

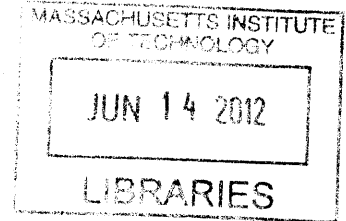
Strategic Analysis of Mobile Money Ventures in Developing Countries

By

Luis Caballero

Master in Business Administration

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ARCHIVES

SUBMITTED TO THE MIT SLOAN SCHOOL OF MANAGEMENT IN PARTIAL
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Submitted to the MIT Sloan School of Management on May 11, 2012 in Partial Fulfillment of
the Requirements for the Degree of

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the Massachusetts Institute of Technology

ABSTRACT

Mobile money services are spreading rapidly in many developed and developing countries across the world. Whereas in developed economies these new services are seen as a way to make current services more functional and convenient, in the developing world their relevance in the process providing access to financial services to the poorest segments of the population is welcomed and encouraged by the international development community. The spread of mobile money is seen as a catalyst for financial inclusion and the speed at which these services become available will be partly due to the stakeholders' capacity for implementing them.

Mobile money projects have new been launched across many developing nations, targeting the opportunity of a common phenomenon: a gap between the high penetration of mobile services and the low penetration of financial services. The measure of success of those ventures has been mixed, with hallmark cases rapidly reaching over 10% of the population and other cases being discontinued or re-launched in the face of failure.

The history of the development of such projects highlights several lessons for current and future stakeholders. First, an industry context with high demand and low-enough penetration of financial services, together with a thriving and innovative telecommunications industry seems to be conducive to success. Second, a favorable regulatory environment in which regulators allow telecom operators, banks and small and medium-sized companies to experiment with different models to provide mobile money to the masses is advisable for avoiding roadblocks for growth. Third, success will partly depend on the service provider's capacity to develop a far-reaching ecosystem of merchants, agents, banks and other partners in order to achieve ubiquity. Lastly, services with strong network effects such as domestic remittances can deliver faster growth than others, seeding the scale needed to offer more complex financial services over mobile money platforms.

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This thesis not only brings a close to my tenure at MIT, but also draws from my professional and personal experiences in a way in which it has allowed me to realize the impact that so many people have had in my life. To them a few words.

First and foremost, to God, for taking the driver seat in my life.

To Daniel Bailey, Antonio Sedan and the MSMS staff for believing in me. Without them I would have never been here. Mauricio Villasmil is in this group too. Yet he is also responsible for shaping a business and leadership vision that now transcends frontiers and has taken me to the next level professionally.

To the driving force between anything I do: my dad, my mom, my brother and my sister.

To those destined to celebrate this success and others with me, regardless of where I am: my friends (both old and new).

And finally to the one that endured and pulled me through the dark side of all of this: the frustration, the stress, the intensity and the insanity. Gracias cielo!

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1. Introduction

Amarilis Lopez is a 25-year-old housekeeper in a wealthy eastern Caracas neighborhood in Venezuela. She works and lives five days a week in a large house for a decent wage which she mostly uses to support her 6-year-old daughter Frangelis. Frangelis lives with her grandmother in Guacara a small rural town 2 hours away from Caracas, when her mother works.

The only time Amarilis sees her daughter is on Sundays. Her typical Saturday involves spending a large amount of money travelling to one of the few malls in which banks are opened on weekends to cash-in the check she receives every week. After the long lines take up her morning and early afternoon she finds her way to a distant bus station, to catch the next ride to Guacara and normally gets there after Frangelis has gone to bed. She would carry cash for the rest of the day, hoping not to become a victim of one of the highest crime-rates of any city in the world. She would hope to spend most of Sunday with her daughter, however she needs to settle debts and pay bills to local shops, informal lenders and utility companies that provide Frangelis and her grandmother with all the little girl needs to stay in school.

Needless to say, being a single Mother, Amarilis does not have savings and if she did, she would have to keep her money under the mattress of her small house in crime-struck Guacara, because she is not eligible for a savings account. Furthermore, the time she spends travelling back and forth from and to Caracas prevents her from obtaining any type of education during her free weekends, so she is bound to stay at her current job for a long time.

Because of technology currently available elsewhere, Amarilis's life could be dramatically different. For instance, instead of getting paid in a Check which she nervously protects every Saturday in dangerous public buses, she could receive her salary directly in an electronic account

tied to a cheap mobile phone which she has owned for several years. Instead of going to the bank to cash-in her check she could go to Guacara town straight out of her work hours on Fridays, visit a small bodega and cash-out there keeping the money she used to spend visiting the mall as savings in the same electronic money account. Such an account may even be paid interest encouraging her to save more. The time she spends in the town can now be concentrated in her daughter since she could handle the payment of her bills during the free time she has at work every night, because she could pay those bills from her mobile phone. And when that same phone rings with an emergency that requires unexpected spending to help her Mother, she does not have to take a day away from her paycheck to travel to Guacara. She can resolve it quickly using here phone to transfer money to her mother.

The dream can be taken several steps forward. Because of the time and money Amarilis could save, there is even a chance she can attend some kind of technical college on week nights. With her mobile phone account she could even obtain access to and routinely pay off a small loan to cover tuition. And think about Frangelis, who now sees her mother a lot more. What will that mean for her future? What impact would an educated mother would have on her life?

And, in a broader context, the spread of access to financial services to people like Amarilis in hundreds of lesser developed nations can have a rippling effect. The money that hundreds of domestic migrants like Amarilis spend in rural Venezuela instead of being left in the capital can be meaningful for the local economies of towns like Guacara anywhere. Furthermore, as many like Amarilis start to save money in electronic accounts gaining interests, a country like Venezuela, in dire need of productive investments, can see its capital markets grow ushering in more productive uses of money.

Histories like the one of Amarilis can be found anywhere from Peru to Cambodia, and from the Pakistan to Nigeria. Financial inclusion enhances and empowers the poor in unprecedented ways and gives them the tools they need to overcome poverty. And the mobile phone, ubiquitous in most of these countries, can become a channel through which those services are provided.

The most interesting part about these prospects is that the technology that has been mentioned was not developed in Silicon Valley, a Tokyo Lab or a Soul-based R&D facility. A Kenyan and a Filipino mobile network operators (MNO's) were pioneers in the later part of the last decade introducing services which transform simple feature mobile phones into financial services tools.

Today hundreds of companies have seen and acted upon the same opportunities to launch mobile money services all across the developing world. Their success rates have been mixed: some have paralleled the impressive adoption rates seen in Kenya, other have quickly divested because of failure to stick. This thesis takes a look at some of these stories in the hope of identifying the key strategic elements that should be addressed when coming up with a mobile money scheme. The objective is to give business stakeholders as well as government regulators in the developing world guidelines to assess the probability of success and failure of these projects. Namely the thesis will look (i) to describe the opportunity of mobile financial access across the developing world and (ii) to understand the business and industry-wide factors that make some cases more successful than others.

2. Mobile Money

2.1. Mobile Money Concepts

Beth Jenkins, a researcher at the Harvard Kennedy School, defines mobile money as “money that can be accessed and used via mobile phone” (Jenkins). In a broader definition GSMA, a world-wide association of telecommunications operators which has research and support project called Mobile Money for the Unbanked, defines the term as a ” service in which the mobile phone is used to access financial services” (GSMA).

In this more comprehensive look at mobile money as an instrument for financial services, the concept acts as an umbrella for a wide range of services that can be accessed through mobile telephony and which aim at combining existing financial tools with the convenience of a mobile phone. CSMG, a consultancy, has narrowed down the use of mobile money into four distinct categories (Young, Bricker and Hall):

1. Mobile wallet: services in which the mobile phone serves as a substitute for cash or cash equivalents, and in which users use their phones to pay for diverse products or services.

Some relevant uses for this category that are in use today are:

- a. Payments with mobile phones in retail outlets and shops
 - b. Payments with mobile phones of transportation passes
 - c. Payments with mobile phones of prepaid cell phone top-ups¹
2. Personal Finance Integration: services in which users get the chance to use their mobile phones as a tool to perform finance-related personal transactions and access to financial information. Some wide-spread applications are:

¹ A cell-phone top-up is a standard for paying mobile services in most developing countries. Usually it involves the purchase of a small disposable card in which a code is unveiled. By entering the code into the phone, the users loads the airtime equivalent to the card purchased, which is to be used with his or her mobile phone.

- a. Accessing savings and checking account information through mobile phones
 - b. Budgeting through mobile phones
 - c. Repayment of loans and credit cards through mobile phones
 - d. Payment of bills through mobile phones
 - e. Applying for loans or credit cards through mobile phones
3. Peer-to-Peer transactions: services in which the mobile phone is used to transfer money from one person to the other using an electronic platform. Some uses include:
- a. Transferring money from one bank account to the other through the mobile phone
 - b. Performing domestic or international remittances of cash through mobile phones
 - c. Sharing coupons through mobile phones
4. Retail Improvement: a less developed category refers to services which improve the retailing experiences of customers through the use of mobile phones. Some early-stage experiences have been found in:
- a. Using loyalty program benefits through mobile phones
 - b. Acquiring and using coupons through the use of mobile phones
 - c. Checking in and out of hotels and shops through the use of mobile phones
 - d. Targeted advertising through the use of mobile phones

Generally speaking, the applications of mobile money technologies can also be understood through the point of view of what it offers customers. There is a varying degree of value propositions that services providers can communicate and deliver to customers through the use of mobile money. Those propositions can be categorized in three relevant clusters:

- Convenience: leveraging the use of mobile telephony and what it entails to offer more convenient ways to provide services which the customer already enjoyed. An example of

this is the use of mobile phones to access your bank account and perform electronic transactions through mobile phones. Although the services of obtaining information on your previous transactions and performing bank transfers already existed through the use of bank agencies or on-line applications, the use of mobile phone makes the process more convenient. Users do not have to go all the way to the agencies or wait to go home and get on the computer to perform a transaction. They can use the phone to satisfy their financial need wherever they may be.

- **Functionality:** the use of mobile technology to expand or enhance the functionality of a previously existing service or solution. An example of this is the use of mobile phone as transportation passes. Although the solution already existed (in this case paying with cash or credit card), mobile technology provides an improved way to go through the process. Instead of having to collect the amount of cash needed for the bus pass (oftentimes requiring exact amounts of cash) or pulling out a credit card, some solutions like Near Field Communication (NFC) allow customers to simply move their phone close to a receiver in the station or bus, effectively performing the transaction.
- **Access:** in a more complex way, mobile technology can allow for the reduction of transaction costs associated with physical infrastructure, permitting customers who previously did not have access to a particular financial service to experience it for the first time while protecting service providers' profits. An example of this is the use of domestic or electronic remittances through the use of a mobile phone. Whereas such services could sometimes be linked to the use of a bank account, some service providers will use the low cost and broad access of mobile telephony to allow users to transfer money from phone to phone without the need for an account. In places where the access

to electronic transactions in limited, the mobile phone brings the possibility of enjoying the security, affordability and functionality of this type of transactions to people who were previously excluded from it.

There is certainly tremendous potential for mobile money to deliver value in each of these fields improving the lives of the users who engage with these services. In the examples that have been analyzed, the savings of time and money for people that can now save a visit to financial institution mean not only more productive lives for users but a lesser need for banks to incur in the cost of maintaining agencies. Similarly, transportation companies can offer easier ways to access their services while at the same time improving the flow of people within their stations or buses. Finally, the idea that the phone can become a cornerstone for access to financial services is, for many, the most far-reaching effect that mobile money technologies may have. As this thesis will explain, the potential of mobile money as a means for financial inclusion is extraordinary as past experiences in developing countries would suggest.

Another relevant concept to understand is what experts call “the mobile money ecosystem”. Rather than being a feature developed and delivered by one company or service provider, mobile money usually involves a large number of players with interests that are aligned with the growing reach of some of these services. Building on previous research (Jenkins) a broad categorization should include:

- MNO's: who provide the basic infrastructure behind how these technologies work as well as the most direct contact channel with customers.
- Banks: who will undoubtedly be providing some of these services, but that could also act as enablers and complementors for the implementation of third-party initiatives.

- Handset manufacturers: who contribute with the construction of the customer experience by providing the hardware and some of the software upon which some of these services will run.
- Merchants and Retailers: who will benefit from the traffic of users who will be convinced to come into their stores because of the use of the new technology
- Regulators: who will seek to provide the guidelines for proper and secure functioning of these new technologies which have the complex financial services industry behind it.
- Non-governmental Organizations (NGO's) and civil society: with an interest vested in improving the lives of the poorest segments of society, will see these services with a potential for positive impact on development. In some cases they could potentially act as catalysts by massively using the service to provide aid in form of cash.
- Distribution networks: which, in the case of some services, will be pivotal in establishing a touch-point with users in order to provide the services.

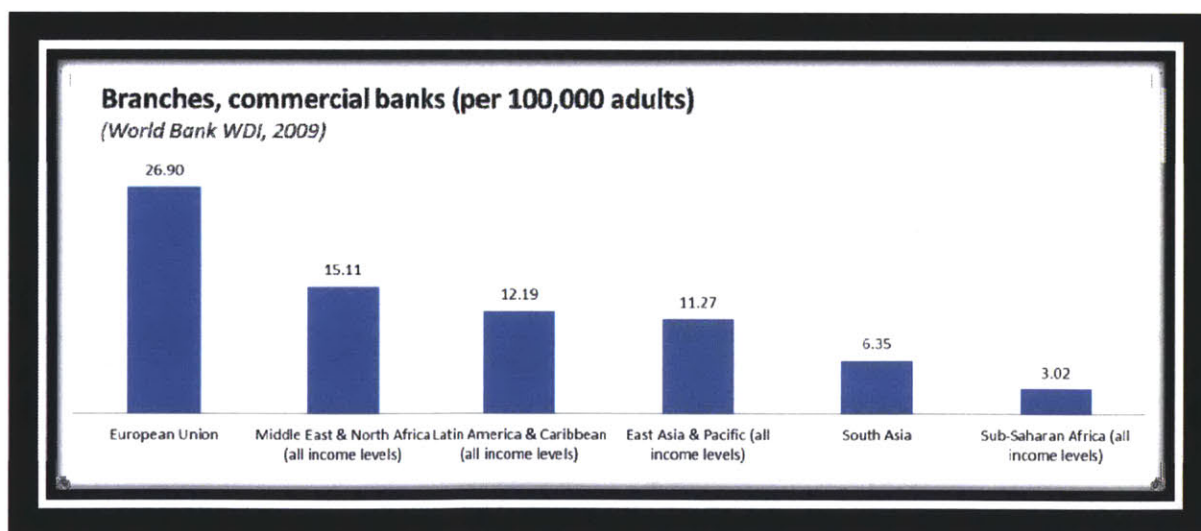
2.2. Mobile Money in the Developing World

Whereas in developed countries mobile money is seen as a way to make financial transactions more **convenient** or in a way to add **functionality** to current services, in developing countries **access** becomes the key value proposition and it gives this technology a largely different meaning. In countries where penetration of financial services is remarkably low and the reach of mobile telephony expands exponentially, mobile money is seen as a way to give people access to financial services rather than just facilitate it.

The ten years previous to the world economic crisis of 2008 saw impressive worldwide growth of two industries that have often been seen as pivotal in the development of any society:

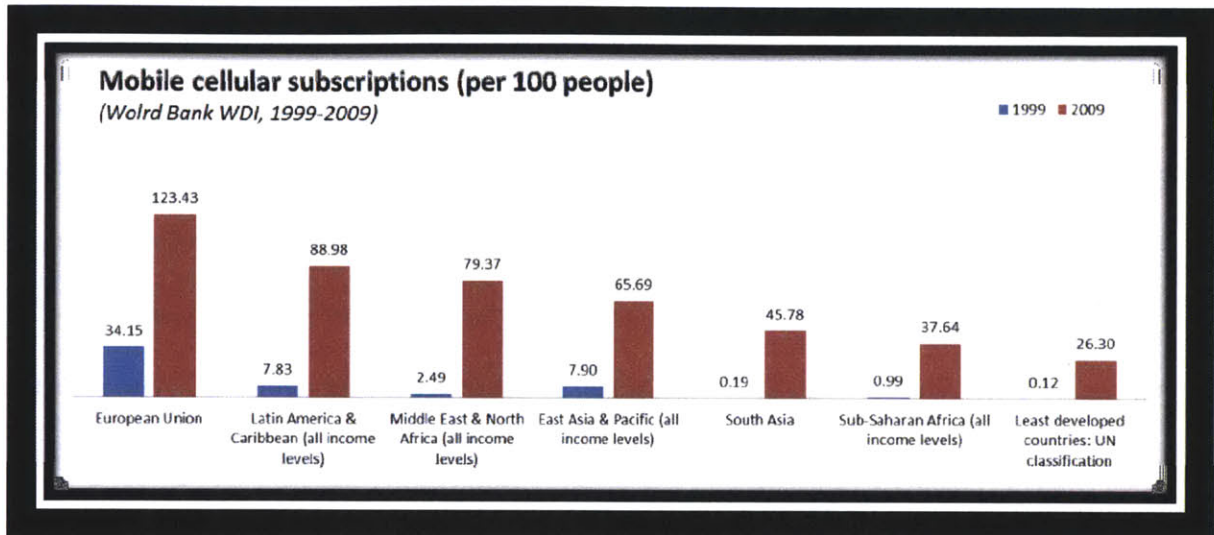
telecommunications and financial services. However, such growth and the access of those services has been uneven in developing countries with telecom operators growing more rapidly and expanding access from the wealthier to the poorest sectors in the communities in which they operate.

