Superintendencia de Banca, Seguros y AFP del Perú (SBS)

Using electronic money through the mobile phone as the key instrument to improve financial inclusion in Peru

A set of recommendations to generate the desired outputs*

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Abstract

The E-money Law passed by the Peruvian Financial Stability Authority (SBS) provides a solid regulation framework to promote E-money services through the mobile phone. However, the features of the potential demand of these services in rural areas and in lower income quintiles may prevent the adoption of E-money services and further migration to other more complex financial services in these segments without a set of adequate complementary policies. An important percentage of people living in rural areas and in lower income quintiles have low education levels, have little knowledge of the benefits of formal financial services, indicate not to know how to use financial services and have no trust in the financial system. For these reasons, the adoption of E-money in these groups strictly depends on the release of effective information campaigns that present the benefits of E-money and explain in a simple and practical fashion how to use it. Information campaigns should also be complemented with financial literacy campaigns to explain how to use and the benefits of other financial services. The migration process from E-money services to other financial services will also depend on the promotion of other financial products linked to E-money.

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I. INTRODUCTION

The market reforms implemented in the Peruvian economy during the first half of the 1990’s and a stable macroeconomic policy during the last two decades guaranteed a sustained economic growth through the last years. These solid macroeconomic fundamentals have been reflected in an increase in the average income of the population and an important reduction in the incidence of poverty (see Graph 1). This situation has also contributed to expand the levels of financial depth, reflected in an important increase in the levels of credit and deposit inside the financial system (see Graph 2). However, the levels of access of the population to financial services and the levels of usage of financial platforms have not increased at the same pace and are below the levels achieved by other countries of the region (see Graphs 3 and 4).

Graph 1
Peru: GDP growth and poverty headcount

Peru: Direct loans and deposits 1/

1/ Includes the banking system, microfinance institutions and Banco de la Nacion. Sources: SBS, BCRP

Graph 3
Percentage of adults with a loan in the financial system, 2013

Graph 4
Deposit accounts with commercial banks per 1,000 adults, 2013

Source: Financial Access Survey
The Peruvian Financial Stability Authority (SBS) and the Peruvian government made some efforts to increase these indicators with an important success in terms of reaching a lot of the poorest districts by a State Bank branch office (Banco de la Nación, mainly) and by the promotion of the financial retail agents network since 2005. These attempts have increased significantly the financial services channels during the last decade (see Graph 5). Nevertheless, the most important progress in terms of financial access has been done in Lima (capital of Peru) and the wealthiest regions of the country. Hence, there is still a pending agenda to expand the financial services to the poorest regions of the country (see Graph 6).

Among financial services, the most basic is the access to an accepted system of payments that permits each user to execute and receive monetary transfers, and to have a secure place to store their money. This service is also very useful as a first step for people to become familiar with the functioning of the financial system and to start to use it. For Zimmerman, Bohling and Rotman (2014), payment systems are the gateway to other more complex financial services (loans, savings accounts, etc.), especially in developing countries where one often finds an absence of financial culture, high transaction costs and high levels of poverty (Sotomayor, 2012). Recent international experience has demonstrated that new technology makes this first introduction to financial services more feasible, by taking advantage of platforms such as the mobile phone, which have had rapid penetration in rural and vulnerable areas (Mas and Siedek, 2008).

In the case of Peru, there has been a rapid increase in the penetration of mobile phone services in the last

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3 Superintendencia de Banca, Seguros y Administradoras de Fondos de Pensiones del Peru (SBS).
4 Retail agents are service channels operated by other entities different from financial institutions that offer services on behalf of them. These agents can be supermarkets, minimarkets, drug stores, internet kiosks, mobile service channels, etc.
decade, reaching rates of 98 mobile phone lines per 100 inhabitants (see Graph 7) and a service coverage\(^6\) of 99% of the districts at the national level (see Graph 8). These figures and the financial inclusion gap motivated the SBS to launch the E-money Law (Ley que Regula las Características Basicas del Dinero Electronico como instrumento de inclusión financiera)\(^7\) in the year 2013 to promote the development of E-money products and services, hoping that financial services would be rolled-out to the most vulnerable populations and to rural areas of Peru through the mobile phone.

Although E-money has been very successful in some developing countries (for example, the experience of M-Pesa in Kenya), there is no guarantee that the E-money Law by itself would be enough to obtain the best outcomes from the implementation of E-money in Peru. Despite the use of payment cards is an important way to expand the E-money services, from now on we will focus on E-money stored in the mobile phone as this is the core of the study. In this sense, this study analyzes the implementation of E-money using the mobile phone to provide the SBS and other government agencies with recommendations (actions) to obtain the desired results regarding financial inclusion from the implementation of this technology: (i) to reach an important part of the vulnerable populations with E-money, and (ii) to use this tool as a gateway to other more sophisticated financial services (deposit and savings accounts, loans, insurances, etc.) for these populations.

The objectives of this study are: (i) to explain and describe how this tool will work in Peru, (ii) to understand the scope and benefits of using E-money through the mobile phone in the Peruvian context, (iii) to find potential flaws

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\(^6\) This coverage refers to having at least some coverage, somewhere in the district.

\(^7\) Diario El Peruano. Law N° 29985. Lima, Peru, December 21, 2012. In the year 2013, the Ministry of Economy and Finance approved the related regulation to this Law (Decreto Supremo N° 090-2013-EF).
and strengths in the implementation and promotion of E-money through the mobile phone in the country, and (iv) to identify the complementary actions that are required to obtain the best outcomes out of the implementation of this tool.

This document proceeds as follows: (i) a description of E-money transactions using the mobile phone to understand how this technology will work in Peru, (ii) best practices in E-money implementation and some lessons from the international experience, (iii) a description of the financial services market in Peru, (iv) a description of the relevant features of the mobile phone market in Peru, (v) a segmented analysis of the potential market for E-money through the mobile phone in Peru, (vi) identification of potential mismatches between the demand and supply of these services in Peru, (vii) identification and analysis of potential complementary actions to induce better results through the implementation of this tool in Peru, and (viii) concluding remarks.

II. HOW WILL E-MONEY USING THE MOBILE PHONE WORK IN PERU?

According to the Peruvian E-money Law, E-money is defined as a monetary value represented by an enforceable credit to the E-money issuer, which has the following features: (i) it is kept on an electronic support technology, (ii) it is accepted as a payment method by entities or people different from the E-money issuer, (iii) it is issued for a value that is the same as the receipt funds, (iv) it is convertible to physical money, and (v) it does not constitute a deposit neither generates interests. E-money serves to transfer money between individuals and according to Suri and Jack (2011) it is also used as a savings device in some developing countries. It is important to understand that although E-money is in a different form than physical money it preserves the typical functions of it, as it is also a store of value that serves as a medium of exchange to facilitate transactions. Also, this requires that E-money become accepted as a payment method in the country. This is why governments need to develop a regulatory framework to use E-money within regular transactions, authorize enterprises to issue E-money, etc. But, more important than this, is that people should incorporate this method inside their payment options for E-money to be a successful one. If people do not find this payment method as a useful one, or if a lot of establishments do not accept E-money as a payment method, the service will not be used and any attempts to promote it by the government and/or the private sector will be in vain.

The E-money Law establishes the regulatory framework for the technology platforms to handle E-money, indicates the enterprises that are authorized to generate and work with E-money and defines the regulatory and supervision framework to which these enterprises will be subject to. This framework also created a new license for the operation of E-money issuers, to permit the access to the market to EEDE (Empresa Emisora de Dinero Electronico) that will also be supervised by the SBS. It also establishes that the information and operations of the
user of E-money should be protected, and that the Sales General Tax (IGV) would be exempted for the emission of E-money for the first three years as a measure of promotion of the tool. According to the E-money Law, the Telecommunications Regulator of Peru (Organismo Supervisor de Inversion Privada en Telecomunicaciones – OSIPTEL) would be in charge of the regulatory framework to guarantee that the E-money issuer could access the telecommunications services in equal conditions.

