	0.0	0.0
Withdrawal (customer)		8.3	13.8	19.4	33.2	38.7		11.1	18.4	25.8	44.2	51.6
Withdrawal (non-customer)		8.3	13.8	19.4	33.2	38.7		11.1	18.4	25.8	44.2	51.6
Buy airtime		0	0	0	0	0		0.0	0.0	0.0	0.0	0.0
Assumptions:	<div>Exchange rate USD/KSh: 75</div> <div>Retail outlet's share of commissions: 70%</div> <div>Taxes on agent fees: 21%</div>											

Exhibit 7: Retail outlet commissions as a function of number of transactions

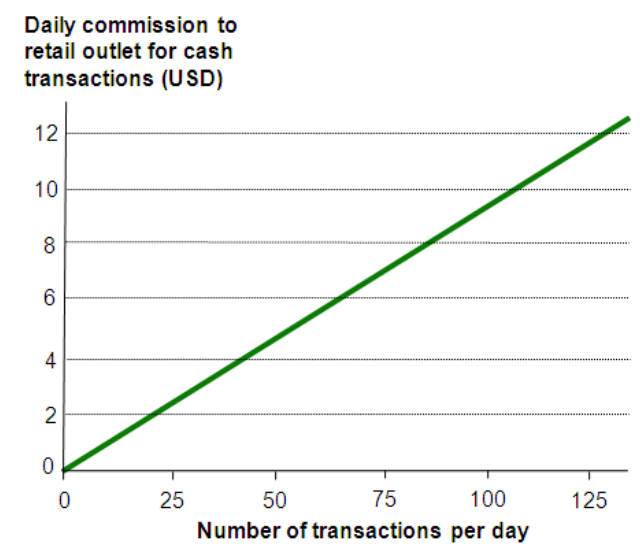


Exhibit 7 shows the dollar value of commissions that will accrue to a retail outlet on a daily basis, based on the number of cash transactions they perform for M-PESA customers.²⁹

For a store to make \$6 –roughly twice a clerk’s daily wage—, it needs to handle 65 transactions per day. The majority of M-PESA stores handle more than this number of transactions. In fact, due to high transaction volumes, retail outlets are finding M-PESA a better business than prepaid airtime. M-PESA has become a viable stand-alone business, and many outlets no longer treat it as an add-on.

Against these commissions, the retail outlet incurs the following costs: (i) trips to the bank, usually on a daily basis; (ii) maintaining unremunerated working capital balances, both in cash and in their M-PESA account; (iii) enhanced security risk and ensuing insurance premiums; and (iv) use of store space and staff time to handle the transactions. A retail outlet conducting 100 transactions per day will be doing one every 6 minutes on average (assuming a 10-hour workday), which is a full-time job.

Exhibit 8: Customer fees as percent of transaction size

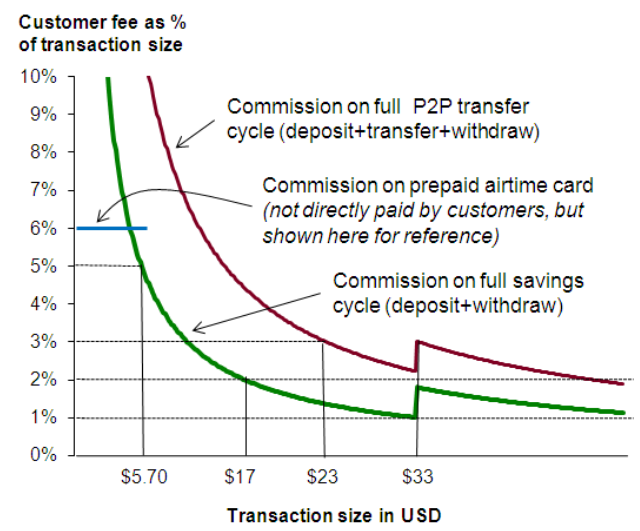


Exhibit 8 shows the customer commissions as a percent of the transaction size. The cost of a round-trip savings transaction (deposit + withdrawal) is between 1-2% of balance for withdrawals greater than \$17; it can be as high as 5% for withdrawals of \$5.70. M-PESA is more expensive for money transfers than for savings, due to the flat-rate P2P charge. Money transfers of less than \$15 cost more than 5% (including cash-in, P2P transfer and cash-out costs).