A good measure that can help predict and describe the situation of access to financial services is the penetration of bank branches within the population in each region. Traditionally bank branches have served as a tool for a bank to expand the base of its customers and service them throughout the geographies of the countries in which they operate. The indicator also signals the profitability of a particular geographic locations from the point of view of a bank, as usually banks will open new branches in places in which they find enough customers to justify the investments and operating costs. A look at the following graph describes the disparity between regions when it comes to bank branch penetration:



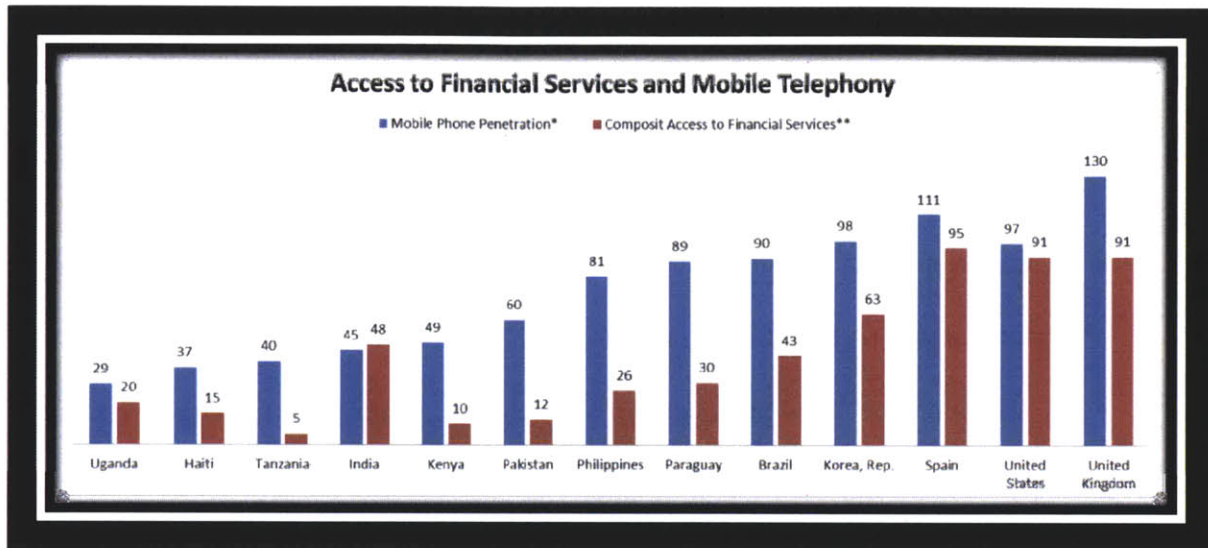
As evidence suggests places like Latin America have less than half bank branches per every 100.000 adults than developed regions like Europe, whereas in Sub Saharan Africa the situation is significantly worst.

In contrast telecommunication services and, specifically mobile telephony, have been able to reach a large proportion of the population in the developing world in a way in which it has outpaced more mature markets. The following graph tells part of that story:



Whereas Europe has been able to triple its penetration levels in ten years, in places like South Asia where less than 1% of the population had mobile phones in 1999, the figure has multiplied by a factor of over 220. Growth has certainly been impressive as MNO's have invested hundreds of millions of dollars to develop infrastructure and capture that value.

This helps explain why today figures of penetration of financial services pale when compared to those of mobile phones. The following graph tells part of this story in selected developed and underdeveloped nations:



* Mobile phone subscriptions per every 100 inhabitants 2009 (World Bank)

** Composite access to financial services indicator 2007 (Honohan)

As evidence suggests countries like Brazil are surpassing the threshold of 100% penetration of mobile services to resemble developed nations such as Spain, whereas in terms of financial services countries like Tanzania do not reach even 10% of households. The composite measure shown in the graph accounts for formal and informal access to financial services and so the figures of formal banking penetration can be even more alarming. In Paraguay, for example, it is noted that fewer than 6% of the population have any sort of bank account (Tellez and McCarty).

This context has led Mobile Network Operators (MNO's) across the developing world to see access to financial services as a big opportunity to provide even more comprehensive services to its customers. In most cases those MNO's have the market knowledge, the technological infrastructure as well as strong relationships with governments and regulators, which make the

investment in mobile money feasible. In their eyes the opportunity of tapping into the un-met demand for financial services through the mobile phone means:

- A way to produce incremental revenue through the up-selling of services which by themselves can be charged to customers
- A way to increase customer loyalty with the assumption that a customer who uses more than one product from a company will probably stay longer
- A way to reduce distribution costs of airtime since, in most cases, the mobile money services can also act as an automatic way to top-up prepaid mobile accounts.

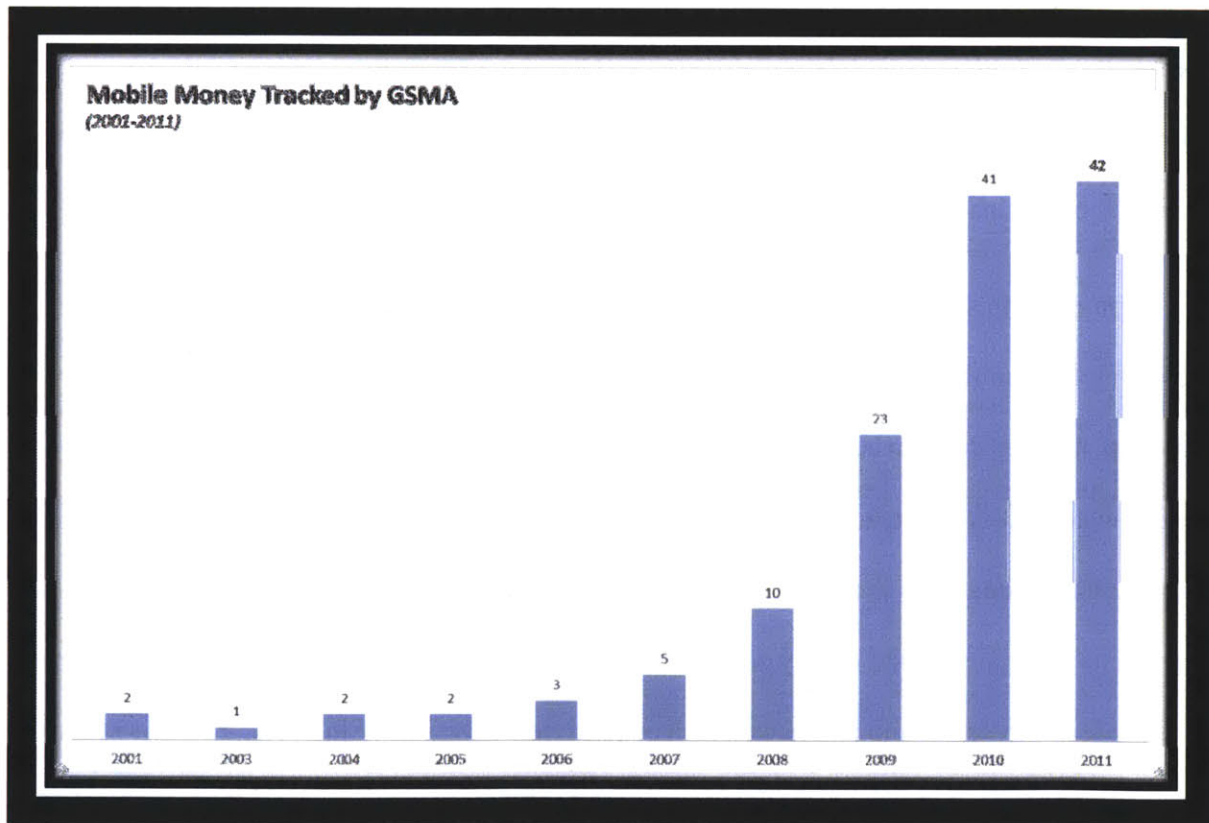
2.3. History and current State of Mobile Money

In the developed world mobile money schemes have been around for over a decade. Since the advent of the internet and the increase of mobile phone penetration, both banks as well as telecom operators have looked for ways to provide convenient features to allow customers to perform transactions through mobile phones.

However, in the developing world the first initiatives towards providing mobile money services to an expanding base of mobile subscribers came in the beginning of the 2000's. The oldest-know high-profile case is that of Philippine's Telecom market leader Smart Communications which launched its first mobile money experiment back in 2001 (Pickens). SmartMoney sought to take part in the multi-billion dollar international remittances corridor that flows into the Philippines. Over 11% of Philippine's GDP comes from a massive Filipino diaspora sending money from abroad (World Bank). Similarly, domestic remittances are also large. Smart developed a technology in which customers can receive and send money from their

phone from both domestic and international outlets. Furthermore, through the years SmartMoney has evolved expanding its ecosystem of agents, banks and partners.

The example of SmartMoney has been followed around the world. In 2010 telecom conglomerate GSMA reported that over 100 mobile money projects were to come live before the end of the year (GSMA). Today, the same organization tracks over 129 projects in Asia, Africa and Latin America, and expects to have more than 90 come alive in 2012 (GSMA). The promise of mobile money for the unbanked is becoming a reality.



However, the battle for financial inclusion as an outcome to the spread of mobile money is far from being won. A number of challenges are faced by all of the players in the mobile money ecosystems. The first is to come up with the kind of scale to make this new industry a

sustainable one and to have the level of impact that the world aspires from it. Only pioneers like Kenya's M Pesa and SmartMoney have reached levels of over 8% of the total population for a service that is aimed at the massive amount of unbanked in some of these countries. Rapid uptake remains the key challenge for the early life of the mobile money industry in the developing world.

Another important challenge is usage. Even taking into account the wide spread of customers that M Pesa has been able to reach, an MIT study suggests that M Pesa users only perform remittances once every 3 to 4 months (Suri and Jack). And remittances continue to be the most widely adopted mobile money service. This points to another challenge: the capacity for companies already established as mobile money players to persuade their customers into using more elaborate financial services.

In order to see the kind of transformative effect that development economists are expecting from mobile money, this new industry has to evolve to provide more comprehensive financial services that can actually empower people and increase productivity from the poor. That transformation is already been seen in some cases. Kenya's M Pesa, probably the best known mobile money project, recently partnered with a major Kenyan bank to launch M Kesho a scheme to associate mobile money accounts to savings accounts which could eventually be used to provide micro-credit and insurance services (Camner, Pulver and Sjöblom). Yet, it is still to be seen whether MPesa or other companies are actually able to apply the kind of strategies that will allow them to increase adoption and up-sale into more impactful financial services.

3. Methodology

This thesis looks at the intersection between the experience from various mobile money projects around the developing world and the different analytic approaches that are generically used to evaluate the strategic environment, performance and sustainability of any particular business project. This section outlines the type of analysis being done for a set of nine projects that will be discussed and how such work helps to come up with conclusions about plausible strategies for future projects.

3.1. Project Selection and Analysis

The projects analyzed were selected taking three specific criteria into account: geographic location, adoption level and data availability.

Geographic Location:

It is widely acknowledged in business literature that the prospects for success of any economic endeavor depend in part of the context and setting in which such a project takes place. As it is discussed in the following sections, the socio-economic conditions in which projects are developed are commonly seen to be determinants of much of the decisions and outcomes that are seen in mobile money projects. Understanding that different geographic locations have the tendency to produce diverse socio economic conditions, this thesis has concentrated in evaluating three projects from three different areas of the world: Latin America, Africa and Asia.

It is worth noting that all of the projects were selected from under-developed countries or countries with low-income status according to the United Nations (World Bank). This is mainly because the thesis aims at understanding mobile money in the context of lesser-developed

nations in which, as argued previously, it is thought to have the most profound developmental impact.

Adoption Level:

Another relevant criterion useful for evaluating any business projects is whether or not it has been successful. As Phil Rosenzweig would argue “in business, performance is inherently relative, not absolute” which suggests that a company’s success can only be measured against the performance of other companies (Rosenzweig). To avoid survivor bias or what Rosenzweig would call “The Halo effect” this thesis combines the analysis of successful mobile money projects with that of failed ones.

Arguably there are numerous ways to account for success or failure in the mobile money industry. The amount of transactions can be a measurement that could highlight the total amount of activity that is being handled through these platforms. However such a measure offers the danger of accounting for a small amount of users who are doing a large share of transactions. Similarly, the total currency value of those transactions has the same limitation. Since a lot of the mobile money study revolves around its capacity to reduce financial exclusion, accounting for the amount of people that use the service seems like a plausible way to account for the success of any mobile money scheme. In order to be able to compare different projects in different countries the relative measure of penetration (percentage of users in the total population) is accounted for.

Data Availability:

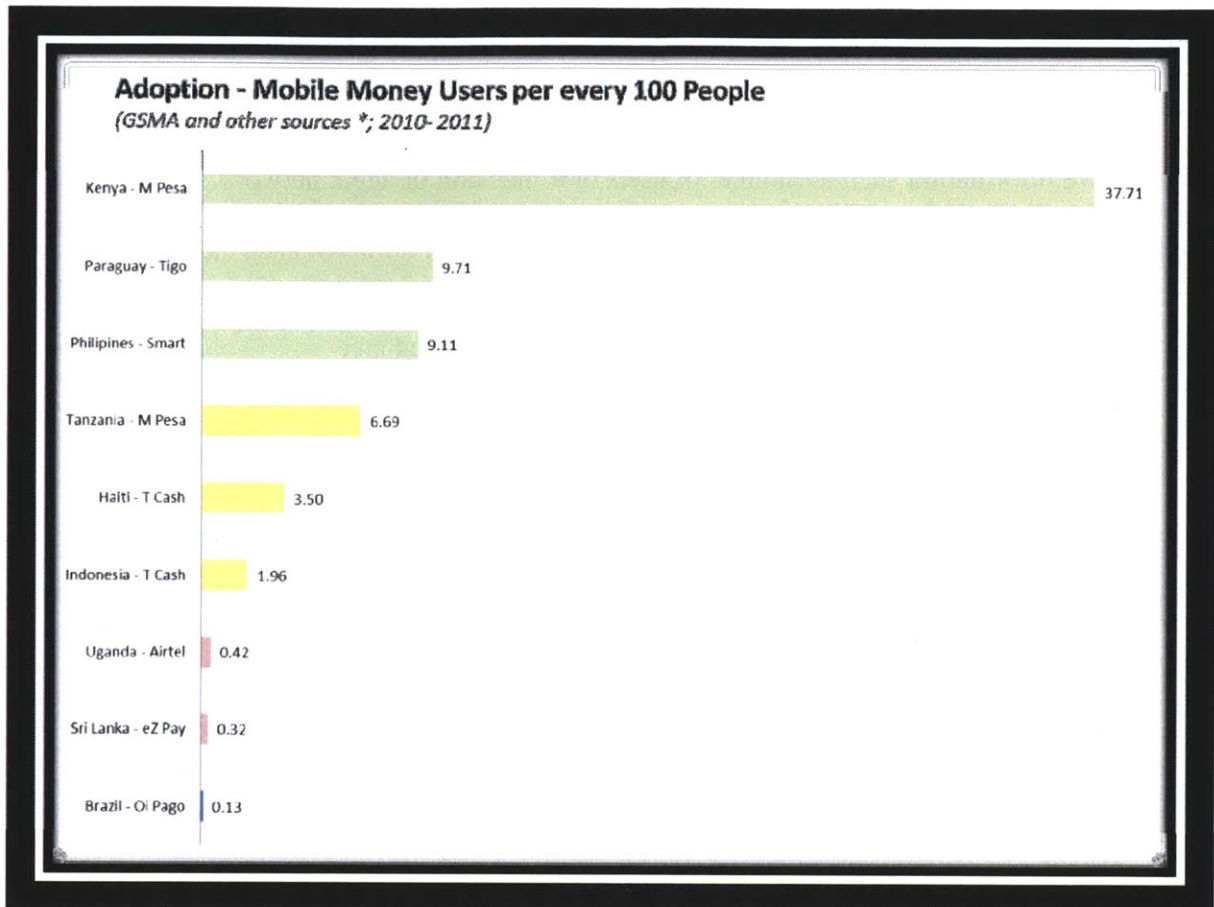
This thesis will be based on previous research by journals, academic material, focused research institutions as well as public records of stakeholders in the mobile money community. Understanding this work as secondary research, relevant limitations appear when it comes to

acquiring data for analysis. This explains why the third criterion for selecting countries and projects is how much data is available for every particular scheme. Data does not only refer to quantitative information such as number of users or dimension of agent network, but also qualitative information on the performance, challenges and limitations of each case.

