

COUNTRY DIAGNOSTIC

Building from a Strong Foundation: A Path Forward for Digitizing Sub-national Government Payments in Peru

OCTOBER
2016



PERU

BETTER THAN CASH
ALLIANCE



PERU

Country Diagnostic

This Diagnostic Study shows that Peru has a powerful opportunity to drive financial inclusion and continue modernizing its economy through further reforms to support digitization of payments. These reforms would help overcome the challenges of a highly fragmented governmental structure at the sub-national level, and would build on Peru's recent improvements to its digital infrastructure. These improvements have supported a rapidly growing digital economy and contributed to Peru's impressive economic growth in recent years. Despite this, Peru still has a large shadow economy, and remaining disparities of economic opportunity across the country. The Diagnostic Study maps out the key barriers to a more inclusive digital ecosystem in Peru, and makes specific recommendations at the national and sub-national level so Peru can harness the power of digital payments to build on its recent economic achievements.

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1. EXECUTIVE SUMMARY

Following significant economic growth and improving infrastructure over recent years, Peru is well positioned to reap major benefits – particularly greater financial inclusion – from greater digitization of payments.

To help Peru realize these benefits, and at the request of the Peruvian government, this study provides detailed analysis of government payment flows. It also offers specific and targeted policy recommendations about digitization initiatives that will deliver the greatest positive impact, relative to their cost and practicality.

This study has focused on sub-national government payments, and has been designed to complement a parallel study on national government payments, conducted by the Inter-American Development Bank, entitled “Proyecto Pagos Digitales de Gobierno para Promover la Inclusión Financiera” (Digital Government Payments Project to Promote Financial Inclusion).

KEY FINDINGS



Peru's higher level of GDP growth relative to neighboring countries makes it one of the countries in the region best positioned to achieve further economic growth improvements through digitization of payments.

A recent study by Moody's Analytics¹ examined the economic impact of electronic payments in 70 countries, with the results indicating that increased use of electronic payments leads to higher consumption, which in turn leads to increases in production, jobs, income, and GDP. On this basis, the relatively stronger economic position of Peru in the region should enable it to better capitalize on payment digitization because the country is better able to foster basic banking services and expand basic payment services.



The Peruvian Central Bank's payment statistics show that the volume and value of electronic payments are growing rapidly.

This progress is a credit to the government's proactive initiatives to expand Peru's digital and financial infrastructure and facilitate innovation to accelerate digital payments to drive financial inclusion. For example:

- Between 2011 and 2015, credit transfers grew by transaction volume and value, 85% and 82% respectively; and card payments grew by transactions volume and value, 62% and 90% respectively.
- While the most advanced infrastructure in Peru is concentrated in the most affluent and economically dynamic parts of the country, the reach of the country's infrastructure is expanding.
- By moving forward to establish card acceptance (POS) and access to cash (ATMs), Peru has substantially improved its payment infrastructure in recent years. The number of POS terminals in the country grew by 472% between 2010 and 2015. However, this growth is partly attributable to the lack of interoperability among POS terminals which results in merchants having to acquire multiple devices.
- A recently developed private initiative, Billetera Movil (BIM),² providing an interoperable shared mobile payments platform is a key strength of Peru's infrastructure, and can be substantially leveraged to drive further digitization of payments. The platform was launched in February and had higher than expected adoption rates, exceeding 70,000 registered users within one full month of its launch.³



Despite some progress toward digitization, electronic payments usage growth is from a small base of the population and there is a pervasive dependence on paper-based payments.

- Cash usage is particularly widespread for retail transactions. This could be in part because POS acceptance is not fully interoperable and, compared to other countries in the region, POS penetration in Peru still remains relatively low, generating barriers to the full adoption of electronic payments.
- Overall, check payments per value and volume fell by 14% and 7% respectively between 2011 and 2015. However, check penetration remains high, especially for high-value transactions⁴ driven by small and medium enterprise (SME) payers and G2B and G2P payments (e.g., procurement, tax refunds), both at a national and sub-national level.
- Card payments grew by value and volume by 90% and 62% respectively between 2011 and 2015. Payment cards are predominantly used to access funds through ATM withdrawals. Credit cards are mainly used for payment at POS, accounting for 72% of the total card POS payments value in 2015. Debit cards used for cash withdrawals account for 94% of the total card withdrawal transaction value in the same year.



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Peru's prioritization of digital payments to expand financial inclusion is key to tackling the country's financial exclusion, 70% of Peruvians do not have an account in a formal financial institution,⁵ and relatively large "shadow economy,"⁶ 49% of the country's GDP.⁷

Payments behaviors are strongly correlated to the shadow economy. In particular, high cash usage – and consequent low usage of digital payments – are often found in countries with large shadow economies, such as Peru. While cash is an enabler of shadow economies,⁸ it is also a necessary means of trade in countries with low levels of financial inclusion, reinforcing the need for the government's strong emphasis on expanding financial inclusion.

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The significant fragmentation among payment systems and high degree of autonomy over payments policy within all 1,838⁹ municipalities is a primary challenge to further progress.

- The governance structure and legal framework for payments is well articulated at the national level, with the Ministry of Economy and Finance and Central Bank playing a coordinating role and having comprehensive visibility of the country's payment processes. However, this governance structure is applicable to only a limited degree at sub-national level, as municipalities have a high degree of independence and discretion in their administrative decisions.¹⁰ This is particularly true when it comes to the application of consumer protection measures.
- Consequently, at the sub-national level, there is complexity and inefficiency of single municipalities' negotiating with banks, payment providers, and system integrators, and a lack of scale due to the degree of fragmentation.

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The adoption of basic digital financial products (e.g., card payments, mobile money) by individuals and businesses is a vital prerequisite to further digitization and financial inclusion.

As a result, the private sector, backed up by the government, can play a leading role in developing accessible digital financial products and a functional digital payments ecosystem. Without this ecosystem, payments made by governments to individuals and businesses tend to be quickly converted into cash, negating many of the financial inclusion and broader economic benefits of digital transactions.

RECOMMENDED INITIATIVES: SUB-NATIONAL LEVEL

Based on the above analysis of payment infrastructure and municipal payment flows, this study has identified five strategic initiatives at a sub-national level to be recommended to the Peruvian government for the purpose of supporting digitization of the selected sub-national payment flows.

Through a methodology that ranks the most potentially effective initiatives, more efficient and transparent Government-to-Business (G2B) procurement transactions, Person-to-Government (P2G), and Business-to-Government (B2G) local tax collections emerge as key recommendations. Specifically:

- 1) Develop an integrated and affordable technology solution across local government entities, providing single-access multi-channel capabilities for digital payments for government receipts (e.g., tax collections and procurement payments).
- 2) Provide accessible and low cost solution for municipalities / SATs to access multi-channel payment collection.
- 3) Integrate BIM for tax collection and procurement payments.
- 4) Automate monitoring and reconciliation of collections and spending of sub-national entities.
- 5) Migrate G2B check flows to digital payments by decreasing / eliminating check usage for procurement payments.

The Better Than Cash Alliance's analysis of sub-national payment flows has identified selected target flows for digitization at sub-national level. These are:

- 1) **P2G and B2G:** Impuesto predial (property tax) – these payment flows are worth S6,720m with 59% of payments from citizens and 94% of payments from companies taking place by cash and checks for a total value of S5,188m, 77% of the total, paid in cash and checks.
- 2) **P2G and B2G:** Arbitrios municipales (costs to municipalities that are recharged to taxpayers) – these payment flows are worth S6,447m with 65% of payments from citizens and 95% of payments from companies taking place by cash and checks for a total value of S5,404m, 84% of the total, paid in cash and checks.
- 3) **G2B:** Gastos (outbound payments to suppliers / procurement) – these payment flows are the larger and are worth S119,748m of which 19%, S22,752m, are paid by checks.

The total potential flow that could be addressed through electronic payments across the target flow amount to S33,334m with relevant benefits of cost efficiency for the government and positive impact in terms of financial inclusion.

RECOMMENDED INITIATIVES: NATIONAL LEVEL

While digital payments at the national level are the focus of the IDB study,¹¹ this study also assessed nine national-level initiatives in terms of their potential impact and practicality, and then applied a cost-benefit analysis to each initiative. As a result, this study recommends initiatives to accelerate the growth of BIM, and extend its applications to P2G and G2P payments. Indeed, throughout the research and analysis for this study, BIM emerged as a key asset for Peru in its efforts to digitize payments and drive financial inclusion.

Recognizing that public resources are often scarce, and reforms difficult, the aim of this study is to help guide Peru in its journey from cash to digital payments. By doing so, Peru can help drive improvements in living standards and economic opportunity, increase transparency, and bring more people into the formal economy, potentially expanding its revenue base. In doing so, Peru can also provide a positive example that other countries can learn from in their own journeys from cash to digital payments.



2. METHODOLOGY

Practical reference frameworks such as BTCA's Government Toolkit,¹² Payments Measurement Toolkits, and the approach used in BTCA's previous country diagnostic studies¹³ have provided the methodology underpinning this study. The primary and secondary research has been complemented by references such as the World Bank's "Guidelines for Government Payments" and sources of information, such as work on the sizing and evaluation shadow economies by Professor Friedrich Schneider of the University of Linz, to strengthen the analysis upon which recommendations have been developed.



COUNTRY OVERVIEW

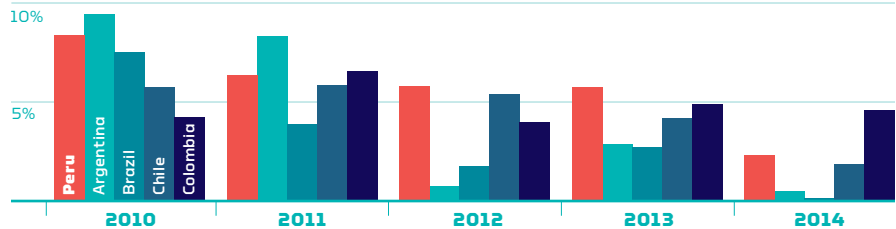
Economic and demographic landscape

Peru has been classified by the World Bank as an upper-middle income country, and has been one of Latin America's fastest-growing economies between 2010 and 2014. In recent years, Peru has maintained stable growth and low inflation, contributing to an average annual GDP growth rate of 5.8% between 2010 and 2014.¹⁴ In 2014, the Peruvian economy slowed somewhat, compared to the preceding three years, due largely to a slowdown in sectors exposed to the global economy and reduced inbound capital flows.

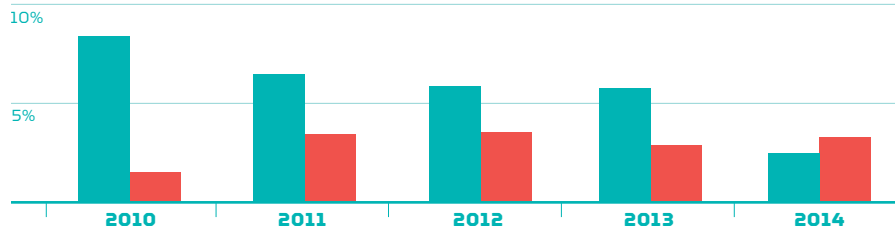
Despite its robust national economic performance in recent years, Peru suffers from disparities among regions within the country in terms of wealth and population distribution. Peru's northern coastal regions are its most densely populated areas, with Lima having the highest density, at 306

FIGURE 1
GDP Analysis

GDP growth comparison with other Latin American countries

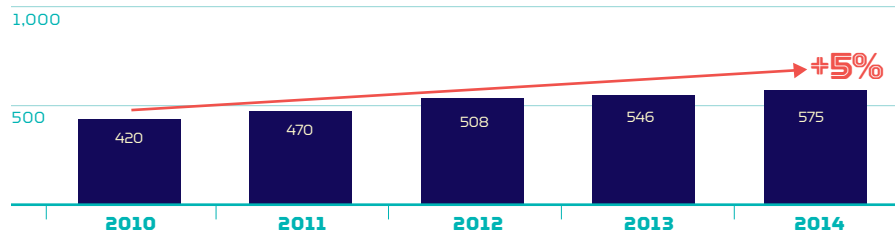


GDP GROWTH and INFLATION



GDP (Nuevo Sol billion, S/.bn)

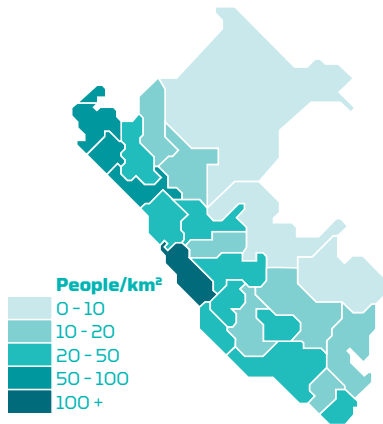
CAGR 2010-2014: **8.2%**



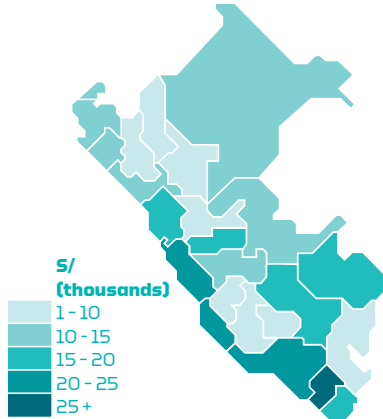
Source: INNOVALUE analysis, World Bank database

FIGURE 2
Regional market landscape¹⁵

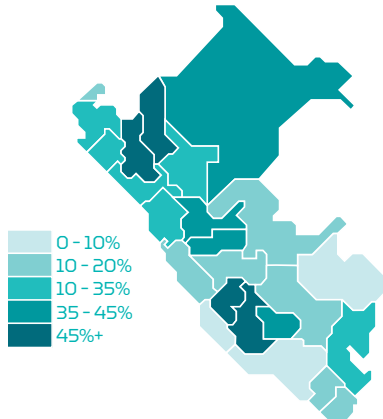
Population Density



GDP per capita (Nuevo sol)



Poverty (% of population)



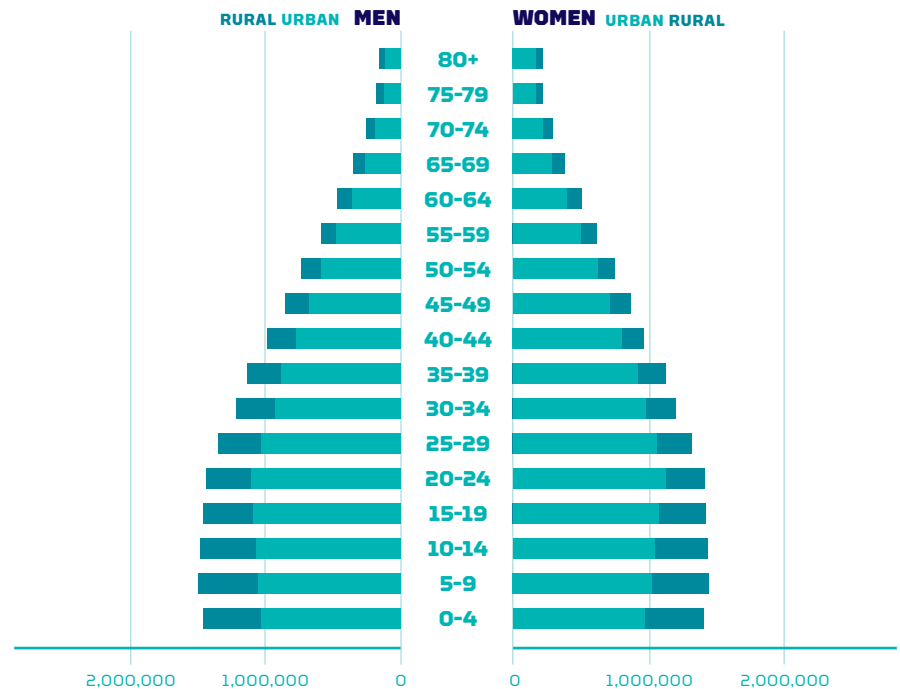
Source: INNOVALUE analysis, Instituto Peruano de Economía (2014)

inhabitants per km². The southern coastal regions have the highest GDP per capita due to a high concentration of service and industrial activities, notably textiles, mining, and sugar refining. However, high levels of poverty still affect a wide range of regions.

From a demographic perspective, Peru has a relatively young population mainly living in urban areas, which together with other demographic factors can help underpin continued and sustainable economic growth. In 2015, there were 31.15 million people living in Peru. The Peruvian population has been growing at 1.1% annually on average since 2010. 54.8% of the population is under 30 years old, and the population is fairly equally balanced between men (50.1%) and women (49.9%). Less than one-quarter (23.3%) of the population lives in rural areas.

Figure 3 provides an illustration of the distribution of population by age, sex, and geographical area based on statistics from the Instituto Nacional de Estadística e Informática (National Institute of Statistics).

FIGURE 3
Population distribution by age, sex, and area

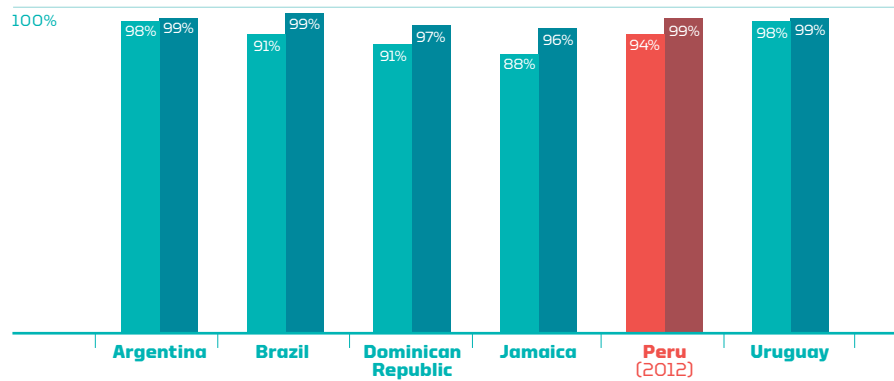


Source: INNOVALUE analysis, Instituto Nacional de Estadística e Informática

Peru has a high level of literacy compared to other countries in Latin America as illustrated in Figure 4 below. This is largely a consequence of intensive social programs such as the Programas de Alfabetización y Educación Básica de Personas Adultas en Iberoamérica, PAEBA (Youth and Adult Literacy and Basic Education Program) launched in 1992.¹⁶ Such programs, combined with other factors, have helped produce an increase in Peru's level of literacy from 82% for adults and 93% for those aged between 15 and 24 in 1981, to 94% and 99% in 2012, respectively. However, differences in literacy levels remain based on geographic and other factors, with coastal regions reporting the highest levels of literacy.

FIGURE 4
Comparative literacy levels in selected Latin American countries

ADULT YOUTH



Source: INNOVALUE analysis, World Bank, Central Intelligence Agency U.S.



PERU'S SHADOW ECONOMY

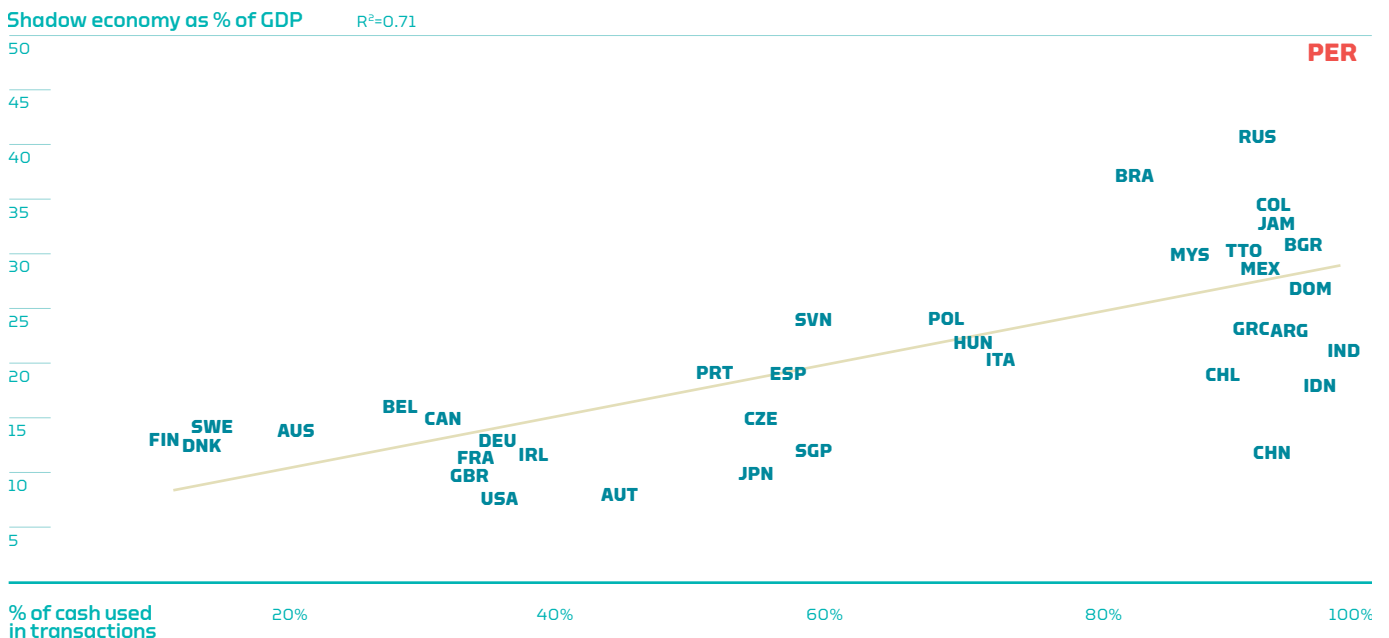
The Organization for Economic Co-operation and Development (OECD) defines¹⁷ a shadow economy as underground production [that] consists of activities that are productive in an economic sense and quite legal (provided certain standards or regulations are complied with), but which are deliberately concealed from public authorities for the following reasons:

- to avoid the payment of income, value added, or other taxes;
- to avoid payment of social security contributions;
- to avoid meeting certain legal standards such as minimum wages, maximum hours, safety, or health standards, etc.;
- to avoid complying with certain administrative procedures, such as completing statistical questionnaires or other administrative forms.

