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MPESO: Democratizing Financial Services in Nicaragua

Introduction

As Haroldo Montealegre waited at the last intersection on his way to the office, multiple buses, each with the words "Solo Tarjeta" ("Card Only") visible in the front window, crossed in front of him, transporting his fellow Managuan residents. Montealegre continued toward his office, smiling as he thought about how much the bus system in Nicaragua had changed in the past year. He remembered the sleepless nights he spent wondering how long it would take for the bus cooperatives to accept his proposal to automate the bus fare collection system while his company bled funds. Institutional change is never easy, especially in a developing economy like Nicaragua, but Montealegre now slept easier knowing that MPESO was covering costs and witnessing steady growth in its user base and daily transaction numbers. Just three years ago, Montealegre never would have thought that his vision for bringing mobile money to Nicaragua would rely on a partnership involving most buses in Managua, nor could he have imagined how crucial this partnership would be. Looking back now, he realized he could not have reached a critical mass of over 700,000 users in any other way — without the bus partnership, his company surely would have failed.

Montealegre was the founder and CEO of MPESO, a mobile money social enterprise based in Managua, the capital and largest city in the Central American nation of Nicaragua. In Nicaragua, a majority of the population lacked access to traditional banking services. Through MPESO, Montealegre saw an opportunity to replicate in Nicaragua the success that mobile money had experienced in Africa, both as a social innovation to improve the lives of his fellow citizens and a vehicle to earn financial returns in a space where he would operate as a first mover.

In Montealegre's view, physical money posed several inherent problems, including sanitary and personal safety concerns. It also placed a high burden on poor individuals to keep meticulous track of the little money they did have. MPESO thus aimed to revolutionize life at the Base of the Pyramid (BoP) — a diverse group encompassing 3 billion people spending less than $3 a day, and up to 1.5 billion additional people spending up to three

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times that much — by replacing and eventually eliminating cash-based transactions in favor of cashless ones. The long-term goal of the organization was to empower low-income individuals to overcome the constraints associated with limited capital and a lack of financial services.

When Montealegre launched his company in 2011, he did not realize how crucial the partnership with the bus cooperatives would be. As it turned out, no matter how useful MPESO's technology was, nor how much it would improve the lives of the unbanked majority in Nicaragua, people would not adopt mobile money until they had a compelling reason to do so. It was the implementation of a cashless bus fare system requiring an MPESO account that provided the impetus.

By May 2014, MPESO had over 700,000 users, and the company processed over 1 million transactions worth 20 million Nicaraguan córdobas (NIO) or USD 700,000 on a daily basis.[1i] The company was in the black, but Montealegre knew that for his mission to become a reality, he had to continue to innovate and grow MPESO. Most Nicaraguans used MPESO to pay their bus fares only, despite the fact that the array of services offered by the company was far more extensive. The main dilemma Montealegre faced was where to focus operations in the short term. Should he aim to expand MPESO's array of services for Nicaraguans? Or would it be more worthwhile to focus on expanding the bus fare collection system abroad? The bus fare product was true and tested, and although it was limited in its social impact and profit margin, expanding it into other markets such as the Dominican Republic and Costa Rica would help MPESO grow its geographic footprint.

Mobile Money Background

More than 2.5 billion people in the world lacked a bank account,[2] yet 6 billion had access to a mobile phone.[3] This was largely because banks found it too expensive to open branches and ATMs in poor and rural locations. People at the BoP were often left with only informal networks through which to transfer and store money. These unofficial channels were prone to risk. For example, low-income individuals who saved by stuffing money under a mattress or investing it in livestock were vulnerable to theft or material loss. Mobile money filled this void at the BoP by providing a more secure range of financial services, from simple transfer and savings mechanisms to more complicated products such as business or group loans.

As an example, in sub-Saharan Africa, mobile phone penetration in 2013 stood at 80% for urban households and 63% for rural ones.[4] In contrast, only 41% of people in developing economies had an account at a formal financial institution in 2012.[5] Statistics such as these were the driving force behind the emergence of over 100 mobile money deployments in emerging markets as of July 2011 — at least 84 of them had originated in the preceding three years.[6] Yet few mobile money platforms had managed to reach a sustainable scale. These included GCASH and Smart Money in the Philippines; Wizzit, MTN Mobile Money, and FNB in South Africa; MTN Mobile Money in Uganda; Vodafone M-PESA and Airtel in Tanzania; Celpay Holdings in Zambia; and MTN Mobile Money and Orange Money in Côte d'Ivoire.[7]

M-PESA

Montealegre looked to M-PESA, the industry pioneer, for inspiration and as a model for his operations. Started in 2007 in Kenya by Vodafone and Safaricom — the largest mobile network operators in Kenya and Tanzania — M-PESA ("M" for mobile and "PESA" for money in Swahili) was one of the most successful mobile money platforms. Safaricom originally envisioned the platform as a microcredit repayment service, but changed direction during the pilot stage after monitoring transactions and customer feedback, which indicated customers preferred to use the service for remittances. Rural Kenyans who had moved to urban communities seeking employment began using the service to send money home.[8]

i The córdoba-dollar exchange rate as of May 2014 was NIO 25.81 to USD 1.