Taking the three criteria into account the projects involved are:

Region	Country	Project
Africa	Kenya	M Pesa
	Uganda	Airtel Zap
	Tanzania	M Pesa
Asia	Philippines	SmartMoney
	Sri Lanka	eZ Pay
	Indonesia	T Cash
Latin America	Paraguay	Giros Tigo
	Brazil	Oi Paggo
	Haiti	T Cash

As it is shown in the following graph, there is high adoption, moderate adoption and low adoption projects in each region, having the high adoption threshold at 8% and the low adoption threshold at 1%.



* Paraguay Data from 2011 La Nacion; Brazil Data from 2010 Cielo; Haiti Data from 2011 Movillion; Indonesia Data from 2011

TeleGeography

3.2. Analytic Framework

The analysis of each project has been done taking into account both context conditions, external to the development of the project, as well as performance elements associated with the strategic decisions and implementation tactics of each company. In terms of external conditions, the thesis has looked at the socio-economic context of the country in which each project has taken place as well as industry-specific information from the businesses involved. In the case of project specific analysis the focus has been placed on understanding the ecosystem that has been

created for the deployment of each service as well as a general understanding of the product development outcomes of each case.

Socio Economic Conditions

All of the projects analyzed are currently in deployment in developing countries. However, the diverse nature of the developing world makes it necessary to analyze each project through the understanding of the different socio economic variables that characterize each particular country. It is commonly held that economic conditions constrain the decisions of economic players such as the companies that will be analyzed.

In general, the developing world has shown impressive economic performances in the last five years when compared to both developed countries as with their own performance in the later part of the 20th century. However particularities from each economy account for severe differences existing today in the level of development and prospects for growth from each country.

When looking at socio economic conditions, the analysis will center mostly in economic growth and the forces behind it. Similarly, a brief assessment of how such growth has or has not translated into poverty alleviation will also be made. Other indicators such as proportion of rural population will help explain economic conditions relevant to the context of the projects that will be analyzed. Prospects for further economic growth based on economic prediction from widely recognized institutions such as The Economist Intelligence Unit (The Economist) as well as from new development theories on economic complexity (Hausmann and Hidalgo), will also be incorporated into the analysis. The brief study of the socio-economic conditions of each country

will set the context to understand the development and current state of the industry surrounding mobile money.

Industry Structure:

Mobile Money has to be understood as being in the intersection between the telecommunication and the financial services industries. In this part of the analysis, each project's industrial context will be analyzed to understand the current competitive environment in which such schemes are being deployed.

Classic Industry Structure analysis models such as Michel Porter's five forces will be used to understand: current competitive situation of both telecom and banking industries, degree of complementarity between them and regulatory conditions that could affect the partnerships or deployments taking place (Porter). Other less important forces such as the power of suppliers will be overlooked, in the understanding that in all of the cases MNO's running the projects have enough market power to limit the influence of any particular provider of technology or services.

Market competition will be looked at for both the telecommunications and the financial services industry taking into account amount of players, market share of larger players as well as the Herfindahl - Hirschman Index, widely used in the telecom industry (Bank of America Merrill Lynch). In this part, other basic indicators such as penetration of services will also be commented, as they will be relevant in understanding the prospects for success or failure of each project.

Namely, the aim of analyzing industry structure of each case will be to (i) understand the **technological context** in which these projects will take places and how conducive they can be to the type of innovation needed for the launch of a new service and (ii) to identify possible

drivers for **demand** based on the previously-described premise of lack of access to financial services.

Project Performance and Ecosystem

The latter part of each analysis will center on the way in which each project has deployed each particular service or service features. Understanding previous research on platform strategy, the projects will be looked at from a platform perspective (Eisenmann, Parker and Alstyne). Mobile Money connects users with other users, with merchants, with agents and with financial institutions, placing the service provider in the middle of what is commonly called a “two-sided-market”.

In this platform view, the thesis will look for interactions between the company deploying the services and each side of the markets they are connecting, in order to understand their successes and failures. According to Cusumano a key lever for platform leadership is company’s ability to “build an ecosystem through cooperation and assistance, rather than coercion” (Cusumano). Hence this works looks to understand the key indicators behind the performance of each project as an outcome of an ecosystem-building strategy.

A few theoretical elements to look for will be the ability to generate same side and cross-side network effects, interconnectivity of each platform and level of differentiation in those cases in which there is already competition in mobile money (Cusumano).

4. Project Profiles

4.1. Low Adoption Projects

4.1.1. EZ Pay – Sri Lanka

The Socio Economic Context

Following over 25 years of civil war, the government of Sri Lanka has embarked in an aggressive pursuit of economic growth which will be mainly driven by infrastructure investments. The economy grew at 8% during 2010 and The Economist Intelligence Unit forecast that it will continue to grow at a pace of 7.4% from 2013 to 2016 (The Economist). Optimistic economic outlooks which stems from the stabilization of the country are encouraging and they invite foreign direct investment and growth.

At the same time, the current conditions of the Sri Lankan people are still precarious. Almost 30% of people live under 2\$ a day and, although the island has a heavily dense population, more than two thirds of the population lives in rural areas (World Bank). The quality of education has deteriorated as government has pulled funding to invest in the war, and the country's trade (its most important source of revenue) has also suffered during the war. Most of the country's output is from services and agriculture only accounts for 13% of GDP and 33% of the labor force (Central Intelligence Agency).

A large contingent of international remittances is also a relevant characteristic of the Sri Lankan economy. Having a large diaspora of citizens who fled the country during the conflict, the remittances corridor is constant and sizable. Money coming from abroad inflow of remittances is almost 3Billion which places it as the second largest inflow of international currencies to the country after garment exports (The Economist).

The Technological Context

The Telecommunications industry is recognized as one of the key drivers of economic growth for Sri Lanka in recent years. It has been the anchor of a booming service sector and connectivity has improved dramatically (The Economist). Partial privatization started early, in 1997, and now international direct investment fuels the sector. By 2009 mobile services reached 68% of the population a 30-fold increase from the 2001 figure of 2% (World Bank). Internet usage has also increased greatly and mostly on urban areas, and today most government agencies and companies actively operate web pages. Internet banking has also emerged, with banks looking for more efficient ways to service its large bases of customers.

The telecom sector is also extremely competitive. Market leader Dialog, accustomed to high levels of adoption rates for its services, now faces steep competition from other three increasingly growing companies including India's giant Airtel. Dialog holds 44% of the market and the price pressure as well as its decision to heavily invest in 3G infrastructure have given it decreasing profit margins in the last few years (IFC). This situation could potentially constrain the capacity for innovation of Dialog and other players.

The Demand for Financial Services

Since liberalization in 2003 the banking sector of Sri Lanka has grown rapidly. Sri Lanka has become a benchmark for a government-led financial sector that has achieved both growth and inclusiveness in less than 10 years. By 2009, Sri Lanka had 1,650 accounts per 1,000 adults impressive when compared to the median in South Asia which is 318 (IFC). Its composite access to financial services indicator is an impressive 59% the highest amongst the countries analyzed

by the thesis (Honohan). The main reason for the high level of access is the structure of the industry. The top three commercial banks are state owned, and the first two of those control over 41% of the assets (IFC). All state-owned banks have a mandate to extend retail infrastructure to the rural areas of the country which accounts for the high level of branch penetration (9 commercial bank branches and over 50 cooperatives per every 100,000 adults) (World Bank). Other sources of demand could come from services such as ATM's, credit and debit cards, from which penetration continues to be low.

This accounts for a situation in which there is less banking services demand than in other developing countries. However data also shows that per user balances are the negative outcome of having such a broad range of customers. Whereas account ratios, which are indicative of income per-user income, in Pakistan and Bangladesh are over 2.0, in the case of Sri Lanka the small balance in accounts result in a ratio of 0.4 (IFC). This could be indicative of the Banks' unwillingness to reach broader audiences than those they currently serve. Furthermore, new private-sector banks are likely to continue to pursue higher-income customers.

The eZ Pay Ecosystem

In 2009 Dialog partnered with state-owned NDB Bank in order to launch its first mobile money project: eZ Pay. It would be the first distinct operator-led mobile money effort in the country and it provided the struggling Dialog with an opportunity to reduce distribution costs for its pre-paid top-ups as well as to obtain new revenue streams (IFC).

The business model planned for sustained growth and specified that transaction fees would be shared not only by the bank and Dialog, but also with the software provider. Utility bills seemed to be the first focus of the model and merchants were recruited to do cash-in and

cash-out transactions, whereas registration was only done in Dialog service centers. Eventually Dialog envisioned bringing in other banks and even other operators to integrate into the platform (IFC).

The Outcome

From its launch in 2009 the product was only able to acquire 6,600 users (GSMA). Reportedly the efforts to continue to promote eZ Pay were halted in February 2009. The outcome falls short of Dialog's vision of acquiring 100,000 customers in order to break-even with the product (IFC). Continued expansions of merchants, bill payment options or product portfolio were also halted.

The main reason behind the failure of eZ Pay has to do with the lack of a consistent customer-facing value proposition that could appeal to a specific audience. In a country characterized with high penetration of financial services it did not target the small segment of underserved unbanked users. However it also did not target the higher-income banked customers of NDB. It seemed to try to acquire a massive audience without the consistency needed to appeal to a banking-literate population.

In consequence Marketing efforts, so relevant to distinguish the product from existing alternatives, were inadequate and limited. Months after the launch most marketing support ended and not enough material was distributed to merchants in order to promote the service (IFC). IFC reckons that Dialog failed at targeting a specific market need in a very particular country. In their view both retail payments, because of the lack of debit and credit cards in the market, as well as peer-to-peer transactions, because of national and international remittances corridors, were the most attractive opportunities that Dialog did not pursue (IFC).

4.1.2. Oi Paggo - Brazil

The Socio Economic Context

Brazil is, arguably, one of the most important and fast-growing emerging economies in the world. According to the World Bank it has grown at an average pace of over 3.6% over the last 10 to become world's seventh largest economy (World Bank). Furthermore its growth has been accompanied by a significant reduction of the historical levels of inequality and poverty that the country has had. Brazil's has taken its poverty head count ratio from 35.4% of the population in 1999 to only 21.4% in 2009. This means that in a rough estimate Brazil brings around 7 Million people from poverty to middle income every year.

This context provides a promising economic environment to new business in general as well as for mobile money ventures. One of the most important growth areas in the last 10 years in Brazil has actually been financial services. This has meant both that large domestic financial institutions have grown significantly and that new players have also entered the sector.

The Technological Context

Mobile Network operators have aggressively invested in increasing infrastructure and capturing the value opportunities presented by increased purchasing power. In Brazil only four MNO's (Vivo, Claro, TIM and Oi) control 95% of the market (Bank of America Merrill Lynch). They all have over 18% of market share and have enjoyed high levels of growth for the past five years. Even though in 2010 mobile penetration in Brazil surpassed the 100% barrier, analysts predict more growth in the sector as broadband (both mobile and fixed) and smartphones continue to become ubiquitous (Bank of America Merrill Lynch). This, together with the first-

mover advantage undertaken by banks, explains the lack of interest of MNO's is being innovative pioneers in the mobile money market.

Brazil is also one the most technologically advanced banking sectors in the developing world, having more POS per capita than any other Latin American country (World Bank). Furthermore the Brazil holds a level of internet penetration (40% in 2010) higher than that of the Latin American region (at 33% in 2010), growing at an average 33% yearly over the last ten years (World Bank). This has also stimulated banks to innovate in On-line banking which is another way to efficiently service its increasing base of customers.

The Demand for Financial Services

The growth of the financial services industry fueled by the rise of major banks with global ambitions such as Itau and Brandesco, has helped ignite economic growth in Brazil in the last 15 years. Particularly, the growth of microcredit through incumbent banks and new focused banks has been impressive. The World Bank and other analyst deem Brazil as a leader and benchmark in offering Branchless Banking services (CGAP). Many banks have innovated in establishing services to reach the lower income levels of the society and have used a network of branchless channels to do so. Today these new channels reach over 99% of Brazil's municipalities. (CGAP) This has dramatically improved access to financial services in a country historically marked by high levels of poverty. The composite access to financial services measure has Brazil with 43% of penetration, significantly better than other large Latin American nations such as Mexico (25%), Argentina (28%) or Venezuela (28%)² (Honohan).

² Chile is the leader in Latin America with 60% (Honohan)

It is also worth noting that a lot of this change is commonly attributed to strong efforts from the government to promote adoption of financial services. GCAP states that “Brazil’s success with correspondents is a result of 10 years of back-to-back regulatory steps, evolving from more restricted possibilities to less stringent licensing conditions (CGAP).” Regulation has allowed and encouraged Banks which today are aggressively taking steps to reduce the gap in demand for financial services and innovating in business models that allow them to reach the poor.

Strong competition is now in place with top tier Brazilian banks such as Bradesco or Banco do Brazil, higher-end international banks such as Santander, and newcomers focusing on micro-credit such as Banco Lemon. Most of those institutions have looked to serve the massive market of unbanked. Such growth explains why most of the interest on mobile banking technologies has come from banks instead of from the telecommunication industry. Fighting intensely for market share, banks saw the growth of income in the lower sectors of the economy as an opportunity. Banco Limon was a pioneer in establishing networks of correspondents to serve the poor. Yet it was quickly overtaken by the major banks which moved in with similar business models (CGAP).

Oi Paggo Ecosystem

Oi is Brazil’s third largest MNO with approximately 18% of the mobile market (Bank of America Merrill Lynch). In 2005 it launched its Paggo product to allow customers to use their feature phones to perform retail payments. As it was launched it exemplified a Telecom’s move into an adjacent field building its own platform and network of customers and retailers to capture

value. It targeted directly the poor and unbanked aiming to offer them something similar to a credit card that they could use to substitute cash (Telco2).

Its product development strategy started with and revolved around retail payments. This required Oi to leverage its existing base of top-up agents and establish new agreements to make sure that enough merchants would accept the payments. Its strategy was always to provide low fees to merchants and looked to keep them under 2.5% (Telco2). Furthermore, being partly owned by Banco do Brazil, Paggo has relied upon the POS Cielo network. Additionally strong advertising support was given to the product including massive TV campaigns highlighting ease of use.

The Outcome

After almost seven years in the market Oi Paggo has struggled to make it beyond 1 Million customers and actual regular users don't surpass 250.000 (Telco2). Although Oi pulled from its experience in marketing technological new products, its agent relationships, and its partnerships, it failed to make the kind of progress that was initially expected. A commonly cited explanation is that regulation did not allow Oi to go beyond the management of an e-wallet to advance its product development strategy into more sticky services such as peer to peer or bill payments.

However, the most important explanation can be found in industry conditions. Unlike in other countries where MNO's have had exclusive first mover advantages, Oi had climb into a market where people have other options for accessing financial services. Although banks have had limited experiences in providing mobile solutions to its clients, poor people in Brazil already

had access to agents that could serve as providers of cash, micro-loans or remittances, which made the need for an e-wallet less pressing.

Additionally the same industry structure points to an unfavorable agent dynamic for Oi. Whereas, a lot like most other countries, MNO's have longstanding relationships with small business to sell pre-paid top ups, in Brazil Banks have done a remarkable job of recruiting agents themselves. Therefore the agent infrastructure in Brazil is highly developed and has been introduced for years to the type of cash in and cash out transactions relevant to make mobile money ventures work. Yet the influence of the massive micro-banking industry offering commissions on account openings or small loan processing, has made the value proposition of Oi towards agents less attractive. This also explains how in terms the reach of its agent network Oi is behind the most prominent examples of branchless banking in Brazil. And, as it is discussed in chapter 5, a ubiquitous agent network is vital in the development of the cross-side network effects that are needed to increase adoption rates.

4.1.3. Airtel - Uganda

The Socio Economic Context

After years of conflict and instability, the 1990's saw Uganda, a country with vast natural resources, take on major political and economic reforms to promote growth. Today Uganda has achieved sustained economic growth averaging over 7% in the last ten years (World Bank). The economy depends on agriculture for over 80% of labor and 21% of GDP. Furthermore, it has been able to increasingly diversify its economy from the dominance of coffee exports, now exporting fish products and tea. The country is also working on developing an oil industry because of recently found oil deposits (Central Intelligence Agency). Recent studies on

economic complexity forecast that Uganda will be the country with the most GDP growth in the world at over 6.4% from 2009 to 2020 (Hausmann and Hidalgo).

However, Uganda continues to be a poor country with a per capita GDP of slightly over \$ 1.200 and over 64% of population living under 1\$ a day. Its reliance on agriculture explains why still over 86% of people live in rural areas (World Bank).

The Technological Context

Telecommunications in Uganda has been booming with growth rates surpassing 50% as liberalization of mobile telephony has increased competition sharply (Bank of America Merrill Lynch). Today there are five major mobile network operators and intense competition has produced a price war that has significantly reduced average revenue per user. However, penetration continues to be at a low 39% and companies are investing hundreds of millions of dollars in revamping infrastructure in order to seize more growth in subscriptions (World Bank). Furthermore, opportunities abound for mobile internet, as less than 20% of people have access to web connectivity (Bank of America Merrill Lynch).

The Demand for Financial Services

The reforms undertaken in the 1990's included restructuring of the financial sector. Local informal banks abounded and the government undertook intervention to formalize the sector and clean up risky and illegal ventures (Bankers Academy). After years of reform, in 2004, the Central Bank decided to place a moratorium in the licensing of new banks, which significantly reduced the chances for growth in the industry.