Practically, a shadow economy consists of the production of goods and services which escape official detection in the estimation of a country's GDP. Shadow economies often affect economic sectors, businesses, and demographics differently. As a result, large shadow economies can indicate that a country's economic growth is not as economically and socially inclusive as it otherwise would be in economies with dominant formal economies. Shadow economies also affect societies by depriving governments of resources that should be otherwise invested for the public good.

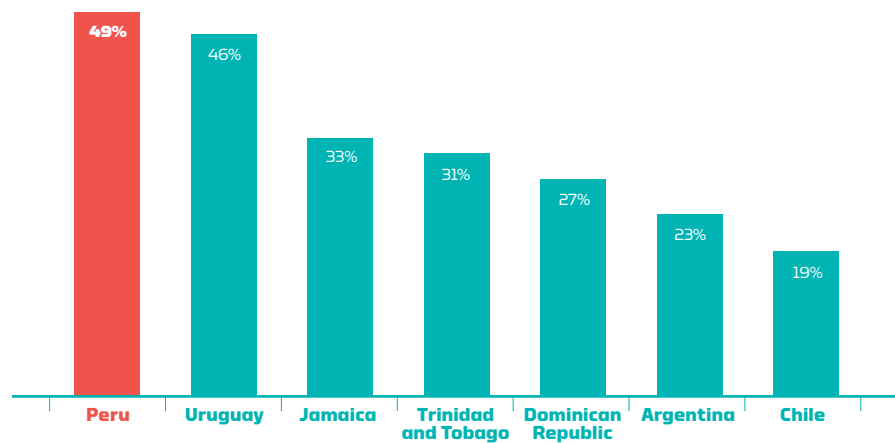
Payments behaviors are strongly correlated to the shadow economy. In particular, high cash usage, and consequent low usage of digital payments, together contributing to low levels of financial inclusion, are often found in countries with large shadow economies.

FIGURE 5
Cash usage and size of shadow economy as % of GDP (2013)



Source: World Bank, Prof. Friedrich Schneider's estimate from the MasterCard and INNOVALUE "Social cost of cash in Peru" report.¹⁸
Note: Cash usage % based on most recent values of the Global Financial Inclusion dataset of the World Bank and Shadow Economy % is latest available from official sources.

FIGURE 6
Size of shadow economy as % of GDP in selected Latin American countries (2013)



Source: Prof. Friedrich Schneider's estimate from the MasterCard and INNOVALUE "Social cost of cash in Peru" report²⁰

Peru's shadow economy has been the subject of extensive research and analysis. For example, Peruvian economist Hernando de Soto Polar and the Institute for Liberty and Democracy (ILD) have undertaken detailed analysis of Peru's shadow economy, and promoted numerous initiatives and regulations that led to significant changes to Peru's economic system.¹⁹ Despite these measures, and despite Peru's robust economic performance and demographic strengths, the country still has a substantial shadow economy, both in absolute terms as well as relative to other countries in the region.

The shadow economy affects the majority of industry sectors in Peru. Peru's services and trade sectors have the highest overall volume of shadow economic activity in absolute terms, at US\$50.7bn and US\$11.9bn,²¹ respectively. In relative terms, Peru's agricultural sector has the largest shadow economy, estimated to be equivalent to 64% of the formal economic activity in this sector.

While Peru's shadow economy has declined over time, it nevertheless remains one of the largest in the world. Factors contributing to this include relatively high levels of illicit tax behavior and public distrust of public services. Both of these factors are in part enabled by a high rate of cash usage, leading to unregistered transactions and unreported labor.

While cash is an enabler of shadow economies,²² it is also a necessary means of trade in countries with low levels of financial inclusion. On this front, Peru has low levels of financial inclusion compared to the other countries in the region, as illustrated in Figure 7. This justifies Peru's higher level of shadow economy compared to the other countries in the region.

FINANCIAL INCLUSION IN PERU

Low levels of financial inclusion are driven, among other factors, by:

- insufficient competition in the banking sector, resulting in relatively high costs to adopt digital financial services, such as credit and debit cards
- insufficient penetration of payments infrastructure,²³ particularly POS terminals (Peru has 395 POS terminals per 100,000 people, compared to 1,471 terminals per 100,000 people in Brazil²⁴)
- a culture of cash usage
- low financial literacy

To combat these factors, Peru is among the 25 priority countries on which the World Bank Group is focusing its scale-up support to improve financial access and inclusion.

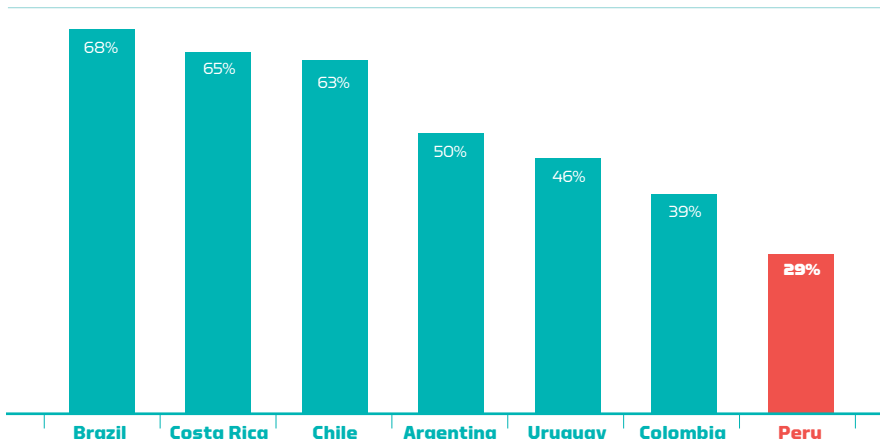
In terms of Peruvian initiatives to improve financial inclusion, the Peruvian government's National Financial Inclusion Strategy aims to provide access to transaction accounts to 75% of adults by 2021. The National Financial Inclusion Strategy is a state policy instrument to promote financial inclusion through the implementation of multisector actions with the participation of public and private entities. The aim of the strategy is to achieve economic and inclusive development and preserve financial stability.²⁵

Most of the high-priority actions under the first pillar of the National Financial Inclusion Strategy are aligned with the objective of this study and their execution could be supported by the initiatives suggested in this study.²⁶

The recent development of BIM, a mobile payment platform (discussed in further detail in this paper), is a financial inclusion focused initiative parallel to the National Financial Inclusion Strategy that offers synergies as it enables financially excluded individuals to conduct cashless transactions by using their mobile device.

FIGURE 7
Financial inclusion in Peru

Adults* with bank accounts (%), 2014



* Aged 15+

Source: INNOVALUE analysis, Global Findex - World Bank, BBVA report

Additionally, Banco de la Nación (a state-owned bank) has adopted a significant branch expansion strategy focused on geographical areas not otherwise well served by the banking industry, and other banks have increased their presence in financially underserved communities through the development networks of banking agents.

As highlighted by MasterCard's "Social Cost of Cash"²⁷ report, government spending represents a significant proportion of GDP.

In this context, the migration of government payments to electronic forms offers a leverageable platform to drive forward the adoption of electronic payments among civil society. The subsequent adoption by citizens of digital payments would also serve as a significant driver of financial education.

INFRASTRUCTURE

Internet penetration

Telecommunications and digital infrastructure in Peru has improved considerably in the past decade; however, further improvements are still needed to underpin widespread adoption of digital payments and increase financial inclusion.

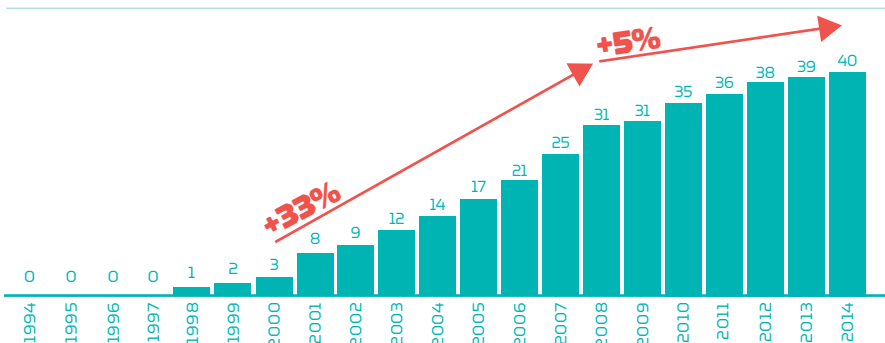
Internet penetration was boosted in 2000 by a \$125 million investment from the Inter-American Development Bank (IDB) directed toward building 1,000 public internet access points.²⁸ This investment, together with the privatization and expansion of the telecommunication industry, has increased penetration of internet services and of overall connectivity. Additionally, Peru's national agency tasked with promoting private investment, ProInversión, launched a project to increase the reach of optic fiber in the country, expected to be rolled out through the end of 2016.²⁹

Despite these initiatives, internet penetration levels (defined as internet users per 100 people) are still substantially lower in Peru than in other Latin American countries, mainly due to poverty and consequently limited computer ownership, the challenging topography of the country acting as a barrier to infrastructure, and a lack of meaningful competition, particularly outside of urban areas and in poorer areas of the country.

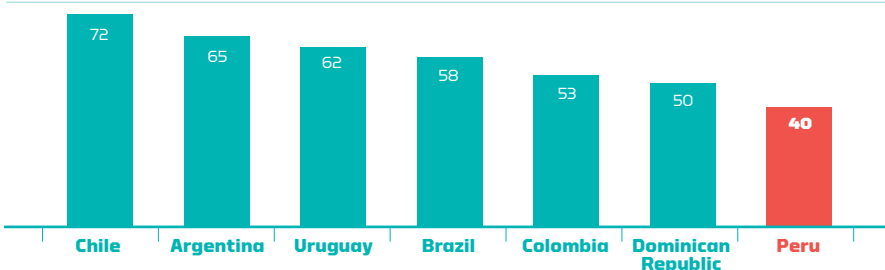
Nevertheless, improvements in internet penetration are expected in the coming years due to the government's National Broadband Plan, which aims to provide internet connectivity via fiber-optic "backbone" infrastructure, reaching the more remote regions of Peru. In this way, the National Broadband Plan aims to tackle Peru's infrastructure challenge, providing both internet access to more citizens as well as core infrastructure for the services industry to further extend its reach.

FIGURE 8
Internet users per 100 people³⁰ in Peru and in selected Latin American countries

Internet users per 100 people in Peru



Internet users per 100 people in selected LatAm countries



Source: INNOVALUE analysis, World Bank, Stanford University research

Mobile data connectivity

In terms of mobile data connectivity, mobile internet penetration is in line with the rest of Latin America and growing quickly, due largely to the increasing range of services providing data access on less advanced devices. Prices of smartphones are high in Peru in comparison to average incomes, driving demand for cheaper data-enabled mobile handsets.³¹

Even so, infrastructure continues to evolve and grow; for example, Movistar launched the country's first 4G network in January 2014.³²

However, local-level regulation is proving an obstacle to further infrastructure development in various respects. The Ministry of Transport and Communications (MTC) and the Supervisory Agency for Private Investment in Telecommunications (OSIPTEL) are pushing operators to expand their network infrastructure;³³ however, some local municipalities have imposed restrictions on the development of base stations, limiting the ability of operators to expand. Despite these restrictions, operators have plans for US\$3bn in infrastructure investment to be rolled out by 2025, with the objective of increasing the number of base stations in the country and expanding overall coverage.³⁴

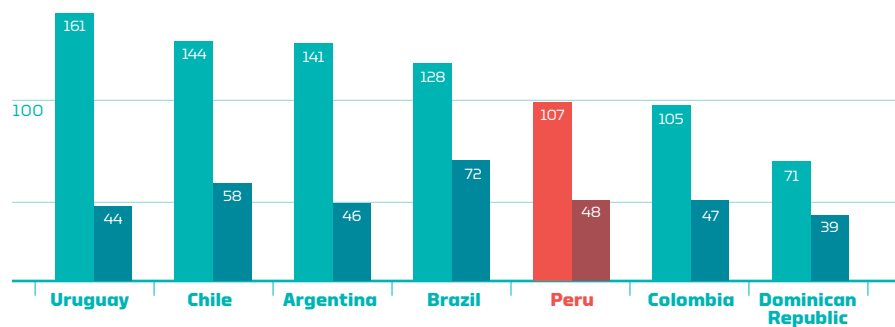
Mobile penetration

In terms of mobile penetration (i.e., ownership of handsets), Peru has a fast-growing and concentrated mobile market, with smartphone penetration growing quickly. As indicated in Figure 10, smartphone connections have increased 119% between 2010 and 2015, with mobile data connectivity increasing at a faster rate than total mobile connections.

The mobile market is dominated by two Mobile Network Operators (MNOs) holding 93.6% of market share by connections. Movistar is the largest player with 54.4% market share, followed by Claro with 39.2%, Entel with 5.4%, and Bitel with 1.0%.³⁵

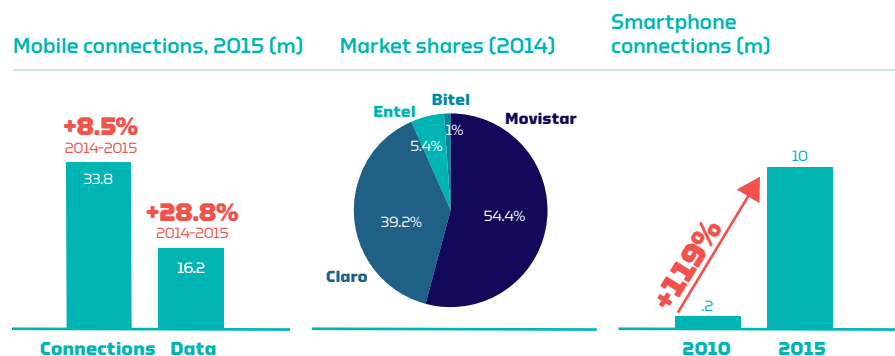
In terms of addressing Peru's financial inclusion challenges, given the significant penetration and reach of mobile services, as well as widespread familiarity with mobile devices, mobile is a core product for the provision of basic financial services to the underserved. Accordingly, from a government payments perspective, mobile can be central to ensuring digitization of payments takes place in a socially inclusive way into the future.

FIGURE 9
Mobile phone market
SIM and MOBILE BROADBAND penetration, 2015 (%)



* There is a wide set of rules by set by local municipalities to be met by Telecom operators before a base station can be installed
 Source: INNOVALUE analysis, GSMA intelligence analysis, 'Plan Nacional de Infraestructura 2016 – 2025'

FIGURE 10
Peruvian mobile phone market



Source: INNOVALUE analysis, GSMA intelligence, expert interview, Perusmart.com, Central Intelligence Agency U.S.

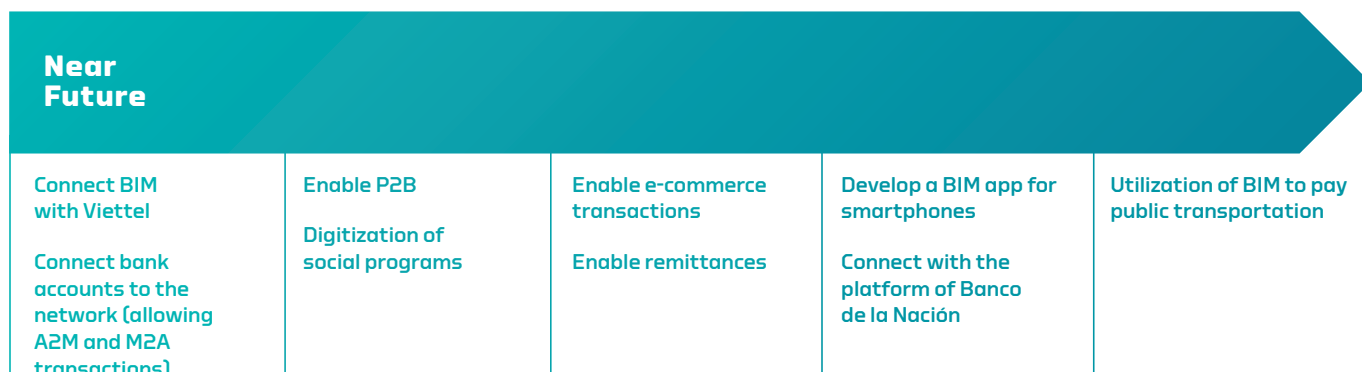
Peru's mobile payment platform (BIM)

Within this context, 2016 has been an important year due to the launch of the mobile payment platform, BIM, in February. The development of BIM was driven by a unique collaboration, known informally as Modelo Peru, between Asociación de Bancos del Peru ASBANC (the Peruvian Bank Association), the Association of Microfinance Institutions (ASOMIF), the Federation of Municipal Saving and Credit Banks (FEPCMAC), and Banco de la Nación. The Modelo Peru partnership also collaborated with 33 financial institutions, an electronic money issuer, and the top three MNOs in the country. Together these institutions have constructed a shared infrastructure for mobile payments and created Pagos Digitales Peruanos (PDP) – a company that designed and manages BIM. PDP is majority owned by ASBANC's Financial Education Institute. The aim of the partnership is to allow mobile financial transactions to flow easily and to help enable Modelo Peru's members to issue affordable products to people who have previously been financially excluded.

BIM targets unbanked people, and aims to sign up 5 million users to mobile payment platforms over the next five years. In terms of usage, the platform had higher than expected adoption rates and, as of 25 February 2016, exceeded 70,000 registered users in less than one full month from launch.³⁶

Prior to BIM, there have been other mobile money initiatives in Peru, although these have been less successful because of their "closed-loop" nature,³⁷ as they worked only for the organization's own customers (for example, in 2011, MasterCard and Telefonica launched a mobile payment solution called Wanda). When such limits are placed on how and where transactions can happen, there is limited incentive for people to change their behavior, especially since cash is seen to be universally accepted.

FIGURE 11
BIM pipeline



Source: INNOVALUE analysis, interview with Pagos Digitales Peruanos

One of the foundations of BIM's success to date lies in the realization by banks of the difficulty of reaching scale by acting individually, leading to a much greater degree of collaboration to increase financial inclusion, including the two and a half year collaboration that created BIM.

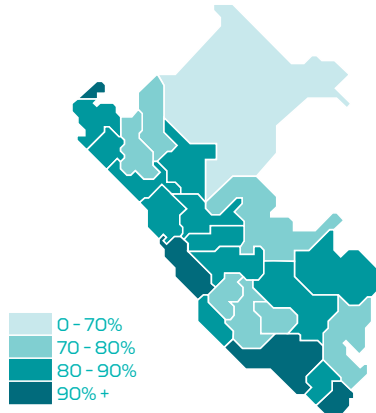
This collaboration was successful in part because financial institutions already had a high level of trust in joint initiatives, following other successful joint initiatives in the financial sector, such as the Cámara de Compensación Electrónica (CCE) (national automated clearing house) and Peru's shared ATM network.³⁸ Additionally, once the BIM initiative was in development, individual institutions were wary to avoid any perception of impeding the initiative or preventing the consensus among participants that was a key feature of the collaboration's success.³⁹

The BTCA also committed time and resources to ensure the success of BIM. The BTCA provided a number of experts in building inclusive digital finance ecosystems to support the development and launch of the platform. A key contribution has been helping to develop engagement strategies based on lessons learned from other programs around the world.⁴⁰

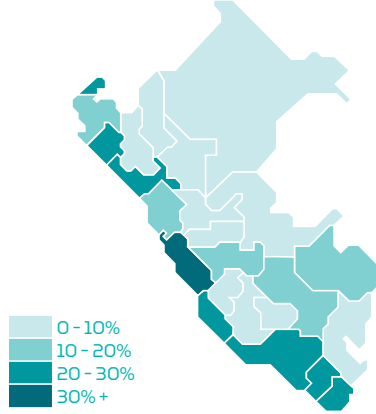
As of March 2016, BIM allows Person-to-Person (P2P) transactions and is connected to the country's Real-Time Gross Settlement (RTGS) system for banking connectivity. (The country's RTGS runs the settlement of net positions among e-money issuers.) However, PDP plans to increase BIM's use cases beyond P2P transactions and connect to more organizations. A more detailed overview of the development of BIM is provided in Figure 11. "Near future" initiatives refer to those initiatives that are in a pilot project phase and will potentially be ready for implementation by the end of 2016. "Far future" initiatives refer to those initiatives that will be tested through pilot projects in 2017 or later.

FIGURE 12
Regional infrastructure

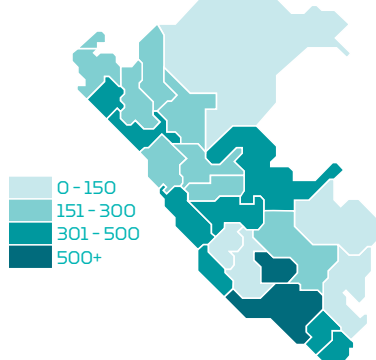
Households with at least one mobile phone (%)



Household internet usage (%)



Financial services
(service points per 100,000 people)



Source: INNOVALUE analysis, Instituto Peruano de Economía (2014), Instituto Nacional de Estadística e Informática

Sub-national infrastructure development

Peru's infrastructure penetration and footprint align closely with the geographical footprint of demographic and economic indicators as displayed in Figure 12. Coastal regions have the highest mobile phone penetration, internet usage, and highest levels of access to financial services. Tacna is the region with the highest percentage of households with at least one mobile phone (91.5%), Lima has the highest household internet penetration (42.2%), and Arequipa is the region with the highest number of financial service access points (bank branches, ATMs, agents, etc.) per 100,000 people (678).