When it was launched, M-PESA was structured as an electronic payment and money storage system accessible through mobile phones. It was branded as a simple service — "send money home." Users were required to register at an authorized M-PESA retail outlet where they were assigned an individual electronic money account managed by Safaricom, which deposited the customer's money into a pooled account at a regulated bank. This electronic account was accessible through a subscriber identity module (SIM) card application on the mobile phone. Users deposited cash into their accounts for free by exchanging cash for electronic credit at an agent, who was in turn advanced a fee for the exchange. Users were not charged for deposits, only when they did something with their money.[9]

Once they had money in their accounts, users could send it to other M-PESA users, as well as to non-registered users, through their phones. They could additionally use M-PESA to pay bills, receive money transfers, and purchase airtime for their cell phones. Safaricom ensured liquidity and managed individual transactions through master agents who bought and sold electronic value to individual agents through connections with local banks. Both retail agents and master agents received commissions on transactions.[10]

The M-PESA interface allowed users to easily launch the service from their phone's menu, which prompted the user to provide all the necessary information, one piece at a time, based on the type of transaction requested. All transactions were recorded using short messaging service (SMS). The messages were encrypted using the security keys on the customer's SIM card. To ensure customer trust, Safaricom also required agents to record all transactions in a log book. For each transaction, the agent entered the MPESA balance, the date, agent ID, transaction ID, transaction type (customer deposit or withdrawal, agent cash rebalancing), value, customer phone number, customer name, and the customer's national ID number. Most of the information was copied from the agent's confirming SMS. Customers were then asked to sign the log for each transaction. As of 2009, each customer paid a KSh 25 (USD 0.30) fee to Safaricom on small transactions.[11]

Critical Success Factors

Agent Network

The agents of a mobile money operator conduct the cashing in and cashing out functions of the company, enabling users to turn cash into electronic currency and back to cash again. The face of the company, agents are often business owners with storefronts in convenient locations. Many mobile money providers focus on building their agent networks as fast as possible to increase convenience for users. Still, providers have to strike a balance — if they enlist too few agents, then users get frustrated by a lack of access points to the system; if there are too many, individual agents do not generate enough business to cover their costs. Agents in turn stop offering mobile money services, upsetting users further.[12]

Agent quality is extremely important for mobile money companies. The best agents maintain liquidity, market both mobile money and the provider well, and educate users. Acquiring and retaining this talent means choosing agents carefully, training them well, and proactively monitoring them. To do this, a mobile money provider has to understand the business from the agent's perspective, give agents a manageable path to profitability, analyze their day-to-day operations, and help them through points of difficulty.[13] Ensuring that agents have more to gain from working with the system than from cheating it is of paramount importance — if agents do not see a payoff, then they will not represent the provider well.

Finally, mobile money providers must take into consideration the issue of fraud prevention. After all, once a user loses trust in the system, it is extremely difficult to regain. Many first-time users of mobile money do not understand how to use the technology, so they often simply hand their phones to agents to perform the required task.[14] This situation poses an inherent risk; in fact, 80 of Safaricom's first 200 agents were fired for taking away user airtime.[15]

Nicaragua

Nicaragua had a population of 5.8 million people[16] and was one of seven countries in Central America. Home to one-third of the country's population, Managua was Nicaragua's largest city and capital.[17]

In Nicaragua, as of 2009, 42.5% of the country lived below the poverty line.[18] Nicaragua was also one of the most underbanked countries in Central America, with just 14% of the population having access to financial services.[19] In Latin America, 55% of the unbanked said that they did not have enough money to use a formal account and 40% indicated that accounts were too expensive, while 21% said they lacked sufficient documentation to open an account.[20]

Furthermore, many of the people in Nicaragua who did have a bank account did not use it. While certain employers required accounts to make paycheck deposits, many Nicaraguans withdrew their balances immediately when they were paid. This also led to logistical problems; ATMs regularly ran out of money on paydays.[21]

Although partly a factor of bureaucratic barriers, the high rates of unbanked and underbanked individuals in Nicaragua reflected an inherent societal mistrust in financial services. Nicaraguans were also highly traditional and often reluctant to adopt new technologies.