Since the lifting of the moratorium in 2007 increased competition has taken place seeing new entrants in the market to challenge established firms with a strong presence such as Stanbic Bank, which commands the market with over 22% of the assets (Bankers Academy). However, history has made the banking sector in Uganda lag behind its East Africa peers, and this has had an obvious impact in increased demand for financial services. Uganda has only 1.9 formal bank branches per 100,000 inhabitants whereas Kenya has 4. Estimated penetration of banking accounts is only 16% and composite access to financial services stands at only 20% (Honohan).

The Airtel Ecosystem

Formerly named Zein, Airtel lags behind MTN in the mobile phone market in Uganda with around 18% (Bank of America Merrill Lynch). Those same two companies have been in competition for increasing its customer base aggressively since the late 1990's. In 2009 the company decided to launch its ZAP mobile money product knowing that MTN would launch its own.

From its conception ZAP looked for differentiation by providing a suite of services rather than just money transfer. Apart from domestic remittances it emphasizes bill and merchant payment services as well as phone top-up. This approach resulted in a few particularities worth analyzing (Leishman):

- Zap preached a strategy of cash substitution, meaning that it encouraged its customers to keep money in their accounts rather than only using it for transfer. The company seeks to create a cash-free ecosystem in which a customer would receive his salary through the system and then use it to pay bills, buy in restaurants and retail shops, top-up their phones and transfer money to his/her family.

- Based on the cash-substitution premise it has looked for agents who do not only do cash-in and cash-out, but who would also accept payments for their businesses through the product, and it incentivized its agents to keep float in their accounts.
- Aiming at establishing a ubiquitous ecosystem Airtel has worked to get B2B partnership in which it ensures the use of its products to pay salaries to employees or settle invoices with suppliers.

The company has established a low transaction fee strategy in order to compete with MTN and it has leveraged its existent airtime dealer network to recruit more agents. Its agent strategy appears to be successful having more than 4000 and outpacing MTN.

The Outcome

The last record of Zap customers places penetration of the service under 1% of the total Uganda population with approximately only 140.000 users (Leishman). Low levels of adoption can be attributed to lack of customer awareness and market power. Research by GSMA suggests that the company has sharply underinvested in marketing efforts to educate customers about the services (Leishman). In a country that can be considered literate in terms of mobile money and with its top competitor having over 40% of the mobile market, the company needs to find a strong way of communicating its value proposition to differentiate itself from the competition.

Furthermore, Airtel's strong focus in cash substitution across its platform is quite ambitious and will take a long time to stick. It will have to convince not just users but other relevant players in its ecosystem (merchants, agents, medium and large businesses) to buy-in to its strategy and evidence suggests its efforts thus far have been fruitless in a country with strong competition for influence in each front.

4.2. Moderate Adoption Projects

4.2.1. T Cash- Indonesia

The Socio Economic Context

Indonesia's population of over 239 Million people makes it the world's fourth most populous country and third in Asia only behind China and India (Central Intelligence Agency). It is also home to the world's largest Muslim population. After decades of authoritarian rule, the 1990's saw Indonesia move towards democracy seeding the way towards a market economy. Today it is one of the fastest growing major emerging markets with average GDP growth in the last 5 years surpassing 5.7% (World Bank).

However, Indonesia continues to have one of the world largest poor population with over 120 Million people living under 2\$ a day (World Bank). This creates a major challenge for the Indonesian society: growing at a fast pace while making sure that the model of economic growth allows for poverty alleviation. Rural population in Indonesia is over 46% and the country depends on agriculture for 14% of its GDP and 38% of its massive labor force (Central Intelligence Agency). Nonetheless, economic and financial reforms have made industry and services grow rapidly throughout the archipelago.

Prospects for further economic growth are promising as the country continues to attract foreign investment and to enact regulation that is suitable to the prosperity of the private sector. It has smoothly sailed through the economic downturn in 2008 and is outperforming most of its neighbors and creating competitive industries such as natural gas and textiles (Central Intelligence Agency). Major challenges will be reducing corruption and revamping the infrastructure needed to sustain growth.

The Technological Context

The Telecommunications industry in Indonesia has grown impressively during the last ten years expanding access to mobile phone to the majority of the population. Today the sector grows at over 33% and while land-lines and internet access continues to struggle, mobile access thrives (Bank of America Merrill Lynch). MNO's have grown in terms of customers to reach over 78% of the massive Indonesian population (World Bank). Five major companies control 88% of the market with incumbent Telkomsel owning 51% of market share. As the growth in customer base slows down with penetration approaching 100%, this competitive market is looking elsewhere for growth in revenue streams (Bank of America Merrill Lynch). This is where mobile money becomes a plausible alternative.

Regulation has been welcoming to the concept of a cash-free society. Early in the last decade authorities foresaw the need to let non-banks hold electronic money accounts for their customers, which has paved the way for telecoms to get into the mobile money business (CGAP). However, the same regulators have been slow to recognize the role of agents as a way to expand access and have kept licensing requirements which are hard to comply with by small agents.

The Demand for Financial Services

At the forefront of the measures taken by the current administration to foster economic growth, has been a move towards introducing significant reforms in the financial sector, the use of treasury bills, and capital market development and supervision (CGAP). This has led to a significant growth in both reach and players in the commercial banking system. Bank Rakyat dominates the market with an estimated 40% of all saving accounts in the country (35 Million

accounts). It has also managed to stretch throughout the archipelago with a network of over 6,000 branches (CGAP).

However, growth in formal financial services would account for meager rates of access to financial services to most of the poor population if it wasn't for rural banks. The rural bank network is estimated to have over 1,800 informal banking institutions. This helps explain why Indonesia has one of the highest composite access to financial services in the sample of analyzed countries at 40% (Honohan). At the same time, CGAP deems that "Access is highly skewed to urban areas, and only 20–34 percent of rural households have access to banking services" (CGAP). A major challenge for the formal banking sector continues to be to expand access and capture the opportunity of underserved demand filled by rural banks, throughout an archipelago that makes investment in branch infrastructure a costly task.

The T Cash Ecosystem

To be able to tap into the opportunities highlighted above, Telkomsel launched its bet on the mobile money scheme in November 2007 with T Cash. The service permits users to hold an electronic money wallet in their phones which can then be used to pay bills and merchants across the country. The registration process requires an SMS and a visit to a cash-in agent to comply with know your customer regulations. The overall ecosystem is heavily reliant on a large base of 260 merchant partners which allow people to pay with their electronic wallet. Telkomsel has invested heavily in broadening the reach of its partner network, which now includes major brands such as Garuda Airline, most electricity carriers and Indomaret retail network (IFC).

The Outcome

T Cash has failed to see the adoption rates that have been exemplified by other products across the world. Reports place its adoption figures at 4.7 Million users or slightly less than 2% of the Indonesian population (The Jakarta Post). Furthermore it is reported that only 100,000 of those customers actively use the platform to consistently pay for services. Two issues could be identified as key to the lack of growth for such a service.

- Although in 2010 the company applied and received a license for peer-to-peer transfers, it is only recently and unsuccessfully that T Cash has been able to offer such a service. In a country of vast amounts of rural population and with banking heavily concentrated in the cities, peer-to-peer transfers could be the catalyst that it has been in other countries. Furthermore, regulation limits the ability of T Cash to increase adoption through this new service. The Bank of Indonesia requires all agents to have cash-out capability to get the same kind of license that Telkomsel got only last year, a daunting task for a small rural shop (IFC). This has led the company to have a meager 2.08 agents for every 100,000 people.

- Having an ecosystem mainly reliant on partners, the company has shied away from really connecting with the needs of the unbanked in Indonesia who barely have access to Airlines and from which only over 30% have access to electricity (IFC). Aggravating the situation is the fact that in most of the stores where it offers the service it is directly competing with the formal banking sector which, as has been analyzed, is better off than in most Asian and African countries. Furthermore, the banks themselves are devising mobile money strategies which could leverage their network of POS and ATM's (Indonesia has 13 ATM's per every 100,000 people) further outpacing Telkomsel in terms of contact points with customers (World Bank).

The lack of ubiquity seriously hampers the product's ability to generate the kind of network effects that are key to multiplying adoption rates. This is especially true considering the lack of a ubiquitous peer-to-peer transfer service that can rival informal remittances methods such as money changes and courier services. In this environment regulation prevents Telkomsel to leverage one of their key strengths as an MNO: its airtime distribution network. For many analysts it will take an alliance with a major bank or a major regulatory reform to help T Cash have significant impact (Rosenberg).

4.2.2. T Cash - Haiti

The Socio Economic Context

According to the Human Development Index Haiti is the poorest country in the Western Hemisphere (World Bank). Its impoverished population, 54% of which lives in abject poverty, has struggled to survive after decades of political instability violence and natural misfortunes. Only in the last decade Haitians have been through a major earthquake, a violent political conflict and a significant public health crisis.

This has left the country's economic structure in dire conditions. Its economy depends on agriculture which accounts for 25% of GDP and over 60% of the jobs (Central Intelligence Agency). Most of this agricultural output comes from small farming and is highly unstable because of lack of infrastructure and propensity to weather conditions. The government depends on foreign aid and international remittances for about half of the public budget. Although the percentage of people living in rural areas of 50% is lower than that of African countries, the earthquake made situation in the capital Port au Prince precarious with shortage of access to basic services.

The Technological Context

The Haitian Telecommunications industry suffers from some of the same constraints and limitations of most industrial sectors. Although exhibiting recent growth it still struggles to gain access to most of the population. With a meager increase in access (before the earthquake) in 2009 of only 4pp and the sector growing at 5%, penetration is well below the average of the region at 37.8% (World Bank). However, the intense competition between the two major MNOs is encouraging and is often seen as a good sign for the prospects of improved access to mobile technology in the country. Digicel dominates the sector with 66% of market share, followed by Viola Comcel which is reported to have more than 1 Million customers (Garcia Arabehty).

Such a situation of dire needs for financial services, a small and unresponsive banking industry and a more competitive telecom sector has highlighted the need to embrace mobile money schemes after the Earthquake. Such a need was envisioned not just by the major players but also by international organizations with Bill and Melinda Gates foundation and USAIDS offering \$ 2.5 Million to the first mobile wallet product in the country (Garcia Arabehty).

The Demand for Financial Services

The political and environmental situation in Haiti has been un-conductive to investment from abroad as well as to the establishment of a cohesive and consistent public policy to promote economic growth. The banking sector is a reflection of its instability having only five banks in the country with combined net income of only 33 Million USD. This has resulted in an alarming lack of access to financial services with only 15% of composite penetration of financial services, 1.64 branches by every 100.000 people and less than 60 ATM's in the whole country. As the

country still struggles to find its footing, it is yet to implement measures that would attract the international capital needed to have an adequate financial system.

The demand for financial services is latent and aggravated by crisis situations. Most of the foreign aid that comes into the country and which represents a sizable part of the economy, struggles to find productive uses as the lack of banking infrastructure raises transaction costs and increases risk. Identifying the potential of financial services to emerge as a catalyzer for post-crisis USAID and the Bill and Melinda Gates Foundation have been active in developing initiatives to counter the high demand gap. Its president for the Global Development program has stated: “Making financial services widely available to the poorest families in the developing world can help break the cycle of poverty by giving them a safe place to save, guard against risks, build assets, and provide opportunities for the next generation” (Bill & Melinda Gates Foundation).

The T Cash Ecosystem

T Cash was launched in late 2009 by the second largest operator in Haiti Voila in an attempt to keep up with the launch of a similar product called Tcho Tcho Mobile by market-leader Digicel. Being somewhat recent there is not a lot of documentation from Haiti on some of the key strategic elements that define these new services. However from specialized articles, reports and an interview some conclusions can be made about what has been the focus of Voila with the service.

In order to fill the gap of knowledge of financial services and produce synergies in IT infrastructure Voila established an alliance with the largest bank in Haiti Unibank. Furthermore the company has worked hard in deploying a comprehensive network of agents to deliver the

value proposition of ubiquity in a country with a low penetration of bank branches and ATM's. Customers can register at any of those agents and Viola provides 24 hour customer support. Reportedly, the company also invests in training agents in Know Your Customer requirements before it accredits them, so focus on security and fraud-avoidance is exhibited by the system (Garcia Arabehty).

One of the key stakeholders in the ecosystem has been humanitarian aid NGO's. Agreements have been made to perform transfer of humanitarian funds through the platform as well as rewarding employees and volunteers. Finally, it has also been reported that both companies have decided in a low-cost strategy to make sure they reach the bottom of the pyramid (Garcia Arabehty). Sending money through T Cash is considerably cheaper than alternative in other countries as well as when compared to other informal means of money transportation. Particularly in the case of T Cash a "mini wallet" feature allows customers to activate the wallet without having to visit an agent, which has significantly increased adoption rates (Haiti Libre).

The Outcome

After the first full year of operations Voila managed to get more than 300.000 users to perform more than 3 million transactions. As previously stated Voila has an estimated 1 Million customers, which makes the adoption rate considerably high at over 30% of its customer base in just one year (Haiti Libre). Although it has fewer customers than competitor Tcho Tcho mobile (with 450.000 subscriptions) it has managed to create a larger network of agents at 1.339 in 2010. As in other cases Peer to Peer transactions have dominated in terms of customer

preferences and have been the key driver for growth. This speaks of early growth and a country-wide trend of rapidly increasing penetration of mobile money.

The early success of the initiative can be attributed to some of the external above-mentioned factors. The active financial and regulatory encouragement by authorities and NGO's has made the roll-out efforts run smoothly for Viola. Similarly NGO's involvement in disbursing relief funds through the platform has acted as a catalyzer. On the other side, key decisions as focus on agent-network development can be considered a cornerstone for success. A commissioning structure that encourages both adoption and usage is referred to by some of Viola's leaders (interviewed by this thesis) as a relevant enabler of agent growth. Latent demand for the services coupled with rapid roll-out of the agent infrastructure seems to have T Cash on the way of becoming a success case for Mobile Money.

4.2.3. M Pesa - Tanzania

The Socio Economic Context

Per capita income places Tanzania as one of the world's poorest nations (World Bank). After ending a long period of one-party ruling it has sought to use stability to entice international investors with not much success. It is rural nation having over 70% of the population living outside major cities and relying mostly on agriculture. Agricultural produce, highly susceptible to weather conditions, accounts for more than one-quarter of GDP, as well as 85% of exports and 80% of the work force (Central Intelligence Agency).

However, recent years have seen rapid growth through the expansion of the private sector and the increase in commodity prices. The economy has grown at an impressive 6.95% average rate in the last five years, and expansionary monetary policy helped the country doge the

recession. Tanzania is the third largest African producer of gold, and other minerals such as diamonds, coal, iron, uranium, are seen as potential sources of massive revenue for Tanzania. Furthermore tourism is on the rise and it is seen to have an important role in the economy in coming years. These developments place the country on track to become a diversified economy which explains why the atlas of economic complexity predicts it will be the second country in the world that will grow the most in the coming 8 years (Hausmann and Hidalgo).

The Technological Context

There is great disparity between Tanzania and its neighbors when it comes to adoption of telecommunication services. Whereas Uganda and Kenya saw significant and consistent growth during the past 10 years, Tanzania's telecoms invested poorly and did not reach for rapid expansion of access. In 2009 when Tanzania and Uganda passed the 40% penetration threshold, Tanzania was at a meager 28%. In 2010 there were 46.5 subscriptions for every 100 people and only 65% of people were physically covered by network connectivity (World Bank).

However, there is reason to believe that improvement is underway. Regulators in 2006 made an effort to increase competitiveness substantially bringing the total number of operators to ten. Investment in telecom is expected to increase as the country continues its trend of stability and economic growth, and analysts recorded that Tanzania was one the countries with the most growth in the telecom sector in the world in 2010 with over 42% (Bank of America Merrill Lynch).

The Demand for Financial Services

Banking reform is seen to have had a role in the growth the country has experienced in the last ten years. Opening up the country has induced more competition and the entering of

foreign players such as Barclays and Citigroup. The market is now characterized by a few big players and several small local banks with a high level of competitiveness (Tanzania Invest).

However, the growth in the banking sector has not trickled down to Tanzania's massive poor population. Tanzania's composite measure of financial access places it last amongst the countries analyzed in this thesis with only 5% (Honohan), and FinScope surveys say that 54% of the country is financially excluded having no access to formal or informal financial products (FinScope). Demand will continue to rise as the country's appetite for diversification and economic growth will need a sound financial services industry to work.

The M Pesa Ecosystem

Only a year after Safaricom (partly owned by the United Kingdom's telecom powerhouse Vodaphone) introduced M Pesa in Kenya, Vodacom Tanzania (also affiliated with Vodaphone) stoke a deal to launch its own version of M Pesa in the neighboring country. The product would build on M Pesa's spectacular success in Kenya and address the need of a similar population: highly unbanked, highly rural and with a remarkable demand for basic financial services (Camner, Pulver and Sjöblom).

In many ways the product and its ecosystem resembled many of the features that the original M Pesa had:

- Worked through an extensive network of Mobile Money agents built based on the MNO's pre-existing Airtime distribution network.
- Focused on peer-to-peer remittances, although Vodacom went live also including merchant payments, airtime top-up and loan repayments.
- Easy registration process with just an ID at any agent.