The SBS has also published some procedure regulations to complement the E-money Law through four resolutions. The first one (Resolucion SBS N° 6283-2013) establishes the type of operations that can be executed with E-money (conversion to physical money and vice versa, payments, transfers, etc.), indicates that E-money can use the mobile phone or payment cards. This procedure regulation also indicates the maximum limit per E-money transaction in the two types of permitted accounts to prevent money laundering and terrorist financing, the general account (one Tax Unit - UIT8) and the simplified account (S/. 1,000). The regulation establishes that the total amount in a user’s simplified account within an E-money enterprise cannot exceed neither S/. 2,000 anytime nor S/. 4,000 per month. Also, the reconversion from E-money into cash must be less than S/. 2,000 for this kind of account.

The second one (Resolucion SBS N° 6284-2013) establishes the normative framework for the E-money issuer (constitution, functioning, minimum capital for these enterprises, permitted operations and prudential measures). Furthermore, it establishes a trust agreement structure to guarantee the resources in the tool. The third one (Resolucion SBS N° 6285-2013) establishes the framework to convert the existing retail agents to cash-in / cash-out establishments and for them to be used by the E-money issuer. The fourth one (Resolucion SBS N° 4628-2015) establishes the framework regarding to information transparency and consumer protection. This indicates that users are not responsible for fraud or failures in the service channels. Thereby, E-money issuer cannot charge a fee to the users for any insurance that covers the losses caused by these events.

II.1. How will E-money operate in Peru?9

E-money operations will be generally carried out as follows. A customer gives physical money to a cash-in establishment in exchange of E-money. These cash-in establishments are managed by authorized E-money issuer, which might be banks or non-bank institutions. A fee may be charged to this customer for each transaction. E-money can be stored either in payment cards (similar to debit cards or cards used to top-up the mobile phone credit) or in mobile phones. The storage of E-money in the mobile phone takes some simple steps. Upon the receipt of physical money, the agent from the cash-in establishment enters the costumer's telephone number and the information

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8 According to D.S. N° 374-2014-EF, one UIT (Unidad Impositiva Tributaria) is S/. 3,850 for the year 2015.
9 This is based on the description of Mbiti and Weil (2011) of E-money transactions using the mobile phone of M-Pesa in Kenya and the mobile money ecosystem described by Jenkins (2008).
(amount and ID number) into her mobile phone. A PIN number is required during the transaction for identification and protection purposes. The customer waits until a confirmation text message arrives indicating that E-money has been deposited and the new balance.

Figure 1
E-money transactions using the mobile phone

Source: Authors' work based on Mbiti and Weil (2011) and Jenkins (2008)

Once E-money is stored in the mobile phone, the client can keep the money in the mobile phone using it as a savings device or perform different transactions with her mobile phone such as: (i) sending or receiving money, the client can transfer some E-money from his mobile phone to another person’s mobile phone (usually known as person to person transactions – P2P), or the government can use the tool for social transfers (government to person transactions – G2P); (ii) making payments, like utility bills or top-up mobile phones (person to business transactions – P2B), the users can also pay their taxes through the mobile phone (person to government transactions – P2G); (iii) paying in establishments or markets that accept E-money in exchange for goods and services (P2B); or (iv) paying to suppliers, any kind of enterprise could use the tool to pay for supplies or raw materials (business to business transactions – B2B). A fee may be charged by the E-money issuer for these transactions. The client receiving E-money transferred into her mobile phone or the initial client (in the case he wants to obtain part of her physical money back), can approach with their mobile phones to cash-out establishments to obtain physical money back through a
similar process developed in the issuance of E-money and storage in the mobile phone. These establishments are also managed by the authorized E-money issuer and may charge a fee to convert back E-money to physical money. **Figure 1** presents a graphical description of some E-money transactions using the mobile phone.

II.2. Strategic alliances to promote the E-money market

The cooperation between and within public and private institutions is fundamental to expand the scope of E-money services. That is why the usage of E-money as an instrument of electronic payments is a main goal of the National Financial Inclusion Strategy, launched by the Peruvian Multisectorial Commission of Financial Inclusion (Comision Multisectorial de Inclusion Financiera – Decreto Supremo N° 029-2014-EF). The members of this commission are the Ministry of Economy and Finance, the Ministry of Development and Social Inclusion, the SBS, the Central Reserve Bank and the Peruvian State Bank (Banco de la Nacion).

On the other hand, the role of the financial private sector, mainly the Center of Financial Studies of the Association of Peruvian Banks and other financial unions, is crucial for the development of the tool. The cooperation between these private entities and public institutions may improve the scope for E-money. This working group will launch a unified platform for banks, financial companies, microfinance institutions, the Peruvian State Bank, telecom companies, credit card companies and other institutions interested in taking part of the market. This platform is known as the Peruvian Model (Modelo Peru), which has already been recognized because of its flexibility and competitive environment.

III. LESSONS FROM THE INTERNATIONAL EXPERIENCE

E-money using the mobile phone has proven to be very useful as a first step to induce financial inclusion in some developing countries. Jenkins (2008) indicates that the success of E-money through the mobile phone is based on: (i) the reduction of the cost and risk related to dealing with cash, and (ii) the facilitation of the flow of money from one user to another using a telecommunications platform that connects customers. He also mentions that the mobile phone platform may open access to financial services and other markets to low-income customers who are currently excluded from these services. Faz and Moser (2013) are also optimistic around the long-term prospects for E-money using the mobile phone as they think that these services can increase financial access for unbanked segments by reducing the cost to serve them for banking institutions and making services more convenient for customers. Several authors have also registered the lessons from different experiences of E-money transactions using the mobile phone in developing countries.
Table 1 presents a summary from the lessons obtained from some of these experiences. The results differ in terms of the design and implementation of the policy driven in each country.

Table 1
Lessons from international experience in E-money services using the mobile phone

<table>
<thead>
<tr>
<th>Country (Reference)</th>
<th>Program</th>
<th>Achievements / positive practices</th>
<th>Failures / remaining challenges</th>
</tr>
</thead>
</table>
- Distribution of government transfers is developed through this platform (easy and convenient).  
- M-Pesa use increases frequency of sending transfers, decreases the use of informal saving mechanisms such as ROSCAS, and increases the probability of being banked (Mbiti and Weil, 2011).  
- Safaricom and Equity Bank have introduced M-Kesho, an interest-bearing savings account that is directly linked to M-Pesa. | - Expansion of the platform to some programs such as Cash for Assets (CFA) found that network connectivity was not strong enough to process payments. |
| **Philippines** (GSMA, 2012) | GCash | - GCash transformed mobile phones to wallets, facilitating money transfers with just a text.  
- Key factors to success:  
  • Progressive regulations. Enabling mobile operators to offer e-money, empowering non-banks to perform cash in/out and providing legal certainty to formalize rules.  
  • SMART and Globe’s ability to design strong offerings and subsequently build and align the interests of supporting ecosystems.  
  • The country is the texting capital of the world and mobile users are highly SMS literate. | - Some remaining challenges in the following areas:  
  • Authority and incentives for agents to perform customer registration  
  • Rules impacting ability to scale the number of non-bank cash in/out agents  
  • Brand identification and relevance to base of pyramid customers |
| **Uganda** (Bankable Frontier Associates, 2013) | MTN | - Recipients are receiving their transfers (SAGE program) on time now.  
- Given MTN’s limited network coverage in SAGE target areas, it provides electronic and manual payments, depending on network availability.  
- The e-payment is through a SIM-embedded card that recipients | - System discourages recipients to save through the method, given:  
  • Limited availability of pay phones  
  • Short window of time of each pay period within which to withdraw payments  
  • Recipients lack of understanding of how to use the system  
  • Reliance on agents to help them transact  
  • Program’s limited recipient training |
present to MTN agents to insert in portable pay phones. means that agents largely control the payment process