In stark contrast to Nicaragua's financial sector, the country's cell phone industry was large and growing: cell phone penetration was forecast to grow to more than 80% by 2015, up from 53.9% in 2010.[22] It was precisely this type of environment — low bank penetration and high mobile phone usage — that mobile money providers had capitalized on in Africa and other developing regions. The challenge in Nicaragua, then, was to build a network that could support low-income individuals and bring them into the formal financial services world.[23]

The Decision Maker: Montealegre

Haroldo Montealegre was born in the U.S. and spent most of his childhood in Managua. He had a naturally inquisitive mind, obtaining his economics degree from Vanderbilt University before going on to receive his JD from Loyola University New Orleans (see **Exhibit 1**).

After graduating from law school in 2008, Montealegre returned home to join a Managua-based law firm focused on renewable energy. Three years into the job, he came across an article in *The Economist* concerning the rapid growth of mobile money in Africa.[24] Noting the similarities between the Nicaraguan and African markets, he saw enormous untapped potential for such an operation in Nicaragua — if he did not take advantage of the opportunity, he thought, someone else surely would.[25]

While he enjoyed his work as an attorney, Montealegre thought that a successful mobile money effort could help many low-income Nicaraguans lift themselves out of poverty. He was determined to generate positive impacts in the lives of people at the BoP who lacked access to financial services, and so, in 2010, armed with not much more than an entrepreneurial mentality and a fierce sense of determination, he went about creating a mobile money platform in Nicaragua. Montealegre called his endeavor MPESO and was excited about its potential, but he also recognized from the start that for the effort to be successful, it would have to reach a critical mass of users, and it would have to do so quickly.[26]

Exhibit 1

Haroldo Montealegre, founder and CEO of MPESO

Source: Roy Moncada. "Puntos de Venta Para Tarjetas TUC." *La Prensa*. 11 May 2013. Accessed 20 Mar. 2015. <http://www.laprensa.com.ni/2013/05/11/nacionales/146193-puntos-de-venta-para-trjetas-tuc>.

MPESO History

First Steps

For Montealegre, mobile money was not just a tremendous business opportunity, but also a way to democratize financial services for Nicaraguans. MPESO would be a game changer — anyone rich or poor, from the city or from the farm — would gain access to financial services by simply making a call or sending a text message, regardless of whether he or she had a bank account.[27]

In 2010 Montealegre hired a software developer and a compliance advisor from Claro, Nicaragua's largest mobile network operator, to develop the MPESO platform architecture. After a year of work, MPESO's mobile payment platform was launched in July 2011. At the time, Montealegre naively believed that "if you build it, they (the users) will come." His thinking was that Nicaraguans would send money to one another electronically with as much enthusiasm as Kenyans had. But not many did; few Nicaraguans took the time to register as users, and even less were committed to learning how to use the system.[28]

This was a daunting challenge for Montealegre. He had invested heavily in an expansive agent network and a broad technological infrastructure to make his mobile money platform operational. But MPESO's main product offerings were person-to-person transfers and formal savings instruments that Nicaraguans at the BoP were unfamiliar with. Lacking a compelling product to attract these potential users, agents were not seeing the foot traffic necessary to earn a meaningful commission and were rapidly losing interest. In fact, 200 of Montealegre's first 300 agents abandoned the platform; this in turn choked revenues for MPESO.[29]

Montealegre and MPESO were caught in the trap that had befallen so many other mobile money operators — unable to cover costs, the company began to flounder. Montealegre considered giving up.[30]

The Partnerships

Montealegre found that no matter how beneficial MPESO appeared to be in theory, it was difficult to convince people to change their established patterns. His breakthrough came in November 2011 — MPESO's technological infrastructure could be leveraged to create an automated fare collection system in Managua. This would happen via a fare card (*tarjeta* in Spanish) whose funds would be tied to an MPESO account. Called Tarjeta TUC (Transporte Urbano Colectivo or Urban Bus Transport Card), the card was enticing for Managua's bus cooperatives because it would give them more control over bus fare collection. It would also generate the influx of MPESO users Montealegre needed to cover the company's high fixed costs.[31]