Given the disparities illustrated in Figure 12, the Peruvian government has launched a strategic plan for the improvement of communication infrastructure – “Consejo Nacional de la Competitividad,” as one of the strategic initiatives of the “Fondo de Inversión en Telecomunicaciones” (Fund for Investment in Telecommunication).⁴¹ From an information technology and communications point of view, the 2014-2018 Strategic Plan sets out the following key objectives by 2018 as the main drivers to improve government efficiency and productivity in the country:⁴²

- Connect all provincial capitals and 83% of district capitals to optical fiber or high-speed internet connection
- Increase speed (average speed from 2.7 to 3.2 Mbps) and internet connection lines (from 7.6 million to more than 20 million, including both fixed and mobile)
- Open 70% of the government's broadband connections to the public
- Increase online services usage by 500%
- Reach 70% citizen satisfaction with, and confidence in, online services by increasing quality and sustainability of electronic services

FINANCIAL SECTOR

The financial system in Peru is relatively concentrated, and dominated by the banking industry holding 91.7% of the total assets of the financial system (with other types of financial institutions holding the remaining 8.3%). Within the banking sector, four commercial banks account for the majority of the market on the basis of assets held (84% of total assets held by the banking industry), and on the basis of total bank branches in Peru (64%).⁴³ Banco de Crédito del Peru (BCP) is the market leader in terms of assets and bank branches, followed by Banco Bilbao Vizcaya Argentaria (BBVA). Scotiabank and Interbank follow as the other two main banks in the industry on the basis of the total assets held. Figure 13 shows the top five Peruvian banks per total assets and per number of bank branches.

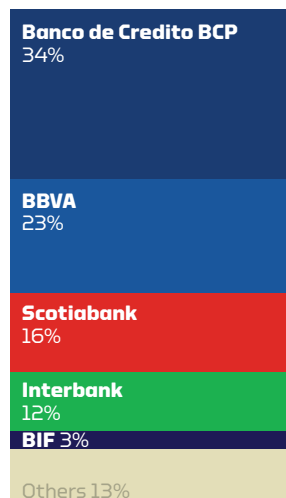
The geographical distribution of commercial bank branches follows a similar pattern to telecom infrastructure. Southern coastal regions have the highest density of bank branches, with 59% of Peru's 2,146 commercial bank branches located in the region of Lima.

The disparity of branch availability and the lack of access points in many parts of Peru has been partially offset by the expansion of Banco de la Nación – the bank representing the Peruvian state for the purposes of commercial transactions in the public and private sector at a national and international level.⁴⁵

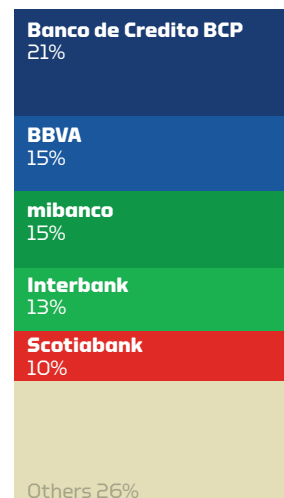
Banco de la Nación expanded its branch and ATM presence in those regions where other commercial banks did not have reach and where financial inclusion was a critical issue. Where this expansion was not possible, Banco de la Nación developed a banking agent network.

FIGURE 13
Top 5 commercial banks⁴⁴

Top 5 commercial banks
by total assets



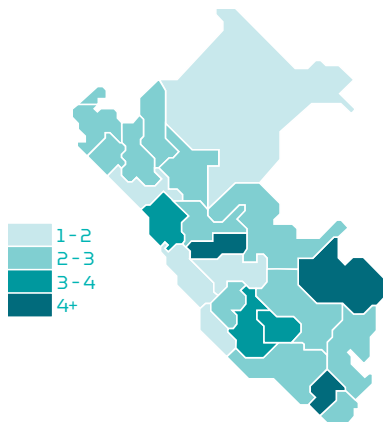
Top 5 commercial banks
by number of branches



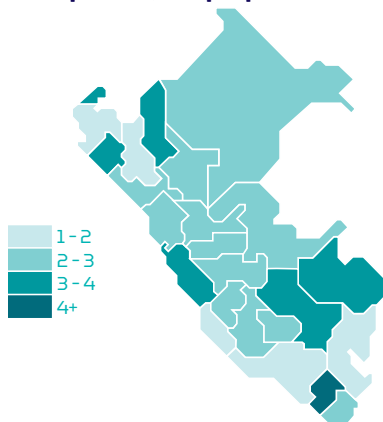
Source: INNOVALUE analysis, Superintendencia De Banca, Seguros y AFP

FIGURE 14
Banco de la Nación
access points

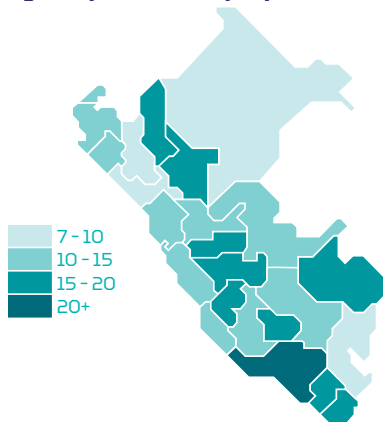
Branches per 100,000 people



ATMs per 100,000 people



Agents per 100,000 people



Source: INNOVALUE analysis, Banco de la Nación

The banking agent network consists of a network of retail outlets or post offices contracted by a financial institution for the purpose of handling transactions, acquiring and educating new customers, and offering a range of banking services. As a consequence, the agent network is highly concentrated in those regions that lack other financial services access points, hence helping to compensate for disparities in commercial banking infrastructure. The expansion of an agent network, however, can face several challenges, including:

- Regulatory requirements can increase the operating costs of a network, and therefore reduce its expansion.
- Standardized agent offerings which do not take into consideration a country's segmentation in terms of average income and customer needs can reduce a network's efficiency, value to customers, and hence take-up rates.
- Agent exclusivity can reduce the number of operations available to customers.⁴⁶

Illustrated in Figure 14 is the distribution of Banco de la Nación access points for financial services (branches, ATMs, and agents network).

PAYMENT SYSTEM

Modernization of Peru's payment system

Peru has a well-structured and modern inter-bank payment system. This is largely due to a modernization process initiated by Banco Central de Reserva del Perú (the Central Bank of Peru) in 1997 that aimed to increase the security and efficiency of the payments system.

One of the milestones of the modernization process was reached in the year 2000 when Peru's two main clearing and settlement entities were established: "Sistema de Liquidación Bruta en Tiempo Real" (LBTR, "Real Time Gross Settlement") for high-value to low-volume transactions; and the bank-owned⁴⁷ "Cámara de Compensación Electrónica" (CCE, "Automated Clearing House") for low-value to high-volume transactions.

In 2001, the LBTR was enhanced in order to settle transactions in foreign currencies. This was a significant step forward for the modernization of the country's payment system as it brought to Peru one of the most advanced features possible for this type of payment infrastructure. Eight years after this enhancement, the World Bank reported that just 10 systems worldwide were able to handle transactions both in local and in foreign currency (seven of which are in Latin America: Argentina, Bolivia, Costa Rica, Dominican Republic, Guatemala, Peru, Uruguay).⁴⁸

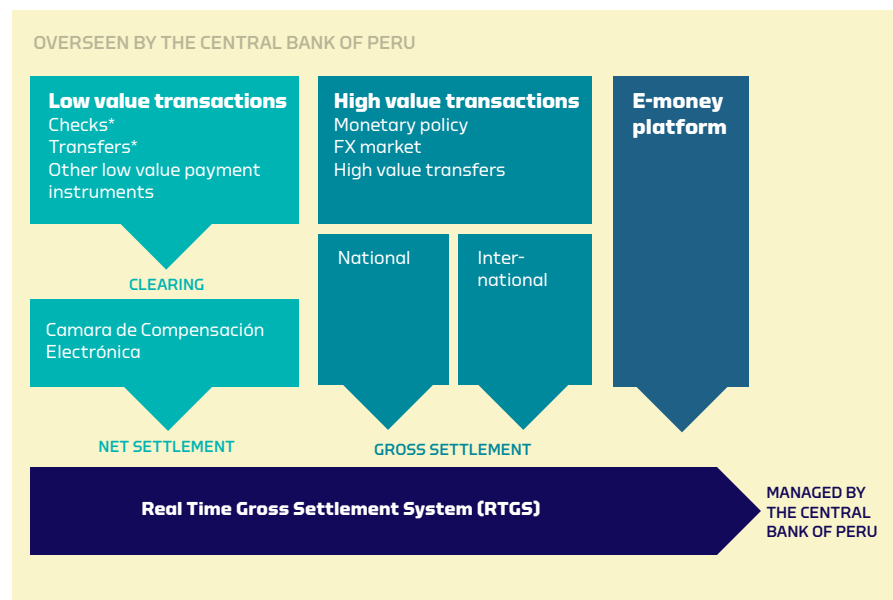
In 2009, Peru's Central Bank implemented the new legal framework for the Payment and Security Settlement System by issuing law N°29440 (ley de los Sistemas de Pagos y de Liquidación de Valores⁴⁹). This law sets rules for participants in the payment system and transaction approval methods. It completes the legal regime governing credit granted by the Central Bank in order to strengthen the liquidity of the payment systems.

Moreover, in 2013 the Peruvian government issued the Electronic Money Law (Law N°29985) that reflects the combined effort of the Superintendencia de Banca, Seguros y AFP also known as SBS,⁵⁰ the Central Bank, Ministry of Economy and Finance and the Telecommunications Ministry. The objectives of this law are to regulate electronic money generally, to determine the companies that are authorized to issue electronic money, and to establish the regulatory and supervisory frameworks governing electronic money issuers.

All these improvements led to the establishment of the modern Peruvian payment system which is illustrated in Figure 15 below.⁵¹

Nevertheless, there is still room for improvement in order to maximize the potential of existing infrastructure in Peru.⁵² The RTGS and CCE could be leveraged by fintech companies to drive adoption of digital payment methods and strengthen the payment ecosystem.

FIGURE 15
Peruvian Payment System: Net Settlement and E-money platform



* Funds are available to the beneficiary in t+1 for transaction made before 18.00, otherwise t+2

** For credit transfers funds are available to the beneficiary the same day

Source: INNOVALUE analysis, Banco Central de Reserva del Peru

Growth in electronic infrastructure and usage

By moving forward to establish card acceptance (POS) and access to cash (ATMs), Peru has substantially improved its payment infrastructure in recent years. The number of POS terminals in the country grew by 472% between 2010 and 2015. However, the POS network is not interoperable and, compared to other countries in the region, POS penetration in Peru still remains relatively low (as illustrated in Figure 16), generating barriers to the full adoption of electronic payments.

In relation to cash access points (ATMs), Peru is well positioned, with the number of ATMs per 100,000 steadily increasing between 2010 and 2015, to be broadly in line with other countries in the region (as illustrated in Figure 17).

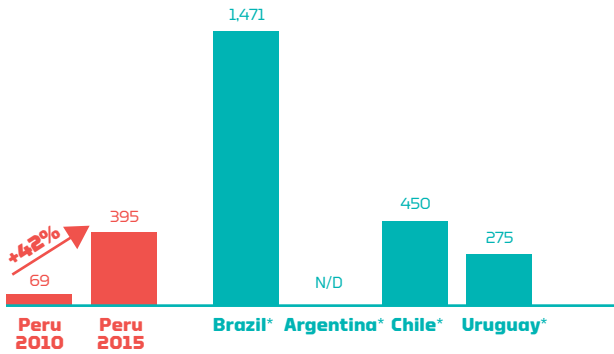
POS and ATM penetration data is in line with what would be expected based on Peru's relatively low level of overall financial inclusion. The Peruvian Central Bank's payment statistics⁵⁵ show that the volume and value of electronic payments are growing rapidly. However, check penetration remains high, especially for high-value transactions. Based on the findings of primary research undertaken for this study,⁵⁶ this appears to be driven by small and medium enterprise (SME) payers preferring checks as a method to optimize cash flow (due to the time gap between the issuance of a check and the settlement of check funds held in the payer's account). Checks are also frequently used for G2B and G2P payments (e.g., procurement, tax refunds), both at a national and sub-national level. Moreover, checks are used by individuals for high-value transactions such as the purchase of properties or a vehicle.

As is illustrated in Figure 18, it is noticeable that between 2011 and 2015 credit transfers reported the highest growth in volume of transactions among the other main payment methods in the country. By contrast, check usage declined, though it still accounts for 16% of total transaction value. By contrast, check usage declined, though it still accounts for 16% of total transaction value.

As the payment statistics highlight, and as illustrated in Figure 19, payment cards are predominantly used to access funds through ATM withdrawals. Credit cards are mainly used for payment at POS, accounting for 72% of the total card POS payments value in 2015. Debit cards are largely used for cash withdrawals, accounting for 94% of the total card withdrawal transaction value in the same year.

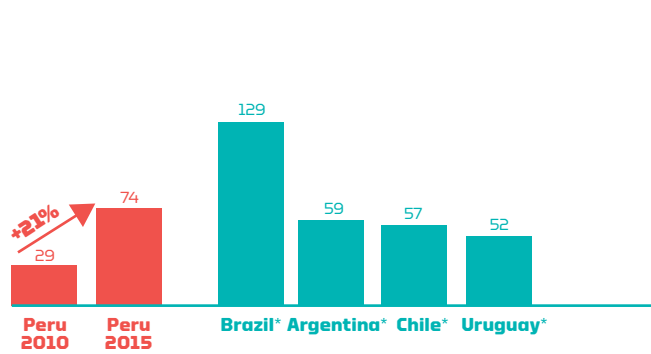
Overall card usage is growing in the country both in terms of POS payments and cash withdrawal. Card payments are growing at a marginally higher pace than cash withdrawals.

FIGURE 16
POS terminals penetration⁵³
 POS terminals per 100,000 people



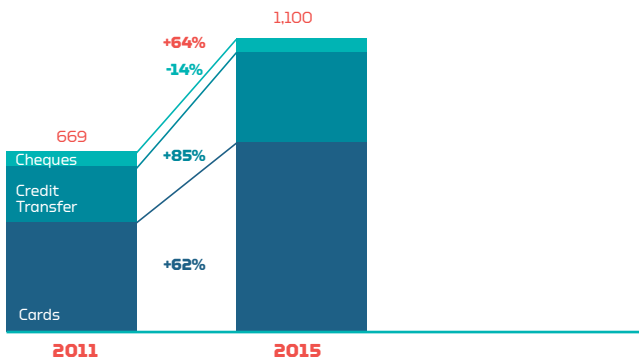
*World Bank 2009 data set.
 Source: INNOVALUE analysis, Superintendencia de Banca, Seguros y AFP, World Bank database

FIGURE 17
ATM penetration⁵⁴
 ATMs per 100,000 people



*World Bank 2009 data set.
 Source: INNOVALUE analysis, Superintendencia de Banca, Seguros y AFP, World Bank database

FIGURE 18
Payments in Peru by payment methods⁵⁷
 Transaction volume (m)



* MasterCard 'Cashless Journey Study' reports Peru's cashless payment value results to be less than half of the value of mean of all the countries in the study.
 **Includes: Internet payments, telephone payments, mobile payments and corporate software.
 *** Includes: credit and debit cards payments and cash withdrawals
 Source: INNOVALUE analysis, Banco Central de Reserva del Peru

Transaction value (\$/bn)

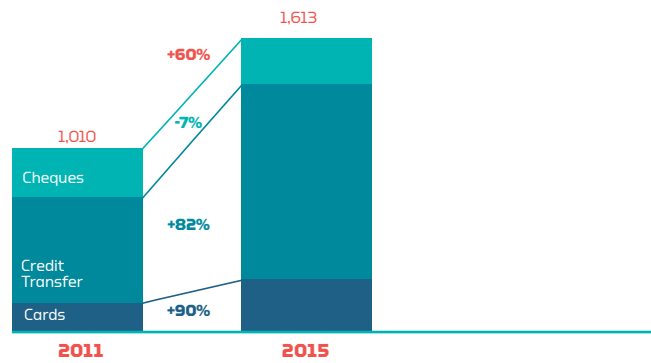
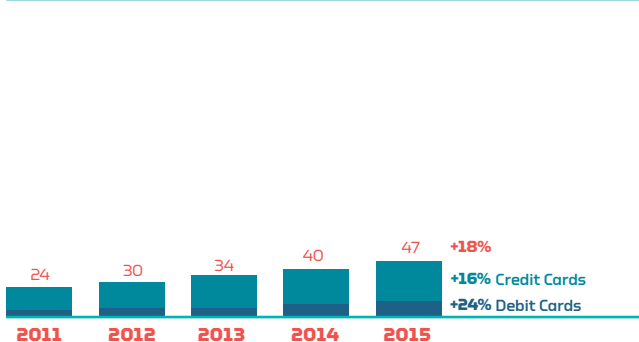
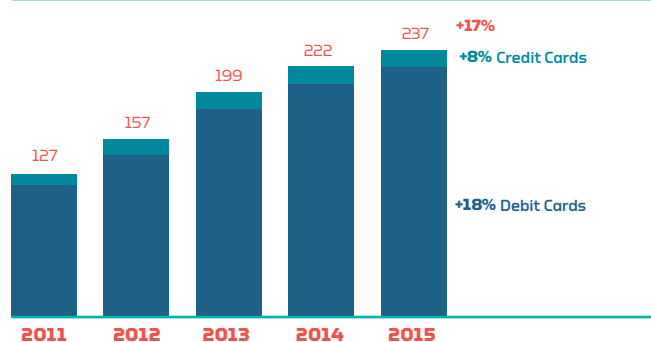


FIGURE 19
Card usage in Peru⁵⁸
 Card payments (\$/bn)



Source: INNOVALUE analysis, Banco Central de Reserva del Peru

Cash Withdrawals (\$/bn)



Regulation of Peru's payments system

The regulatory and supervisory environment for payments services in Peru is mainly defined by Central Reserve Bank of Peru, however also playing a relevant role are Superintendencia de Banca, Seguros y AFP (SBS, Superintendency of Banking, Insurance and Private Pension Funds Administrators), and Instituto Nacional de Defensa de la Competencia y de la Protección de la Propiedad Intelectual (INDECOPI, National Institute for the Defense of Competition and Protection of Intellectual Property).⁵⁹

Payment services regulation⁶⁰ is relatively comprehensive and provides a solid foundation for the delivery and growth of payment services in Peru, however it also faces challenges and has areas for improvement. There are comprehensive norms in place, although based on the findings from primary research for this study, these are not always applied in a consistent manner, in particular with regard to consumer protection. Notably, primary research highlighted a number of generalized cases related to compromised payment card credentials and compromised account details through phishing,⁶¹ in which compromised payments credentials proved to be reducing payers' trust in the system and ultimately acting as a barrier to adoption of electronic payments. During primary research, cases were mentioned where simple transactions issues (e.g., duplicated transactions)⁶² were promptly addressed by the payer's bank, while more complex transaction problems⁶³ (e.g., fraudulent transactions due to compromised payment credentials) were ultimately resolved, but not without a lengthy process in which the payer often struggled to have the issue recognized and ultimately resolved by their bank or card issuer.

In relation to the flow of government payments, there are also clear guidelines about the central roles of the Ministry of Economy and Finance and Banco de la Nación in relation to national to sub-national government payment flows. All payments flows from national to sub-national government entities are managed by the Ministry of Economy and Finance and flow through accounts held at Banco de la Nación. While this is the case for all G2G payments and all payments at the national level, this policy is only partially valid for sub-national payment flows. At a sub-national level, municipalities' independence is guaranteed by law N° 27972, which states that local governmental entities are entitled to political, economic, and administrative autonomy within their jurisdiction. On this basis, municipalities enjoy a high degree of independence, with the result that they often hold additional accounts with commercial banks for sub-national incoming and outgoing payment flows. Based on comments received consistently throughout interviews for this study, this is a common practice and, when this is the case, these flows fall outside the management scope of the Ministry of Economy and Finance.

FIGURE 20

Market landscape assessment through World Bank's Government Payments Guidelines framework

CRITERIA	SCORE*	RATIONALE
Payments infrastructure access		<p>Through corresponding banking network, financial institutions have a decent number of access points, also thanks to Banco de la Nación covering commercially less relevant territories</p> <p>POS terminal penetration is low and network not interoperable</p> <p>Strong geographic disparities still exist in terms of internet and commercial banking infrastructure</p>
Payments usage		<p>Low usage of electronic payment methods as cash still dominates payment ecosystem</p> <p>Cards are mainly used for cash withdrawals; also due to low POS** terminals penetration</p> <p>34 banks and the top 3 mobile phone Peruvian operators launched a national mobile money network in February 2016, BIM ('Billetera móvil')</p>
Legal and regulatory environment		<p>The 'Banco Central de Reserva del Peru' promotes effectiveness and security</p> <p>Law N°29440 set the framework for the payment system in Peru and encourages stakeholders' protection</p> <p>Law N°29985 set the framework for electronic money and allows the usage of the DNle (electronic ID) for financial, banking and non-banking operations</p>
Government structure		<p>Ministry of Economy and Finance plays a coordinator role and has a consolidated overview of the country's payment processes</p> <p>At the subnational level, only partial oversight and consistent payment management processes seem to exist</p>
Policy framework		<p>The government promotes concrete initiatives for the improvement of infrastructure and sets specific short/medium term goals</p>

*The scoring has been developed upon grades of adoption of criteria stated with the World Bank Guidelines. A full (black) Harvey Ball indicates full compliance with the Guidelines while an empty (white) Harvey Ball indicates least alignment with the Guidelines. Please refer to Annex for further detail

**Preliminary POS terminals analysis – Data from World Bank (2009)

4. ANALYSIS OF PAYMENT FLOWS

There are a number of different types of national and sub-national government payment flows with different characteristics. The majority of payment flows by number and by type of payment are located at the national level and amount to over two-thirds of Peru's total payment flows.