<table>
<thead>
<tr>
<th>Country</th>
<th>Program/Service</th>
<th>Challenges/Successes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pakistan</td>
<td>BISP</td>
<td>- Pilot program developed by the government and financial institutions to analyze the viability to use mobile phone as the platform to realize social transfers.</td>
</tr>
</tbody>
</table>
|               |                   | - Benazir Income Support Programme (BISP) program presented challenges in terms of using mobile phone as a platform for transfers:  
|               |                   |   - Prohibitive cost of providing BISP beneficiaries with a mobile phone  
|               |                   |   - Many handsets were reported lost or damaged after the first payment  
|               |                   |   - Substitution of this mechanism for debit cards instead |
| Haiti         | TMC               | - Transferred cash to recipients using E-money through mobile network operator Digicel’s TchoTcho Mobile product. |
|               |                   | - Did not provide free mobile phones (larger-than-expected crowds that were difficult to control and, at times, dangerous). |
|               |                   | - The payment service provider still lacks sufficient agent penetration to implement mobile money-based cash transfer payments nationwide. |
|               |                   | - Neither the program nor the payments service provider built the capacity necessary to effectively manage the operations of a frequently changing government-led cash transfer payments system. |
|               |                   | - Because of an insufficient capacity (technological and administrative) of the first payment provider, the program required a second payment provider. |
| Bangladesh    | bKash             | - bKash launched in the second half of 2011, grew to 2 million accounts by the end of 2012, and shot up to 11 million registered accounts by the end of 2013. |
|               |                   | - Specialized enterprise as it did not operate before in the mobile phone industry. |
|               |                   | - Success based on three pillars:  
|               |                   |   - A specialized organization built to deliver mobile financial services  
|               |                   |   - A shared vision for scale among a diverse investor group  
|               |                   |   - An enabling and flexible regulatory environment |
|               |                   | - Some challenges remaining for bKash:  
|               |                   |   - Needs to stabilize its technology platform to support a much higher volume of transactions.  
|               |                   |   - Needs to shift users from doing their transactions via agents to using their own accounts.  
|               |                   |   - Needs to move beyond payments to provide other financial services |

One of the most important features of E-money is the fact that it does not involve bank accounts to develop the required transactions. This helps to promote financial inclusion in the context of developing countries, such as Peru, in which the deposit accounts with commercial banks are not widespread. However, the use of savings accounts linked to E-money is being used more frequently in some countries such as Kenya in which these platforms are also used by customers as savings devices (Suri and Jack, 2011). This shows one of the potentials for E-money using the mobile phone to approach financial services to vulnerable populations.
Although E-money using the mobile phone has been used mainly to make transfers from people to people (such as remittances or payments) as registered by Mbiti and Weil (2011), government agencies have also used this tool to make social transfers to people (G2P). Some of these experiences have been registered in Kenya, Uganda, Pakistan, Philippines and Haiti. The government uses this tool because it reduces the costs of sending money to vulnerable populations, especially those living in rural areas and difficult geographical conditions. Using E-money for these purposes also helps the government to improve transparency, reduces leakage, and has the plus of facilitating value-added services through financial access (Zimmerman, Bohling and Rotman, 2014).

However, it is important to understand that the context is very important to guarantee the success of E-money using the mobile phone in each country. CGAP (2013) indicates that there are two key variables associated with a higher propensity to adopt E-money through the mobile phone. The first one is the social network of the mobile user (the number of mobile phone users an individual is connected to). The second one is the customer’s telecom usage profile (the quantity and variety of telecommunications products used – SMS, data, electronic top-ups and voice). In this sense, understanding these profiles for mobile phone users of the country should be very important to analyze the potential effectiveness of introducing E-money through the mobile phone as a mechanism to induce financial inclusion.

Zimmerman, Bohling and Rotman (2014) have evaluated the design and implementation process of four experiences (Haiti, Kenya, Philippines and Uganda) associated with cash transfers using E-money through the mobile phone. According to them, there are very important lessons from these experiences: (i) country-level readiness, especially for mobile solutions was overestimated (the programs started before adequate infrastructure had been established outside urban areas and had to resort to cash payments in some areas), (ii) the technical and managerial capacities required to shift from cash to electronic payments were often underestimated (all of the programs struggled to create functional and coordinated systems and this caused errors and delays), (iii) pressure from donors and the government to modify the scheme (expand more quickly or approach to different areas than the originally planned) generated problems for the payments system to work as expected, (iv) not all the programs sufficiently educated recipients about using and remembering their PIN codes, to understand how much money they should receive in each payout period, and knowing what to do if something went wrong, and (v) some recipients, particularly those that recently began receiving cash transfers or received them for the first time, were not willing to admit any problems with their payment methods for fear to lose the benefit.

There are some preconditions that authors have found to be important to change the role of E-money through the mobile phone from being used as a payments platform to be used as a financial inclusion tool.
Zimmerman, Bohling and Rotman (2014) indicate that getting a reliable payments system is a necessary precondition to meet most other program priorities and objectives, including financial inclusion objectives. For example, if recipients from electronic cash transfers do not see the value in the system or do not trust it, they will not continue to use it, which could undermine the agent network development, the long-term business of the provider and financial inclusion objectives. Jansen (2010) through an analysis of the M-PESA experience in Kenya found that the transition of users from using E-money through the mobile phone to be clients of the banking system was associated with income, asset ownership, education level, age and income source.

IV. THE FINANCIAL SERVICES MARKET IN PERU

IV.1. Financial services channels

During the last decade, the sustained economic growth of the Peruvian economy has contributed significantly to the expansion of the financial services channels. This is very important as the expansion of the financial services channels improves the financial inclusion levels, which therefore contributes to the inclusive goals of the government. However, the two main drivers for this important increase are: (i) the expansion of banking retail agents since 2005 that has improved the access to financial services (see Graph 9), especially in those areas where the geographical conditions are more complicated, and (ii) the expansion of the branch offices of the Peruvian State Bank (Banco de la Nación), whose presence is valuable for the poorest quintile (see Graph 10), where it is the only banking supply in 24% of the districts. Although these results are encouraging, there is still a pending agenda to expand the financial services nationwide considering that the financial system is only in half of the districts.

**Graph 9**
Peru: Financial service channels

**Graph 10**
Peru: Branches of the Financial System by poverty quintile of the district, 2013

Source: SBS
Providing financial services to the poorest regions of the country becomes more necessary, particularly to rural areas, where financial enterprises do not find it profitable to offer services through the regular channels and products available in the market (Sotomayor, 2012). For instance, if we observe the service channels by poverty quintile (see Table 2) we find that there are important differences among these population groups. In the poorest quintile, 71% of the districts do not have any service channels, which could possibly exclude the 49% of the adults in this group. Also, 20% of adults of the first quintile potentially have access to more than 3 service channels, in only 6% of the districts of this group. With 117 service channels per 100,000 adults, the poorest quintile is very far from quintile 5, where there are 421 service channels per 100,000 adults. Almost every adult is able to use the channels available in the 90% of the districts of this quintile. These figures show that there is an urgent need to expand the financial service channels nationwide, especially to the poorest regions in order to reach the most vulnerable populations.

### Table 2

**Peru: Financial service channels by poverty quintile, 2013**

<table>
<thead>
<tr>
<th>Service channels</th>
<th>Quintile 1</th>
<th>Quintile 2</th>
<th>Quintile 3</th>
<th>Quintile 4</th>
<th>Quintile 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>3 or more</td>
</tr>
<tr>
<td>Quintile 1</td>
<td>71%</td>
<td>16%</td>
<td>5%</td>
<td>2%</td>
<td>6%</td>
</tr>
<tr>
<td>Quintile 2</td>
<td>49%</td>
<td>17%</td>
<td>9%</td>
<td>5%</td>
<td>20%</td>
</tr>
<tr>
<td>Quintile 3</td>
<td>60%</td>
<td>10%</td>
<td>6%</td>
<td>3%</td>
<td>22%</td>
</tr>
<tr>
<td>Quintile 4</td>
<td>22%</td>
<td>7%</td>
<td>5%</td>
<td>5%</td>
<td>61%</td>
</tr>
<tr>
<td>Quintile 5</td>
<td>28%</td>
<td>10%</td>
<td>3%</td>
<td>4%</td>
<td>55%</td>
</tr>
</tbody>
</table>

### IV.2. Savings accounts

There is a considerable amount of people that claim to save their money either inside or outside the financial system. Even in the two poorest quintiles of income at least 30% of the people indicate that they save money inside or outside the financial system (see Graph 11). It is also interesting that more people living in rural
areas save in the poorest quintile of income than the ones living in urban areas. From those people that indicate that save money, the most important part of them save outside the financial system (see Graph 12). In the four poorest quintiles of income more than 50% of the people claim to save outside the financial system. Those people saving outside the financial system save their money mainly “under the mattress”, in materials or livestock and in ROSCAS (SBS, 2013). People claim that they save outside the financial system because they have more trust in these informal methods of savings, they feel more secure, the informal methods of savings are available at lower distances from them and because they are more flexible (see Graph 13).