The bus system in Managua was run by 28 privately owned bus cooperatives, which operated under a cash only fare system. The cooperatives typically lost approximately 10% of expected revenues, in part, because drivers were pocketing the cash.[32] Other attempts to revolutionize mass transit had failed, including a 2007 50-million USD (1.29- billion NIO) Metro Bus project.[33] Nevertheless, Montealegre knew the cooperatives were still looking to move to a cashless system, so in December 2011, he began the difficult process of convincing each of the cooperatives to partner with him.[34]

The bus cooperatives had three main concerns.[35] First, they feared MPESO would be a tool for bus drivers to steal from them. They also wanted to know what types of controls were in place to prevent MPESO from keeping the fares it collected. Finally, the cooperatives had concerns that people would not want to adopt the MPESO technology and that ridership would fall.[36]

Montealegre alleviated the cooperative's concerns by explaining the transparency of the MPESO system — every transaction would be recorded on MPESO servers. Anyone could view his or her account through MPESO's Web portal, on a bus validator following payment, and after recharging an account. He showed videos of people using similar automated fare collection systems in other countries. The partnership with MPESO would cost the cooperatives a fee of only 8% of fares, versus the 10% or more that they could not account for, so the collaboration made financial sense for both sides. It also made sense for riders. They would see no increase in price. It took over a year of negotiating, but by January 2013, 26 of the 28 cooperatives had signed on.[37]

Implementation

Implementing a new fare collection system across 835 buses serving over 700,000 passengers daily would not be easy, but after striking the deal with the cooperatives, Montealegre had attracted a critical mass of users — most anyone wanting to ride the bus would have to register with MPESO. Montealegre was eager to begin implementation, but he was also cognizant that the process of registering users, educating them on how to use the system, and ensuring that MPESO's servers could handle the enormous workload had to go off without a hitch (see **Exhibit 2**).[38]

For the hard infrastructure, servers would be backed up by cross-server redundancy. The soft infrastructure — agent preparedness and ready user assistance — would have to be in place from day one. To ensure this, MPESO sent support teams to verify that agents were both familiar with and adept at performing user recharges. It also stationed 100 people at bus stops and inside buses to educate users on how to use the system. Additionally, MPESO's customer service department was primed to handle a high volume of calls and mitigate user problems in the simplest and most efficient way possible.[39]

The TUC system was scheduled to launch August 19, 2013. To give riders ample preparation time, MPESO began distributing TUC cards and registering users one month in advance. There was an unexpected problem, however. Everyone wanted to register in the first few days.

Exhibit 2

An MPESO User Boards the Bus by Swiping Her TUC Card

Source: Julian Chernyk

The period from initial user registration through implementation was one of the most stressful times of Montealegre's life, but his perseverance ultimately paid off. A few months after the launch of TUC, Montealegre began to feel that MPESO was truly here to stay. He also made it a priority to inform users about the entire MPESO platform, including the ability for users to store everyday savings in the accounts as well as the ease of making transfers to other accounts. He wanted them to be aware of the many potential uses of their MPESO account.

Operations

MPESO Users

Any Nicaraguan could register for an MPESO account at an agent location using his or her government ID number and cell phone number; the cell phone number became the user's account number. People did not have to make a deposit to register. The system worked similarly to a bank account — the user's account number was registered in MPESO's servers and held a certain balance. Whenever there was a transaction on the account, MPESO credited or debited money to that account from another account. For TUC, when a user rode the bus, the system debited money from that user's account and credited the bus company's account. Similarly, when a user paid an agent to recharge his or her account, money was transferred from the agent's account to the user's account.[40]

The money moving through the accounts was not Nicaraguan córdobas, rather a virtual credit known as "saldo MPESO," or "MPESO credit." When a user gave cash to an agent, he or she received a credit, exchanged at a one-to-one ratio, into his or her account. Similarly, the bus cooperatives received saldo MPESO each time someone rode one of their buses.

The bus cooperatives received a wire transfer from MPESO at the end of each day matching the amount of virtual saldo they earned. When this transfer was complete, both that amount of virtual saldo and real world córdobas were eliminated from MPESO's books, with the virtual saldo to be re-created later as users recharged their accounts the next day.[41]

MPESO kept track of these operations in real time, with its team of accountants continuously ensuring that the amount of saldo in the system matched the number of córdobas that MPESO had in its physical account — that is, it ensured that assets always matched liabilities.[42]

Of course, having the unbanked at the BoP — people with no previous experience with financial services — trust an institution like MPESO to exchange their hard-earned cash for a virtual currency was difficult. Financial exclusion in Nicaragua implied lower levels of financial literacy. Not only did people not have bank accounts, they had little to no idea how financial services worked.[43] The fact that MPESO had been able to build trust in the bus fare system represented a massive breakthrough on the path toward Democratizing Financial Services in Nicaragua.