(It was noted above that Safaricom does not earn any fees net of agent commissions on cash transactions. That is the case for transactions <\$33; it does earn some margin on higher size transactions.)

²⁹ This assumes an equal number of deposits and withdrawals; that all customer transactions are for a value of less than \$33; and excludes registration commissions, which can be substantial.

Exhibit 9 below shows prototypical bundles of usage of M-PESA, and the associated total account costs. (It is assumed here that all transactions are under \$33 in size; all values are in USD.)

Exhibit 9: Total account costs for customers

Use case	Monthly transactions performed	Monthly cost to user	Net revenue to Safaricom (after retail commissions)
Monthly remittance (pay-through account)	Sender: 1 deposit + 1 P2P Receiver: 1 withdrawal	Sender: 40.0¢ Receiver: 33.3¢ Total: 73.3¢	53.3¢
Daily deposit service ("e-susu")	1 deposit daily + 1 withdrawal at end of month	33.3¢	-385.7¢
Accumulation account	1 deposit weekly	0¢	-53.3¢
Working capital account	2 deposits + 2 withdrawals + 1 check balance per week	272.0¢	5.3¢
Transactional account	2 deposits + 2 withdrawal + 4 payments + 1 check balance per week	912.0¢	645.3¢

The use cases that are heavy on deposits are loss-making for Safaricom, since deposits are free while it still pays per-deposit commissions to the agents. On the other hand, uses cases focusing on money transfers have a high margin. As currently priced, Safaricom is an attractive savings option – except that it bears no interest and Safaricom has little incentive to promote it as such.

Customer surveys of M-PESA show that people value fast, easy to use service far ahead of price. While users are reasonably happy with M-PESA pricing, it is interesting to note that M-PESA users do not tend to be aware that deposits are free.³⁰ This might help explain why M-PESA is not used so frequently as a daily deposit service, despite the substantial value that Safaricom provides for this use case according to Exhibit 8.

M-PESA versus Zap

Exhibit 10 compares M-PESA's basic customer pricing and retail commission structure against that of Zap, a new mobile money service promoted by Safaricom's competitor Zain.³¹ The channel remuneration structure between the two is not directly comparable since Zap stores are free to set their own commissions for cash-in/cash-out services; moreover, Zain store commissions are charged directly

³⁰ FSDT (2009b), p. 21.

³¹ Kenya's fourth telecoms service provider, *Yu*, has just announced its own electronic money transfer service, *yuCash*, but this is not yet available in the marketplace and hence it is not further discussed in this paper. See Kinyanjui (2009).

to the user, not deducted from the customer's Zap account. Hence, Exhibit 6 contains Zap's *recommended* pricing structure.

The key pricing differences that can be derived from Exhibit 10 are:

- Zap charges customers a lower standard fee on electronic (P2P) transfers of KSh 10, one third of M-PESA's charge of KSh 30.
- Zap charges customers for deposits, which M-PESA does not. Zap's customer deposit charge is roughly the same as the commission M-PESA pays on deposits. Thus, the key difference is that M-PESA 'advances' the agent's deposit commission which customers pay only at time of withdrawal, while Zap makes customers pay for the agent's deposit commission upfront.
- Customer withdrawal fees are slightly lower for Zap than for M-PESA, reflecting the fact that M-PESA offsets the customer subsidy on deposits with a higher withdrawal fee. But M-PESA does not remunerate stores on higher-value withdrawals as well as Zap. M-PESA stores have lower incentive to meet customers' higher value transactions (and in fact often resort to transaction splitting in order to get more commission from customers needing larger amounts of liquidity).

Exhibit 10: M-PESA vs. Zap customer pricing and retail commission structures

Transactions up to KSh	Zap customer fees (KSh)					M-Pesa customer fees (KSh)				
	Cost per transaction			Roundtrip cost		Cost per transaction			Roundtrip cost	
	In ^(b)	P2P	Out ^(b)	Saving	Transfer	In	P2P	Out	Saving	Transfer
2500 ^(a)	10	10	20	30	40	0	30	25	25	55
5,000	15	10	40	55	65	0	30	45	45	75
10,000	15	10	60	75	85	0	30	75	75	105
20,000	20	10	120	140	150	0	30	145	145	175
35,000	40	10	140	180	190	0	30	170	170	200