Graph 11
Peru: People saving money either inside or outside the financial system by income quintile, 2012 (% of total population)

Graph 12
Peru: Where do people save their money? By income quintile, 2012 (% of total population 1)

Graph 13
Peru: Why do people save their money outside the financial system? By income quintile, 2012 (% of total population 1)

1/ Out of those people claiming to save money either inside or outside the financial system.
Source: Peruvian Financial Services Survey (SBS, 2012)
IV.3. Deposit accounts, credit cards and loans

The number of deposit accounts, debt holders and credit cards has also increased significantly during the last years (see Graphs 14 and 15). Nevertheless, the number of people that report to have a deposit account or a loan is still low as a percentage of the total population (see Graph 16). This is particularly low for people living in rural areas and people that belong to the two poorest income quintiles (see Graph 17).

Peruvians report many reasons not to have a deposit account or a loan in the financial system (see Graphs 18 and 19). They indicate that they do not hold deposit accounts in the financial system because the banking agencies are far from their households (especially in the poorest quintiles of income), they are very costly, they have no confidence in the financial system, they do not know how to use these accounts, and perceive no benefit to have them. On the other hand, they indicate that they do not have a loan in the financial system because the banking
agencies are far from their households (especially in the poorest quintiles of income), they do not think they will get the loan and claim not to need the loan (especially in the richest quintiles of income).

The low usage of basic financial services and products is mainly a result of the undercoverage of the formal financial system influenced by the perception that the features of the financial products and services provided by the financial institutions do not meet the customers’ needs.

V. THE MOBILE PHONE MARKET IN PERU

V.1. Penetration, coverage and access

In the context of reduced levels of financial inclusion, the potential of the mobile phone market unfold new opportunities to expand the scope of the financial system. The sustained economic growth of the Peruvian economy and the strong competition dynamics between the two main mobile phone enterprises (Movistar and Claro) contributed to a rapid increase in the penetration of mobile phone services. Nowadays, Peru has several regions that have achieved more than 100 mobile phone lines in service per 100 inhabitants. However, there are several regions that still have more moderate figures in this field. For example, some of the poorest regions like Amazonas, Loreto and Huancavelica have penetration levels of less than 50 mobile phone lines in service per 100 inhabitants (see Table 3). Another field in which the mobile phone market has achieved important goals in Peru is in the service coverage. Peru has mobile phone services coverage at 99% of the districts at the national level, with almost all the regions with service coverage at 100% of their districts (see Table 3).
Although the penetration and coverage of the mobile line services in Peru have increased significantly, the figures at the household level show that mobile phone services have not yet reached an important share of the most vulnerable populations. The access to mobile phone lines at the household level shows that 80% of the households have access to mobile phone. In rural areas, 57% of the households have access to a mobile phone (see Graph 20). In the same line, we observe that the access to a mobile phone for the households in the poorest quintile of income and the second poorest quintile are 48% and 75%, respectively (see Graph 21). These figures are very important to analyze the potential market for E-money through the mobile phone in Peru as there is still an important part of vulnerable populations that has no access to mobile phones and will be out of the benefits of E-money.

The strong competition between the two main mobile phone operators for the market share has been very rough in Lima. However, Movistar has been clearly the one that dominates the market with a share of 62% of the mobile lines at the national level. It is also this operator that is responsible for the expansion of the services to rural areas and urban areas outside the Peruvian capital (see Graph 22).
Another important fact is that the pre-paid contract plans had permitted the expansion of the access to mobile phone services at lower income quintiles. According to Acosta, Chahuara and Ramos (2014), the pre-paid plans had an important success in the Peruvian market because they offer the advantage to obtain cheaper mobile phones, facilitate a better control of the expenditure in these services and prevent lower income populations to involve in long-term contracts with the mobile phone operators. The incidence of this type of contract in the poorest quintile of income and the second poorest quintile are 90% and 85%, respectively. However, it is worth mentioning that this type of contract is the one preferred through all the income quintiles (see Graph 23). These figures show that payment cards could be easily adopted for E-money purposes in most populations.
V.2. Mobile phone services literacy

If we observe the education level of the head of the households for those households that own a mobile phone, 44% of them have not completed secondary education and 17% of them have not completed primary education. In rural areas, 81% of them have not completed secondary education and 41% of them have not completed primary education (see Graph 24). These results are worrying considering that education level is one of the most important variables that explain the transition of users from using E-money through the mobile phone to becoming clients of the banking system (Jansen, 2010).

![Graph 24: Household's head education level for households that own a mobile phone, 2012 (% of households)](source: Peruvian Household Survey –ENAHO)

However, according to GSMA (2012) and CGAP (2013), the user’s mobile phone usage profile is the one that matters more to evaluate the propensity to adopt E-money through the mobile phone. CGAP (2013) mentions that the quantity and variety of mobile phone services and products used should be explored for this purpose. The Peruvian mobile phone market shows an important increase in the use of text messages and Internet as alternatives to the regular calling services associated to the mobile phones (Acosta, Chahuara and Ramos, 2014). At the national level, 63% of the mobile phone users claim to use text messages, 4% use multimedia text messages and 17% use Internet in their mobile phones. But, only 48% of the users living in rural areas use text messages, 2% use multimedia text messages and 4% use Internet in their mobile phones (see Graph 25). These figures show that the Peruvian average mobile phone user is more or less used to send text messages, but it is not used to use Internet services or using multimedia messages with their mobile phones. This average mobile phone user profile would make it difficult for a rapid adoption of E-money services, unless the private sector designs products and services considering these features. Furthermore, it would be necessary to launch complementary information campaigns,
especially in rural areas where the mobile phone user is not familiarized with sending text messages or using Internet in their mobile phones.

While the average user of mobile phone services is not well versed in using the services that should help to implement rapidly the E-money platform through the mobile phone (only 3% of the population claim to use Internet banking), the most important part of mobile phone users are exposed to using at least one or two times per month a mobile phone card to top-up their mobile phones (see Graph 26). This fact shows again that payment cards may be a good complementary option for the storage of E-money in the Peruvian context.

Graph 26
Peru: Number of top-up mobile phone cards bought per month by pre-paid users, 2013 (% of total)

Source: Residential Telecommunications Services Survey – ERESTEL

Considering the widespread coverage of the mobile phone market in Peru, there is a huge potential for the development of the E-money market. The private sector should take advantage of this scenario to design affordable and suitable E-money products and services in order to reach most of the Peruvian population, especially the unserved population.

VI. POTENTIAL MARKET FOR E-MONEY THROUGH THE MOBILE PHONE IN PERU

VI.1. Demand segmentation for E-money services using the mobile phone in Peru

VI.1.1. Segmentation and key variables for the analysis

The potential demand for E-money services through the mobile phone in the Peruvian context should not be analyzed as a homogeneous group with similar features. First, it is clear that the likelihood to adopt E-money will be higher for those people that already have a mobile phone. That is why a first segmentation of the demand should
consider the access to a mobile phone as a relevant feature to divide the demand for these services. Second, we have observed in the analysis of the mobile phone market and of the market of financial services in Peru that there are important differences in terms of access to and use of these services related to the geographical area where the households are located, which is also a signal of vulnerability. People living in rural areas have significantly lower access to mobile phone services and a lower likelihood to have deposit accounts and loans in the financial system. In rural areas, the costs of provision of the services are higher and the private sector usually finds it not profitable to offer their services in those areas (Sotomayor, 2012). This makes this variable very relevant in the Peruvian context to analyze the potential demand for E-money services and should be taken into account to divide the population into different groups.

We could also think that income is an important feature to divide the population into different groups. However, the geographical area and the income level are highly correlated in the Peruvian context (see Graph 27). For that reason, we could keep only with the geographical area as a relevant segmentation variable. Thus, the potential demand for these services should be analyzed by dividing the population into four different groups: (i) households living in urban areas and that have a mobile phone, (ii) households living in urban areas and that do not have a mobile phone, (iii) households living in rural areas and that have a mobile phone, and (iv) households living in rural areas and that do not have a mobile phone.