MPESO Agents

MPESO's agents were owners of local businesses, such as pharmacies, Internet cafes, and convenience stores (see **Exhibit 3**). There were over 700 MPESO agents in Managua. Agents continuously received cash from users and moved saldo from their unique agent MPESO accounts.[44] This was done either via the MPESO Web site or through a cell phone application. MPESO provided its agents with cell phones at a cost of NIO 180 (USD 7). To ensure that agents had enough saldo in their accounts for user recharges, an MPESO support team traveled about communities all day on motorcycles, collecting cash from agents and replenishing their accounts with saldo. These motorcyclists went out in pairs — one would collect feedback from the agent while the other collected cash. This feedback loop ensured that the company knew what agents and users were saying about its product and that it found where improvements were needed.[45] The motorcyclists visited most agents once a day. However, busy agents could be visited multiple times in a day, and agents who were not as busy, once every other day.[46]

As M-PESA and other successful mobile money companies had shown, the agent network was critical. Agents were the face of the company. Users interacted with them, not MPESO employees, on a daily basis. When looking for agents, MPESO sought aggressive entrepreneurs and well-liked community leaders. Montealegre personally checked in with his top agents every few weeks to stay attuned to events on the ground.[47]

MPESO did not allow just anyone to become an agent. The company had to strike a delicate balance between having enough locations to satisfy user demand and creating a sense of exclusivity around being an MPESO agent. In this way, the company could encourage agents to attract as much business as possible and to represent MPESO well. MPESO agents made a commission of 4% on each recharge and gained competitive advantage by drawing people into their stores who would likely make additional purchases.

MPESO kept close tabs on all of its agents. In addition to being the face of the MPESO brand, agents carried a real cost for the company — they had to be trained and monitored, and the company provided with them with phones. The company monitored the agents to ensure they were well trained in the recharge system, were not making mistakes while interacting with users' accounts, and maintained a clean store. MPESO evaluated agents by assessing the number of recharges they conducted per day; the average agent completed over 100 transactions each day. The top five MPESO agents made over NIO 25,800 or USD 1,000 in commissions per month.[48] If an agent location was performing less than 10 transactions a day, revenues would not cover the costs of maintaining the agent. After a week of less than 10 transactions per day, an agent would be warned. If he or she did not improve, the company would sever its relationship with the agent.[49]

Montealegre made exceptions for some agent locations along less frequented bus routes that served populations who were too poor to afford a bus ride every day, yet benefited greatly from ease of access to public transportation if and when they did use it.[50]

Exhibit 3

Haroldo Montealegre Meeting with One of His Top-Producing Agents

Source: Julian Chernyk

Technology

Although the MPESO system could be simplified to a system of credits and debits, the technological infrastructure that allowed this to occur seamlessly and securely was more complicated. The company had to ensure that every transaction was secure and redundant (recorded across multiple servers) and that no one's money was misplaced or stolen. So MPESO's servers were housed in a fireproof, earthquake-proof technological complex.

The technology behind the recharges was not unique. For simple recharges, agents turned to either the mobile phones they received from MPESO or to MPESO's Web app; they simply recorded a user's phone/account number and the amount of saldo to be transferred, and sent this information to the MPESO transaction motor. MPESO used interactive voice response[ii] for recharges and transfers, because this system allowed for secure interactions with a company's host system via either telephone keypad or speech recognition.[51]

The technology behind MPESO's Tarjeta TUC was much more innovative (the company had a patent pending in the U.S.). It was unique compared with most automated fare collection systems in that transactions were not burned onto any physical record. When a user placed a TUC card against the validator, it appeared as though he or she was simply debiting the card, but in reality the card only represented a user's MPESO account; the account balance was not stored on the card.[52]

The credit was stored in MPESO's server and was beamed to all of the system's validators every 30 seconds. MPESO did not burn account balances onto its cards because doing so would limit the number of

ii Interactive voice response is a technology that allows a computer to interact with humans through the use of voice and dual-tone, multi-frequency signaling (an in-band telecommunication signaling system using the voice-frequency band over telephone lines between telephone equipment and other communications devices and switching centers) tones input via keypad.

places where users could recharge their cards. In New York City, for instance, MetroCards are reloaded at stationary machines. With MPESO, users could credit money from their account to another account from anywhere as long as they had an Internet connection. For instance, a user could be walking toward a bus while having zero balance, yet if someone were to credit his or her account, by the time that person got to the bus, the money would be available in the account. For mobile money purposes, this universality of access was crucial because it allowed users to keep their money in one central account — they pulled money from the same account whether they rode the bus or sent money to a friend. And if their card was lost or stolen, users could easily invalidate their cards by calling MPESO without losing their account balances.[53]