As illustrated in Figure 21, payments at the national level include:

- G2G: budgetary allocations, funding allocations between government entities and programs
- G2B: procurement at the national level, government disbursements to businesses and national tax refunds to businesses
- G2P: payroll for national and sub-national government entity employees, government disbursement to individuals (e.g., pensions, social programs, conditional cash transfer programs), national tax refunds to individuals
- B2G: national level business tax payments, social contributions (e.g., pension payments for employees), fees for licenses, and fees paid at national level, utilities payments for state-owned utilities
- P2G: individuals' tax payments to the national government, social contributions (e.g., pension), utilities payments for state-owned utilities

There are 48 government payment flows at national level excluding G2G payments. A list of these is detailed in Annex B, however please refer to the IDB's "Proyecto Pagos Digitales de Gobierno para Promover la Inclusión Financiera" (Digital Government Payments Project to Promote Financial Inclusion) study for more details about national level government payments and related recommendations.

Payment flows at sub-national level include those set out below and in Figure 22:

- G2B: procurement at sub-national (municipality) level, and sub-national tax refunds to businesses
- G2P: sub-national tax refunds to individuals
- B2G: sub-national level business tax payments, fees for licenses and permits
- P2G: individuals' tax payments to municipalities

With the exception of G2G payments, it is to be noted that at sub-national level government payment flows consist only of three main types: collection of taxes, refund of taxes, and procurement-related payments. At a sub-national level there are 22 flows.⁶⁴ The detail of these payments is illustrated in the table beginning on page 32.

FIGURE 21

National level payments flow by type

		PAYEE		
		Government	Business	Person
PAYER	Government	G2G Budgetary allocation, funding of programs	G2B Procurement, social program, tax refunds	G2P Payroll, pension, social programs, tax refunds
	Business	B2G Taxes, pension fees, fees for licences and permits, utilities		
	Person	P2G Taxes, pension fees, utilities		

FIGURE 22

Sub-national level payments flow by type

		PAYEE		
		Government	Business	Person
PAYER	Government		G2B Procurement, tax refunds	G2P Tax refunds
	Business	B2G Taxes, fees for licences and permits		
	Person	P2G Taxes		

4.
ANALYSIS OF
PAYMENT FLOWS

NAME	PAYMENT FLOW CATEGORY	PAYER 2 PAYEE	MAIN AUTHORITY (ENGLISH)	BENEFICIARY/ PAYER	FLOW/ DESCRIPTION	NOTES-USEFUL INFORMATION
Contribución especial de obras públicas (business)	Local taxes	B2G	Local tax administration service	Businesses→	To local municipality or Caja via cash, checks, cards, or electronic transfer	Special contribution for public works
Contribución especial de obras públicas (people)	Local taxes	P2G	Local tax administration service	People→	To local municipality or Caja via cash, checks, cards, or electronic transfer	Special contribution for public works
Derechos por licencia de construcción (business)	Local taxes	B2G	Local tax administration service	Businesses→	To local municipality or Caja via cash, checks, cards, or electronic transfer	Tax for construction license
Derechos por licencia de construcción (business)	Local taxes	P2G	Local tax administration service	People→	To local municipality or Caja via cash, checks, cards, or electronic transfer	Tax for construction license
Derechos por licencia de edificación (business)	Local taxes	B2G	Local tax administration service	Businesses→	To local municipality or Caja via cash, checks, cards, or electronic transfer	Tax for edification license
Derechos por licencia de edificación (business)	Local taxes	P2G	Local tax administration service	People→	To local municipality or Caja via cash, checks, cards, or electronic transfer	Tax for edification license
Impuesto a las apuestas	Local taxes	B2G	Local tax administration service	Businesses→	To local municipality or Caja via cash, checks, cards, or electronic transfer	Tax paid on income of the organizers of horse racing and similar events, in which gambling is conducted
Impuesto a las embarcaciones de recreo (business)	Local taxes	B2G	Local tax administration service	Businesses→	To local municipality or Caja via cash, checks, cards, or electronic transfer	Tax on recreational boats
Impuesto a las embarcaciones de recreo (people)	Local taxes	P2G	Local tax administration service	People→	To local municipality or Caja via cash, checks, cards, or electronic transfer	Tax on recreational boats
Impuesto a los espectáculos públicos no deportivos	Local taxes	B2G	Local tax administration service	Businesses→	To local municipality or Caja via cash, checks, cards, or electronic transfer	Tax on public event not related to sport
Impuesto al patrimonio vehicular (businesses)	Local taxes	B2G	Local tax administration service	Businesses→	To local municipality or Caja via cash, checks, cards, or electronic transfer	Tax on vehicle

NAME	PAYMENT FLOW CATEGORY	PAYER 2 PAYEE	MAIN AUTHORITY (ENGLISH)	BENEFICIARY/ PAYER	FLOW/ DESCRIPTION	NOTES-USEFUL INFORMATION
Impuesto al patrimonio vehicular (people)	Local taxes	P2G	Local tax administration service	People→	To local municipality or Caja via cash, checks, cards, or electronic transfer	Tax on vehicle
Impuesto de Alcabala (businesses)	Local taxes	B2G	Local tax administration service	Businesses→	IN CASH at the SAT office; with debit, credit card, or bank transfer at the authorized Notaries or on the website of those SATs that enable electronic payments	Tax on transfer of urban or rural properties. 3% of the municipal value of the property in excess of S/. 38,500 (10 Tax Units)
Impuesto de Alcabala (people)	Local taxes	P2G	Local tax administration service	People→	IN CASH at the SAT office; with debit, credit card, or bank transfer at the authorized Notaries or on the website of those SATs that enable electronic payments	Tax on transfer of urban or rural properties. 3% of the municipal value of the property in excess of S/. 38,500 (10 Tax Units)
Impuesto Predial (businesses)	Local taxes	B2G	Local tax administration service	Businesses→	To local municipality or Caja via cash, checks, cards, or electronic transfer	Property tax
Impuesto Predial (people)	Local taxes	P2G	Local tax administration service	People→	To local municipality or Caja via cash, checks, cards, or electronic transfer	Property tax
Gastos	Purchase of goods and services (sub-national)	G2B	Municipalities	Businesses→	Payment can usually be done through the "Banco de la Nación," by checks and electronic transfer	
Otros Tasas Municipales	Local taxes	B2G	Local tax administration service	Businesses→	To local municipality or Caja via cash, checks, cards, or electronic transfer	Set of other municipal taxes that depend from each single municipality
Otros Tasas Municipales	Local taxes	P2G	Local tax administration service	People→	To local municipality or Caja via cash, checks, cards, or electronic transfer	Set of other municipal taxes that depend from each single municipality
Devoluciones de impuestos	Tax refunds	G2B	Municipalities	Businesses→	Payment can be done through agencies of the "Banco de la Nación," mostly done by checks and electronic transfer	
Devoluciones de impuestos	Tax refunds	G2B	Municipalities	People→	Payment can be done through agencies of the "Banco de la Nación," mostly done by checks and electronic transfer	
Licencia de matrimonio	Local taxes	P2G	Local tax administration service	People→	To local municipality or Caja via cash, checks, cards, or electronic transfer	Marriage license

For the purpose of the analysis in this study of sub-national payment flows and the consideration detailed in the following section, it is important to note that there are 1,838 municipalities in Peru as of June 2016.⁶⁵

The total value of incoming and outgoing payments at national (Public Treasury) and sub-national (municipalities) level are illustrated in Figure 24 below.

The split by payment type at sub-national level is illustrated in Figure 25. Cash represents 48% of incoming payments by value and 79% of incoming payment in volume. Checks represent 25% of the incoming payments in value and 2% in volume.⁶⁶

While there is no cash in use for outgoing payments (just checks and electronic transfer), checks represent 19% of total outgoing payments by value and 58% by volume.

As of June 2016, the Ministry of Economy and Finance reports on its website that in Peru there are a total of 1838 municipalities (https://www.mef.gob.pe/index.php?option=com_content&view=article&id=2565&Itemid=101548&lang=es)

Group A municipalities are considered the most developed and digitized and report a positive balance

Group B report a positive balance, however are considered less developed and digitized than the ones of group A

Municipalities that are not considered principal cities with < and > of 500 inhabitants mostly report negative balance and are economically supported by the central government (Information also emerged during the interview with MEF Ingresos Subnacionales)

FIGURE 23
Municipality: count and type in Peru

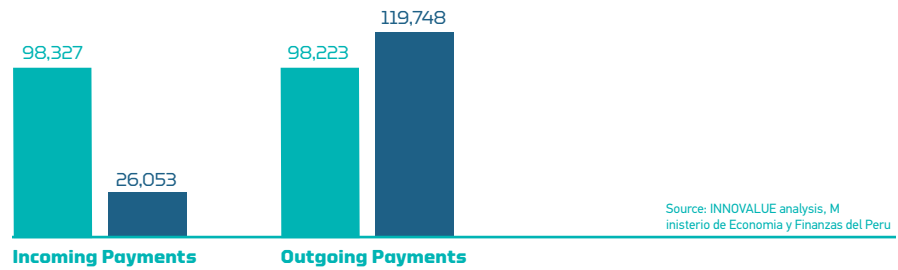
Total	Group A	Group B	Municipalities not considered principal cities with < 500 inhabitants	Municipalities not considered principal cities with > 500 inhabitants
1,838	40	209	556	1,033



FIGURE 24

Public Treasury and municipalities incoming payments and outgoing payments in 2015
 (Nuevo Sol million, S/.m)

PUBLIC TREASURY and MUNICIPALITIES



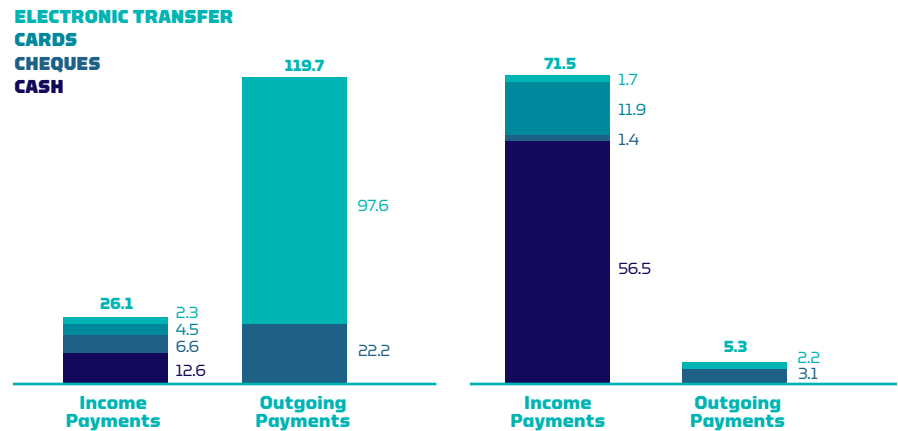
Source: INNOVALUE analysis, Ministerio de Economía y Finanzas del Perú

FIGURE 25

Municipalities total flows (both incoming and outgoing payments) by payment method

Municipalities income and expenses value by payment type (S/.bn)

Municipalities income and expenses volume by payment type (m)



Source: INNOVALUE analysis, Ministerio de Economía y Finanzas del Perú

SUB-NATIONAL STRUCTURE

At a sub-national level Peru is governed by three principal entities: regions, provincial municipalities, and district municipalities. In Peru there are 24 regions plus Callao Province, that despite its geographical extension and relevance is treated as a region.⁶⁷

Regions are governmental entities that are fully financed by the central government, and that do not collect taxes. Each region has a set of executive entities that manage the procurement of goods and services and disbursements. Executive entities are directly connected to the “Sistema Integrado de Administración Financiera” (SIAF, or Integrated Financial Management System), an execution system which approves, manages, and registers payment flows of public bodies, and which is integrated across all executive entities within the central national government and regional governments.⁶⁸

When a regional executive entity needs to purchase goods and services, it sends an order request to SIAF. The request is then checked for appropriateness and approved. Once the request is approved, SIAF transmits the order to Banco de la Nación to transfer the funds from the “Cuenta Unica” (single account) to the provider of goods and services via check or bank transfer. Finally, the executive entity that sent the request registers the transaction in its own “Sub cuenta” – a technical record used by that region solely for the registration of the transaction and to keep track of all expenses.

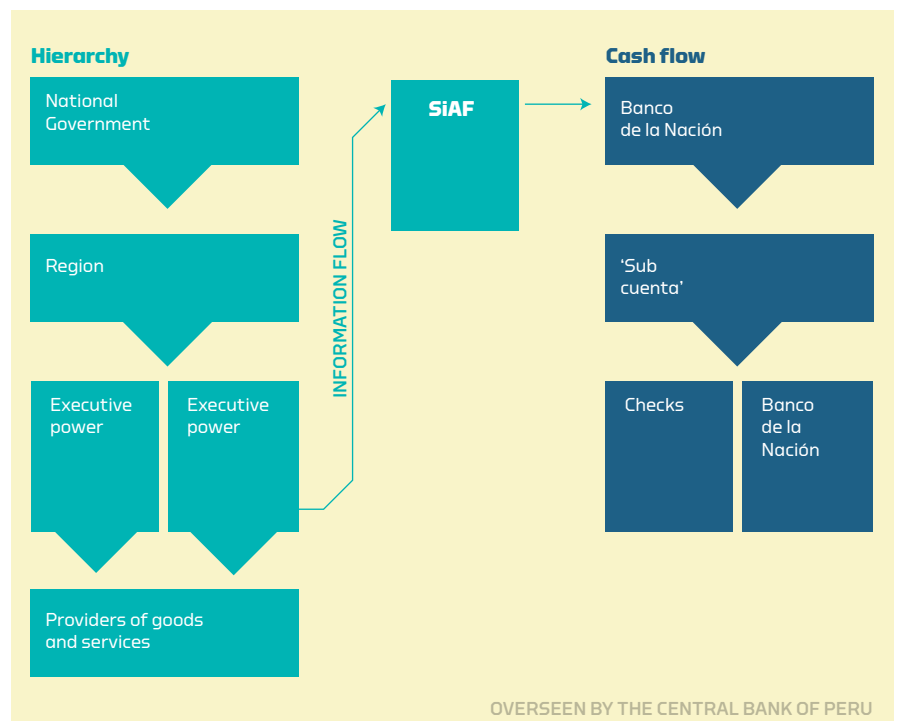
Figure 26 below provides an illustration of G2B payment flows at a regional level.

Provinces, or provincial municipalities, are governmental entities that control a part of a region’s territory and operate their own payments both in terms of collection (B2G and P2G) and in terms of procurement and tax refunds (G2B and G2P).

Provincial municipalities are entitled to collect the following types of taxes (both B2G and P2G):

- Car taxes
- Traffic and driving fines
- Property tax (with 50% of collected funds redirected to districts)
- Other taxes related to each single municipality (e.g., taxes for non-sporting public events, wedding licenses, building licenses)⁶⁹

FIGURE 26
G2B regional flows



Source: INNOVALUE analysis, government website, interview with MEF, interview with SAT

Provincial municipalities can collect taxes through a number of channels: via their own network of offices (e.g., Municipality of Lima), via “Sistema de Administración Tributaria” (SAT)⁷⁰ (Tax Administrations System), or via the online portal (e.g., Municipality of San Isidro).⁷¹ It is to be noted that only provincial municipalities with a sufficient degree of payment digitization (a minority of the total 1,838 municipalities) are able to offer collections through multiple channels. Less developed and less digitized municipalities offer collections only through their own offices, or through bank branches/agents where banks have a physical presence and the appropriate agreements are in place.

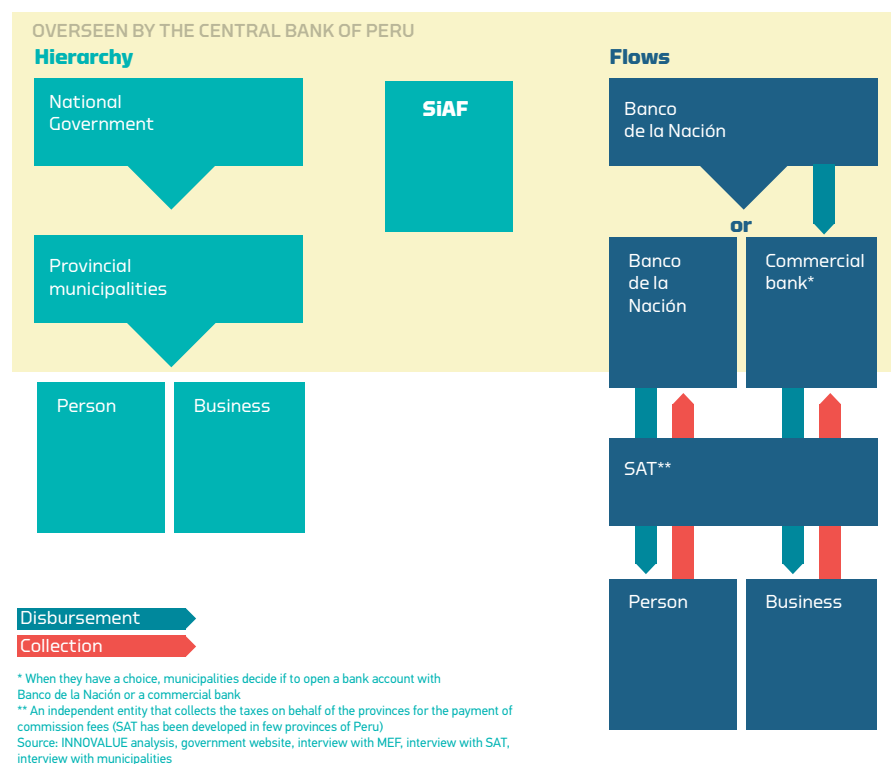
Moreover, district municipalities are governmental entities that have governing responsibilities over a geographical subsection of the provinces, with full autonomy over their tax collection and procurement flows (including their related expenses approvals).

District municipalities are entitled to collect the following types of taxes:

- Property tax
- Taxes for services provided directly by the district municipality
- Other taxes (e.g., building license tax, construction license and fees, marriage fees)

District municipalities collect taxes via their own offices, (called “Caja de la Municipalidad”), through bank branches including agents and online/ direct debit where these channels are available. Similar to provincial

FIGURE 27
Provincial Municipalities
Payment Flows⁷³



municipalities, the availability of payment channels offered by district municipalities varies depending on the degree of development and digitization in each district municipality.

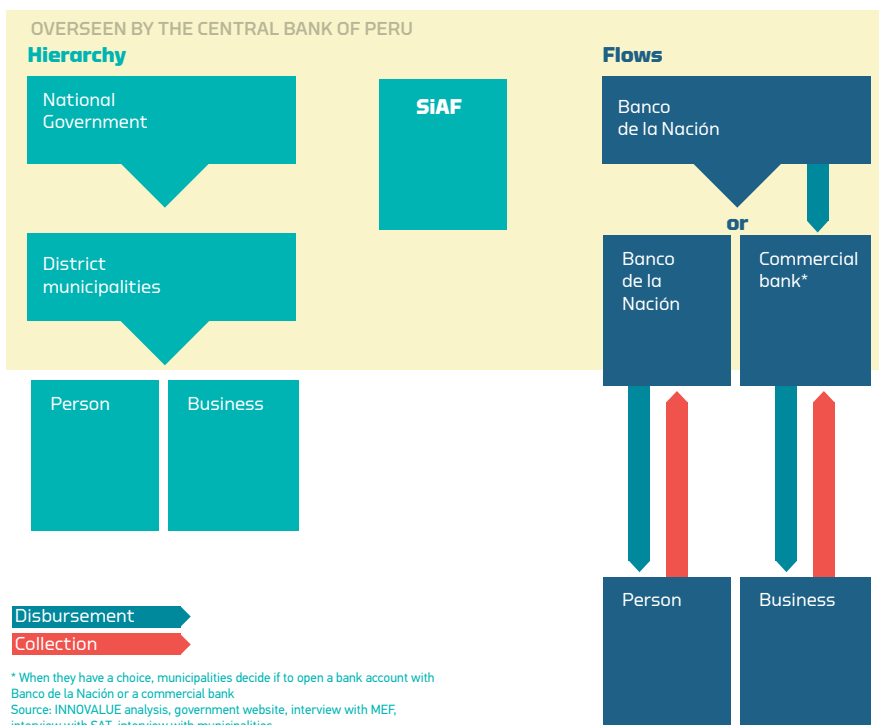
In those districts or provinces where commercial banks or Banco de la Nación have a physical presence (including agent networks), provincial and district municipalities are free to establish banking agreements and enable collections through chosen bank networks.