Within the four groups, we have identified some variables to perform the analysis, according to the fields we consider relevant for the E-money environment. The average income and average expenditure are important to get an idea of the payment capacity of the potential users of each group. The percentage of households that is poor is

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10 There are several variables that can allow us to perform this analysis. However, we are taking into account only those that under our judgement are the most relevant ones in the Peruvian context.
also relevant to get an idea of the vulnerability of the populations inside each group. The education level of the head of the household is also relevant, especially to know if she has completed primary education. This gives a sense of the capacity of the potential user of E-money services to understand and to be able to read the instructions / indications from the tool. The household’s access to electricity is also meaningful as the tool requires that the mobile phones are conveniently charged to execute and receive the transfers and for connectivity purposes. Finally, other variables that are relevant are the percentage of the households of each group that received remittances and the percentage of the households that received the government’s conditional cash transfer program (JUNTOS program). The first because people receiving remittances should be interested in having a different and more convenient alternative to receive their transfers (perhaps, less costly and received directly in the mobile phone) and the second because the Peruvian government could be interested in reaching these population through a more convenient tool (less costly and more organized). The analysis is developed using the Peruvian Household Survey (ENAHO) for the year 2012.

VI.1.2. Segmented potential demand for E-money services

The features of the segmented potential demand for E-money services through the mobile phone are presented in Figure 2.

i) Households living in urban areas and that have a mobile phone: These households represent 68% of the total households of Peru, have an average monthly income and average monthly expenditure level that are about four times the legal minimum salary (S/. 750). 11% of these households are poor and only 13% of the heads of these households have not finished primary education. 99% of them have access to electricity, 7% of them received remittances and only 1.5% of them have received the JUNTOS program. This is clearly the easiest group to reach with the tool, because they already have a mobile phone, have total access to electricity services, have a high ability to pay for the services, have a better education profile than the rest of the population and will have less trouble to understand the tool. A small percentage of these households received remittances, but it is very likely that an important percentage of them are the ones that send the remittances to the other segments of the population (this group of households will be interested in using the tool to save costs and time). The supply of the services will focus their private efforts to reach this group at the beginning of the implementation and promotion of E-money, because it will be easier to reach this segment of the demand than the other three groups. For that reason, it is key that this group receives a quality product without problems at the transaction level, because people from other segments from the demand will refer to this group’s experience when deciding to use the tool or not.
ii) **Households living in urban areas and that do not have a mobile phone:** These households represent 11% of the total households of Peru, have an average monthly income and average monthly expenditure level that are about 1.75 times the legal minimum salary. 29% of these households are poor and 38% of the heads of these households have not finished primary education. 94% of them have access to electricity, 17% of them received remittances and only 2% of them have received the JUNTOS program. The fact that this segment of the demand is the one that receives more remittances and that they have moderately high income and expenditure levels compared to the rest of the population shows that they would have high incentives to adopt the tool. As they do not have a mobile phone, the institutions should initially offer the service through payment cards in order to let the clients know the benefits of E-money. Depending on the results of this experience, the users might decide to buy a mobile phone because they have the income level to afford the investment required to do it. However, a part of this group will still have some troubles to adopt E-money as an important percentage of this group are poor and have low education levels. The second problem can be managed by some information and financial literacy campaigns to inform this people of the benefits of the tool and to explain them how to use them. These households also have a good access to electricity services, so they will not have many problems to perform the transactions regularly. This group will also have frequent contact with the first group as they share the urban areas with them. Thus, they will be clearly exposed to the benefits from the tool (conditional to the success of E-money on the first group) and will analyze on the convenience of adopting the tool and investing on a mobile phone to use it. This group will require some more efforts...
of the private sector to show the benefits of the tool, but mainly the success of the tool on the first group will determine if they would feel interested or not in using it.

iii) Households living in rural areas and that have a mobile phone: These households represent 12% of the total households of Peru, have an average monthly income and average monthly expenditure level that are about 1.7 times the legal minimum salary. 40% of these households are poor and 41% of the heads of these households have not finished primary education. 75% of them have access to electricity, 6% of them received remittances and 25% of them have received the JUNTOS program. Although they live in rural areas, these households have good prospects to adopt the tool because they have moderately high income levels compared to other people living in rural areas that do not have a mobile phone. However, the access to electricity services for these populations is not as high as desirable and this could complicate the adoption of E-money for an important group of them. Also, the vulnerability of some of these households who are in poor conditions and the low education level of an important part of this group could also affect the successful adoption of the tool. Therefore, as in the case of the second group, the information and financial literacy campaigns will also be key for this group in order to present the benefits of the tool and explain how to use it to an important part of this population. It is also important to indicate that this group has 25% of households receiving the conditional cash transfer program from the Peruvian government. This means that the Peruvian government could be a key player in this segment as they will be very interested in using the tool to execute their cash transfers to reduce costs. The Peruvian government would have a lower investment to launch the conditional cash transfer program through this tool in this segment of the demand, because they already have access to a mobile phone.

iv) Households living in rural areas and that do not have a mobile phone: These households represent 9% of the total households of Peru, have an average monthly income and average monthly expenditure level that are less than the legal minimum salary. 60% of these households are poor and 64% of the heads of these households have not finished primary education. 49% of them have access to electricity, 9% of them received remittances and 25% of them have received the JUNTOS program. This group has the lowest likelihood to adopt E-money as they do not have access to a mobile phone, their income level is not that high, an important part of them are poor or living on vulnerable conditions and probably would not be able to afford a mobile phone. Also, the education level of the most important part of this group and their low access to electricity services will make it difficult to adopt easily the tool; considering these features, the users could decide not to acquire a mobile phone. For this reason the institutions should start to offer the services through payment cards. For this group, it is necessary that the Peruvian government use the tool to perform their conditional cash transfers to this segment of the demand. For this part of the potential users, the investment should not only involve the required to execute the conditional cash transfers through this tool,
but also to buy the mobile phones for these users. This group also requires of the information and financial literacy campaigns to present the benefits of E-money and to explain how to use it to the most vulnerable populations. The Peruvian government should also consider accelerating the investment on electrification projects on these areas to improve the access to mobile phone signal and to scale-up E-money services to the most vulnerable population.

VI.2. Additional demand drivers

Two additional demand drivers could also help to raise the demand for E-money through the mobile phone. First, vulnerable populations live very far from the financial services channels and lose a lot of time reaching them for simple transactions such as sending money (remittances) to a relative or paying for the utility bills. This time could be significantly reduced by the use of E-money through the mobile phone and could be used for productive activities. Second, there is an important fraction of people that do not send remittances through the financial system because they claim the financial services channels are very far from their houses or the prices are very high.

VI.2.1. Cost reduction (time) for vulnerable populations

The average time to reach a bank office for the people in the poorest quintile of income in Peru is 3.1 hours while the average time to reach a retail agent for them is only 1.7 hours (see Graph 28). This means that if they start using E-money through the mobile phone the average time to develop common transactions would be reduced considerably. This is also the case for people living in rural areas in which average time to approach the financial services channels is significantly higher than in the urban areas, especially for those in the poorest quintiles of income (see Graph 29).

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<td><strong>Graph 28</strong> Peru: Average time to financial services channels by type of channel and income quintile, 2012 (hours)</td>
<td><strong>Graph 29</strong> Peru: Average time to financial services channels by income quintile and geographical area 1/, 2012 (hours)</td>
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<td><img src="image1" alt="Graph 28" /></td>
<td><img src="image2" alt="Graph 29" /></td>
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<tr>
<td><strong>Source:</strong> Peruvian Financial Services Survey (SBS, 2012)</td>
<td><strong>1/ Average time to approach to any type of channel (bank office, ATM or retail agent). Source:</strong> Peruvian Financial Services Survey (SBS, 2012)</td>
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VI.2.2. Cost and time reduction in sending remittances using E-money

People in rural areas are the ones that send more remittances along all the income quintiles (see Graph 30). But, still it is not an important percentage of the population that is able to send remittances. People in the higher quintiles of income use mainly the financial system to send remittances to their relatives, while trucking companies are the ones more used by people in the poorest quintile of income (see Graph 31).

Graph 30: Peru: Did you send any remittances during last year? By geographical area and income quintile, 2012 (% of total population)

Graph 31: Peru: How do you send remittances? By income quintile, 2012 (% of total population)

Graph 32: Peru: Did you send or receive remittances using the financial system during last year?, 2012 (% of total population)

Graph 33: Peru: Reasons for not sending remittances through the financial system, 2012 (% of total population)

Source: Peruvian Financial Services Survey (SBS, 2012)
Only 5% of the population in the poorest quintile of income declared to have sent or received remittances using the financial system. 14% declared it in the second lowest quintile of income (see Graph 32). The reasons indicated by people for not sending remittances through the financial system are mainly because the financial services channels are very far from their houses, because the prices are very high, and because they do not know how to send money (see Graph 33). This evidence shows the potential for E-money through the mobile phone to match the needs of the demand for these services.