Business Model

There is an important distinction to be made between MPESO users and MPESO customers. The 700,000 Nicaraguans who rode the bus using their Tarjetas TUC were not MPESO customers in the sense that they were not charged for riding the bus. Rather, they were MPESO users who had received their cards for free, were not charged for depositing money into an account, and paid the same bus fare as those who remained in the cash system.[54]

The bus cooperatives were MPESO's customers. They paid MPESO 8% of every bus fare that they collected. What is significant about this arrangement is that even after this service fee, the cooperatives remained in a better financial position than they had been prior to their partnership with MPESO because there was no way for bus drivers to pocket fares. Through TUC, the bus cooperatives also gained more transparency and insight into their bus routes and capacity, which could be leveraged to optimize transport.[55]

Only after the launch of TUC did MPESO achieve the critical mass of users necessary to cover fixed and variable costs and make the company cash flow positive. (As a private company, MPESO did not report financial information.)[56] To grow its profits, MPESO had to scale.

MPESO also had partnerships with utility companies in Nicaragua, which leveraged MPESO's platform to make user payments easier. MPESO users could log in to the MPESO Web portal and pay their utility bills by debiting their MPESO accounts. To these companies, MPESO similarly charged a flat rate of 5.61 NIO to 6.45 NIO (USD 0.20 to USD 0.50 per transaction).[57] Advertising was another space where MPESO hoped to grow. The company had recently seen increased demand from businesses wanting to place advertisements on the Tarjeta TUC as well as on the validators. While advertising remained a small portion of MPESO's overall revenues, the company planned to begin distributing only cards that carried advertising, generating a source of revenue that had almost zero cost associated with it.[58] (For a diagram of the MPESO ecosystem see **Exhibit 4**.)

MPESO Impact

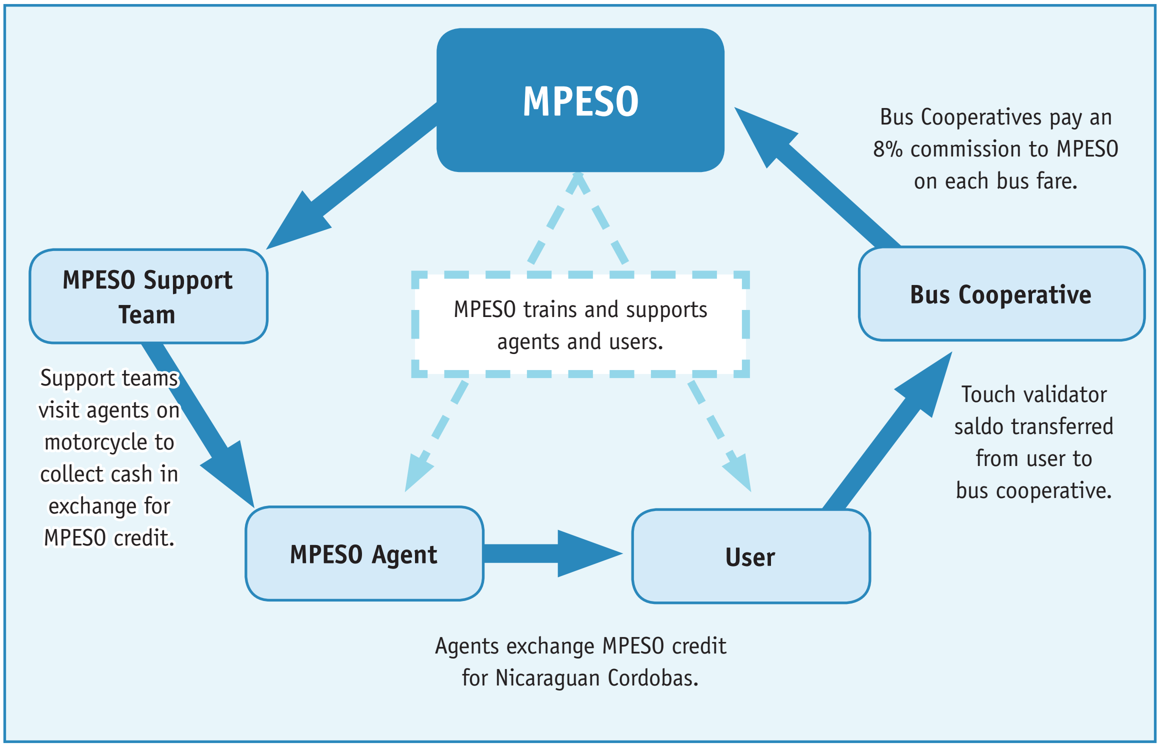
Impact Achieved

MPESO was both disruptive and transformative. A year after the launch of TUC, MPESO had become the exclusive form of payment on 95% of the buses in Managua and was processing over 1 million transactions daily worth more than NIO 20 million or USD 700,000.[59]