The Outcome

Although optimism surrounded the launch, M Pesa Tanzania has failed to see the rapid adoption rates that its sister Safaricom saw. After the first year of operation M Pesa Tanzania had only 280.000 users, when during the same period M Pesa Kenya managed to draw over 3 Million. Today (2010 estimates) the product has surpassed the 3 Million user threshold still far from the expected growth rate (Camner, Pulver and Sjöblom). This level of adoption (considered moderate in this thesis) could be attributed to both external factors and failed strategies implemented by Vodacom.

As said previously competition for market share in Tanzania's telecom has been fierce in the last few years. Furthermore the example of M Pesa in Kenya made other Tanzanian MNO's interested in launching similar products. Therefore, although it was amongst the first, M Pesa Tanzania is now competing with other 3 mobile money products. This means that it not only needs to struggle for customer attention and engagement, but also that convincing agents will continue to be difficult. Furthermore, although the registration process is simple enough, unlike in Kenya and Paraguay, there is no standard Identification system for citizens which limits adoption rates.

On the other hand, in trying to copy M Pesa's model for Kenya, Vodacom made some costly errors. Although it aimed for a ubiquitous agent network, the reality was that Vodacom had limited leverage with a highly concentrated market for major airtime dealers. As an alternative it looked to establish direct relationship with agents which significantly reduced its capacity to scale. Although they eventually corrected this, today M Pesa Tanzania has only 10 agents per 100.000 people whereas M Pesa Kenya has 54 (Camner, Pulver and Sjöblom). Similarly, it is

often said that the marketing strategy of Vodacom was insufficient and mistaken. It appears to have positioned the services targeting students and book readers which do not exactly represent the unbanked. Lacking the top of mind and favorable attitudes that market hegemon Safaricom's brand had, it made it hard for customers to relate to the new product and know more about it (Camner, Pulver and Sjöblom).

4.3. High Adoption Projects

4.3.1. SmartMoney - Philippines

The Socio Economic Context

Philippines is a rapidly growing developing economy which has benefited greatly from the economic boom of most Asian nations. It has grown at a pace of 4.7% in the past ten years and having left the current economic crisis behind its 2010 growth figure was an impressive 7.63% (World Bank). However, Philippines continues to struggle to breach the historic gap between the rich and the poor. Over 42% of people in Philippines live under 2\$ a day, higher than the East Asia and Pacific average of 39%. This has led to unequal distribution of wealth calling for a conscious attempt from governments to promote more inclusion and an approach to development that focuses on the poor. Such a vision is sustained by many national and foreign corporations which have looked for innovative ways to tap into the bottom of the pyramid.

It is also worth noting that because of the strong immigration of Filipinos abroad that occurred in the late twentieth century, the country has a sizable diaspora. It is estimated that around 11 Million Filipinos live abroad which accounts roughly for 11% of the total population (Frialde and Mendez). Since a lot of those immigrants have been able to find legitimate working opportunities, the remittances corridor to Philippines is one of the most important in the world. Today, only India, China and Mexico surpass Philippine's total remittances of over \$17.3 billion.

This accounts for more than 10% of the country's GDP, making it an important driver for the economy (World Bank).

The Technological Context

In Philippines, rather than the banks, the Mobile Network Operators have been the first to realize the needs of unbanked customers. The sector has grown rapidly in the last ten years and today mobile services reach over 99% of the Filipino population. Globe Telecom and Smart Communications dominate the market, with the later having a customer base of over 45 Million or 47% of the population. Such a competitive situation has not only conducted to the growth of the sector as a whole but also to the development of incentives to innovate in order to gain market share.

The growth of telecommunication services has also underlined a massive uptake of other services associated with the mobile phone. Most notably text messages are remarkably popular in the Philippines which is deemed by CGAP as the "texting capital of the world" with over 30 Billion text messages sent every day and over 1.000 per user per month (CGAP). This paints a picture of a country increasingly familiar with mobile phone technology beyond the basic voice features, which provides a fertile ground for the development of mobile money initiatives.

The Demand for Financial Services

It is widely acknowledged that the Filipino Banking industry has advanced significantly in the last 10 years through progressive government policies. This has encouraged competition amongst many banks with the top three banks only taking approximately 42.5% of the total market share in assets (Beshouri and Gravråk). In such a competitive market Banco de Oro has risen steadily year to year to become Philippines largest bank. Metrobank is a close second, and

interestingly enough both major banks are involved with mobile money efforts. This is partly due to their inability to reach the bottom of the pyramid in a country where financial services penetration is approximately 26%, meaning that over 69 Million Filipinos still have inadequate access to financial services (Honohan).

Such a massive amount of excluded people have found a way to carry on economic activity without the help of the banks. This has led to the proliferation to a large informal. CGAP analyst estimate that “Ninety-eight percent of unbanked Filipinos receive their income in cash, and they overwhelmingly use informal savings instruments, such as saving at home in a safe hiding place, giving money to a friend or family member to hold, or joining a savings club” (Pickens). Prawn shops have also become ubiquitous in the country providing an expensive way to get loans and emergency liquidity. Such a large informal sector highlights unmet demand for adequate financial services which could reduce costs and risk to the users and provide them with more technologically-advanced solutions.

The SmartMoney Ecosystem

Being the strongest player in the market Smart looked to invest in developing new technologies and value added services to attract more customers. It developed its now famous SmartMoney product in 2001 when the audience of mobile money advocates did not exist. It was competitive pressure and a focus on innovation that led the company to try to tap into the unmet demand for financial services being unaddressed by the banks. Its first motivation was to take part of the multibillion dollar remittances corridor. At the same, it planned on leveraging its brand name into partnerships with important players to establish a service that would take advantage of an encouraging regulatory environment.

Firstly, it made a partnership with Banco de Oro, today the largest bank in the country, to make sure it backed the e-money accounts it would use. Later, it joined forces with MasterCard in order to tap into its POS network, issuing a type of debit card associated with each smart money account.

The Outcomes

In 2011 SmartMoney was estimated to have more than 8.5 Million customers, almost reaching the remarkable barrier of 10% of the population. This makes it one the most successful projects in the world. Although it's taken over ten years to reach that threshold, its growth has been consistent through the years and it has managed to sort through competitive pressure to continue to up-sale to its customer base.

Reasons for its impressive success point to various factors. One of the most important elements of Smart's strategy is its capacity to leverage its existing retail network of airtime top-ups. Such a network is massive: over 1 Million retailers who Smart continuously works on convincing to joining as a SmartMoney agent. On the other hand, the large market for international and domestic remittances has allowed Smart to develop a far-reaching value proposition as a secure and more convenient service than established players such as Western Union. The remittances service has generated network effects in users who are incentivized to convince other members of their social network to join when they need to exchange money.

Another element fueling the growth of Smart is the competitive pressure in place by its rival Globe which came out with a product of its own in 2004. Today it is estimated to have reached the 1 Million user barrier and it has developed more inclusive tactics and technologies such as opening an account through the sms platform as well as making further use of an extensive

network of agents to do cash in and cash out. This has made Smart move into the development of more innovative ways to interact with its customers and increase adoption. Some of those include its partnerships with Banco de Oro as well as Mastercard which are seen as innovative by a portion of the market.

However, Smart's success story is not without its detriments. Although forward-looking regulation has allowed them to grow it has also placed two important roadblocks on the way:

- It requires a long paperwork process to let small business become mobile money agents. Such a process has deterred Smart's incentives to work with agents at all, requiring customers to go to bank branches or Smart customer centers as well as ATM's. Additionally, the network of POS has been the focus of Smart's retail payment product, forgoing the possibility of going beyond such a network to include smaller merchant in rural areas. This also explains why only 8,000 airtime retailers have become part of the network.
- Its Know Your Customer requirements also involve paperwork to do some transactions as well as to open account. This has led Smart to develop a process that involves website activation and a visit to a bank branch or Smart store. Again, these are processes poorly aligned with the strategy of reaching the unbanked poor.

Smart's potential to continue to grow is still there for the pioneer of Mobile money in Asia. It will have to work with regulators to streamline adoption processes in the light of attracting more low-income customers. A CGAP study highlights that only 26% of Mobile Money customers are poor. However the same study suggests that adoption potential is high because of high confidence in MNO brands and rising awareness: "64 percent of respondents are aware of at

least one mobile money product, overall they are 25 percent more likely to know the brand name of an MNO than a bank, and 75 percent think mobile money would be easy to use” (Pickens). If Smart is able to endure competitive pressure it is likely to tap into latent demand, relying on cross-side network effects to continue to expand.

4.3.2. Tigo- Paraguay

The Socio Economic Context

Paraguay is the poorest country in South America. Its per capita GDP for 2010 was only \$ 5.152, less than half of that of its neighbors Brazil (\$11.127), Argentina (\$15.893) and Uruguay (\$14.277) (World Bank). However, for the last ten years it has enjoyed political stability which has allowed them to grow and to develop certain sectors of the economy. An important catalyst has been its trade terms with fellow Mercosur countries which have allowed the country to benefit from trading to larger markets in Argentina and Brazil. After been severally hit by the recession, 2009 saw record-breaking growth for Paraguay at over 15% (World Bank).

For the same reason agriculture continues to dominate the economy. Paraguay is the sixth largest soy producer in the world, much of which goes towards exports to its Mercosur partners (Central Intelligence Agency). At the same time, Paraguay is often touted with having a high level of informal economy. Re-exports of manufactured products account for a sizable part of the economy. This has resulted in a country that is poor, rural and unequal. The dependency on agriculture has left Paraguay with over 38% of rural population, considerably higher than the average of Latin America (20%). Its GINI coefficient makes Paraguay the 16th most unequal country in the world (Central Intelligence Agency).

The Technological Context

The situation of Telecommunications in Paraguay has been characterized by strong growth on mobile services to make up for the lack of other services such as landlines and the internet. The country has a state owned monopoly over the fixed line business which explains that penetration is only around 5% (BuddeComm Reports). The same company has a near monopoly over ADSL services, which has also lead to one of the lowest broadband penetrations in Latin America. Even computers are scares in Paraguay, with reports saying that less than 10% of the population has personal computers.

This situation has placed the more competitive and privatized mobile business in a unique place to enhance the reach of its services and capitalize growth opportunities. There are four major companies dominating the industry, with Millicom's Tigo as the market leader (BuddeComm Reports). Growth has allowed the country to reach an approximate 87% of mobile penetration with the shortcomings of the fixed broadband helping rapid growth of mobile broadband uptake (World Bank).

During the first years after the launch of the first mobile money service, both the Central Bank and the banking regulator decided to take a "wait-and-see" approach to regulating the sector (Tellez and McCarty). Only in 2010, two full years after the first launch, was some regulation introduced to regulate things like electronic remittances, branchless banking and correspondents.

The Demand for Financial Services

Paraguay has been part of the regional trend to show friendliness to the banking sector in order to fuel the economy. However the growth of the banking industry has not coincided with a

significant increase of access by the large low-income population of Paraguay. The country boasts one of the lower ratios of bank branches per 100.00 inhabitants in the region and checking accounts only reach approximately 10% of the population (World Bank).

The lack of access to adequate and modern financial services has created a relevant informal banking sector. Cooperatives and communal banks have proliferated in the province, to help people get access to credit. At the same time, because of the large rural population bus drivers have filled the gap in assisting people with domestic remittances (Tellez and McCarty).

Wide-spread government recognition of the importance of advancing financial access to the poor has taken places in the last few years. Paraguay's minister of Finance has often been quoted saying that "Financial inclusion is a key objective in the design of domestic economic policy" and most regulators have identified mobile banking as a key driver in that financial inclusion strategy (Tellez and McCarty).

The Giros Tigo Ecosystem

Market-leading Tigo launched its first mobile money products in 2008. The initial bet was placed on mobile merchant payments with a product named Tigo Cash. The company sought to develop and leverage a large network of retailers who would accept Tigo Cash. However adoption levels were disappointing mainly because of complicated registration mechanisms as well as inadequate marketing support (Tellez and McCarty).

In the process of re-assessing its mobile money efforts Tigo looked to the opportunity provided by the large remittances corridor. The product was redesigned and re-launched with the name Giros Tigo in 2010 (Tellez and McCarty). Leveraging its network of airtime distribution

and its current relationships with merchants, Giros Tigo's value proposition would be to provide a convenient way to transfer money from many locations through the use of mobile phones.

The Outcome

Recent 2011 estimations place the number of users over 627 thousand Paraguayans which means Tigo is approaching the 10% of the population barrier (Dalmasso). Tigo's approach is plausible in being able to tap into market particularities to achieve growth and connect with customer needs:

- It realized the size of the remittances corridor, in a country with such a large rural population and it devised an option for an over the counter service that would better fit the cultural resistance of sending money with no intermediaries.

- It used the relationships built with merchants either through its previous failed services or its top-up distribution network, to develop a well-managed agent network that would help put in place the over the counter service.

- It realized that most of the country had already formal ID numbers, identified the friendly approach of the regulators and leveraged its existence customer database to put in place a no frills mechanism to register for an account. Through the use USSD technology the customer can activate the services in approximately 45 seconds, which has been a key driver of uptake (Tellez and McCarty).

- It learned from past mistakes of under-investing in consumer insights and marketing support.

The new service and its marketing strategy was backed by far-reaching customer knowledge and deployed massively to rapidly increase awareness.

It is, however, yet to be seen how much Tigo can increase adoption rates through these services and whether or not it can use its initial user base to grow the portfolio of banking services it envisions. The company partnered with Visión Banco, an institution known in Paraguay for its push to grow in the SME sector (Tellez and McCarty). The objective of the partnership is to eventually move into more complex financial services such as bill payments, insurance and microloans. In that pursuit it will face competition as rival Claro enters the field.

4.3.3. M Pesa - Kenya

The Socio Economic Context

Since the mid 1990's governments in Kenya have pursued an agenda of economic liberalization supported by the IMF and the World Bank. Today, Kenya is oftentimes regarded as Eastern Africa's hub for Financial, Communication and Transportation services (Central Intelligence Agency). During the last 10 years it has out-paced its African neighbors in terms of economic growth 4.55% to 2.93% (East Africa average). The idea of a modern and harmonious Kenya has positioned in the minds of many not only in Kenya but across Africa and the world.

The growth in the service sector, which is already 65% of GDP, is expected to increase at a pace of over 5.5% in the next five years and will rely mostly on telecommunications and tourism (Central Intelligence Agency). However, the country still relies heavily on agriculture. Agriculture and livestock are still very important as they account for 24% of the country's output and over 50% of its exports. The main products are horticulture and tea, both accounting for large parts of the labor markets. This helps explain why 77% of the people in Kenya still live in rural areas and why over 49% of the Kenyans live in poverty (World Bank).

The Technological Context

Like many other sectors mentioned above, the telecommunications industry has also seen impressive growth. The Economist Intelligence Unit reckons that “the prodigious expansion of telecommunications, has been a major engine of growth, and its share of GDP rose to 60%” (The Economist). At the expense of a small and inefficient fixed-line service in the hands of a poorly-ran state-owned company, mobile telephony has risen to become ubiquitous, with over 57% of Kenyans owning a mobile phone (The Economist). At the heart of such growth has been the most important player in the industry: Safaricom. The major telecom, partly owned by Vodaphone, controls over 70% of the mobile market and enjoys a close relationship with regulators and government agencies (Suri and Jack).

The government has foreseen the involvement of Safaricom with the process of advancing financial inclusion. This has resulted in a regulatory “wait-and-see” approach. Telecom operators have been able to experiment with banking services with some leniency from the government. This has helped to speed up uptake and encourage innovation.

The Demand for Financial Services

After the 1990’s saw the weakening of a banking sector burdened with inefficient state control, reforms have been made to try to modernize the industry in Kenya. Today a more developed banking sector exists and it has benefited from large amounts of investments that the country has attracted. Competition has also increased sharply during the last years, paving the way for innovative ways to increase access to financial services.

However, banking penetration continues to be low suggesting high demand. According to The Economist Intelligence unit “only about 10% of Kenyans potentially eligible for bank accounts actually have them, largely because of the high costs and stringent conditions” (The

Economist). Furthermore access to banking services has traditionally been done through branches. Due to the high proportion of rural population Banks have hesitated in the growth of branch capillarity leaving Kenya with only 4 branches for every 100.000 people (World Bank). Demand continues to be unmet and the country will need a stronger, more inclusive financial sector if it wants to see its forecasted economic growth translate into poverty alleviation.

Tied to the economic structure of the country is the increasing need for people in the cities to send money to the vast and unproductive rural areas of the country. This makes up for unmet demand for formal remittance services. A GSMA study found that 58% of people in Kenya moved money personally from one area of the country to the other with the second method being popular Buses with 27% (Camner, Pulver and Sjöblom). The situation before the introduction of mobile money was highly unproductive and risky, for a service that is seen as vital for the survival of rural areas.

The M Pesa Ecosystem

M Pesa is widely acknowledged as the most important and most successful mobile money service in the world. Since its launch in 2007 by Safaricom its growth rates have been staggering, surpassing year to year any analysts' expectations. In its first year of service from May 2007 to May 2008, the average number of daily subscription rose from slightly over 1.000 to more than 12,000 (Suri and Jack). The success of M Pesa has inspired a lot of the new services that are seen today as it has constituted itself into a common benchmark for this new industry.