An interesting fact about the people that have claimed to receive remittances is that an important part of them already own a mobile phone. This means that the tool could be easily available for them to develop these transactions using E-money, reducing the cost of transaction for them. 67% of the people that claimed to receive remittances own a mobile phone (see Graph 34). Nevertheless, people living in vulnerable populations and receiving remittances have less access to a mobile phone. Only 47% of the people receiving remittances and living in rural areas own a mobile phone and only 40% of the people receiving remittances from the poorest quintile of income own a mobile phone (see Graphs 34 and 35).

VII. POTENTIAL MISMATCHES BETWEEN THE DEMAND AND SUPPLY OF THE SERVICES

VII.1. Language and reading barriers for vulnerable populations

One of the potential mismatches between the demand and supply of E-money services through the mobile phone could be the language and reading barriers for vulnerable populations. 46% of the households that have access to a mobile phone in rural areas have a household head whose maternal language is a native language (Quechua, Aymara or other). This figure is 52% for households that have no access to a mobile phone (see Graph
Unfortunately, the Peruvian Household Survey - ENAHO has no information on the percentage of this people who also know Spanish. Therefore, definitely an important percentage of these households would have some problems to adopt E-money because they would not be able to understand the instructions (that would be written in Spanish).

One alternative solution to this problem would be to offer E-money services in some native languages to approach the tool to these households. Also, 14% of the households that own a mobile phone in rural areas have a household head that does not know how to write or read. This figure is 32% for those households that do not own a mobile phone and live in rural areas and 14% for those that do not own a mobile phone and live in urban areas (see Graph 37). These households would also have problems to adopt the tool because of these restrictions. However, some alternative solutions may be available as offering it through voice messages.

VII.2. How familiar are Peruvians with similar type of services?

One of the most important mismatches of the demand and supply of E-money services is that Peruvians are not already familiarized with similar type of services. For example, 0% of the population from the poorest quintile of income has used Internet banking and only 4% of the people in the second and third lowest quintiles of income have used these services (see Graph 38). The main reasons that people claim not to use Internet banking are that they do not know how to use the platform; the high costs involved to the platform and because they feel this is risky (see Graph 39).
VII.3. Willingness to use E-money

Another potential mismatch between the demand and supply of these services will be the willingness to use the tool. Less than 10% of the people from the three lowest quintiles of income are willing to use E-money. This is very low compared to the willingness to use Internet banking. More than 20% of the people in the lowest three quintiles of income are willing to use Internet banking (see Graph 40). However, more people living in the rural areas are willing to use this tool (see Graph 41).
VIII. IDENTIFICATION AND ANALYSIS OF POTENTIAL COMPLEMENTARY ACTIONS TO APPROACH E-MONEY SERVICES TO VULNERABLE POPULATIONS AND PROMOTE THE ACCESS TO OTHER FINANCIAL SERVICES

VIII.1. Identification of potential complementary actions

Previous sections discussed several features of the potential demand for E-money services through the mobile phone and identified some potential problems to expand the tool to vulnerable populations. Based on this analysis, the regulatory framework launched through the E-money Law will not be enough to bring the tool to vulnerable populations. People living in rural areas and from low income quintiles still have a reduced access to mobile phone services and have a low education level. Many speak native languages, many do not know how to write or read, and an important percentage are not familiarized with texting through the mobile phone. Furthermore, many of the rural poor still live very far from financial services channels or have no access to electricity services. Part of them perceive the financial system as risky, many are not familiar with financial services transactions or similar tools, and many perceive no benefit in using financial services or this type of tools. Thus, there is a strong need for complementary policies to the E-money Law to obtain the desired results in terms of bringing E-money services to these populations. Also, to support the second objective of the Peruvian government, which is to use the tool to bring financial services to vulnerable populations, additional complementary actions should be implemented.

Figure 3 summarizes a set of potential complementary actions that could be implemented to guarantee that E-money reaches vulnerable populations and to promote the eventual migration of households from this tool to other more sophisticated financial products (deposit accounts, savings accounts, insurance, etc.). In the following sub-section, the reasoning behind each complementary action is discussed. A brief design of the necessary implementation process to promote the desired outputs is also included. These actions are based on the analysis developed in previous sections of this document and on the lessons obtained from international experience with mobile platforms.

VIII.2. Complementary actions to help bring E-money using the mobile phone to vulnerable populations

A. Information campaigns to promote E-money and explain how it works

Many people living in rural areas have a low education level, are not familiar with the benefits of using this type of tools or other financial services, do not know how to send remittances, do not use text messages, and have the perception that financial services are always very expensive or risky. These reasons may prevent them from using the tool. In this scenario, information campaigns to promote the benefits of E-money (easy to use, sure and cheap) and to explain how it works to vulnerable populations are key to bringing the tool to these populations.
The SBS has the expertise in this field as they already have an area dedicated to launch financial literacy campaigns. Thus, it is recommended that they lead this task. However, the SBS should coordinate with the private sector regarding the contents of the information campaigns. These campaigns should focus on rural areas in which the adoption of E-money may be difficult. The content should be straightforward and practical so as to have the largest possible effect given the relatively low education level in these areas. The private sector should also participate in these information campaigns to promote the benefits from the tool and presenting the product through the press and media.

Figure 3
Identification of complementary actions to approach E-money to vulnerable populations and promoting the migration to other financial services using the mobile phone

The information campaigns should also include tests at the end of the campaigns to measure if attendees learn the contents of the information sessions. It would also be desirable to develop some data collection to observe if the people's behavior is changing in some indicative way in response to the information campaigns (for example, if they are now using the tool, if they understand it, and for those who are not using it, the main reasons for this). The results from the tests and other data collection methods should serve as inputs to developing more effective
campaigns in the future. Pilot campaigns in a sample of rural areas could help refine the campaign process and develop a better information product for future campaigns. Once the product has been tested in this sample of rural areas, the SBS should decide when to scale-up the information campaigns to the rest of rural areas.

B. Peruvian government could use E-money to deliver the JUNTOS program

The Peruvian government could save a significant amount of revenue by using E-money to send conditional cash transfers (the JUNTOS program) to people in rural areas. As mentioned in previous sections, one option the Government could explore is providing mobile phones to those people receiving the JUNTOS program who do not own a mobile phone. This option is without risks, as this approach was not very successful in some countries (for example, Pakistan), where many people reported losing or damaging their mobile phones after the first transfer was completed (Rotman, Kumar and Parada, 2013). Considering the lack of mobile phones and familiarity with texting and considering the aforementioned risk of giving out phones, the Government should also consider the use of payment cards if it decides to provide the cash transfers through the tool.

To guarantee the success of this action, the information campaigns should show how to use the tool to vulnerable populations. As suggested by Zimmerman, Bohling and Rotman (2014), in the context of government cash transfers, these information campaigns should: (i) educate recipients about using and remembering their PIN codes, (ii) explain how much money they will receive and what to do if something goes wrong, and (iii) promote an environment in which people will work to alert a central authority if the system fails.

Having the Peruvian government as one of the most important users of E-money will also be helpful as the government will be exposed constantly to the quality and connectivity of the tool. This will reduce the incentives for the private sector to provide a low quality service for fear of losing their license to operate. Service quality and competition could also increase over time as service providers want to maintain the government as an important client. However, there are some concerns about having the government as one of the most important clients of the tool. In the Peruvian context, transparency and corruption inside the government agencies have been a problem when the government constructs initiatives co-sponsored with the private sector and there is a danger that corruption could similarly occur in the E-money context. To mitigate this, it is important to develop the aforementioned mechanisms for citizen participation to alert the authorities of potential corruption or failures in the system. Citizens and the media will be key actors to oversee problems related to providing cash transfers through the tool.
C. Expand the retail agent network and electricity services in rural areas

As mentioned in previous sections, expanding the retail agent network is key to generate a useful platform and bringing it to vulnerable populations. The actual regulation framework helps to promote the conversion of the retail agents to cash-in / cash-out establishments, but it does not provide any incentives to expand the network. Through the cooperation framework of the Multisectorial Commission of Financial Inclusion, the SBS with the Ministry of Economics and Finance could provide some incentives (for example, a tax deduction scheme) for the private sector to accelerate the expansion of the retail agent network in rural areas. This is important because a large percentage of people in rural areas and from the lowest income quintiles still live very far from the retail agents, reducing the potential benefits of the platform for these populations.