If the sub-national entity (province or district) saves the collected funds in an account of a commercial bank, there is no automatic reconciliation within the central government register and those tax flows are not visible to the Ministry of Economy and Finance, as commercial banks are not connected to SIAF. SIAF has visibility of payment flows only when a payment is made from the Central Government to regional and local entities, or out of an account held by Banco de la Nación. Whenever municipalities collect or pay funds out of accounts held by commercial banks, SIAF has no visibility over the payment flow.⁷² The development of an updated version of SIAF (SIAF II) aims to correct these flaws and increase the efficiency of the system.

In terms of number of transactions, provincial and district providers of goods and services, as well as tax refunds are mostly paid by check.

Figures 27 and 28 provide an illustration of payment flows at a provincial and district level.

FIGURE 28
District Municipalities
Payment Flows



SELECTION OF FLOWS

At a sub-national level, 22 payment flows (plus G2G payment flows) were identified and mapped through primary and secondary research, and a progressive filter selection approach was taken in order to select those to be included in the quantitative analysis.

Step one of the progressive filter selection was the exclusion of less relevant payment flows based on a qualitative assessment. As displayed in tables 2 and 3 below, for each payment flow, the size, impact on digitization, and impact on financial inclusion were graded.⁷⁴ For each of these categories, a score has been assigned with a system of three grades. The grades have then been summed, with flows scoring 6 and above being selected for further analysis.

After the first screening, 14 flows were excluded due to insufficient potential impact, because of their small size, low financial inclusion potential relevance, or low potential for improvement in terms of enabling digitization.

The short list of flows selected following the prioritization analysis is below:

- (#1) Impuesto de Alcabala (B2G) [Property transaction tax]
- (#2) Impuesto Predial (B2G) [Property tax]
- (#3) Impuesto al patrimonio vehicular (B2G) [Vehicle tax]
- (#7) Otros tasas municipales – including Arbitrios Municipales (B2G)
[Other municipal taxes – including costs to Municipalities that are recharged to taxpayers]
- (#12) Gastos (G2B) [Purchase of goods and services]
- (#14) Impuesto de Alcabala (P2G) [Property transaction tax]
- (#15) Impuesto Predial (P2G) [Property tax]
- (#16) Impuesto al patrimonio vehicular (P2G) [Vehicle tax]
- (#18) Otros tasas municipales – including Arbitrios Municipales (P2G)
[Other municipal taxes – including costs to municipalities that are recharged to taxpayers]

The next step was to analyze the total value, total volume, and number of taxpayers involved for each flow in order to select the relevant flows for the subsequent short list.

TABLE 2

Initial mapping and selection of sub-national flows (B2G and G2B)

BUCKET	NUMBER	NAME SPANISH	NAME ENGLISH	SIZE	IMPACT ON DIGITIZATION	IMPACT ON FINANCIAL INCLUSION	INCLUDE/ EXCLUDE
B2G	1	Impuesto de Alcabala (businesses)	Property transaction tax	High	High	Low	Include
	2	Impuesto Predial (businesses)	Property tax	High	High	Medium	Include
	3	Impuesto al patrimonio vehicular (businesses)	Businesses Vehicle tax	High	High	Low	Include
	4	Impuesto a las apuestas	Tax on horse show events	Low	Low	Low	Exclude
	5	Impuesto a los espectaculos publicos no deportivos	Tax on non-sport events	Low	Low	Low	Exclude
	6	Contribucion especial de obras publicas (businesses)	Tax for municipals public infrastructures	Low	Medium	Low	Exclude
	7	Otros Tasas Municipales (businesses)**	Other municipal taxes	High	Medium	Medium	Include
	8	Impuesto a las embarcaciones de recreo (businesses)	Tax on motorboat	Low	Low	Low	Exclude
	9	Derechos por licencia de edificacion (business)	Building licence fee	Medium	Low	Low	Exclude
	10	Derechos por licencia de construccion (businesses)	Construction licence rights	Medium	Low	Low	Exclude
G2B	11	Devoluciones de impuestos	Tax refunds (business)	Low	Medium	Low	Exclude
	12	Gastos	Purchase of goods and services	Medium	Medium	Medium	Include
				ANALYSED SEPARATELY FROM COLLECTION FLOWS AT THE END OF THE SECTION			
G2P	13	Devoluciones de impuestos (people)	Tax refunds (people)	Low	Medium	Low	Exclude

*Being High = 3, Medium = 2 and Low = 1. Only the flows with a score of at least 6 have passed the selection

**Including Arbitrios Municipales
Source: INNOVALUE analysis

TABLE 3

Initial mapping and selection of sub-national flows (G2P, P2G and G2G)

BUCKET	NUMBER	NAME SPANISH	NAME ENGLISH	SIZE	IMPACT ON DIGITIZATION	IMPACT ON FINANCIAL INCLUSION	INCLUDE/ EXCLUDE
P2G	14	Impuesto de Alcabala (people)	Property transaction tax	High	High	Medium	Include
	15	Impuesto Predial (people)	Property tax	High	High	High	Include
	16	Impuesto al patrimonio vehicular (people)	Vehicle tax	High	High	High	Include
	17	Contribucion especial de obras publicas (people)	Tax for municipals public infrastructures	Low	Medium	Low	Exclude
	18	Otros Tasas Municipales (people)**	Other municipal taxes	High	Medium	Medium	Include
	19	Impuesto a las embarcaciones de recreo (people)	Tax on motorboat	Low	Low	Low	Exclude
	20	Derechos por licencia de edificacion (people)	Building licence fee	Medium	Low	Medium	Exclude
	21	Licencia de matrimonio (people)	Marriage license	Medium	Low	Low	Exclude
	22	Derechos por licencia de construcion (people)	Construction licence rights	Medium	Low	Medium	Exclude
	G2G	23	Pagos de Gobierno a Gobierno	Government to Government Payments	High	Fully digitized	None

*Being High = 3, Medium = 2 and Low = 1, only the flows with a score of at least 6 have passed the selection

**Including Arbitrios municipales

Source: INNOVALUE analysis

FIGURE 29

Quantitative assessment (annual values expressed in millions)

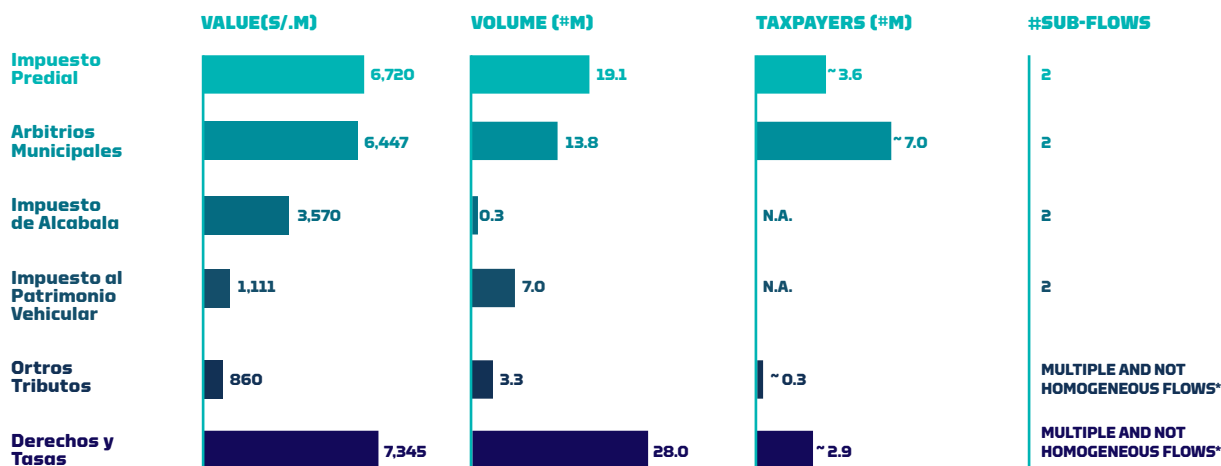


Figure 29 provides an overview of the quantitative assessment of the selected flows from the initial short list.⁷⁵

As shown in the Figure above, impuesto predial [property tax] and arbitrios municipales [costs to municipalities that are recharged to taxpayers] are the two highest flows by value, volume, and number of taxpayers. Derechos y tasas (fees and charges) is a category grouping of a number of occasional taxes (e.g., marriage tax, license to build, taxes on public shows and sporting events, etc.) that despite their aggregate large value and volume have been co-located at the end of the chart because of their fragmentation.

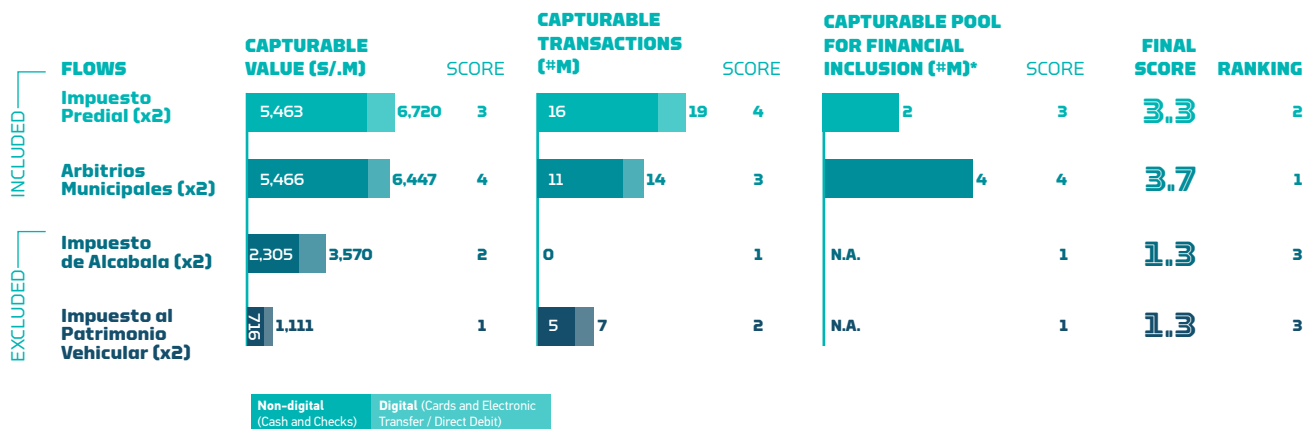
The next filter was applied on the basis of quantitative analysis of the potential for digitization of each selected payment flow, based on three parameters: value, volume, and potential for financial inclusion.

The first objective of this analytical activity was to identify the total value of non-digital payment methods for each flow, with non-digital payment methods being cash and checks. Cards and electronic transfer / direct debit are classified as digital payments methods.

This analysis identified the total value of each flow processed with non-digital payment methods.

FIGURE 30

Quantitative analysis of selected flows (expressed in millions)



*Value calculated by multiplying the number of taxpayers paying in cash and checks by the relative financial exclusion rate (= 1 - financial inclusion rate of the country (29%))
 Source: INNOVALIE analysis

For each parameter (value, volume, and financial inclusion) a score⁷⁶ was developed on the basis of the potential capturable value and number of transactions that can be digitized, and on the estimated capturable pool of taxpayers from a financial inclusion perspective. This latter parameter – the capturable pool for financial inclusion – was calculated by multiplying the number of taxpayers paying by cash and checks by the relevant financial exclusion rate (= 1 - financial inclusion rate of the country (29%)⁷⁷), or simply by estimating the number of taxpayers who pay in cash and checks who are not financially included.

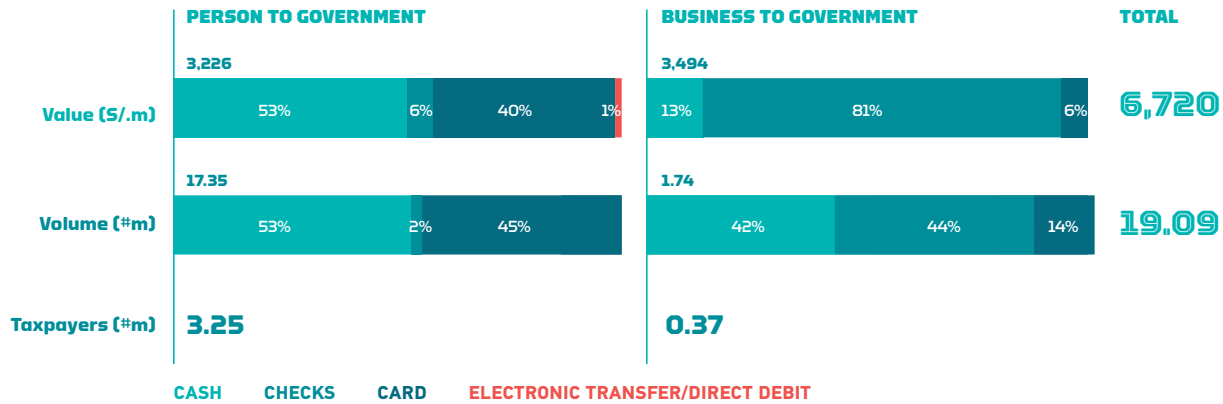
Additionally, for the purposes of this analysis, all three parameters (capturable value, volume, and capturable pool for financial inclusion) have been deemed equally important and, as displayed in Figure 30 above, have been equally weighted.

The weights and scores were then used to calculate the final score and ranking of flows for the development of a prioritized list.

As a result of the first quantitative analysis, this study identified impuesto predial [property tax] and arbitrios municipales [costs to municipalities that are recharged to taxpayers] as the two flows which most warranted a deep dive analysis.

FIGURE 31

Deep dive on the structure of impuesto predial [property tax]
 (expressed in millions)



Source: INNOVALUE estimation and analysis

The results of the analysis on impuesto predial [property tax] are displayed in Figure 31. As is easily noticeable from the Figure above, individual taxpayers tend to pay impuesto predial [property tax] predominantly with cash or payment cards. Electronic transfers are barely used, except for transactions of very high value, because of low internet usage/penetration and consumers' culture.

By contrast, businesses tend to pay to a large extent by cash and check. More specifically, cash is used for low value-high volume transactions and checks are used for high value-low volume transactions. This phenomenon is sometimes driven by the fact that a single holding company, otherwise referred to as an umbrella company, pays taxes on behalf of several subsidiaries at once by check.⁷⁸

Taking into consideration only the total volume and value, the B2G flow of the impuesto predial [property tax] would be the most promising for a digitization strategy. However, in terms of taxpayers involved, the P2G flow would be the most impactful for financial inclusion purposes.

Observing the deep dive analysis on arbitrios municipales [costs to municipalities that are recharged to taxpayers], a different pattern is noticeable. This is illustrated in Figure 32 above.

The majority of arbitrios municipales [costs to municipalities that are recharged to taxpayers], as shown in Figure 32, is paid by businesses (62% by total paid value) compared to payments by people (38%). For this type

FIGURE 32

Deep dive on the structure of arbitrios municipales

(expressed in millions)

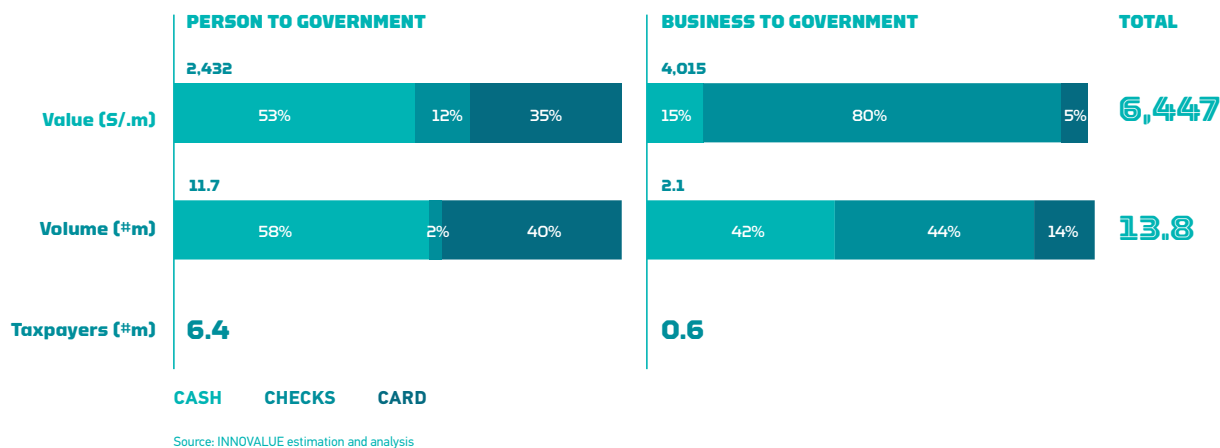
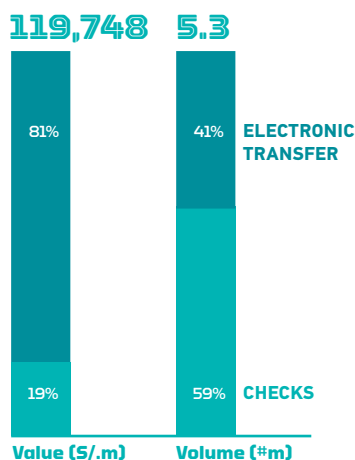


FIGURE 33

Split of value and volume of outbound payments to suppliers / procurement at a municipal level by payment method

(expressed in millions)



*Informatics system for administration of finance
 Source: INNOVALUE estimation and analysis, MEF, interview with Banco de la Nación

of tax, business taxpayers have a very similar payment behavior as for impuesto predial [property tax]: using cash for low-value transactions and checks for high-value transactions.

From an individual citizen perspective, taxpayers tend to pay arbitrios municipales principally with cash followed by payment cards. The use of checks is rare, especially for transactions of high value. As for impuesto predial [property tax], given the observed patterns, the B2G flow would be the most promising in terms of value of cash transactions to be captured by digital payments. However, if financial inclusion was the key parameter for prioritization, P2G would be the key target flow.

In addition, G2B (procurement) payments at sub-national level are predominantly paid with electronic transfers or checks, with the latter offering a noteworthy opportunity for digitization. Checks represent 19% of total procurement value and 59% of total volume of G2B payments at sub-national level, making G2B paper-based payment flows a third potential priority for digitization.






It should be noted that G2B payments have a low potential impact in terms of financial inclusion, at least directly and in the short/medium term, as they would only foster adoption of digital payments by businesses. Qualitative information collected through primary research suggests that micro and small enterprises providing goods and services to municipalities are likely unbanked, making them an attractive target for financial inclusion.

PRELIMINARY ASSESSMENT OF SUB-NATIONAL PAYMENT FLOWS

In line with the previous conclusions, the areas with highest potential for improvement relate to the limited reach of retail payment infrastructure and the low levels of usage of electronic payments. In addition, at a sub-national level, Peru's governmental structure and policy framework limit monitoring through SIAF that has visibility only for payments into or from the sub-national authority's account held with Banco de La Nación. Otherwise, municipalities have full discretion in opening other accounts with commercial banks and managing their incoming and outgoing payments through these accounts. This is due to the independence and fragmentation of the governmental structure at the sub-national level, and the absence of an explicit and concrete sub-national policy framework.

A more detailed assessment of the sub-national market landscaping is displayed in Figure 34. (See footnote for scoring methods.)⁷⁹

FIGURE 34
Sub-national assessment through World Bank framework

CRITERIA	SCORE*	RATIONALE
Payments infrastructure access		<p>Through corresponding banking networks, financial institutions have a decent number of access points, also thanks to Banco de la Nación covering commercially less relevant territories</p> <p>Penetration of POS terminals is low and network non-interoperable**</p> <p>Strong geographic disparities still exist in terms of internet, banking and payment infrastructure</p>
Payments usage		<p>There is low usage of electronic payment methods</p> <p>Cards are mainly used for cash withdrawals also due to low POS terminals penetration; evidence of strong geographic disparities</p> <p>Cultural barriers lead to a high usage of cash and checks in the payment ecosystem</p>
Legal and regulatory environment		<p>The 'Banco Central de Reserva del Peru' promotes effectiveness and security</p> <p>Law N°29440 set the framework for the payment system in Peru and encourages stakeholders' protection</p> <p>Law N°29985 set the framework for electronic money and allows the usage of the DNle (electronic ID) for financial, banking and non-banking operations</p>
Government structure		<p>At a subnational level the structure is very widespread, with the main entities being the Regions, provincial municipalities and district municipalities</p> <p>Municipalities manage subnational flows and have a strong decisional autonomy</p> <p>At the subnational level, MEF and the central government have only partial oversight</p>
Policy framework		<p>At a subnational level there is not a concrete policy framework</p> <p>There are a set of incentive plans that have as primary goal the collection of taxes and as secondary goal the digitization of flows</p>

*The scoring has been developed upon grades of adoption of criteria stated with the World Bank Guidelines. A full (black) Harvey Ball indicates full compliance with the Guidelines while an empty (white) Harvey Ball indicates least alignment with the Guidelines. Please refer to Annex for further detail

**Preliminary POS terminals analysis – Data from World Bank (2009)

5. CHALLENGES TO DIGITIZATION

Similarly to the IDB's "Proyecto Pagos Digitales de Gobierno para Promover la Inclusión Financiera" study that has identified target government payment flows at the national level,⁸⁰ this analysis of sub-national payment flows has identified selected target flows for digitization.