Since the beginning, Safaricom sought to start its involvement with mobile money by providing a simple value proposition for one of many services that have latent unmet demand in Kenya. Its focus has been on domestic remittances in order to take advantage of the corridor

existing between cities and rural towns. Hence, Safaricom has been able to base most of its marketing and execution in the basic slogan of “Send Money Home”. In order to deploy the service it has leveraged its airtime distribution network in order to achieve ubiquity.

Leveraging the success of M Pesa, Safaricom has moved on to start deploying more comprehensive financial services through the existing platform. In 2010 it launched its new product M Kesho which, in partnership with Kenya’s largest bank Equity, provides M Pesa customers the possibility to have a savings account, short term loans and micro-finance products. By the end of 2010 M Kesho had over 600,000 users.

The Outcome

Latest reports locate the number of M Pesa users at about 12 Million users or 26% of the Kenyan population (GSMA) . Safaricom’s approach to developing the service has been studied by many. It can certainly be said that the company played to its strengths in developing not only a new innovative service but a technological ecosystem that would encourage fast adoption and usage in many ways. Such an approach has been the main growth driver and it can be synthesized in four main strategies:

- Agent management: being a top-up focused mobile operator Safaricom spent heavily on sustaining a far-reaching network of agents that would sale airtime. This allowed them to have a rather simple mechanism in place to convert a portion of those agents to do the cash-in and cash-out activities required to support M Pesa. It developed a simple but attractive commissioning model that would make sense for agents and it leveraged its existing supervision know-how to have tight control over them. As the service became popular, the incentives for agents to become part of the network increased steadily. Safaricom has managed to effectively grow its agent

network to more than 18, 0000, and it has done so in a way in which it could support the growth in users (Camner, Pulver and Sjöblom).

- Handset Technology: having over 70% of the market Safaricom leveraged the software side of the service effectively. Customers would not need any type of SIM swap to use it and once the service rolled-out practically any Safaricom customer could register right away (Camner, Pulver and Sjöblom). This eased-up a key part of the mobile money process: registration. M Pesa's seamless registration process involves a sms interaction and a simple ID at the agent to get things going. This is widely acknowledged as a key driver of fast up-take.

- Branding: Safaricom's brand has traditionally been well regarded in Kenya. Again, leveraging the reach of its mobile operation it pulled from the strength of a brand that oftentimes is regarded as a symbol for modernity in Kenya (Camner, Pulver and Sjöblom). This context was key for an experienced team of branding and marketing that new how to transmit service features to its customers. Building on those strengths Safaricom was able to communicate the most important attribute of its service: ease of use.

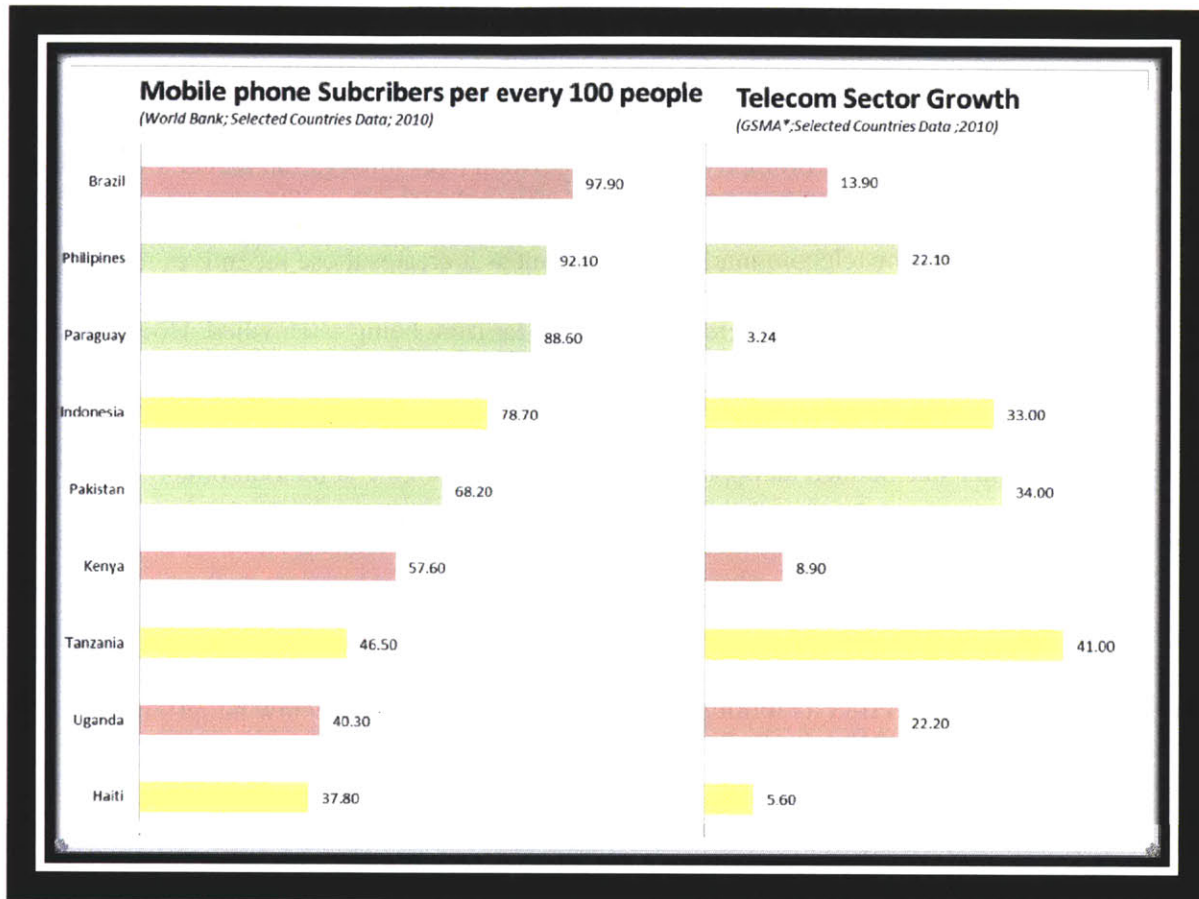
Challenges for M Pesa continue to evolve. It will increasingly face competition from new entrants recognizing the value that Safaricom has discovered. Furthermore, its ability to manage its partnership with Equity Bank to continue the process of upselling customers to more comprehensive financial services is yet to be seen.

5. Analysis and Discussion

This chapter aims at building on the previously-detailed projects to offer a comprehensive comparative analysis of the most important qualitative and quantitative variables that define each case's up-bringing and outcome. The idea is that the analysis emerging from the following discussion establishes a basis for far-reaching conclusions to be outlined in the following chapter. Most of what is argued in this chapter is based methodologically in the indicators table shown in Appendix 1 and in the analysis table shown in Appendix 2.

5.1 The Impact of Financial Services Penetration

With the exception of Haiti, the penetration of mobile phone in the countries analyzed is both large and growing rapidly. The figure bellow shows that even in countries like Tanzania where penetration still does not reach 50% of the population, growth soars over 41% becoming one of the most important sectors of the economy (World Bank).



*Paraguay Data from 2009 Conatel; Sri Lanka Data from 2009 Sri Lanka Equity Analytics

The continuity of growth in most markets and the fact that nations like Brazil, Paraguay and the Philippines are already at developed-world levels, suggests an optimistic outlook for the telecom sector in developing countries. Such atmosphere defines the moment in which all of the projects analyzed in this thesis were launched.

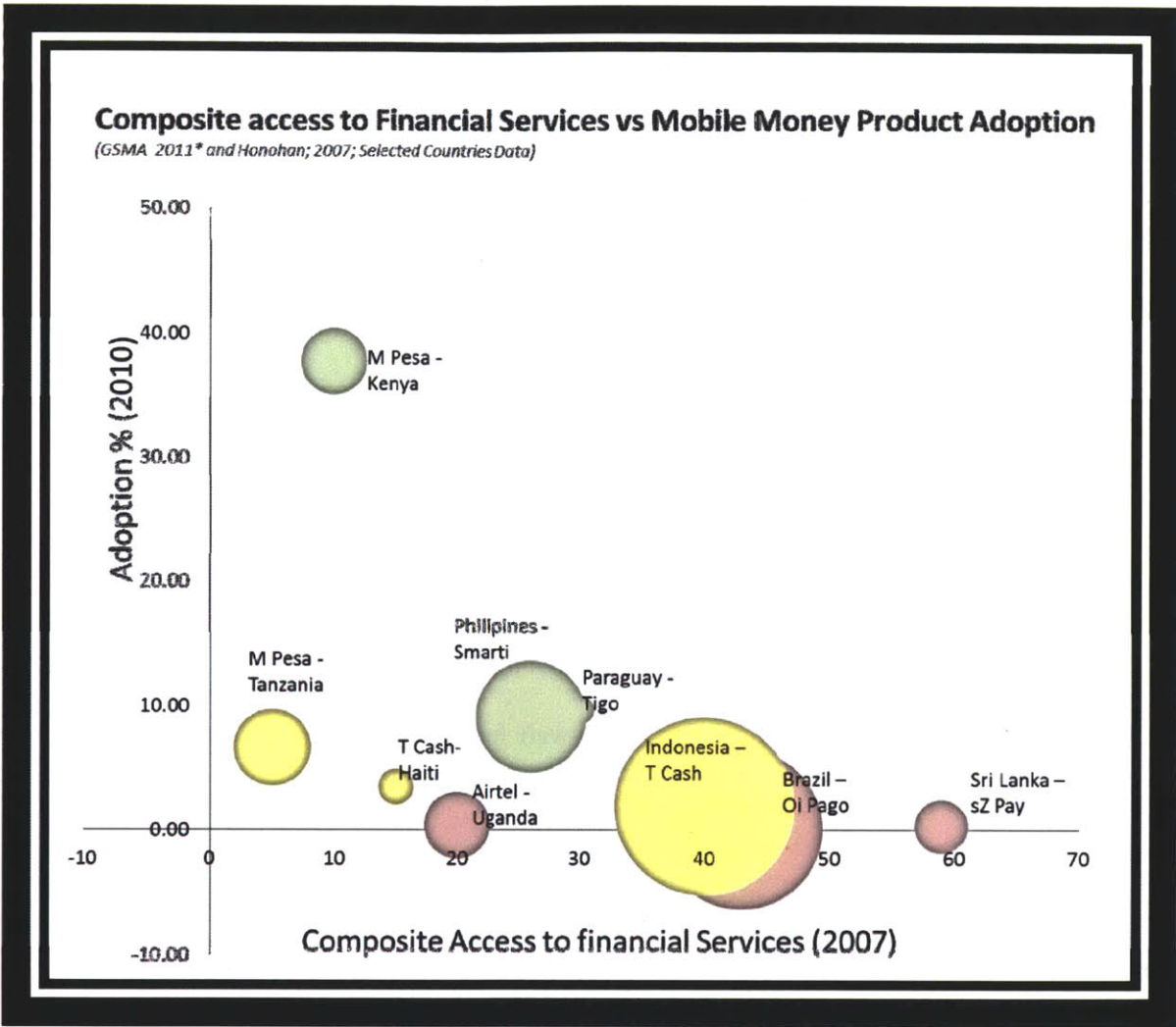
In most cases, products were developed as a way to differentiate mobile phone offers from competition, like in the case of Smart in Philippines or Tigo in Paraguay. In such situations fierce competition has brought about incentives for innovation which have been met locally rather than in some global headquarters. In other countries such as Indonesia or Kenya, mobile

money also provided a way to control churn³. For Safaricom it meant maintaining its large customer base with a sticky service, whereas in the case of Temkonsel the saturation of the telecom market moved it to act promptly to reduce attrition rates through the launch of T Cash.

The situation of the telecom market is important as it creates those incentives to invest in technologies that are untested and where standards are far from being established. However, they also determine how much MNO's are willing to look at opportunities in adjacent industries such as banking. And the size of such an opportunity comes from looking at the outcome of some of the mobile money projects in the light of the lack of access to financial services.

The figure bellow shows how projects in countries with high levels of access to financial services have struggled to find its footing in the banking sector and show low adoption rates today.

³ Customer churn is a common measure of the loss of customer for any given service customer. It reflects the proportion of lost customers over the average customer base for any given period of time.



*Paraguay Data from 2011 La Nacion; Brazil Data from 2010 Cielo; Haiti Data from 2011 Movillion; Indonesia Data from 2011 TeleGeography

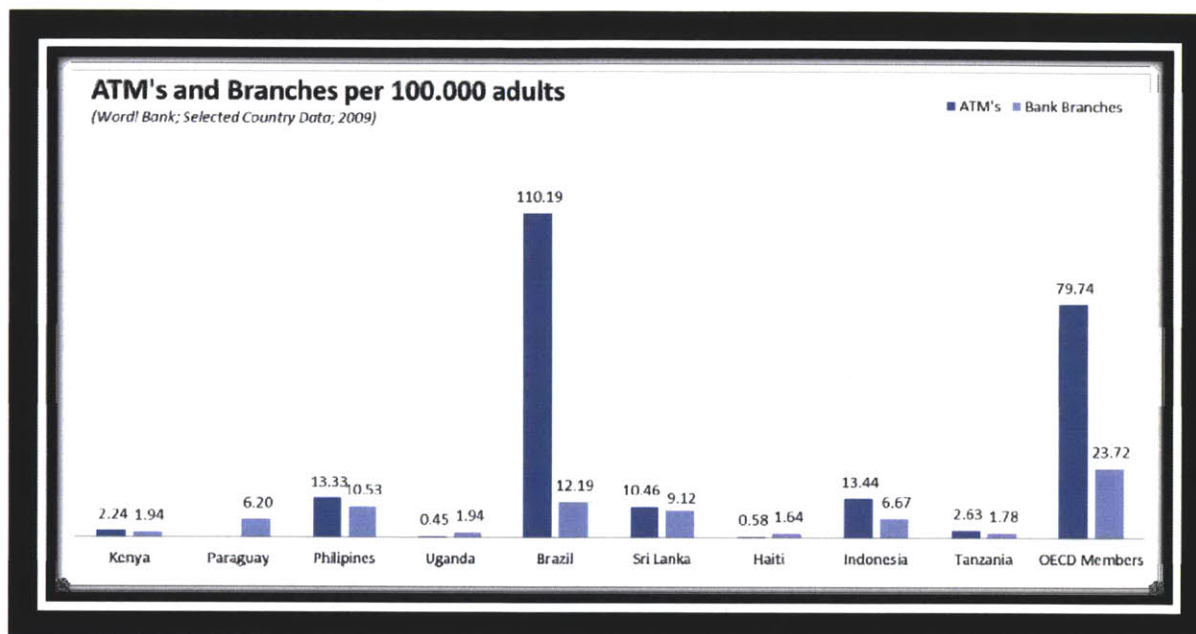
The most emblematic case is that of Brazil. Being, a pioneer in branchless banking models which have had significant effects on poverty alleviation, they report disappointing adoption figures on one of its more relevant mobile money projects. A similar situation occurs in Sri Lanka, where the growth of eZ Pay has been limited by the company’s inability to differentiate the product from established banking options. At the same time the more successful African examples in Kenya, have seized on remarkably low access to financial service to position is services as the only alternative to financial inclusion.

However, exceptions can provide meaningful examples as well. In the case of Uganda and Tanzania lack of formal financial services has actually hindered its development of an Agent network, which as discussed in section 5.3 is a key to success. Behind the network of agents, formal bank branches have a role in providing liquidity and helping manage cash flows. Similarly, relatively high financial access in the Philippines has made Smart explore many product-enhancing opportunities that may pay off in the near future.

5.2 *The importance of Regulation*

With the only possible exception of Haiti, all of the countries in which the projects analyzed took place have one regulatory trend in common: financial services reform. The last decade saw these countries realize the importance of having a well-functioning financial sector in order to achieve the level of economic growth they envisioned.

To some measure their efforts have paid off, as we see a high degree of economic growth which has been backed and sustained by an increasingly competitive banking sector. However, when it comes to access most countries have fared off remarkably low when compared to developed nations. This suggests that, even though some efforts have been made throughout the developing world to improve overall industry conditions for the banking sector, access is yet to find its way to most of the population. As an indicator the figure shows that, with the exception of Brazil, all of the countries involved show low levels of penetration of banking branches and ATM's when compared to OECD members.



Mobile money is set to build upon the progress being made in the banking sector in order to substantially expand access. However, as in any new industry, the new sector will have to sort through the lack of legislation and guidelines that is seen in most countries. Usually projects find themselves somewhere in the middle of two extremes:

- Wait-and-see approach: exemplified by Kenya, in which regulators are vastly permissive in dealing with the new technologies allowing the players to explore the feasibility of these services and dictating guidelines once the service is launched and results and impacts can be assessed.
- Ex Ante: most notably seen in the case of Indonesia, where national banking and telecom regulators expect to have a fully functioning regulatory structure in place before allowing new services to launch.