Transactions up to KSh	Zap agent commissions (KSh)					M-Pesa agent commissions (KSh)				
	Commission per transaction			On roundtrip		Commission per transaction			On roundtrip	
	In ^(b)	P2P	Out ^(b)	Saving	Transfer	In	P2P	Out	Saving	Transfer
2500 ^(a)	10	0	20	30	30	10	0	15	25	25
5,000	15	0	40	55	55	10	0	25	35	35
10,000	15	0	60	75	75	15	0	35	50	50
20,000	20	0	120	140	140	20	0	60	80	80
35,000	40	0	140	180	180	40	0	70	110	110

Notes:

1. Zap minimum transaction size is KSh 50, versus KSh 100 for Mpesa.
2. Zap customer fees on cash in/out are recommended; agents can set their own charges.

Other differences between the two services (not shown on the table) are:

- Both services offer individual customer mobile wallets, but Zap further enables direct linkage to a bank account. For transfers of value between the Zap mobile wallet and the linked bank account, Zap charges the standard KSh 10 P2P fee, plus any fees set by the partner bank.

- Both offer bill payment services, with Zap charging the customer the standard P2P charge of KSh 10 per bill, whereas M-PESA sets differential pricing by biller with a typical customer charge of KSh 15.
- The minimum transaction size on Zap is KSh 50, half of M-PESA's minimum size of KSh 100. This is in fact not materially significant given that the smallest customer fee on a transaction is KSh 10 and hence the smallest transactions would bear high charges in percent terms. In fact, given that M-PESA offers free deposits, it may be more useful for poor customers who need to do small transactions.
- Zap doesn't permit transfers of value to customers not registered on Zap, whereas M-PESA allows for transfers to any mobile phone.

In summary, the Zap differentiation relative to M-PESA is based on: (a) cheaper electronic transfers; (b) greater store incentives to accept large-value withdrawals; and (c) possibility of direct linkage into a formal bank account. However, the drawbacks of Zap's pricing scheme are: (i) customers pay fees on cash-in, which discourages participation; (ii) Zain has no control over final customer charges, with fees being charged directly by agents (which creates potential for abuse); and (iii) no service to non-registered customers, which makes it very difficult for Zap to defeat the network effects that favor the established M-PESA service.

M-PESA's success factors and future evolution

The experience of M-PESA demonstrates how powerful a payment network that offers convenience at an affordable cost can be once a critical mass is reached. It also shows that achieving critical mass takes significant investment in marketing, branding and building up the retail channel. M-PESA is now enjoying economies of scale as much on the demand side as on the cost side. To recap, we believe the success factors from the Safaricom side have been:

- **Brand development.** From the beginning, Safaricom knew it had to develop customer trust in the new payment mechanism, and understood it needed to get critical mass quickly in order for existing customers to be the prime mechanism to draw in new customers. This was helped by a rapidly expanding base of retail stores which carried the M-PESA brand visibly into the heart of communities where people worked and congregated. It was also supported by heavy advertising focused on the key customer need M-PESA was addressing. And it built on the trust that people already had with Safaricom.
- **Store channel development.** Safaricom understood that the primary role of the mobile phone is to enable the creation of a retail outlet-based channel for cash-to-digital value conversion. Senior managers drove the development of a fully managed retail channel strongly. Stores acting have consistent branding, received substantial on-the-spot training, and were frequently visited and supervised.

- **Pricing.** Customer pricing was designed to encourage customers to experiment with the service: free and quick registration to the service, free deposits, and ability to send money to any mobile phone subscriber whether or not they were subscribed to the service. Safaricom's profit margin is loaded on P2P transfer fees rather than on the cash in/cash out fees, reflecting that customer willingness to pay is higher for remote payments where customers' alternatives are weakest. Stores receive new customer registration bonuses which not only incentivized growth but also provided good cashflow to stores in the early days while transaction volumes were low.

There is the danger, with hindsight, to ascribe an undue level of deliberateness to Safaricom as it navigated these issues. When it launched M-PESA, Safaricom was in uncharted territory, and no doubt there were elements of serendipity. But Safaricom did make a few early decisions which proved very valuable: the aggressive promotion of the M-PESA brand, building the mechanisms to drive a consistent customer experience through the agents, pricing that tapped into customers' willingness to pay for remote payments, permitting sending of money to any mobile phone user on any network, drawing in banks to help with liquidity management). In fact Safaricom has done remarkably few course corrections; the channel re-structuring now underway is probably the main one.