The government payment flows identified in the analysis at sub-national level are:

- P2G and B2G: Impuesto predial (property tax)
- P2G and B2G: Arbitrios municipales (costs to municipalities that are recharged to taxpayers)
- G2B: Gastos (outbound payments to suppliers / procurement)

The potential benefits of digitizing the above payments in terms of financial inclusion and reducing cash dependency are significant given the size of these payment flows. Nonetheless, at sub-national level there are a number of challenges to their digitization.⁸¹

These are constituted by:

- The significant fragmentation of these sub-national government payment flows among Peru's 1,838 municipalities
- The equally large number of system integration initiatives that would be required, should all municipalities agree to participate in the digitization of the above selected payment flows
- The different levels of sophistication of the systems in use by municipalities that would impact the potential total effort required, not only in terms of the number of integrations required, but also of the integration required with a range of systems with different degrees of sophistication and obsolescence
- The difficulty of integrating with smaller municipalities operating their accounts using Microsoft Office automation solutions (e.g., Microsoft Excel)
- The affordability and the business case value for the municipalities of undertaking the effort and investment required to digitize payment flows
- The complexity and inefficiency of single municipalities' negotiations with banks, payment providers, and system integrators, noting particularly the lack of apparent benefits from economies of scale due to the degree of fragmentation of flows at sub-national level

In addition, while G2B (procurement) sub-national flows could be addressed through central policymaking (for example, imposing a cap on the value or type of procurement costs payable by checks, or banning them altogether), a monitoring and enforceability challenge would remain, given that not all sub-national G2B government flows are registered through SIAF. Political challenges may also arise around an initiative that could potentially give rise to perceptions of limiting the freedom that municipalities have in managing their own accounts and related payments.

6. STRATEGIC ROADMAP

STRATEGIC INITIATIVES AT A SUB-NATIONAL LEVEL

Based on the above analysis of payment infrastructure and municipal payment flows, this study has identified five strategic initiatives at a sub-national level to be recommended to the Peruvian government for the purpose of supporting digitization of the selected sub-national payment flows.

These initiatives have been assessed and prioritized on the basis of their impact on the digital ecosystem and financial inclusion levels, as well as practicality of implementation. The five initiatives are displayed in Figure 35.

Consequently, this study has identified actions to be implemented, stakeholders involved, benefits and challenges for each strategic initiative, set out in Figure 36.

The next step of the analysis has been the evaluation of the impact of each strategic initiative on the digital ecosystem and financial inclusion, as well as the practicality of implementation. The evaluation of the initiatives and the results are set out in Figures 37 and 38.

Strategic initiatives at a sub-national level

INITIATIVES ENABLERS AIMED TO DEVELOP DIGITAL ECOSYSTEM



1. DEVELOP INTEGRATED IT SOLUTION ACROSS MUNICIPALITIES/SATS



2. PROVIDE ACCESSIBLE AND CHEAP SOLUTION FOR MUNICIPALITIES/SATS TO ACCESS MULTI CHANNEL COLLECTION



4. AUTOMATE MONITORING AND RECONCILIATIONS OF COLLECTION AND SPENDING OF SUBNATIONAL ENTITIES

INITIATIVES ACCELERATORS AIMED TO TARGETING SPECIFIC FLOWS






3. INTEGRATE BIM FOR TAXES COLLECTION AND PROVIDERS PAYMENTS



5. DECREASE/ELIMINATE THE CHECKS FOR PAYMENT PROVIDERS

FIGURE 36

Sub-national level strategic initiatives

	ACTIONS TO PERFORM	STAKEHOLDERS	BENEFITS	CHALLENGES
 <p>1. DEVELOP INTEGRATED SOLUTION ACROSS MUNICIPALITIES/SATS</p>	<ul style="list-style-type: none"> Identification of key requirements Design of key requirements GAP analysis System development vs. use of best practice Launch of pilots System roll-out and adoption (through MEF's imposition or incentive systems) 	<ul style="list-style-type: none"> Peru Ministerio de Economía y Finanzas Municipalities SAT SiAF Third Parties 	<ul style="list-style-type: none"> Significantly lowering costs of electronic payments for municipalities 	<ul style="list-style-type: none"> Initial Capex, interference with subnational informal economic interests
 <p>2. PROVIDE ACCESSIBLE AND CHEAP SOLUTION FOR MUNICIPALITIES/SATS TO ACCESS MULTI-CHANNEL COLLECTION</p>	<ul style="list-style-type: none"> Collective negotiation of integration costs and trx fees with banks (and cajas) Framework agreement with ASBANC Realization of pilots National roll-out (through incentive system of MEF) 	<ul style="list-style-type: none"> Peru Ministerio de Economía y Finanzas Banking system SAT Cajas 	<ul style="list-style-type: none"> Significantly lowering costs of electronic payments for municipalities 	<ul style="list-style-type: none"> Resistance from the banking community, coordination of municipalities, dependencies
 <p>3. INTEGRATION OF BIM FOR TAXES COLLECTION AND PROVIDERS PAYMENTS</p>	<ul style="list-style-type: none"> Analysis of requirements Development and integration of the service Commercial push 	<ul style="list-style-type: none"> BiM others depending on integration method (for instance ASBANC, CCE, Central Bank, ...) 	<ul style="list-style-type: none"> Significantly lowering costs of electronic payments for municipalities 	<ul style="list-style-type: none"> Initial Capex, interference with subnational informal economic interests, dependencies
 <p>4. AUTOMATE MONITORING AND RECONCILIATIONS OF COLLECTIONS AND SPENDING OF SUBNATIONAL ENTITIES</p>	<ul style="list-style-type: none"> Integration of SiAF with banking system for controlling and eventual disbursements purposes 	<ul style="list-style-type: none"> BiM Others depending on integration method (for instance ASBANC, CCE, Central Bank, ...) 	<ul style="list-style-type: none"> Significantly lowering costs of electronic payments for municipalities 	<ul style="list-style-type: none"> Initial Capex, interference with subnational informal economic interests
 <p>5. DECREASE/ELIMINATE THE CHECKS FOR PAYMENT OF PROVIDERS</p>	<ul style="list-style-type: none"> Establish the cap for checks usage for public procurement payments Obligatory banking / BIM accounts for providers of services to public entities 	<ul style="list-style-type: none"> Peru Ministerio de Economía y Finanzas Municipalities SAT SiAF 	<ul style="list-style-type: none"> Significantly lowering costs of electronic payments for municipalities 	<ul style="list-style-type: none"> Initial Capex, interference with subnational informal economic interests, dependencies

Source: INNOVALUE analysis

Valuation on the impact of the strategic initiative on the digital ecosystem and financial inclusion and the easiness of realization*

FIGURE 37

Valuation of sub-national level strategic initiatives

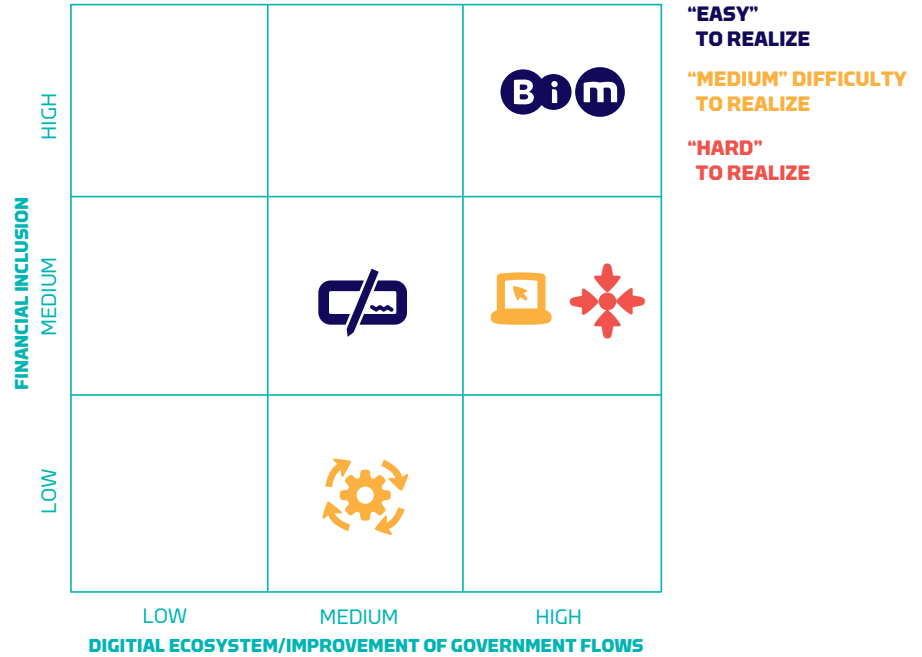


FIGURE 38

Ranking of sub-national level strategic initiatives

RANKING	INITIATIVES	DESCRIPTION
1		<p>Develop integrated IT solution across municipalities / SATs</p> <p>Provide accessible and cheap solution for municipalities / SATs to access multi-channel collection</p>
2	B i m	Integration of BIM for taxes collection and providers payments
3		Decrease / eliminate the checks for payment of providers
4		Automate monitoring and reconciliations of collections and spending of subnational entities

* Considering the dependencies of strategic initiatives Source: INNOVALUE analysis

Once the ranking was completed, a cost/benefit analysis comparing the benefits of the impact on digitization and financial inclusion of each strategic initiative with its potential costs was developed and is illustrated in Figure 39.

The first conclusion of this analysis is that there are potential benefits to be realized by leveraging BIM which, given priorities at the national level (discussed on page 54), will enable positive change at sub-national level. However, due to the dependency of initiative 3 on initiatives 1 and 2 (that have been then grouped together and considered as the first strategic initiatives to be implemented), this study recommends that initiative 3 should be the second strategic initiative to be implemented.

Therefore, the first specific strategic initiative to be considered for implementation is the development of an integrated IT solution across municipalities / SAT and provision of an accessible and cost-effective solution for municipalities / SAT to access multi-channel collection. In addition to improved coordination between the municipalities and SAT, this initiative would provide significant benefits for all municipalities by addressing the challenge of fragmentation and duplication of often obsolete systems used to manage payments. This initiative would enable central government policymakers to influence and implement payment policies to drive digitization of payments.

FIGURE 39
Qualitative evaluation of benefits and relative costs

INITIATIVES	INITIATIVE DESCRIPTION	BENEFITS	COSTS	COST/ BENEFIT*
	Develop integrated IT solution across municipalities / SWATs			The solution can be taken from best practice (savings on requirements and development) and rolled out to municipalities / SATs + integrations costs 
	Provide accessible and cheap solution for municipalities / SATs to access multi-channel collection			Solutions already exist (see ASBANC) however integration costs and subsidies from the government to municipalities (to pay for ASBANC connectivity) might be high; to consider collective negotiation if systems are aligned 
	Integration of BIM for taxes collection and providers payments			Development and integrations costs for BIM and government entities lower if system is centralized; some pilots are already in place at the national level 
	Decrease / eliminate the checks for payment of providers			Can be easily enforced by law and does not have relevant cost components; can be forced in a gradual manner – through imposition of gradual caps 
	Automate monitoring and reconciliations of collections and spending of subnational entities			Not as high in terms of digitization / inclusion benefits, but high impact on transparency and efficiency at the government level 

*Based on impact of digitization and financial inclusion (see matrix)
Source: INNOVALUE analysis

REGULATORY INITIATIVES

As highlighted previously in this study, Peru has a comprehensive legal framework around payments, including provisions for consumer protection requirements. However, from on-site interviews conducted for this study, it is apparent that relevant laws are not always applied punctually in cases of payment credentials being compromised, resulting in unauthorized payments⁸² taking place without the actual account holder authorization.

Therefore, to address high levels of public distrust toward electronic payments, this study recommends further articulation of consumer protection policies in such a way as to encourage the financial services industry to develop better consumer protection policies and approaches. To achieve this, regulation and/or legislation could be directional, defining the obligation of “treating customers fairly.” However, it is recommended that regulation and/or legislation leaves the actual development of policies and treatment of consumers to the financial services industry, so as to avoid prescriptive regulation that requires longer rounds of industry consultation and that is more likely to elicit resistance from the banking sector. This study considers the “Treating Customers Fairly” regulation issued by the Financial Conduct Authority in the United Kingdom to be best practice reference in this respect.

The Financial Conduct Authority is the conduct regulator for 56,000 financial services firms and financial markets in the UK.⁸³ All companies regulated by the Financial Conduct Authority “must pay due regard to the interest of its customers and treat them fairly.”⁸⁴

The effectiveness of ensuring fair treatment of customers is measured by six consumer outcomes to which each company, operating under Financial Conduct Authority, must aspire. These six consumer outcomes are:⁸⁵

- 1) Consumers can be confident they are dealing with firms where the fair treatment of customers is central to the corporate culture.
- 2) Products and services marketed and sold in the retail market are designed to meet the needs of identified consumer groups and are targeted accordingly.
- 3) Consumers are provided with clear information and are kept appropriately informed before, during, and after the point of sale.
- 4) Where consumers receive advice, the advice is suitable and takes account of their circumstances.
- 5) Consumers are provided with products that perform as firms have led them to expect, and the associated service is of an acceptable standard and as they have been led to expect.
- 6) Consumers do not face unreasonable post-sale barriers imposed by firms to change product, switch provider, submit a claim, or make a complaint.

This model could be applied in Peru and a designated entity that could reflect this model in the country could be the Superintendencia de Banca, Seguros y AFP.

STRATEGIC INITIATIVES AT THE NATIONAL LEVEL

Based on this study's analysis of existing infrastructure, and on the objective of substantially accelerating the adoption of electronic payments, research conducted for this study identified nine initiatives to be considered at national level. These initiatives are entirely independent from the analysis of payment flows at sub-national level, and are based on findings and observations at infrastructure and market level arising from research conducted for this study, and on INNOVALUE's knowledge of payment infrastructure and the evolution of the payment ecosystem in other markets.

The initiatives suggested in this study are additional to the IDB's study findings.

Moreover, while the initiatives reported in this study have been formulated with regard to their positive potential impact on the digitization of sub-national payment flows, they would also improve the effectiveness of digitization of initiatives at the national level.

The nine initiatives are set out in Figure 40.

The suggested initiatives can be, furthermore, classified according to the three pillars of the National Financial Inclusion Strategy: "Access," "Usage," and "Quality."⁸⁶

Initiatives 1, 2, and 3 fall under the first pillar. These initiatives aid the access to financial infrastructures and foster the creation of a network of electronic payment points.

Initiatives 4, 5, and 6 are part of the second pillar, "Usage." The accelerate growth of BIM's value proposition is part of an effort to encourage the supply side to develop new digital products, in order to meet customers' needs.

Finally, initiatives 8 and 9 aim to enhance reliability of digital payment channels, increasing the quality of the ecosystem.

Moreover, these strategic initiatives have been articulated in terms of actions to be undertaken, stakeholders involved, benefits, and challenges to the implementation of each strategic initiative in Figure 41.

Strategic initiatives at a national level

INITIATIVES ENABLERS AIMED TO DEVELOP DIGITAL ECOSYSTEM



1. INCREASE THE COMPETITION IN THE BANKING SYSTEM



2. MAKE POS TERMINALS INTEROPERABLE



6. ACCELERATE GROWTH OF BIM'S VALUE PROPOSITION P2G



3. INCREASE THE COMPETITION IN CARD ACQUIRING



7. ACCELERATE GROWTH OF BIM'S VALUE PROPOSITION G2P



8. INVEST IN COMMUNICATION REGARDING SECURITY AND CUSTOMER PROTECTION OF THE BANKING/CARD

INITIATIVES ACCELERATORS AIMED TO TARGETING SPECIFIC FLOWS



4. ACCELERATE GROWTH OF BIM'S VALUE PROPOSITION B2B




5. ACCELERATE GROWTH OF BIM'S VALUE PROPOSITION P2B



9. INVEST IN COMMUNICATION REGARDING SECURITY AND CUSTOMER PROTECTION OF THE BIM SYSTEMS

FIGURE 41

Actions, Stakeholders, Benefits, and Challenges of Initiatives

	ACTIONS TO PERFORM	STAKEHOLDERS	BENEFITS	CHALLENGES
 <p>1. DEVELOP INTEGRATED SOLUTION ACROSS MUNICIPALITIES/SATS</p>	<p>Enforce anti-trust laws</p> <p>Invite foreign competitors</p> <p>Regulate basic fees applied and transparency of costs</p>	<p>Peru Ministerio de Economía y Finanzas, Banco Central De Reserva Del Peru, Banking system</p>	<p>Lowering cost of banking to municipalities, businesses and consumers</p>	<p>Resistance from the banking community, informal economic interests at government levels</p>
 <p>2. MAKE POS TERMINALS INTEROPERABLE</p>	<p>Eliminate multi-terminalization through imposing inter-operability</p>	<p>Peru Ministerio de Economía y Finanzas, Banking system, Visa, Mastercard, American Express</p>	<p>Increasing acceptance / lowering cost of acceptance</p>	<p>Dominant banks and Visanet resistance</p>
 <p>3. INCREASE THE COMPETITION IN CARD ACQUIRING</p>	<p>Invite foreign / build domestic independent acquirers</p> <p>Review fee levels applied</p>	<p>Peru Ministerio de Economía y Finanzas, Banking system, Visa, Mastercard, American Express, Foreign players</p>	<p>Increasing acceptance / lowering cost of acceptance</p>	<p>Dominant banks and Visanet resistance</p>
 <p>4. ACCELERATE GROWTH OF BIM'S VALUE PROPOSITION B2B</p>	<p>Push the development of B2B offering to increase use cases for users</p> <p>Provide B2B use cases aimed toward cash reduction</p>	<p>BIM</p>	<p>Cash reduction / financial education / BIM adoption</p>	<p>Involvement of key FMCG* key organisations, coordinated financial education effort on small businesses</p>
 <p>5. ACCELERATE GROWTH OF BIM'S VALUE PROPOSITION P2B</p>	<p>Push the development of P2B offering to increase use cases for users</p> <p>Provide P2B use cases aimed for cash reduction</p>	<p>BIM</p>	<p>Cash reduction / financial education / BIM adoption</p>	<p>Involvement of key FMCG* organisations</p>
 <p>6. ACCELERATE GROWTH OF BIM'S VALUE PROPOSITION P2G</p>	<p>Push the development of offering to increase use cases for users</p>	<p>BIM</p>	<p>Cash reduction / financial education / BIM adoption</p>	<p>Involvement of key BIM stakeholders, financial education efforts</p>
 <p>7. ACCELERATE GROWTH OF BIM'S VALUE PROPOSITION G2P</p>	<p>Push the development of offering to increase use cases for users</p>	<p>BIM</p>	<p>Cash reduction / financial education / BIM adoption</p>	<p>Involvement of key BIM stakeholders, financial education efforts</p>
 <p>8. INVEST IN COMMUNICATION REGARDING SECURITY AND CUSTOMER PROTECTION OF THE BANKING/CARD</p>	<p>Address the fear of population in using financial services through targeted communication and activities aimed to build the trust</p>	<p>Peru Ministerio de Economía y Finanzas, Banking system, Visa, Mastercard, American Express, Foreign players</p>	<p>Promulgation of further consumer protection legislation</p>	<p>Involvement of key BIM stakeholders, financial education efforts</p>
 <p>9. INVEST IN COMMUNICATION REGARDING SECURITY AND CUSTOMER PROTECTION OF THE BIM SYSTEMS</p>	<p>Address the fear of population in using financial services through targeted communication and activities aimed to build the trust</p>	<p>Peru Ministerio de Economía y Finanzas, Banking system, Visa, Mastercard, American Express, Foreign players</p>	<p>Development of BIM rules and regulations</p>	

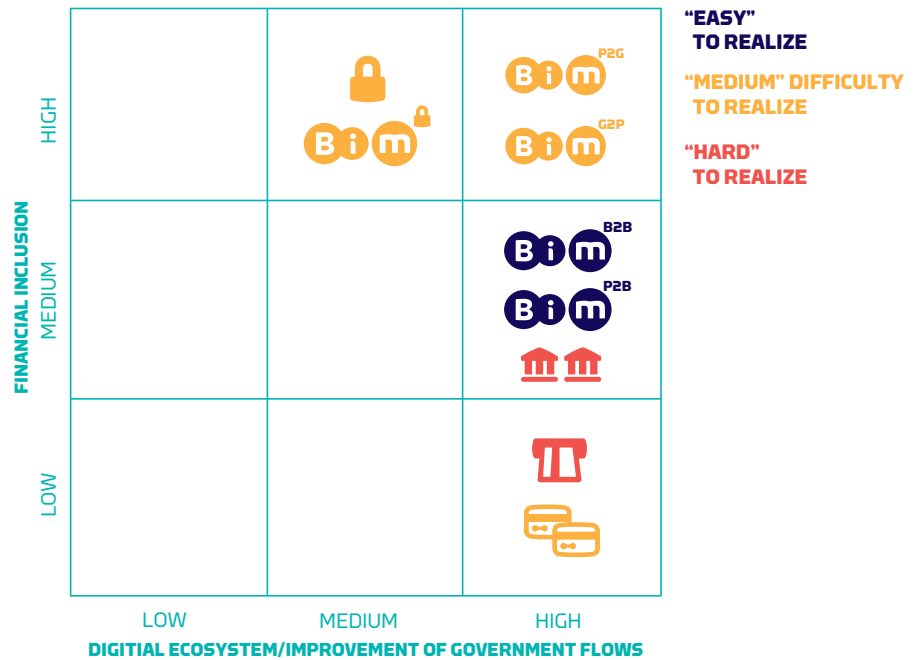
*Fast mover consumer goods Source: INNOVALUE analysis

These strategic initiatives were then evaluated on the basis of their potential impact on the digital ecosystem and financial inclusion, as well as practicality of implementation. To perform this evaluation, a specific matrix was developed that takes into account not only the above three parameters, but also the dependency between strategic initiatives. A score for each parameter was assigned to each strategic initiative. The scores were: Low (“easy” to implement), Medium, and High (“hard” to implement).

The evaluation of the initiatives and the resulting prioritized list of initiatives are illustrated in Figures 42 and 43.