The reduced access to electricity services in rural areas is still part of the pending agenda of the Peruvian government. The lack of access to electricity services diminishes and endangers the mobile services connectivity possibilities for people living in rural areas as they will have problems charging their mobile phones and problems with network signal strength (electricity is necessary for retransmitting telecommunications signals). To improve the connectivity of the E-money platform, the Peruvian government should accelerate investments in electricity services in rural areas.

D. Reinforce the operational risk framework field to guarantee the sustainability of E-money

As explained by Mbiti and Weil (2011) the most common way used by the private sector and the governments to protect the users of these platforms from fraud is through the use of PIN codes. However, technological progress may make PIN code systems vulnerable. In addition, because many people exclude themselves from platforms such as Internet banking or from using financial services because they perceive them as risky, there is a potential market for insurance to protect transactions from fraud and failure in the system. Nevertheless, the SBS has established that the E-money issuers cannot charge any cost for insurances or the creation of contingency mechanisms to cover these risks11.

As the E-money Law was launched as an instrument for financial inclusion, the government should protect the most vulnerable users, mainly the poorest, who do not have the income level to afford an insurance and need to access to financial quality services. In consequence, the SBS has established that the E-money issuer must guarantee secure services for every transaction assuming the risk itself, and it has forbidden the issuers to transfer to

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11 According to Resolucion SBS N° 4628-2015, the user is not responsible for non-recognized operations as a consequence of: (i) cloning of the device that store E-money; (ii) operations made after the E-money issuer was reported about the E-money account lockout; (iii) user impersonation in the E-money service channels; or (iv) failure in the E-money service channels or in their systems. The issuer must take the risk unless it shows the user's responsibility.
the consumers the cost of any insurance in case of frauds or failures in the system. For this reason and considering that the current scheme could encourage delinquency, the SBS and the E-money issuers should pay special attention to their operational risk as this topic is key for the sustainability of the E-money environment.

E. Use payment cards as a complementary device to mobile phone services

As mentioned before, considering that many people in rural areas still do not know how to read, and also do not have a mobile phone and that those that have a mobile phone are not very used to send text messages the E-money issuer should launch the platform either through mobile phones and through payment cards. The users of mobile phone from rural areas and from the lowest quintiles of income have mainly pre-paid plans and are used to topping-up their mobile phones with similar payment cards or virtual cards. Therefore, the transition to payment cards should be easy as the typical potential user of E-money services should be familiar with using this type of cards.

F. Offer E-money services in native languages and through voice services

Since a significant percentage of the people living in rural areas do not know how to read or write, and / or they speak native languages shows the need to provide different alternatives to the intended tool. One option is to offer E-money in native languages (probably mainly Quechua and Aymara). Also, the private sector should explore if the services could also be provided via voice messages to allow access to the people who do not know how to read. This action should complement the information campaigns; in that some of the campaigns should be developed in native languages, like radial spots.

VIII.3. Complementary actions to bring other financial services to vulnerable populations via E-money using the mobile phone

A. Financial literacy campaigns and promotion of other financial services

E-money is intended to be a first step towards bringing financial services to vulnerable populations. However, there should also be other efforts carried out as a second phase, to promote the take-up by people of other financial services once E-money is rolled-out. An important effort by the SBS (in coordination with the private sector) could be to launch financial literacy campaigns to present the benefits of other financial services to users of E-money and to show how these services work. Currently, the SBS develops campaigns such as these, which is why they should lead this initiative.

Considering that some of the reasons people give for not using financial services are that they do not know how to use them, they perceive no benefit in using them and they believe that they are costly and risky, these
financial literacy campaigns would be very important. These campaigns should be developed using simple and practical language as the target population is the people living in rural areas, who do not have high education levels on average. The messages given in the campaigns should emphasize in the benefits of the formal financial services compared to the informal financial services, and explain how to use these services and how to migrate from E-money to these other services. A good complement to these campaigns would be to develop simple financial products linked to E-money.

B. Offer a savings account linked to E-money

As reported by Mbiti and Weil (2011), the M-Pesa experience in Kenya showed that the use of E-money through the mobile phone reduced informal saving mechanisms (because, people started saving in their mobile phones) and increased the probability of people being banked. In this experience, the private sector introduced a savings account directly linked to M-Pesa (Bankable Frontier Associates, 2014) and this step helped to bring other financial services to vulnerable populations in Kenya.

The Peruvian government should follow this successful experience and promote the development of private saving account products linked to E-money after the platform has been rolled out. For that purpose, the SBS should launch a new regulatory framework to allow savings accounts to link with the E-money accounts.

Also, it would be very useful to run focus groups during the information and financial literacy campaigns to get a sense of the likelihood that these people would be interested in getting a savings account linked to E-money products. The SBS should share this information with the private sector to promote the development of the product and coordinate the product features accordingly.

C. Develop a micro insurance product to be offered through the mobile phone

Following the international experience reported by Tellez-Merchan and Zetterli (2014), the SBS should also explore the possibility of promoting a market in micro insurance linked to E-money through the mobile phone, as a second step towards financial inclusion. As indicated by these authors, typically the products include life insurance, accident insurance or insurance for the savings accounts using the mobile phone. For these purposes, the mobile phone is very useful because insurers can send messages to remind customers of their insurance payments and receive customers’ fees using E-money through the mobile phone (Tellez-Merchan and Zetterli, 2014).

As with the previous recommendation, the SBS could launch a new regulatory framework to link these services to E-money accounts. They could also run focus groups during the information and financial literacy
campaigns to get a sense of the likelihood that people would be interested in using these products, share this information with the private sector and coordinate the product features accordingly.

VIII.4. How to prioritize these complementary actions?

Although each of these complementary policies is crucial for obtaining the desired results from the tool, a prioritization mechanism can help the Peruvian government organize its efforts in this field and arrange the necessary resources to implement the actions. This last section covers two different prioritization mechanisms through which the Peruvian government can decide which complementary policies to implement first and which are the most relevant for the long-term sustainability of the tool.

A. Timing for the implementation of the actions

The ideal timing for implementing the complementary actions is divided in three groups: (i) short-term, (ii) medium-term, and (iii) long-term. See Figure 4 for a tentative schedule for implementing these actions.

Figure 4
Proposed timing for the implementation of the complementary actions 1/

1/ Complementary actions to approach other financial services to vulnerable populations are presented in green. Source: Authors’ work based on the analysis developed in previous sections and the literature review.
In the short-term, as the tool is already rolling and the current regulatory framework already incorporates the possibility of using payment cards to store E-money, the private sector should use this type of cards as a complementary device to the mobile phone. As described in the previous sections, this action is very important to reach vulnerable populations, especially those that do not own a mobile phone yet. The SBS should target to start planning and developing the information campaigns throughout the promotion and propagation of E-money. These efforts will help to approach E-money to the demand of these services as many people are not familiar with the benefits of the tool and do not know how to use it (especially vulnerable populations that have less exposure to financial services in general). It is also important that the Peruvian government starts thinking about a long-term strategy to promote the expansion of the retail agent network throughout the country and especially to rural areas. Also, the Peruvian government is expected to increase the efforts to develop electrification programs in rural areas at this point and more actively through the following years. Finally, the SBS and the private sector should reinforce the operational risk framework to guarantee the sustainability of the platform.

In the medium-term, the Peruvian government should plan to start using the tool to distribute the conditional cash transfers. The Peruvian government should have a sense if the connectivity and flexibility of E-money are sufficient to allow launching the tool in at least some rural areas. This is also a good time to identify if it would work to buy mobile phones for the people living in rural areas, so they may receive their cash-transfers in that manner, or if payment cards should be preferred for this purpose. Once E-money has been rolling for the next years, it may be easier for the private sector providers to launch variations of the tool with voice services and in native languages. Financial literacy campaigns to introduce financial services to vulnerable populations should be launched during this stage of the implementation of the tool. In the beginning, they should target the vulnerable areas that have a higher intensity in the use of the tool.

In the long-term, the SBS should develop another regulation framework for the private sector to offer other financial services through the tool (saving accounts, insurance, within others). Clearly, these services should be rolled-out when the tool is already consolidated and once the people get used to develop transactions using it.