The growth of M-PESA is a testament as to Safaricom's vision and execution capacity, but also speaks to the very positive regulatory stance of the Central Bank of Kenya. The CBK's bold "experiment first, then regulate" stance has been decisive. The Kenyan regulator was consultant from the inception of the idea, and has been actively involved in the development of M-PESA since its earliest pilot stages in 2004. The CBK and Safaricom worked out a model that provided sufficient prudential comfort to the CBK. The CBK insisted that all customer funds be deposited in a regulated financial institution, and reviewed the security features of the technology platform. In turn, the CBK allowed Safaricom to operate M-PESA as a payments system,³² outside the provisions of the banking law.

Safaricom has had to pay a certain price for this arrangement. For instance, interest earned on deposited balances must go to a not-for-profit trust and cannot be appropriated by Safaricom or passed on to customers. There are also limits on transaction sizes to address anti-money laundering concerns. But fundamentally Safaricom was able to design the service as it saw fit, without having to contort its business model to fit within a prescribed regulatory model.

The CBK has continued to support the development of M-PESA, even in the face of pressure from banks. In late 2008, after a lobbying attack from the banking industry seeking to shut down the service, the Central Bank did an audit of the M-PESA service at the request of the Ministry of Finance and declared it safe and in line with the country's objectives for financial inclusion.³³ The CBK has also enhanced its institutional oversight capacity, keeping abreast of innovation and technologically driven financial services.³⁴

³² The Central Bank of Kenya Act was amended in 2003 to give CBK broad oversight mandate over payment systems, but the operational modalities for its regulatory powers over payments systems have not been implemented, pending approval of a new National Payments System Bill which has languished in Parliament.

³³ The results of the survey are explained in Okoth (2009).

³⁴ See Kimenyi and Ndung'u (2009).

So far, the Central Bank appears justified in its confidence in M-PESA as there have been no major reports of fraud. System downtime, although frequent, has not been catastrophic. As it has become more ubiquitous, the public have also come to rely on it increasingly, with 84% of the respondents in a recent large-scale survey saying they would be worse off if M-PESA did not exist.³⁵

Beyond the actions of Safaricom and the CBK, it is also necessary to point out that there are also some specific country factors which no doubt made Kenya a conducive environment for a mobile money proposition:³⁶

- **Mobile market:** Kenya has a concentrated mobile operator market, where the dominant operator has a market share of around 80%. It enjoys relatively low prepay airtime commissions: Safaricom gives 6% of sales to the channel, of which 5% typically goes to the retail outlet. For its size and level of income (\$770 per capita³⁷), Kenya also has high mobile phone penetration of about 42 connections per 100 population, similar to richer countries such as Mauritius, Tunisia and Morocco.³⁸
- **A large market for domestic remittances,** given the large rural-urban migrations, which often results in split families. In common with many other developing countries, in Kenya there is cultural pressure to retain connection with one's ancestral village.
- **Poor financial alternatives,** especially for domestic remittances. Prior to M-PESA, the most common way of sending money around the country was through the bus system. The Post Offices had an expensive, inconvenient service which was not highly valued by users.
- **An entrepreneurial base of microentrepreneurs,** who were ready to seize new business opportunities created by the M-PESA agency model. Whereas initially M-PESA relied on existing Safaricom airtime outlets, today it is common to find M-PESA stores that were established to do nothing else.

M-PESA has been successful beyond what anyone could have imagined at its launch, but the model still has substantial room to develop further. It needs to link to a fuller range of banks, so that customers can avail themselves of the broader product set offered by regulated financial institutions. It can enable a broader range of institutional payments, such as government social welfare payment distributions and tax collections, so that customers have more incentive to leave money in their M-PESA account. M-PESA can introduce more finely segmented tariff and sub-agent models that work (affordably for customers, profitably for Safaricom) at much smaller transaction sizes. There are some recurrent problems of agent cash liquidity and system down-time which still need to be resolved. Finally, its regulatory treatment as a payments vehicle needs to be formalized so that it can become regulated in the most appropriate way.

³⁵ See T Suri and B Jack, "The performance and Impact of M-PESA: Preliminary Evidence from a Household Survey," June 2008.

³⁶ For a fuller discussion of environmental or country factors that are likely to influence the success of mobile money propositions, see Heyer and Mas (2009).

³⁷ World Bank GNI per capita, 2008

³⁸ Comparisons are based on the GSMA's (2009).

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