Valuation on the impact of the strategic initiative on the digital eco-system and financial inclusion and the easiness of realization*

FIGURE 42
Valuation of national level strategic initiatives



*Considering the dependencies of strategic initiatives
Source: INNOVALUE analysis

FIGURE 43
Ranking of national level strategic initiatives

RANKING	INITIATIVES	DESCRIPTION
1		Accelerate growth of BIM's Value Proposition P2G
		Accelerate growth of BIM's Value Proposition G2P
2		Accelerate growth of BIM's Value Proposition P2B
		Accelerate growth of BIM's Value Proposition B2B
3		Invest in communication regarding security and customer protection of the banking / card
		Invest in communication regarding security and customer protection of the BIM systems
4		Increase the competition in the banking system
5		Make POS terminals interoperable
6		Increase the competition in card acquiring

Source: INNOVALUE analysis

Similar to the analysis performed at sub-national level, once the ranking was completed, a cost / benefit analysis was then performed, comparing the benefits in terms of potential impact on digitization and financial inclusion of each strategic initiative on the one hand to its potential costs on the other hand.





































From this analysis, combined with the rankings set out in Figure 43, this study has developed a prioritization structure of the infrastructure and ecosystem-enabling initiatives.

This study recommends that prioritization and implementation of initiatives 6 (Accelerate growth of BIM's value proposition P2G) and 7 (Accelerate growth of BIM's value proposition G2P) be completed at a national level.

The positive impact of these strategic initiatives at national level can also be expected to reach the sub-national level, on the basis of evidence gathered during research for this study indicating that many initiatives undertaken at a national level have a cascading effect and enable improvements at sub-national level, such as creating a sustainable ecosystem for digital payments and increasing peoples' adoption of digital payment methods.

FIGURE 44

Qualitative evaluation of benefits and relative costs

INITIATIVES	INITIATIVE DESCRIPTION	BENEFITS	COSTS		COST/ BENEFIT
	Accelerate growth of BIM's Value Proposition P2G			Internal implementations in PDP + systems integrations at state level	
	Accelerate growth of BIM's Value Proposition G2P			Internal implementations in PDP + systems integrations at state level	
	Accelerate growth of BIM's Value Proposition P2B			Internal implementations in PDP + merchant roll-out	
	Accelerate growth of BIM's Value Proposition B2B			Internal implementations in PDP + businesses roll-out	
	Invest in communication regarding security and customer protection of the banking / card			A more targeted communication can be used through banking channel	
	Invest in communication regarding security and customer protection of the BIM systems			A country wide communication would be needed to make effect	
	Increase the competition in the banking system			If enforced through law action would have a limited cost, but political implications should be considered	
	Make POS terminals interoperable			If enforced through law action would have a limited cost, but political implications should be considered	
	Increase the competition in card acquiring			Can be enforced by law or foreign competitors with limited costs, but political implications should be considered	

*Based on impact of digitization and financial inclusion (see matrix) Source: INNOVALUE analysis

7. CONCLUSION

The digitization of government payment flows at sub-national level would help address a significant amount of cash and check payment usage that is a consequence of payment practices within sub-national government entities, as well as challenges related to financial inclusion and access to financial services. The digitization of government payments would help drive adoption of electronic payments⁸⁷ by citizens and businesses and a shift in payment behavior away from cash.

Within this context, this study has identified three selected target payment flows as the areas of highest potential value and impact:

- P2G and B2G: Impuesto predial (Property tax)
- P2G and B2G: Arbitrios municipales (costs to municipalities that are recharged to taxpayers)
- G2B: Gastos (outbound payments to suppliers / procurement)

While these flows would be valuable targets for the purpose of digitizing payment flows at sub-national level, there are clear barriers to implementation to be taken into account. These relate to the nature and fragmentation of sub-national government infrastructure, the diverse characteristics of the systems in use at municipal level, and the challenges of undertaking system integration efforts and developing commercial agreements with payment providers across 1,838 municipalities.

To address these barriers and efficiently digitize sub-national payment flows, it would be desirable to develop an integrated IT solution across municipalities / SATs and provide accessible and cheap solutions to municipalities to access multi-channel collection.

Since these initiatives could require time, in parallel BIM could be integrated with municipalities to become a valuable tax collection vehicle and also be used for procurement purposes, fostering further digitization of payment flows.

Pilot projects should be launched contemporarily in multiple municipalities that encompass the business requirements of the different type of municipalities, potentially by identifying at least one municipality from each of the following categories: group A municipalities; group B municipalities; municipalities not considered principal cities with less than 500 inhabitants; and municipalities not considered principal cities with more than 500 inhabitants.

A key insight revealed by this study is that Peru is well positioned and prepared to undertake a digitizing process of its government payment flows. However, coordination among government entities and the simultaneous launch of multiple initiatives will be vital for a healthy success.

ANNEXES



ANNEX A.
Map of Peru



ANNEX B.
List of national government payment flows

NAME	PAYMENT FLOW CATEGORY	PAYER 2 PAYEE	MAIN AUTHORITY (ENGLISH)	BENEFICIARY/ PAYER	FLOW/ DESCRIPTION	NOTES-USEFUL INFORMATION
Compras a MYPERú Program	Acquisition of goods	G2B	Cooperation Fund for Social Development	→Peruvian SMEs	From FONCODES to Peruvian businesses	MYPERú in coordination with the Ministry of Production - PRODUCE, formulates guidelines for the procurement of goods. The acquisition of goods is carried out with funding from the Ministry of Production and transferred to FONCODES
Aportaciones al EsSalud (businesses)	Company taxes	B2G	The National Customs and Tax Administration (SUNAT)	Businesses→	Retained and paid by businesses on behalf of employees. The payment methods used are: Formulario Virtual 1676 (con clave SOLO), Pago Facil or Formulario 1076 (in authorized banks)	Contributions: Employer: 9% of payroll. (Employers providing health services directly to their employees or who use services provided under contract by a private health care provider [EPS] receive a 25% credit toward the cost of contributions.) The minimum earnings used to calculate contributions are the legal monthly minimum wage. The legal monthly minimum wage is 750 nuevos soles
Aportaciones al ONP (businesses)	Company taxes	B2G	The National Customs and Tax Administration (SUNAT)	Businesses→	Retained and paid by businesses on behalf of employees. Payment methods used are: Formulario Virtual 1676 (con clave SOLO), Pago Facil or Formulario 1076 (in authorized banks)	Contributions to the ONP are made by the employer, which retains 13% of worker's compensation and performs the appropriate deposit
Derechos Antidumping y Compensatorios	Company taxes	B2G	The National Customs and Tax Administration (SUNAT)	Businesses→	Payment can be done electronically (via web) or physically	Tax on imported goods that might affect Peruvian production
Derechos Arancelarios o ad Valorem	Company taxes	B2G	The National Customs and Tax Administration (SUNAT)	Businesses→	Payment can be done electronically (via web) or physically	Import taxation. Tax base value is determined by the Customs Valuation Agreement of O.M.C. (Organizacion Mundial Del Comercio). Four tiers for tax rates: 0%, 4%, 6%, and 11%
Derechos Correctivos Provisionales ad Valorem	Company taxes	B2G	The National Customs and Tax Administration (SUNAT)	Businesses→	Payment can be done electronically (via web) or physically	Corrective measures applied by Peru to other Member Countries of the Andean Community which are non-discriminatory, in accordance with the Cartagena Agreement. Tax rate: 29% Ad-valorem
Derechos Especificos-Sistema de Franja de Precios	Company taxes	B2G	The National Customs and Tax Administration (SUNAT)	Businesses→	Payment can be done electronically (via web) or physically	Taxes on imports of agricultural products such as rice, yellow corn, milk, and sugar
Impuesto a la Renta (businesses)	Company taxes	B2G	The National Customs and Tax Administration (SUNAT)	Businesses→	Payment can be done electronically (via web) or physically	Income tax
Impuesto a las Transacciones Financieras	Company taxes	B2G	The National Customs and Tax Administration (SUNAT)	Businesses→	Payment can be done electronically (via web) or physically	The tax is levied on some of the operations carried out by companies in the financial system. Created by D.Legislativo No. 939 as amended by Law No. 28194. Valid from 1 March 2004. The aim of the tax is to reduce tax evasion. Tax equal to 0.005% of transaction amount
Impuesto a los Juegos de Casinos y Maquinas Tragamonedas	Company taxes	B2G	The National Customs and Tax Administration (SUNAT)	Businesses→	Payment can be done electronically (via web) or physically	Taxes on the exploitation of casinos and slot machines

ANNEX B.
LIST OF NATIONAL GOVERNMENT PAYMENT FLOWS

NAME	PAYMENT FLOW CATEGORY	PAYER 2 PAYEE	MAIN AUTHORITY (ENGLISH)	BENEFICIARY/ PAYER	FLOW/ DESCRIPTION	NOTES-USEFUL INFORMATION
Impuesto de Promoción Municipal –IPM	Company taxes	B2G	The National Customs and Tax Administration (SUNAT)	Businesses→	Payment can be done electronically (via web) or physically	Tax on import goods subject to VAT. Tax rate 2%
Impuesto Especial a la Minería	Company taxes	B2G	The National Customs and Tax Administration (SUNAT)	Holders of mining concessions → Companies who engage in exploitation of metallic mineral resources →	Payment can be done electronically (via web) or physically	Created by Law No. 29790 Act, published on September 28, 2011. Law empowers SUNAT to perform all functions associated with the payment of the tax
Impuesto General a las Ventas –IGV	Company taxes	B2G	The National Customs and Tax Administration (SUNAT)	Businesses→	Payment can be done electronically (via web) or physically	Tax rate 18%. Paid on a monthly base through "Declaracion Jurada"
Impuesto Selectivo al Consumo –ISC (for goods produced in Peru)	Company taxes	B2G	The National Customs and Tax Administration (SUNAT)	Businesses→	Payment can be done electronically (via web) or physically	Paid by the business that produces the goods. They impose indirect taxes to discourage the consumption of products that generate negative externalities, such as alcohol, cigarettes, and fuel
Impuesto Selectivo al Consumo –ISC (for imported goods)	Company taxes	B2G	The National Customs and Tax Administration (SUNAT)	Businesses→	Payment can be done electronically (via web) or physically	Paid by the business that imports the goods by imposing indirect taxes to discourage the consumption of products that generate negative externalities, such as alcohol, cigarettes, and fuel
Impuesto Temporal a los Activos Netos	Company taxes	B2G	The National Customs and Tax Administration (SUNAT)	Businesses→	Payment can be done electronically (via web) or physically	0.4% rate based on the historical value of the net asset of the company in excess of 1 million Nuevos Soles
Nuevo Régimen Único Simplificado for Empresas Individuales de Responsabilidad Limitada	Company taxes	B2G	The National Customs and Tax Administration (SUNAT)	Small businesses meeting a series of criteria→	Electronically through web portal (using debit/credit card or direct debit) Physically, through Pago Facil	Applicable to corporations and individuals. Monthly tax paid on the base of gross salary / earnings – min S/.20 max S/.600
Regalías Mineras	Company taxes	B2G	The National Customs and Tax Administration (SUNAT)	Holders of mining concessions→ Companies who engage in exploitation of metallic and non-metallic mineral resources→	Payment can be done electronically (via web) or physically	This is a concept that no tax is levied on sales of metallic and non-metallic minerals. Article 7 of Law 28258 – Mining Royalties Act authorizes the SUNAT to perform all the functions associated with the payment of the mining royalty. It was amended by Law No. 29788 published on 28 September 2011
Régimen de Percepción del IGV – Venta Interna	Company taxes	B2G	The National Customs and Tax Administration (SUNAT)	Businesses→	Payment can be done electronically (via web) or physically	Tax rate 1% or 2%
Régimen Especial del Impuesto a la Renta (businesses)	Company taxes	B2G	The National Customs and Tax Administration (SUNAT)	Businesses→	Payment can be done electronically (via web) or physically	1.5% of the net monthly income

NAME	PAYMENT FLOW CATEGORY	PAYER 2 PAYEE	MAIN AUTHORITY (ENGLISH)	BENEFICIARY/ PAYER	FLOW/ DESCRIPTION	NOTES-USEFUL INFORMATION
Government payroll	Government payroll	G2P	SERVIR - Human resources	→ Government employees	Paid in employees' accounts of Banco de la Nación	The Human Resources Management Administrative System manages government employees and salaries and is monitored by SERVIR. In 2013 Peru planned to spend \$15m (of which \$10m loan from the Inter-American Development Bank) on improvements to central and local government payroll systems in a bid to increase its public spending efficiency. Update to be delivered by 2017
Haku Wiñay / Noa Jayatai	Gross capital formation	G2B	Cooperation Fund for Social Development Local governments	→ Building societies → Employees	The Nucleo Ejecutor and the Nucleo Ejecutor Central are responsible for the management of financial resources of the projects, procurement of goods and stipulate tripartite agreements between the executing core funding, FONCODES, and the respective Local Government District	The Haku Wiñay / Noa Jayatai FONCODES project has invested 379,599,962 soles between October 2012 and December 2015; and 9,536,915 soles from other sources like PAME and PERU LNG; for the development of productive capacities and rural enterprises 98,957 households across the mountains and forests of the country
Programa Municipal de Atención a los Servicios Básicos - PMASB	Gross capital formation	G2B	Cooperation Fund for Social Development	→ Building societies	Payment can be done electronically or physically (checks)	It is a program that is carried out with the co-financing of international cooperation (the German bank Kreditanstalt für Wiederaufbau-KfW), Peru MEF and the participation of local governments in the regions of Cajamarca and Lambayeque, for access to safe water and sanitation, and the formation of social capital through training. It runs around 70 projects with an estimated fund of 61 million soles
Unidad de inversión facilitadora de oportunidades económicas - UIFOE	Gross capital formation	G2B	Cooperation Fund for Social Development	→ Building societies	The payment flows from the FONCODES to the building society	Public investment projects (18 in total) in infrastructure for the population in rural and poor areas: - 6 Local Roads projects, with an investment of S / . 4,601,662.31. - 8 projects of small irrigation system, investing S / 4,191,224.95. - 2 pedestrian bridges projects, investment of S / . 914,406.23. - 2 projects of drinking water and sanitation investment of S / . 1,444,667.87
Impuesto a la Renta (people)	Income tax	P2G	The National Customs and Tax Administration (SUNAT)	People (e.g., self-employed) →	Payment can be done electronically (via web) or physically	Income tax
Nuevo Régimen Único Simplificado for people	Income tax	P2G	The National Customs and Tax Administration (SUNAT)	People (e.g., self-employed) meeting a series of criteria →	Electronically through web portal (using debit/credit card or direct debit) Physically, through Pago Facil	Applicable to corporations and individuals. Monthly tax paid on the base of gross salary / earnings – min S/.20 max S/.600
Régimen Especial del Impuesto a la Renta (people)	Individual taxes	P2G	The National Customs and Tax Administration (SUNAT)	People (e.g., self-employed) →	Payment can be done electronically (via web) or physically	1.5% of the net monthly income

ANNEX B.
LIST OF NATIONAL GOVERNMENT PAYMENT FLOWS

NAME	PAYMENT FLOW CATEGORY	PAYER 2 PAYEE	MAIN AUTHORITY (ENGLISH)	BENEFICIARY/ PAYER	FLOW/ DESCRIPTION	NOTES-USEFUL INFORMATION
Consumo de agua potable - non-domestic	Utility	B2G	Service provider - (e.g., Sedapal) Municipalities	Businesses→	Payment can be done via: - Bank branches - EPS agency - Non commission entities (Western Union, Full Carga, Edelnor) - Commission entities (Bank agencies: Scotiabank, Interbank, BCP, BBVA)	Sedapal has a mobile app to check statements, consumption, and office addresses
Consumo de agua potable - residential	Utility	P2G	Service provider - (e.g., Sedapal) Municipalities	People→	Payment can be done via: - Bank branches - EPS agency - Non-commission entities (Western Union, Full Carga, Edelnor) - Commission entities (Bank agencies: Scotiabank, Interbank, BCP, BBVA)	Sedapal has a mobile app to check statements, consumption, and office addresses
Registro Nacional de Identificación y Estado Civil (RENIEC)	Taxes	P2G	RENIEC	People→	Payment can be done through agencies of the "Banco de la Nación"	National registry of Identification and Civil Status
Subsidio por maternidad	Maternity benefits	G2P	Social Security Health Insurance (EsSalud)	→ Pregnant insured	From care agency to insured by cash	100% of earnings is paid, up to a maximum number of days. The benefit is paid for 45 days before and 45 days after the expected date of childbirth; may be extended for up to 30 additional days for multiple births
Aportaciones al EsSalud (people)	National insurance contribution	P2G	The National Customs and Tax Administration (SUNAT)	People (e.g., self-employed) →	Paid by the self-employed through National Bank, Interbank or Banco de Credito on a monthly, quarterly, biannual, or annual basis	Contributions: Employer: 9% of payroll. (Employers providing health services directly to their employees or who use services provided under contract by a private health care provider [EPS] receive a 25% credit toward the cost of contributions.) The minimum earnings used to calculate contributions are the legal monthly minimum wage. The legal monthly minimum wage is 750 nuevos soles
Qali Warma	National school feeding program	G2B	Ministry of Development and Social Inclusion	→ Food producers	The "Comite de Compras" manages the buying process from the food producer	The Purchase Committee drives the process of buying stocks and food according to recipes, set schedule, technical specifications and criteria defined by Qali Warma
Lactancia	Nursing allowance	G2P	Social Security Health Insurance (EsSalud)	→ Insured mother that has been working in the birth month of the new-born → In case of death of the mother, the partner or tutor is allowed to collect the benefit	From care agency to insured by cash (the payment will be available at authorized banking institutions) within 72 hours from submission of application	A lump sum of 820 nuevos soles

NAME	PAYMENT FLOW CATEGORY	PAYER 2 PAYEE	MAIN AUTHORITY (ENGLISH)	BENEFICIARY/ PAYER	FLOW/ DESCRIPTION	NOTES-USEFUL INFORMATION
Aportaciones al ONP (people)	Pension / Social security	P2G	The National Customs and Tax Administration (SUNAT)	People (e.g., self-employed) →	Retained and paid by businesses on behalf of employees. The payment methods used are: Formulario Virtual 1676 (con clave SOLO), Pago Facil, or Formulario 1076 (in authorized banks)	By Act No. 27334 SUNAT directs the management of those contributions, remaining as the same tax creditor of the Social Health Insurance (EsSalud) and the Office of Normalization (ONP)
Subsidio por incapacidad temporal	Sickness benefits	G2P	Social Security Health Insurance (EsSalud)	→ Insured with medical certificate that reports inability to work for at least 20 days	From care agency to insured by cash	100% of the insured's average daily earnings in the last four months is paid after a 1-day waiting period for up to 11 months and 10 days. (The employer pays the full salary for the first day)
Capital de defuncion	Sistema Nacional de Pensiones- SNP	G2P	National Pension Office (ONP)	→ Pensioner heirs	The pension payment will be scheduled by the ONP, which will notify the pensioner on the date and method of payment of the financial benefit	Unique payment made to the family of the deceased equal to six salaries referred to the top of the maximum monthly pension (S/. 857.36)
Pension de invalidez	Sistema Nacional de Pensiones- SNP	G2P	National Pension Office (ONP)	→ People considered invalid. Invalid defined as the insured that is in physical or mental disability or suspected prolonged standing. Those with a reduced capacity for work that consequently inhibits his or her ability to generate a wage that allows him or her to live	The pension payment will be scheduled by the ONP, which will notify the pensioner on the date and method of payment of the financial benefit	50% of the reference income of the beneficiary. Cannot exceed the maximum amount of the pension granted under the scheme, which currently amounts to S/. 857.36
Pension de jubilacion	Sistema Nacional de Pensiones- SNP	G2P	National Pension Office (ONP)	→ The insured must provide a minimum of 20 years to have access to a retirement pension → The minimum age to retire and get a pension is 65 years → Policyholders can also access a pension early	The pension payment will be scheduled by the ONP, which will notify the pensioner on the date and method of payment of the financial benefit	Most recipients of pensions are paid through a bank account opened by ONP at the "National Bank"; however, the pensioner may request cash delivery
Pension de sobrevivientes	Sistema Nacional de Pensiones- SNP	G2P	National Pension Office (ONP)	→ Consort of the pensioner → Orphans of the pensioner → Ancestors of the pensioner	The pension payment will be scheduled by the ONP, which will notify the pensioner on the date and method of payment of the financial benefit	The survivor pensions are: -for the consort of the pensioner -for the orphans of the pensioner -for the ancestors of the pensioner
Trabaja Peru	Social program	G2P	Ministry of Labour and Employment Promotion (MTPE)	→ Displaced and / or Victim of terrorism → Disabled person → Adult (age range 30-64) with a dependent → Parents with at least one son or daughter younger than 18 → Young adults (age range 18 - 29)	Payment can be done electronically or physically	Finances the creation of infrastructures in urban and rural areas employing unskilled labor

ANNEX B.
LIST OF NATIONAL GOVERNMENT PAYMENT FLOWS

NAME	PAYMENT FLOW CATEGORY	PAYER 2 PAYEE	MAIN AUTHORITY (ENGLISH)	BENEFICIARY/ PAYER	FLOW/ DESCRIPTION	NOTES-USEFUL INFORMATION
Juntos	Social security, conditional cash transfers and income support	G2P	Ministry of Development and Social Inclusion	→ Pregnant women, children, adolescents, and/or young until they completed secondary education or turned 19 years old that live in poverty in rural areas → Document that attests the enrolment to the program is issued	→The Unidad de Operaciones de Afiliación y Liquidación (UOAL) controls and manages the payment process. →Payments are made in cash through agencies, ATMs, and entities entitled by UOAL →In remote places UOAL enables a temporary payment service (Empresas Transportadoras de Valores)	Juntos has two main objectives: (1) in the short term, it seeks to reduce poverty by transferring to households 100 soles monthly; and (2) in the long term aims to stop the transmission of poverty between generations through the development of human capital, increasing attendance rates for primary education, lowering dropout rates and child labor, and increasing the use of health services (aimed at reducing child malnutrition, maternal morbidity, and child mortality as well as increasing specialized care for childbirth). The conditionality of the program includes: a) Children under 5 years: health checks , vaccinations, iron supplements, and vitamin A and tests parasitic; b) for children between 6 and 14 years: school attendance at least 85 % of the school year; and c) for women pregnant or breast-feeding: prenatal check-ups and postnatal care
Pension 65	Social security, conditional cash transfers and income support	G2P	Ministry of Development and Social Inclusion	→Population that live in a situation of extreme poverty and older than 65 years old	→ For each beneficiary joining the program, the program opens a saving account at the Banco de la Nación and transfers money every 2 months → The Unidades de Operaciones y Administración de Pension 65 controls and manages the payments → A point of payment is assigned to each regional center which must be the most accessible to the beneficiaries → Benefits are disbursed in cash	The National Assistance Program Solidarity, Pension 65, was established on October 19, 2011 by Supreme Decree No. 081-2011-PCM, in order to provide protection to vulnerable social groups
Prestacion por sepelio	Survivor benefits	G2P	Social Security Health Insurance (EsSalud)	→ Relatives of the deceased	From care agency to beneficiary by cash (the payment will be available at authorized banking institution in 72 hours from submission of application)	A lump sum of up to 2,070 nuevos soles is paid
Tax refunds and rebates	Tax refunds and rebates	G2B	The National Customs and Tax Administration (SUNAT)	→ Taxpayer who overpaid or paid improperly	Payment through: → Non - negotiable checks → Negotiable letters of credits → Bank transfer to beneficiary account	
Impuesto Extraordinario para la Promoción y Desarrollo Turístico Nacional	Tourist taxes	B2G	The National Customs and Tax Administration (SUNAT)	Payee are agencies that collect the tax incorporating it in the ticket price →	The tax is collected through issues of the tickets (Businesses) that are consequently paying the amount to SUNAT	Tax is paid by who enters the country voluntarily using air transport. The tax is used to finance the "Fondo para la Promocion y Desarrollo Turistico Nacional"
Gastos	Purchase of goods and services (national)	G2B	Ministry of Economy and Finance - SIAF	→ Businesses	Payment can usually be done through the "Banco de la Nación" by checks and electronic transfer	
Government to government	National flow	G2G	Governmental entities	→ Governmental entities →	Fully digitalize, bank transfer	Controlled by SIAF

ANNEX C.