As a service company, MPESO's most important stakeholders were its users and customers. Users liked the TUC system because it was more efficient than the previous cash only system. Under the cash system, riders often would not receive change from the bus drivers. Or when they were receiving change, they had to wait to board the bus while the process took place. Many also felt safer under the MPESO system because they no longer had to carry cash.[60] MPESO had additionally provided users a more secure way to save their money. Instead of putting money under the mattress or investing it in livestock, people at the BoP were introduced to a novel system through which they could transfer their money to another party while having an account that they could trace and withdraw money from when necessary.

Exhibit 4

MPESO Ecosystem



Source: Created by GlobaLens using information provided by the authors.

Customers such as the bus cooperatives were happy because they were seeing a constant increase in month-over-month ridership numbers (based on a reduction in theft by bus drivers). Likewise, agents enjoyed the increase in foot traffic that MPESO brought to their businesses. Some were even making noise about offering additional MPESO services, indicating that they would be able to increase foot traffic further if they could offer more services.[61]

Other stakeholders were also happy. Bus drivers had expressed appreciation for how the MPESO system simplified their jobs, including not having to make change as people boarded. Previously, drivers also had to count the amount of fares collected each day to calculate how many riders had been on their bus. With MPESO, this was no longer necessary, which in turn shaved time off of their workday.[62]

MPESO Potential

In Montealegre's view, the large banks lacked innovation. They could not truly understand the poor because they had been created "by the top of the pyramid, for the top of the pyramid."[63] The advent of MPESO, on the other hand, heralded big changes.

As impactful as TUC had been, Montealegre thought the system was only one of many lifestyle enhancements that mobile money could provide to Nicaraguans, and one of the less significant ones at that. Because of people's reluctance to adopt new technology, the large-scale expansion of financial services that

Montealegre had first envisioned for Nicaragua had not yet come to fruition, although he believed it was on its way.[64]

Of the services already available to users through the MPESO platform, the product that was gaining the most steam was the option for users to pay their utility bills. In Nicaragua, paying utility bills had long been a time-consuming process with no option to pay online.[65] Seeking to capitalize on this inefficiency, in April 2014, MPESO began offering users the ability to pay their utility bills through the MPESO Web portal or at any agent location. This service was being used by 5% of MPESO users by the end of 2014. Montealegre expected that the imminent launch of a mobile app for this service would push adoption numbers higher.[66]

In addition to the utility payment feature, MPESO hoped to increase the popularity and geographic reach of its person-to-person money transfer service. The main goal of this product was to equip Nicaraguans with an easy, affordable, and safe way to send money to loved ones. Montealegre believed the market was there for such a service where urban-to-rural remittances had to be delivered by hand, forcing people to spend time and money, and risk theft, to deliver payments to their families.[67] In Montealegre's view, widespread use of the person-to-person transfer service had not yet caught on because, unlike with the TUC cards, users did not have a "register-to-ride" type of issue to compel them to use the system, and because MPESO's geographic footprint was limited primarily to Managua. However, Montealegre was hopeful that with more publicity, increased user comfort with the TUC system, and the gradual rollout of the MPESO bus fare system to other cities, this service would also become more popular.[68]

Another major project that MPESO was already at work on was the establishment of business partnerships with microfinance institutions (MFIs). These institutions often could serve limited populations only because of the importance of geographic accessibility in distributing and collecting loans. Yet a partnership with MPESO would allow MFIs to more easily reach BoP customers who lived in hard-to-access areas.[69] The MFI partnership would also stimulate competition among MFIs to offer better interest rates on loans, which would benefit those at the BoP further.

One last project that MPESO hoped to win by leveraging its existing platform was the distribution of government subsidies. For example, bus cooperatives traditionally received a lump sum subsidy to cover less traveled routes, but the government had no way of properly measuring how many passengers each route served. Some cooperatives would take advantage of this by running fewer buses. MPESO would foster accountability and transparency in this area by providing the subsidy distribution agency with accurate, real time data on the number of clients served by each bus.[70]

Expansion in Nicaragua

With the implementation of the TUC system complete, MPESO found itself on stable footing. The company was finally cash-flow positive, and its transaction and user numbers were growing daily. Despite this success, Montealegre knew that things remained far from his original vision for mobile money in Nicaragua.