Regulation is important because it both (i) limits and conditions what the operator of the service can actually offer and how it designs the services and (ii) it ends up determining the

mechanism by which the operator works to scale the use of the service. Taking those premises, three key areas of regulation have been found to be relevant in the capacity of the selected projects to launch and scale:

- **Agent regulation:** one of the relevant transformations that mobile money brings is the idea that small businesses act as agents performing cash-in and (in some cases) cash-out transactions. The way in which the activities of such agents are regulated is key to the success of any mobile money projects. In the successful cases of Tigo, M Pesa (Kenya) and Smart there have been heavy reliance on the network of agents precisely because they have been regulated with flexibility. Regulators have recognized the importance of the agent network in both expanding access to financial services and develop a new source of revenue flowing in to local and rural shops. In the other side of the spectrum is Indonesia's T Cash which has been prevented to establish a remittances product because the difficulty of its agents getting licenses to perform cash-out transactions.
- **Registration/ KYC:** regulators usually place restrictions on what operators have to ask of the client in order to register for the services. Guidelines on this issue are usually taken from existing banking regulation. However since agents are usually the ones that perform the registration process and since unbanked customers are targeted, KYC requirements have to be flexible in order to ensure a smooth registration and to expand access. M Pesa (Kenya) and Tigo both took advantage of the fact that only an ID card was needed and most people had a government-issued ID. The same issue has limited the success of M Pesa Tanzania where no standard identification mechanism exists.
- **Need for Partnerships:** because mobile money is found at the intersection of the banking and telecommunication sectors, some regulators have pushed towards requiring some

kind of partnership between MNO's and banks. In Africa telecoms have led the way and had leniency to establish their networks with limited bank involvement. Although the industry knowledge that banks bring to the table is relevant, there is operational efficiencies in having a project led mainly by an MNO since it reduces the need for agreement on strategy and for a somewhat bureaucratic decision-making process for operations. In countries such as Brazil and Sri Lanka where bank involvement is necessary, MNO's reliance on banks for infrastructure and investment has hindered its ability to quickly react to the market and to move swiftly to increase adoption.

5.3 *Designing the Ecosystem*

A great deal of research has been done in recent years about the functioning of technological ecosystems and digital platforms. Cusumano defines platforms as “a foundation technology that is used beyond a single firm and brings together multiple parties together to solve a common user problem” (Cusumano). He also argues that the value of the platform increases exponentially due to network effects. The notion behind platform theory is that the more users join the most interest it awakens from other firms or players to join in as well.

The mobile money ecosystems act substantially as platforms, drawing in several players interested in the uptake of a massive amount of customers. Agents are the first obvious beneficiaries. The more users the platform has the more transactions will a particular agent be able to perform, increasing his revenue from the service. Formally the agent is a complementor to the mobile money services and, in most cases, the service is far from being his single source of revenue. However, his is interested in seeing the platform grow and, to a certain extent, will work towards ubiquity.

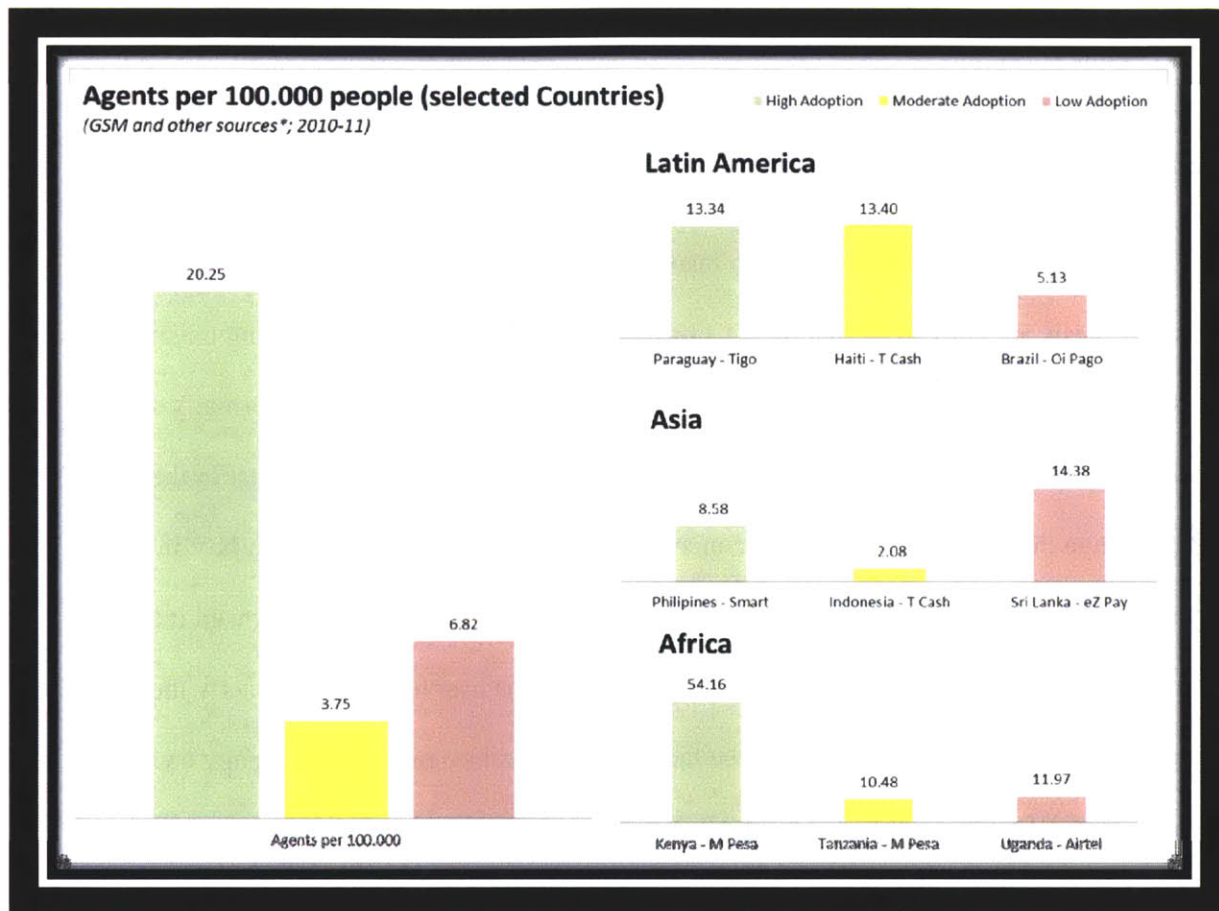
However, the agent is not the only party member of the ecosystem. In some cases like in Philippines and Brazil, banks have a large stake in the projects as close partners. In others, like Indonesia, the product revolves around retail payments making the interest of merchants very much relevant to the success of the scheme.

This section builds on the previously-described examples and sheds light in the key issues that have to be resolved to allow the project to scale.

Agent network:

The role of agents in the mobile money ecosystem cannot be overstated. It is their functioning and the distinct cost structure that it defines for the whole systems that gives these solutions the potential to broaden access to the unbanked.

The most obvious lesson from the projects observed is the fact that scaling up the agent base is at the same level of importance as scaling up the base of customers. The following graphs show how far-reaching network are a sign of high adoption projects:



*Paraguay Data from 2011 La Nacion; Brazil Data from 2010 Cielo; Haiti Data from 2011 Movillion; Indonesia Data from 2011 TeleGeography

Emblematic M Pesa Kenya has placed growth in its base of agents a constant strategic objective, which serves to explain its high penetration rate. Its neighboring African nations have failed to reach the level of agent penetration, and in the case of Tanzania it is commonly recognized by analysts to be a key constrain on growth (Camner, Pulver and Sjöblom). Similarly Oi Paggio and T Cash (Indonesia) have less than the proportion of agents than region leaders Tigo and Smart. The exception is eZ Pay with a substantial network. However, as noted in the case description, little evidence of those agents' involvement can be found on-site, making the statistics questionable.

The growth of the agent network presents a typical “chicken and egg” problem often found in Platform management literature: agents will not join if they don’t see an attractive market for users, and users are unable to use the service if there are no agents.

When questioned about how to resolve this strategic issue, industry leaders interviewed for this thesis are convinced that MNO’s have the unique position of leveraging existing top-up distribution networks: “Our existing distribution networks are our assets”. Normally such a network involves major distributors that handle a large number of small agents. In the case of M Pesa Kenya the network was heavily concentrated, which meant that to obtain buy-in the company had to get the confidence of a handful of large distributors. This allowed it to “buy time” guaranteeing a large availability of agents while the user base grew. Exactly the opposite happened to M Pesa Tanzania where the lack of concentration made the company trying to convince itself each small agent one by one.

Another key issue to assess is agent commissioning structure. Usually top-up commissions are higher than mobile money commission. This is unlikely to change since low costs are key to the success of mobile money. Therefore, other incentives such as bigger commission for signing up customers and competition-style incentives have been seen in successful cases and should be explored by the rest. When consulted about the key issues behind its rapid success, an interviewee from T Cash’s (Haiti) management is certain that commissioning agents by both adoption and use is vital.

Bank Partnerships

As noted in the previous section many times regulators will force MNO’s to partner with banks to come up with some of these services. Partnership can work anywhere from establishing

a simple trust account like in the early days of M Pesa Kenya or Tigo, to an all-out equity partnership such as in Oi Paggo.

From the research performed there is no evidence to suggest that partnerships are required for success or that they are deemed risky and bound for failure. Safaricom's market power let it lead the way to record-breaking adoption rates with simple partnerships with various banks. At the same time Smart's partnership with Banco de Oro has helped grow steadily and to develop new value propositions. The lack of a strong partnership for T Cash in Indonesia has delayed its launch of a remittances service, whereas in Sri Lanka the synergies envisioned with bringing together the largest bank and the largest MNO has not translated into high adoption because of flawed implementation.

In establishing partnerships MNO's and Banks should balance the reduced flexibility that comes from working in joint teams with diverging priorities, with the need to produce synergies from each other's assets. If such a balance can be struck then a partnership will be successful. However, if agreements prove unattainable, an argument can be made to establish open ecosystems in which many banks can join and benefit from the same platform. This is consistent with a broader view of platform management resembling strategies of famously successful platforms such as Google, as well as with the view industry leaders such as Regueros.

Merchants

Since most of the projects that are being deployed and almost all of the ventures studied in this thesis have relied heavily on remittances as a flag-ship product that has driven growth, little documentation is found on effective strategies for managing a network of merchants that would receive mobile money as a currency. A few hypotheses, based on the cases of Oi Paggo (Brazil),

eZ Pay (Sri Lanka) and T Cash (Indonesia) can be further researched to better understand the issue:

- There might be too small overlap between the type of merchants that are part of the current air-time distribution network handled by MNO's and the merchants that would be interesting for customers to use their mobile money in. This would require additional efforts and costs in going out to find new merchants, thus forfeiting the chance of the MNO to play into its competencies.
- Resistance can come from merchants who already have current payments mechanisms that satisfy their needs or rather getting paid in cash. The case of Oi Paggo Brazil which has worked with Cielo POS network suggests a way to overcome the issue. In this process interoperability across MNO's may play a role, since merchants will resist having various different devices for various systems.
- Commissioning structure may be ill-aligned with the interests of merchants. If payment mechanisms such as debit or credit cards are established, mobile money will have to compete in price with them at a late-mover disadvantage. If not, attractive schemes have to be in place to convince merchants to forfeit part of their revenue because of the convenience offered by the service.

MNO's have a role in aligning incentives to get merchants to join the ecosystems. Although in section 5.4 an argument is made that a simple-feature approach is advisable to achieve scale, this does not mean that eventually merchant payments can become a great source of additional value to be extracted from larger bases of mobile money customers.

Other Partnerships

Looking through the projects analyzed there is anecdotal evidence of interesting partnerships that can potentially add value to users in the platform. Smart has been particularly active in coming up with different applications to its SmartMoney product through a wide range of partnerships.

The most important of those partnerships is with SmartMoney's agreement with MasterCard, which now allows customers to get a debit card associated with their mobile money accounts. The card can then be used in the very large network of POS where master card is accepted as well as to cash-out in ATM's (Beshouri and Gravråk). However, MNO's should be careful when working with card companies which could be more prone to see mobile money as a threat than as an opportunity. Consultancies asked about the experience of the developed world point to the big three card companies as some of the main roadblocks for innovation, countering or sometimes stalling projects in which they are involved with.

With less success Airtel Uganda's approach to a cash-free ecosystem builds on a relevant relationship less explored in mobile money literature: Business to Business. It has assembled teams that work with companies to make sure that their mobile money technology is properly used to add value to their businesses (Camner, Pulver and Sjöblom). M Pesa Kenya has started to advise insurance institutions in their product development strategies towards low income customers (Jenkins). Finally T Cash has been successful in leveraging its relationship with NGO's to distribute aid through the platform using it as a catalyst for growth.

It is yet to be seen how much impact this partnerships will have in the process of increasing uptake or expanding access to financial services. However, it is not hard to see how the use of debit cards, the use of mobile money in pay-roll or the design of insurance products

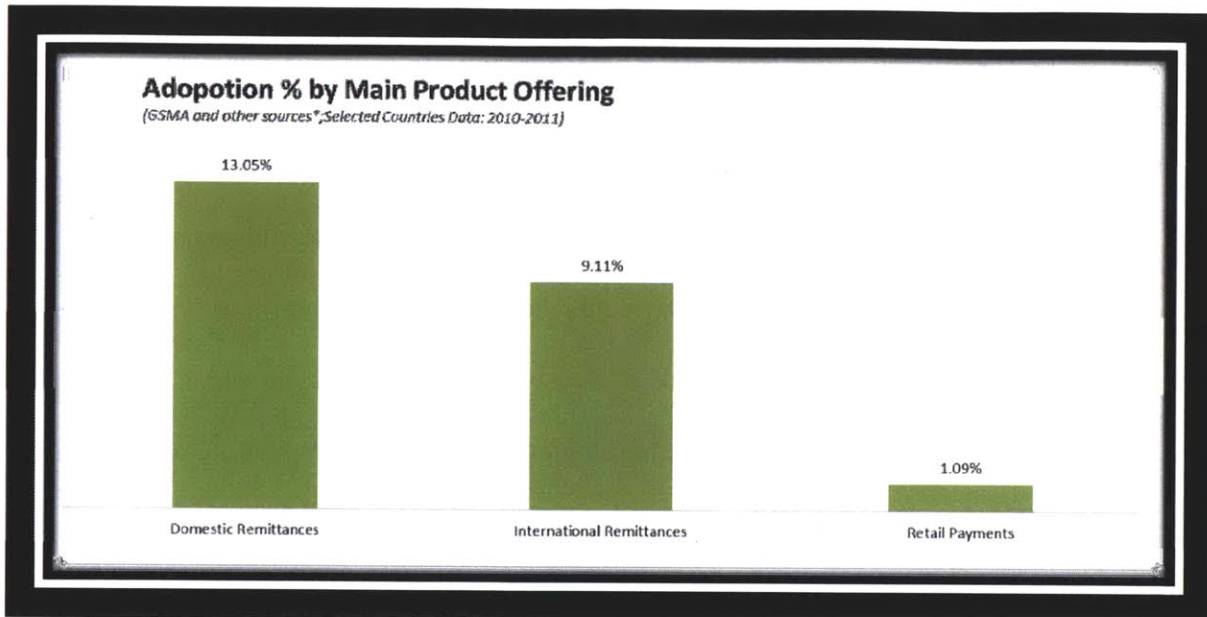
associated with this technology, can help increase the value of the platform and generate the network effects needed to further expand.

5.4 Value Proposition Approach

As stated previously, mobile money can take the form of several services which it either substitutes a current service or makes a day-to-day process easier by the use of technology. In the case of the projects analyzed in this thesis there is a wide range of services offered by the MNO's running these ventures. This section looks at the ways in which product offerings affect the likelihood of success of the projects involved.

Theoretically the lack of financial access identified in most of these countries and discussed in section 5.1 would make the most of the services offered attractive to low income users. Domestic and International remittances, merchant payment mechanisms, loan repayments, insurance and saving accounts, are all services that are either non-existent or ill-provided by the informal sector which is risky and costly in most of the countries. In theory, the use of informal services suggests that demand for such services is also there.

However, overwhelmingly successful products across the developing world have relied heavily on one and only one service: domestic remittances. The figure below shows how the aggregate adoption levels of project which have launch its mobile money scheme with remittances as its top and most important service, is more than ten times that of those projects based on retail payments.



*Paraguay Data from 2011 La Nacion; Brazil Data from 2010 Cielo; Haiti Data from 2011 Movillion; Indonesia Data from 2011 TeleGeography

Anecdotally, T Cash Indonesia currently and unsuccessfully depends on merchant payments for its mobile money scheme and is trying to enable a peer-to-peer product, and Tigo Paraguay started by offering these services as a key feature before realizing that growth was on remittances (Tellez and McCarty).

Understanding some of the explanations can help devise a guideline for product development that could be followed by future projects:

- **Simplicity:** since the unbanked are being targeted it needs to be understood that a basic barrier of education has to be crossed in order for a user to take-up the services. Adoption will in some measure depend on the capacity of users to understand why they should use the services and how exactly can they do it. Thus, the importance of simplicity comes into play. Agents, printed material, radio and television ads need to be able to quickly and effectively sell the services and to explain the mechanisms that make it work (Davidson

and McCarty). This concept has pushed MNO's to come up with simple messages centering its strategy on one particular service.