B. Relevance to achieve long-term sustainability for E-money and implementation cost

The first prioritization scheme establishes the tentative time schedule to implement the complementary actions. Nevertheless, this analysis does not consider the implementation cost of the actions and how relevant are they to achieve the long-term sustainability of the tool. The former is very important as it may prevent the rapid implementation of the policies while the latter may give the Peruvian government an idea as to which policies are
crucial for reaching vulnerable populations with the tool and with other financial services. Figure 5 presents a tentative classification of the complementary policies according to their relevance to achieve the long-term sustainability of the tool and their implementation cost.

**Figure 5**
Classification of the complementary actions according to the implementation cost and their relevance for achieving the long-term sustainability of E-money

1. Use payment cards as a complementary device to the mobile phone
2. Information campaigns (explain benefits of E-money and how to use it)
3. Use voice services through the mobile phone to provide E-money services
   - Offer E-money services in native languages
   - Develop a micro insurance product to be offered through the mobile phone
   - Offer a savings account through the mobile phone
4. Expand the retail agent network in rural areas
5. Government should invest to expand the electricity services in rural areas
6. Government should invest to use E-money for the JUNTOS program
7. Financial literacy campaigns and promotion of other financial services
8. Government can buy mobile phones for most vulnerable populations

1/ Complementary policies to approach other financial services to vulnerable populations are presented in green.
Source: Authors' work based on the analysis developed in previous sections and the literature review

A conventional recommendation for the Peruvian government should be to pick the policies with the highest relevance to achieve the long-term sustainability and the lowest implementation cost of the tool and develop them in advance. However, in the Peruvian case, the success of E-money strongly depends on some of the complementary policies that have higher implementation costs. For this reason, a good recommendation in this context is that the Peruvian government should prioritize those policies that are highly relevant for the long-term sustainability of the tool (all of them) and try to minimize the costs for those policies that have high implementation costs. For example, the Peruvian government should negotiate with the private sector to split the costs of the information and financial literacy campaigns. The private sector will also benefit from the results of these campaigns, so they should be
interested in participating in the design of these campaigns and to invest in them to approach financial services to new markets (vulnerable populations). The Peruvian government should also think on developing a concession to expand some of the electrification services to vulnerable populations. The expansion of the retail agent network could also be less costly for the Peruvian government if an incentive scheme is developed for the private sector to invest in this field.

From the actions that are less relevant for the long-term sustainability of the tool, the Peruvian government should prioritize those that have a lower implementation cost, leaving those with high implementation cost for the end (buying mobile phones for those that do not own one in vulnerable populations).

IX. CONCLUDING REMARKS

The E-money Law provides a solid regulation framework to promote E-money services through the mobile phone. However, aspects of the potential demand for these services in rural areas and in lower income quintiles may prevent the adoption of the tool without a set of adequate complementary actions, and by extension prevent further migration of these households to other more complex financial services.

An important percentage of the people living in rural areas and in lower income quintiles have low educations levels, have little knowledge of the benefits of formal financial services, report not knowing how to use financial services, and do not trust the financial system. For these reasons, the adoption of E-money in these groups depends critically on the release of effective information campaigns that present the benefits of the tool and explain in a simple and practical fashion how to use it. The information campaigns should also be complemented with financial literacy campaigns to explain the benefits of other financial services and how to use these services. The migration from the basic tool to additional financial services will depend on the results of both of these campaigns and will also depend on the promotion of these other financial products once the tool is established in vulnerable populations.

Although mobile phone services have reached high levels of penetration and coverage in much of the country, still a large percentage of people living in rural areas and a large percentage of people in lower income quintiles have no access to mobile phone services. Also, many people in rural areas that own a mobile phone do not use text messages, or the Internet with their mobile phones. This may also prevent the fast adoption of E-money. The potential delay in rolling out the tool to more vulnerable households reinforces the position of the SBS that the payment cards should complement the mobile phone platform in the provision of E-money services. The typical user of mobile phone services in Peru has a pre-paid mobile phone line and is used to perform operations with payment
cards (mainly, to top-up their phones). Hence, the transition from using top-up cards to payment cards within the tool should be easy.

The role of the Peruvian government in the promotion of the platform is crucial. Considering that a quarter of the households living in rural areas receive the JUNTOS program, the government could use the tool to significantly reduce its transaction costs of providing cash transfers to this population. The government should also evaluate the possibility of acquiring mobile phones for people in rural areas who do not have a mobile phone, for conditional cash transfer purposes. The government could also aid in the development of the tool by accelerating the government’s investment in electrification programs in rural areas and promoting via tax deduction arrangements with the private sector the expansion of the retail agent network in rural areas. Without these two policies, the connectivity and success of the tool in rural areas may be low.

The cooperation between and within the strategic alliances will be important to improve both the scope of E-money services and the financial inclusion levels. The Multisectoral Commission of Financial Inclusion and the private sector union should take advantage of their synergy and cooperate to enhance financial inclusion. It is recommended that they carry out coordinated programs to avoid duplicated efforts and to reach the expected results. For example, the SBS may provide financial literacy campaigns to JUNTOS beneficiaries before they start to use E-money, to guarantee that these users will understand the tool and use it correctly.

The SBS should pay special attention to the operational risk of the E-money issuers. The current mechanism to protect the users of the tool and prevent fraud relies on the use of a PIN code. However, this protection mechanism seems too simple and technological progress may find some ways to threaten the security of the users in the near future. This provides an opportunity for an insurance market to protect customers from fraud and failures in the tool; however, the SBS has established that the user is not responsible for these events and the E-money issuer must take the risk itself guaranteeing sure transactions. Hence, the SBS should deepen the supervision and regulation regarding to operational risk so as to ensure the sustainability of the tool.

Finally, although each of these complementary policies is crucial for obtaining the desired results from E-money, a prioritization mechanism can help the Peruvian government organize its efforts in this field and arrange the necessary resources to implement the policies. This document provides two different prioritization mechanisms by which the Peruvian government can decide which complementary policies to implement first and which are the most relevant for the long-term sustainability of E-money.
X. REFERENCES


SBS (2013) Encuesta Piloto de Acceso y Uso de Servicios Financieros: Resultados Inferenciales. Superintendencia de Banca, Seguros y Administradoras Privadas de Fondos de Pensiones del Peru y Banco Interamericano de Desarrollo. Lima, Peru.


XI. APPENDIX: BRIEF DESCRIPTION OF THE SURVEYS AND DATABASES USED IN THE ANALYSIS

XI.1. Peruvian Household Survey – ENAHO

The Peruvian Household Survey (Encuesta Nacional de Hogares – ENAHO) is launched and financed by the National Institute of Statistics and Informatics of Peru (Instituto Nacional de Estadistica e Informatica – INEI). This survey is launched on a yearly basis and presents information of the socio-economic features of the Peruvian households. The database used in this document corresponds to the year 2012, has information from a sample of 25,091 households from all the Peruvian regions and it is representative at the regional and national levels through the use of household and population weights.

XI.2. Peruvian Financial Services Survey (SBS, 2012)

The Peruvian Financial Services Survey (SBS, 2012) (Encuesta Piloto de Acceso y Uso de Servicios Financieros) was financed by the Inter-American Development Bank and launched by the SBS (Superintendencia de Banca, Seguros y Administradoras Privadas de Fondos de Pensiones del Peru – SBS). This survey was launched in the year 2012 and mainly includes information on the access and usage of financial services in Peru. This database includes information for 2,800 adults from the urban areas of Lima and the urban and rural areas of Arequipa, Junin and La Libertad. Although the information does not consider all the Peruvian regions, the results have been adjusted by the population weights from the Peruvian Household Survey – ENAHO. This adjustment allows the inference of the results at the national level.

XI.3. Residential Telecommunications Services Survey – ERESTEL

The Residential Telecommunications Services Survey (Encuesta Residencial de Demanda y Usos de Servicios de Telecomunicaciones - ERESTEL) was launched by CUANTO, was financed by the Telecommunications Regulator of Peru (Organismo Supervisor de Inversion Privada en Telecomunicaciones – OSIPTEL) and provides information of the access to mobile phone services and the features of the users of these services in Peru. The database used in this document corresponds to the year 2013, presents information from urban and rural areas from a sample of 11,255 households from all the Peruvian regions and it is representative at the regional and national levels through the use of household and population weights.