In a way, Montealegre saw himself as the entrepreneurial champion of the common man in the financial services industry in Nicaragua. He continuously strived to reach BoP customers who were traditionally ignored by the formal financial sector. His ultimate goal was therefore much larger than achieving change in Managua's bus system. He was in pursuit of complete and universal financial inclusion. And he believed that MPESO could be the vehicle to get there.

But expansion was being hindered by logistics. He had already agreed to partner with cooperatives and local governments in other cities, but was waiting for the cooperatives to replace their buses. Both the municipalities and MPESO agreed that installing the MPESO validators into old, decrepit buses would be a waste of time and money.[71]

Montealegre knew that expansion of the bus fare system to other municipalities would provide the impetus for the adoption of person-to-person transfers and other financial services such as savings and MFI partnerships. Yet as exciting as these projects and developments were, Montealegre also expressed uncertainty about how he would be able to get around to all of them. Although MPESO had 80 employees, there were times when Montealegre found himself at a loss for skilled manpower.[72]

While Montealegre felt that he could put into effect many positive changes in the country he loved, he also acknowledged that he could only do so much in the short term. The businessman in Montealegre also knew that it would be smart to keep his foot on the gas of the most successful and sustainable product he had thus far managed to create: the TUC system.

Expansion Abroad

Montealegre had great hopes for increased penetration of MPESO in Nicaragua, but the realist in him had to admit that MPESO faced several obstacles in the adoption of new products and services. He believed that widespread adoption would happen, but would likely take a few years. These obstacles included creating the technology behind these different platforms and getting buy-in from users.

In contrast to the puzzle he faced back home, Montealegre had been contacted by bus cooperatives from abroad that were hoping to bring MPESO to their countries. He had already conducted extensive talks with representatives in the Dominican Republic and Costa Rica. Some of the bus cooperatives and governments of these countries saw how successful MPESO had been at transforming Managua's bus fare system, and they were hoping to see that success replicated in their own backyards.

Montealegre likewise saw other opportunities in these two countries. Even though the unbanked rates there were not as high as they were in Nicaragua, the constraints in access to financial services were significant. Montealegre not only wanted to provide financial services to those who did not have access to them — he also wanted to get people with bank accounts to use their money in ways that would be as free as the Internet and modern communication would allow.

There was also a significant number of Nicaraguans living abroad, particularly in Costa Rica. In 2014, approximately 400,000 Nicaraguans[73] sent USD 282 million back home from Costa Rica, both as payment for services and as transfers to family.[74] In Montealegre's view, this population represented a large, untapped market — getting them to adopt MPESO would create a surge in person-to-person transfers, raising the visibility of the service and potentially providing the key to its widespread adoption.

It was also attractive for MPESO to expand abroad from a bottom line perspective. Montealegre had spent years and invested much capital in developing the MPESO bus fare product into a tour de force back home, a position that afforded him strong leverage in negotiations with potential partners abroad. For one, Montealegre did not have to spend a year proving to these outside partners why the MPESO bus fare product made sense for them; the impact had been proven, and the potential partners were already interested in the platform. Montealegre was also confident that he could easily transpose what had worked in Nicaragua to these foreign markets. After the Nicaraguan implementation, he knew which mistakes to avoid and was aware of the factors that had complicated the original rollout.

All in all, although expanding the bus fare product to Costa Rica and/or the Dominican Republic would create more MPESO users and increase both the company's revenues and its geographic footprint, Montealegre had to consider whether the move would dilute his original mission — financial inclusion back home. Still a start-up, MPESO risked losing its brand in Nicaragua if domestic operations were placed on a back burner or not managed as proactively as they had been up to that point.

Part of Montealegre believed that he could focus on both expanding abroad and on maintaining momentum within Nicaragua. Still, if he spent most of his time in Costa Rica and the Dominican Republic, it would be difficult to innovate and break into new markets at home, particularly if business abroad precluded him from traveling back home to manage domestic operations firsthand.

Montealegre was torn. Opportunities abroad could be lucrative, but he had founded MPESO as a means of extending financial services to the citizens of the country he loved. He now had to decide if the benefits of expanding operations to new countries were worth delaying or compromising his mission at home. He also wondered if expansion abroad could ultimately benefit MPESO's penetration in Nicaragua.

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