- **Demand for Remittances:** even though there is apparent demand for most financial services, in countries with high level of rural population remittances become a highly relevant features. In the end of the day a merchant payment mechanism substitutes cash, but does not save the user a great deal of money or time in the way in which remittances becomes a solution. The alternatives to remittances such as Bus drivers are a lot costlier and riskier than the alternative to merchant payments.
- **Marketing Limitations:** other explanations could point to the lack or inappropriateness of marketing strategies. Airtel Uganda has manifestly underspent in marketing to increase awareness of its services and, eZ Pay Sri Lanka has failed and establishing a clear enough value proposition and transmitting it to the customer. Part of these problems comes from the fact that MNO's have traditionally used SMS as a cheap way to advertise value added services to their customers. However, products as complex as the ones being launched on mobile money platform need quite a bit more than an SMS to be understood, and sustained promotional efforts have to take place to establish long-term awareness (Davidson and McCarty).
- **Banking Illiteracy:** when it comes to analyzing uptake of other, more advanced financial services products the education barrier becomes even higher. In that sense most MNO place these services in a second stage of the product launch strategy. This is reasonable if one considers that a customer who already uses some kind of financial services will be easier to convince than one who continues to use only informal services.

A successful case of a company that has up-sold a relevant portion of its mobile money users to a different kind of service is yet to be seen. Although most companies analyzed offer more than one service, information on penetration of each service is unavailable.

6. Conclusions

After reviewing nine projects from Africa, Asia and Latin America, qualitative analysis helps suggests answers to the two underlying objectives this thesis aimed at resolving: describing the mobile money opportunity and identifying key elements that could potentially determine the success or failure of a mobile money venture.

As discussed in Chapter 1 and 5.1 the opportunity of mobile money is determined by a wide gap existing in most developing countries between access to financial services and access to mobile telephony. Although generally companies aiming at that opportunity are favored by a latent demand for financial services from potential low-income customers, enough financial services infrastructure has to be in place in order to implement the services in the first place. Hence, companies assessing the opportunity of mobile money should be sure to:

- Objectively assess the state of the telecom sector and understand possible competitive pressures that may arise from the launch of the service. Unlike five years ago, today, the emergence of mobile money is a global phenomenon and few countries are green fields for pioneers in the way in which Kenya and Philippines were. And, as Gans and Stern would argue, innovating in a competitive environment has entirely different characteristics than when pursuing a disruptive strategy (Gans and Stern).

- Understand the size and depth of the opportunities in the access to financial services. Although overall access may be low, trends towards financial inclusion go well beyond mobile money and for an MNO to compete with a bank for financial services may be a steep hill to climb.

- Perform a comprehensive assessment towards understanding if there is a “threshold” level of financial access that can be both (i) high enough to provide the basic infrastructure so that an ecosystem can effectively be developed with the help of existing banks and (ii) low enough so that cross-side competition from the financial industry does not make the product competitively unfeasible.

On the other hand, the advent of mobile money projects taking place in so many countries provides an opportunity to establish preliminary analysis on causes for success and failure. Although obtaining data continues to be a challenge, this thesis discusses the relevance of three particular strategies that are pivotal in order to have a successful mobile money implementation once the opportunity has been validated.

First, Companies should work with regulators to establish an environment that is conducive to the type of innovation needed to develop the mobile money ecosystem. Evidence shows that regulation can be a major roadblock in the process of launching and growing a mobile money venture. Different stages of development require diverse regulatory responses. In low adoption countries the challenge is to find a way to structure guidelines for partnerships, signing-up mechanisms and agent management schemes that permit enough flexibility to allow projects to scale. In more developed mobile money countries regulators will seek to encourage competition, empower customers and keep large players in check. In all of these cases remittances have allowed the increase in penetration. However a new phase is underway in which more comprehensive services are to be provided. In that process new partnerships have to be built and the role of each player in the ecosystem has to be outlined. Regulators will have to balance the need for rules to keep the new systems healthy, with the flexibility necessary to move towards

increasing penetration of more financial services within the current base of mobile money customers.

Secondly, the necessity of developing a comprehensive platform strategy for mobile money ventures is clear. Much success will depend on the ability of companies to bring together a large set of stakeholders to join their ecosystem. In this process the first and most important step is to make sure that a strategy is in place to overcome the “chicken and egg” problem particularly in the case of agents, allowing the ubiquity of contact points with users so necessary for the rapid growth in customer base. Companies should look across the world to establish the most suiting commissioning structure for its agents and make sure that an organizational structure is in place to rapidly scale the base of agents. Similarly, financial institutions, NGO’s and government agencies can provide partnerships that could become catalysts for rapid uptake and increasing usage.

Finally an incremental approach seems to be a plausible strategy to deal with product development in mobile money. In most cases, given high demand, starting with remittances provides a way to take advantage of same-side network effects which are at the heart of any fast-growing platform strategy (Cusumano). Companies should opt to increase adoption by taking simplicity as a premise and offering the service that has the most demand. Once network effects are in place and a critical mass is reached, new services can be offered with the use of diverse communication channels and marketing strategies.

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Appendix 1. Key Indicators Summary

Project Adoption Level	Project Name - Country	Socio Economic Context						Technological Context				Demand for Financial Services					Project Outcome		
		GDP	GDP pp	GDP g%	PHR	TP	PRA	MPP	MCG	HHI	CAFS	ATMs	BB	FSMC	R%G	LD	AR	AP	
Low Adoption	eZ Pay – Sri Lanka	49	5	8.01	29	21	85	68	34	0.3	59	10	9	59	6	07	0.32	14	
	Oi Paggo - Brazil	2,088	11.1	4.41	10	195	14	98	14	0.1	43	110	12	2.70	0	07	0.1	5	
	Airtel - Uganda	17	1.26	7.39	33	0	87	40	22	0.2	20	0.45	2	9.80	5	09	0	12	
Moderate Adoption	T Cash – Indonesia	707	4.29	5.71	51	240	46	79	33	0.20	40	13.44	7	4.70	1	07	2	2	
	T Cash - Haiti	7	1.10	0.85	72	10	50	38	6	0.10	15	0.58	2	27.16	15	10	4	13	
	M Pesa Tanzania	23	1.42	6.95	88	45	74	47	41	0.20	5	2.63	2	2.00	0	08	7	10	
High Adoption	SmartMoney - Philippines	200	3.94	4.78	45	93	34	92	22	0.30	26	13.3	11	0.20	12	03	9	9	
	Giros Tigo - Paraguay	18	5.15	4.12	13	6	39	89	3	-	30	-	6	5.68	4	07	10	13	
	M Pesa - Kenya	17	1.26	8.07	64	33	87	58	9	0.60	10	2.24	2	2.40	5	07	38	54	

Indicators Description and Sources

Acronym	Indicator	Year	Source	Exception
GDP	GDP (current US\$)	2010	World Bank	
GDP pp	GDP per capita, PPP (current international \$)	2010	World Bank	
GDP g%	GDP growth (5 yr annual %)	2010	World Bank	
PHR	Poverty headcount ratio at \$2 a day (PPP) (% of population)	2009	World Bank	
TP	Population, total	2010	World Bank	
PRA	Rural population (% of total population)	2010	World Bank	
MPP	Mobile cellular subscriptions (per 100 people)	2010	World Bank	
MCG	Mobile connection growth rate	2010	GSMA	Paraguay Data from 2009 Conatel; Sri Lanka Data from 2009 Sri Lanka Equity Analytics
HHI	Herfindahl - Hirschman Index for Telecom Market Competition	2010	GSMA	Paraguay Data from 2011 BofA Merrill Lynch Telecom Matrix; Sri Lanka Data from 2006 Institute of Policy Studies
CAFS	Composite Access to Financial services	2007	Honohan	
ATMs	ATMs per 100.000 people	2009	World Bank	
BB	Bank Branches per 100.000 people	2009	World Bank	
FSMC	Financial Services Market Competition	2010	BankScope database	
R%G	Remittances %GDP	2009	World Bank	
LD	Launch Date	2012	MM Tracking GSMA	
AR	Adoption (%penetration)	2011	MM Tracking GSMA	Paraguay Data from 2011 La Nacion; Brazil Data from 2010 Cielo; Haiti Data from 2011 Movillion; Indonesia Data from 2011 TeleGeography
AP	Agents per 100.000 people	2011	GSMA	

Appendix 2. Summary of Qualitative Case analysis

Project Adoption Level	Project Name - Country	Socio Economic Context	Technological Context	Demand for Financial Services	Project Features	Project Outcome
Low Adoption	cZ Pay – Sri Lanka	<ul style="list-style-type: none"> • Newfound stability bringing about economic growth • Government directed development focusing on revamping infrastructure 	<ul style="list-style-type: none"> • Rapid expansion of mobile and internet connectivity • Highly competitive telecommunications sector 	<ul style="list-style-type: none"> • Remarkably high relative penetration of savings account • Large state-owned banks with a mandate to expand access • Low penetration of other services (credit card, debit card, etc.) • Large inflow of international remittances 	<ul style="list-style-type: none"> • Led by telecom market leader in search of more revenue and less distribution costs • Focus on retail and bill payments • Partnership with large state-owned bank • Low penetration of other services (credit card, debit card, etc.) 	<ul style="list-style-type: none"> • Lack of a coherent value proposition • Un-clear targeting in a country with high banking penetration • Lack of marketing support and coherent trade marketing strategies
	Oi Paggo - Brazil	<ul style="list-style-type: none"> • Large, diversified economy with over a decade of stability and economic growth • Significantly successful poverty alleviation strategies • Welcoming environment for foreign business 	<ul style="list-style-type: none"> • Less growth of telecommunication services after passing 100% of penetration • MNO's focusing on data usages and smartphones • Technologically advanced banking sector with internet banking and high penetration of ATM's 	<ul style="list-style-type: none"> • High growth of financial sector fueling the growth in the economy • Pioneer country in the development of branchless banking models to target the poor 	<ul style="list-style-type: none"> • Launched by the third largest operator in the company. Little interest by others • Focused on retail payments and competing in fees with credit card companies • Allied with Banco do Brazil and used the Cielo POS network 	<ul style="list-style-type: none"> • Regulators prevented the company to go beyond retail payments • Had to compete with established financial institutions offering similar services for the poor • Lagged behind banks in agent penetration
	Airtel - Uganda	<ul style="list-style-type: none"> • Projected to be one of the highest-growing countries in the world in the next decade • Heavily reliant on agriculture with a high proportion of rural population. Most of population is poor 	<ul style="list-style-type: none"> • After lifting a moratorium in 2007, new banks have flourished with foreign capital • Still behind East African peers in financial access 	<ul style="list-style-type: none"> • Liberalization has brought about increases in network capacity • Penetration of both mobile services as well as to the internet continues to be low 	<ul style="list-style-type: none"> • Launched by the second-largest operator reacting to the imminent launch of the market leader • Conceived a cash-free ecosystems searching for agents who would both work on remittances and accept pay • Worked heavily on B2B initiatives 	<ul style="list-style-type: none"> • Lack of customer awareness explains meager growth • Ambitious agent strategy has delivered low agent penetration

Project Adoption Level	Project Name - Country	Socio Economic Context	Technological Context	Demand for Financial Services	Project Features	Project Outcome
Moderate Adoption	T Cash – Indonesia	<ul style="list-style-type: none"> • Leveraging the fourth largest population in the world to achieve sustained economic growth • Massive amounts of poor population • Promising prospects for growth fueled by foreign direct investment 	<ul style="list-style-type: none"> • Fast growing telecom industry expanding access to most of the population • Regulators open and encouraging the concept of a cash-free system 	<ul style="list-style-type: none"> • Significant reform has introduced growth in the financial services industry • Major banks have spread infrastructure throughout the archipelago • Rural banks play a large role in serving the poor 	<ul style="list-style-type: none"> • Led by telecom market leader in search of more revenue and less distribution costs • Focus on retail and bill payments • Partnership with large state-owned bank • Low penetration of other services (credit card, debit card, etc.) 	<ul style="list-style-type: none"> • Regulation got on the way of launching a relevant P2P product • Partner network did not exactly targeted the unbanked poor and made it compete with current solutions rather than bring something new
	T Cash - Haiti	<ul style="list-style-type: none"> • Poorest country in the western hemisphere • Has been hit badly by natural disaster, humanitarian crisis and political unrest • Depends on foreign aid for much of the output and potential for development 	<ul style="list-style-type: none"> • Inadequate technological infrastructure that is un-conductive to investment and entrepreneurship • Behind Latin America in penetration of mobile and fixed telecom services and internet connectivity • High competition between two major MNO's 	<ul style="list-style-type: none"> • Lack of investment makes the financial industry small and with little potential for growth • Alarming low penetration of financial services, branches and ATM infrastructure • Lack of banking limits aid efforts 	<ul style="list-style-type: none"> • Launched by the second largest operator in parallel to the launch of the market leader and backed by foreign grant • Alliance with the largest bank in the country • Focusing on remittances with low fees 	<ul style="list-style-type: none"> • High penetration in very small time period • Quickly deployed the largest agent network in the country • NGO's use the platform, which has acted as a catalyzer • Favorable commissioning structure for agents
	M Pesa Tanzania	<ul style="list-style-type: none"> • End of one-party ruling has brought about rapid economic growth, and prospects for further growth are optimistic • More than two thirds still live in rural areas and country depends on unstable agriculture 	<ul style="list-style-type: none"> • Behind its neighbors in all measures of connectivity • Lack of investment on recent years explain low mobile penetration • Recent regulatory reforms have introduced more competitively which is likely to improve growth figures 	<ul style="list-style-type: none"> • Recently open banking system has welcomed in large international players • Still there is lack of access to most of the poor population • Demand likely to rise as the country continues its path for growth 	<ul style="list-style-type: none"> • Modeled to Kenya's MPesa and launched by an affiliated company • Sought an extensive agent network • Focused on peer-to-peer to capitalize on the rural to urban corridor • Easy registration process 	<ul style="list-style-type: none"> • Did not deliver a large-enough agent network because of lack of agent concentration which hampered growth possibility • Had to face intense competition from 3 other projects • Flawed marketing

Project Adoption Level	Project Name - Country	Socio Economic Context	Technological Context	Demand for Financial Services	Project Features	Project Outcome
High Adoption	SmartMoney - Philippines	<ul style="list-style-type: none"> • Rapidly growing developing country with a high degree of inequality • Large diaspora whose income contributes to a sizable part of the economy by a way of incoming international remittances 	<ul style="list-style-type: none"> • Fast growing MNO's have continually looked to invest in other opportunities and acted early to tap the demand of financial services • MNO's are also famous for inducing the uptake of other mobile technology such as text messages 	<ul style="list-style-type: none"> • Banking industry growth has encouraged competition from large players • Growth has not translated into access to the poor • Large informal banking sector suggests high demand for many services 	<ul style="list-style-type: none"> • Launched by market-leader, innovating in a services that was not seen anywhere in the world • Motivated by the large in-flow of international remittances • Partnered with Banco de Oro and MasterCard 	<ul style="list-style-type: none"> • Grew gradually but steadily to become a benchmark in the world • Leveraged remittances effectively as the main value proposition • Penetrated its massive airtime distribution network to enlist Mobile Money agents • Rivalry has encouraged innovation
	Giros Tigo - Paraguay	<ul style="list-style-type: none"> • Poorest country South America, largely dependent on informal economy • Enjoyed recent stability and benefitted from trade terms with Mercosur partners • Depends on agriculture and has a relatively high level of rural population 	<ul style="list-style-type: none"> • Highly growing mobile sector which has made up for a sluggish increase of fixed services and the internet. • Competitive and privately owned mobile industry • Regulators welcoming of innovation 	<ul style="list-style-type: none"> • Opening to foreign capital has not brought in the desired growth and access to financial services • Demand is latent and a large informal sector has developed around it • Financial access is a priority for the government 	<ul style="list-style-type: none"> • Launched by market leader as a retail payments service • Due to lack of adoption the company turned to focus on remittances • Leveraged existing distribution network to add more agents 	<ul style="list-style-type: none"> • Example of success in Latin America and benchmark for the region • Large and well-managed agent network based on pre-existing capabilities • Invested heavily on marketing support to increase awareness
	M Pesa - Kenya	<ul style="list-style-type: none"> • World Bank and IMF-led reforms early in the 90's sent the country into the path of prosperity. Now it leads Africa in growth • Services are already two-thirds of the economy but most people still live in rural areas 	<ul style="list-style-type: none"> • Telecom has been a major driver for growth in the economy • Near-monopoly by Safaricom on highly penetrated mobile market • Government has been welcoming and permissive with Safaricom's efforts and innovative initiatives 	<ul style="list-style-type: none"> • Competitive and growing financial services industry • High costs continue to prevent bank's expansion to target the poor • Highly unproductive and risky ways to send money throughout the country 	<ul style="list-style-type: none"> • Simple Value proposition focusing on remittances • Safaricom sought to leverage its airtime distribution network to use as agents • Strategic plan would seek more financial services in the future 	<ul style="list-style-type: none"> • Most successful product in the world and benchmark for future projects • Developed a massive agent network beyond any expectation • Pulled from Safaricom's strong brand and invested heavily on marketing