Quantitative analysis methodology

INNOVALUE was provided with high-level data of sub-national flows by Ministry of Economy and Finance and used inputs from specific municipalities to estimate the missing information, the split by payment methods, and the split by taxpayer type.

Aggregated input

MEF provided the aggregated values of subnational flows for the following flows:

- Impuesto predial
- Arbitrios municipales
- Impuesto de alcabala
- Impuesto al patrimonio vehicular
- Derechos y tasas
- Otros tributos
- Gastos

VALUE					
	CASH	CHECKS	CARD	TRAN./DEBIT	TOTAL
Business	✘	✘	✘	✘	✔
People	✘	✘	✘	✘	

VOLUME					
	CASH	CHECKS	CARD	TRAN./DEBIT	TOTAL
Business	✘	✘	✘	✘	✘
People	✘	✘	✘	✘	✘

TAXPAYERS					
	CASH	CHECKS	CARD	TRAN./DEBIT	TOTAL
Business	✘	✘	✘	✘	✘
People	✘	✘	✘	✘	✘

- ✘ Missing information
- ✔ Inputs
- = Calculated values

Source: INNOVALUE analysis

Granular input

San Isidro, Miraflores and SAT provided data at a more granular level, distinguishing, when possible, method and channel of payment

Granular inputs were reconciled and assumptions were made to fill the gaps
 Proxies were calculated in order to:

- Split the aggregated inputs by payment method
- Estimate, where missing, payment volumes
- Estimate, where missing, number of taxpayers

The observations / proxies were then used to split the aggregated values in different payment methods and taxpayer type

OBSERVATIONS/PROXY					
	CASH	CHECKS	CARD	TRAN./DEBIT	TOTAL
Business					
People					

CALCULATIONS					
	CASH	CHECKS	CARD	TRAN./DEBIT	TOTAL
Business					
People					

VALUE					
	CASH	CHECKS	CARD	TRAN./DEBIT	TOTAL
Business	=	=	=	=	✔
People	=	=	=	=	

VOLUME					
	CASH	CHECKS	CARD	TRAN./DEBIT	TOTAL
Business	=	=	=	=	=
People	=	=	=	=	

TAXPAYERS					
	CASH	CHECKS	CARD	TRAN./DEBIT	TOTAL
Business	=	=	=	=	=
People	=	=	=	=	

ANNEX D.

Regulatory framework in Peru for the payment sector, financial sector, and consumer protection

REGULATION	ENTITY	MAIN POINTS
Law N°29440, Payment System and Security Settlement	Central Bank	<p>Establish the legal framework for the payment system and security settlement and the Central Bank as principal authorities</p> <p>Reinforce the legal framework for the credit granted by the Central Bank in order to strengthen the liquidity of the system</p>
Law N°29985, Electronic Money	SBS, Central Bank	<p>Electronic money is defined as monetary value stored on electronic instruments designed for a general purpose, excluding specific purpose electronic instruments (e.g., purchasing cards, membership cards, public transport cards, vouchers)</p> <p>Issuance of electronic money is the conversion of physical money to electronic money, for the same nominal value, through the storage in electronic instruments</p> <p>Creation of a new license for issuers of electronic money, the "Empresas Emisoras de Dinero Electronico"</p> <p>Allows the usage of DNle (electronic ID) for financial, banking, and non-banking operations</p>
Law N°29571, Consumer protection	Indecopi	<p>The purpose of the code is to facilitate the application of the rules of the consumer protection law</p> <p>In terms of payments, the code states that if goods or services providers differentiate the price of the product or service depending on the means of payment, such as credit cards, the information must be made known to the consumer. In case of default of the provider, consumers cannot be forced to pay additional sums, which must respect the price fixed for the product or service</p>
Law N°28587, Consumer protection in financial services	SBS	<p>Providers of financial services are required to provide to consumers all the information demanded prior the finalization of any contract</p> <p>The web page of the provider needs to contain all the relevant information</p> <p>All provided information needs to be clear and understandable for the consumer</p>
Resolution N°6523 - 2013	SBS	<p>The resolution provides a definition of credit and debit cards, indicates key information that has to be inserted in a contract, additional services associated to a credit card, minimum content of the statement, and additional obligations of the issuer</p>

ANNEX E.

Key assumptions made for the estimations

KEY ISSUE	KEY DATA IMPACTED	ASSUMPTIONS MADE IN ORDER TO SPLIT THE VALUE, VOLUME AND TAXPAYERS									
		VALUE			VOLUME			TAXPAYERS			
		KEY ASSUMPTIONS	CASH	CHECKS	CARD	CASH	CHECKS	CARD	CASH	CHECKS	CARD
Estimation of payment methods split within banking channel	Inputs from San Isidro regarding the value and volume collected through banks and the number of taxpayers	Impuesto predial	78%	8%	14%	85%	1%	14%	73%	3%	24%
		Arbitrio Municipales	78%	8%	14%	86%	1%	13%	73%	3%	24%
	Inputs from SAT regarding the value and volume collected through banks	Otros	77%	10%	13%	85%	1%	14%	70%	4%	27%
Estimation of payment methods split within agent banking channel	Inputs from SAT regarding the value and volume collected through the agent banking channel	Impuesto predial	78%	8%	14%	85%	1%	14%			
		Arbitrio Municipales	78%	8%	14%	86%	1%	13%			
		Otros	77%	10%	13%	85%	1%	14%			
Estimation of Number of taxpayers that are financially excluded	Overall number of taxpayers that use cash and checks to pay their taxes	<p>The assumption made is that 29% (financial inclusion in Peru) of the number of taxpayers that pay taxes in cash or checks could still be potentially financially included but preferring to pay in non electronic methods. Therefore, a conservative estimation of the number of financially excluded taxpayers is:</p> <p>Taxpayers (cash + checks) x (1-29%) = Number of taxpayers financially excluded</p>									

Details on benefits and costs structure of strategic initiatives

INITIATIVE DESCRIPTION	BENEFITS	COSTS
AccelProposition rate growth of BIM's Value P2B	Benefit mainly driven by users seeing more use cases and increasing the adoption of BIM, while businesses on the other side grow their acceptance of BIM, with several users on both sides accessing digital money for the first time	Technical development costs for PDP Pilots launches and tests Increase in platform maintenance costs Marketing costs for roll-out of the product
Accelerate growth of BIM's Value Proposition B2B	Benefit mainly driven by Business users increasing the adoption of BIM, therefore creating also acceptance on their side and driving user adoption. Moreover using Supplier / Merchant B2B payments, there is elimination of cash from the system and indirect decrease of shadow economy	Enhanced risk and exceptions management
Invest in communication regarding security and customer protection of the banking / card	Increase of the confidence of users regarding the use of cards and further push of adoption	Costs of communications strategy and planning Materials development
Invest in communication regarding security and customer protection of the BIM systems	Increase of the confidence of users regarding the use of digital money and BIM in particular and further push of adoption of digital instruments	Materials distribution through different channels Monitoring of the results Strategy adjustment and targeting
Increase the competition in the banking system	Increase in banking sector competition would push consumer prices lower and improve services, with consequent higher access of people to the banking services, currently deemed very expensive	Costs linked to law design and approval process, potential short-term fall in taxes collected, recovered in medium term due to increased activity effect
Accelerate growth of BIM's Value Proposition P2G	Increase of critical mass of BIM users as they now can manage their fiscal obligations through digital payment channel.	Technical development costs for PDP Integration costs for the government Pilots launches and tests Increase in platform maintenance costs Marketing costs for roll-out of the product
Accelerate growth of BIM's Value Proposition G2P	Government on the other side would have the leverage to stimulate the usage through provision of discounts / benefits	
Make POS terminals interoperable	The elimination of multi terminalization will decrease the costs for merchants to accept the cards therefore increasing acceptance that will enable users to use their cards more extensively and frequently	Costs linked to law design and approval process, potential short-term fall in taxes collected due to margins compression, recovered in medium term due to increased activity effect
Increase the competition in card acquiring	Main benefit is lowering the costs of acceptance for merchants enabling users to use their cards more extensively and frequently	

INITIATIVE DESCRIPTION	BENEFITS	COSTS
Develop integrated IT solution across municipalities / SATs	<p>The key benefits materialise through high cost savings, as currently most of the municipalities are developing / buying solutions on their own</p> <p>It's also a necessary step in order to become interoperable and have the possibility to connect to the payment hub</p>	<p>The cost of solution scouting</p> <p>Licence fees</p> <p>Piloting and testing</p> <p>Roll-out to municipalities</p> <p>Maintenance and upgrades</p>
Provide accessible and cheap solution for municipalities / SATs to access multi-channel collection	<p>Digital offering can have high impact on tax acceptance network</p> <p>It becomes easier to pay taxes</p> <p>Banks can leverage on potential customers inflow and increase their customer base through dedicated offering</p> <p>Banking clients can move from cashier to mobile / online banking to pay the taxes, therefore decreasing non digital part of flows</p>	<p>Integration costs between ASBANC solution and unique municipalities solution</p> <p>Transaction fees / Platform maintenance</p> <p>Connectivity costs</p>
Integrate BIM for taxes collection and providers payments	<p>Benefit is mainly driven by users seeing more use cases increasing the adoption of BIM and having a digital channel for payment to the subnational government</p> <p>Can be leveraged by the government to push the adoption and digitization of the flows</p>	<p>Technical development costs for PDP</p> <p>Integration costs for the government</p> <p>Pilots launches and tests</p> <p>Increase in platform maintenance costs</p> <p>Marketing costs for roll-out of the product</p>
Decrease / eliminate the checks for payment of providers	<p>Key benefit consist of higher transparency of spending at the subnational level and consequently lower illegal practices (e.g. funds leakage, not compliant spending, ...)</p>	<p>Costs linked to law design and approval process</p> <p>Minor changes in the systems as both methods are supported</p>
Automatize monitoring and reconciliations of collections and spending of subnational entities		<p>Enhancement of the platform</p> <p>Piloting and testing</p> <p>Roll-out to municipalities nationwide</p> <p>Maintenance and upgrades</p>

ANNEX G.
Glossary

ACRONYMS	FULL TITLE (SPANISH)	FULL TITLE (ENGLISH)
ASBANC	Asociación de Bancos del Peru	Peruvian Bank Association
ASOMIF	Asociación de Instituciones de Microfinanzas del Peru	Microfinance Institutions Association
ATM	Cajero Automático	Automated Teller Machine
B2G	De Negocios a Gobierno	Business to Government
BBVA	Banco Bilbao Vizcaya Argentaria	Banco Bilbao Vizcaya Argentaria
BCP	Banco de Crédito del Peru	Banco de Crédito del Peru
BIM	Billetera Móvil	Billetera Móvil
BTCA	Alianza Mejor Que El Efectivo	Better Than Cash Alliance
CAGR	Tasa de crecimiento anual compuesta	Compound Annual Growth Rate
CCE	Cámara de Compensación Electrónica	Automated Clearing House
CPC	Comisión de Protección al Consumidor	Commission for Consumer Protection
DNle	Documento Nacional de Identidad Electrónico	Electronic National Identity Document
FEPCMAC	Federación de Cajas Municipales de Ahorro y Crédito	Federation of Municipal Saving and Credit Banks
FONCODES	Fondo de Cooperación para el Desarrollo Social	Cooperation Fund for Social Development
G2B	de Gobierno a Empresa	Government to Business
G2G	de Gobierno a Gobierno	Government to Government
G2P	de Gobierno a Persona	Government to Person
GDP	Producto Bruto Interno	Gross Domestic Product
IDB	Banco Interamericano de Desarrollo	Inter-American Development Bank
ILD	Instituto para la Libertad y la Democracia	Institute for Liberty and Democracy
INDECOPI	Instituto Nacional de Defensa de la Competencia y de la Protección de la Propiedad Intelectual	National Institute for the Defense of Competition and Protection of Intellectual Property
LBTR	Liquidación Bruta en Tiempo Real	Real-Time Gross Settlement
Mbps	Megabits por segundo	Megabits per Second
MEF	Ministerio de Economía y Finanzas	Ministry of Economy and Finance
MNO	Operador de Telefonía Móvil	Mobile Network Operator
MTC	Ministerio de Transportes y Comunicaciones	Ministry of Transport and Communications
MTPE	Ministerio de Trabajo y Promoción del Empleo	Ministry of Labor and Employment Promotion
OECD	Organización para la Cooperación y el Desarrollo Económicos	Organization for Economic Co-operation and Development
ONP	Oficina de Normalización Previsional	Insurance Standards Office
OSIPTEL	Organismo Supervisor de Inversión Privada en Telecomunicaciones	Supervisory Agency for Private Investment in Telecommunications
P2G	—	Person to Government
PDP	Pagos Digitales Peruanos	Pagos Digitales Peruanos
POS	—	Point-of-sale
RENIEC	Registro Nacional de Identificación y Estado Civil	National Registry of Identification and Civil Status
RTGS	—	Real-Time Gross Settlement
SAC	Servicio de Atención al Ciudadano	Citizen Service Center
SAT	Sistema de Administración Tributaria	Tax Administration System
SBS	Superintendencia de Banca, Seguros y AFP	Superintendence of Banking, Insurance and Private Pension Funds Administrators
SIAF	Sistema Integrado de Administración Financiera	Integrated Financial Management System
SME	Pequeña y Mediana Empresa	Small and Medium Enterprise
SUNAT	Superintendencia Nacional de Aduanas y de Administración Tributaria	National Superintendence of Customs and Tax Administration

ANNEX H.

Glossary of terms used in original (Spanish) language

TERMS/ABBREVIATIONS USED IN SPANISH	TRANSLATION/EXPLANATION IN ENGLISH
Billetera móvil	Mobile wallet
Sistema de Liquidación Bruta en Tiempo Real (LBTR)	Real Time Gross Settlement System (RTGS)
Superintendencia de Banca, Seguros y AFP (SBS)	Governmental entity responsible for the regulation and supervision of the financial, insurance, and private pension systems and prevent money laundering and terrorist financing
The Instituto Nacional de defensa de la competencia y de la Protección de la propiedad intelectual (INDECOPI)	Entity working to promote competition and protect intellectual property rights in the Peruvian economy
Comisión de Protección al Consumidor (CPC)	The body of INDECOPI designed to impose administrative sanctions and corrective measures established in the Consumer Protection Law
Servicio de Atención al Ciudadano (SAC)	Service offered to citizen for questions in matter of consumer protection
Empresas Emisoras de Dinero Electrónico	Companies issuing electronic money
Cuenta Única	The unified account – the account of treasury of the government allocated in Banco de la Nación
Impuesto de Alcabala	Property transaction tax
Impuesto Predial	Property tax
Impuesto al patrimonio vehicular	Vehicle tax
Impuesto a las apuestas	Tax on horse show events
Impuesto a los espectáculos públicos no deportivos	Tax on non-sport events
Contribución especial de obras públicas	Tax for municipal public infrastructures
Devoluciones de impuestos	Tax refunds
Gastos	Expenses on goods and services
Contribución especial de obras públicas	Tax for municipals public infrastructures
Impuesto a las embarcaciones de recreo	Tax on motorboat
Derechos por licencia de edificación	Building license fee
Licencia de matrimonio	Marriage license
Derechos por licencia de construcción	Construction license rights

ANNEX I.
Sources

SOURCE NAME	CATEGORY	LINK
Agencia De Promocion De La Inversion Privada	Governmental entity	www.proinversion.gob.pe
Andina - Agencia Peruana Des Noticias	Nongovernmental entity	www.andina.com.pe
Banco Central De Reserva Del Perú	Governmental entity	www.bcrp.gob.pe
Bbva	Nongovernmental entity	www.bbvacontinental.pe
Bcp	Nongovernmental entity	ww3.viabcp.com
Contraloria General De La Republica	Governmental entity	www.contraloria.gob.pe
Deperu	Nongovernmental entity	www.deperu.com
Essalud	Governmental entity	www.essalud.gob.pe
Federacion Peruana De Cajas Municipales de Ahorro y Credito	Governmental entity	www.fpcmac.org.pe
Foncodes	Governmental entity	www.foncodes.gob.pe
Gestion Publica	Governmental entity	www.gestionpublica.org.pe
Gobierno Regional Cajamarca	Governmental entity	www.regioncajamarca.gob.pe
Gobierno Regional Cusco	Governmental entity	www.regioncusco.gob.pe
Gobierno Regional de Amazonas	Governmental entity	www.regionamazonas.gob.pe/
Gobierno Regional de Ancash	Governmental entity	www.regionancash.gob.pe
Gobierno Regional de Apurimac	Governmental entity	www.regionapurimac.gob.pe
Gobierno Regional de Arequipa	Governmental entity	www.regionarequipa.gob.pe/
Gobierno Regional de Ayacucho	Governmental entity	www.regionayacucho.gob.pe
Gobierno Regional de Huancavelica	Governmental entity	www.regionhuancavelica.gob.pe/
Gobierno Regional de Huánuco	Governmental entity	www.regionhuanuco.gob.pe
Gobierno Regional de Ica	Governmental entity	www.regionica.gob.pe/
Gobierno Regional de la Libertad	Governmental entity	www.regionlalibertad.gob.pe
Gobierno Regional Del Callao	Governmental entity	www.regioncallao.gob.pe
Gobierno Regional Junín	Governmental entity	www.regionjunin.gob.pe
Inei	Governmental entity	www.inei.gob.pe

SOURCE NAME	CATEGORY	LINK
Instituto Peruano De Economía	Governmental entity	www.ipe.org.pe
Juan Jose Martinez	Nongovernmental entity	http://juanmartinezortiz.blogspot.de
Juntos	Governmental entity	www.juntos.gob.pe
Ministerio De Desarrollo E Inclusion Social	Governmental entity	www.midis.gob.pe
Ministerio De Economía Y Finanzas	Governmental entity	www.mef.gob.pe
Ministerio De Trabajo Y Promocion Del Empleo	Governmental entity	www.trabajo.gob.pe
Monografias	Nongovernmental entity	www.monografias.com
Oficina Central De Lucha Contra La Falsificacion De Numerario	Governmental entity	www.ocn.gob.pe
Onp	Governmental entity	www.onp.gob.pe
Organismo Supervisor De Las Contrataciones Del Estado	Governmental entity	www.osce.gob.pe
Pension 65	Governmental entity	www.pension65.gob.pe
Peru21	Nongovernmental entity	http://peru21.pe
Portal Del Estado Peruano	Governmental entity	www.peru.gob.pe
Public Finance International	Nongovernmental entity	www.publicfinanceinternational.org
Qali Warma	Governmental entity	www.qaliwarma.gob.pe
Rankia	Nongovernmental entity	www.rankia.pe
Sunat	Governmental entity	www.sunat.gob.pe
World Bank	Sovranational institution	http://www.worldbank.org
Instituto Nacional De Estadistica E Informatica	Governmental entity	https://www.inei.gob.pe
Central Intelligence Agency U.s.	Foreign body	https://www.cia.gov
Instituto Peruano De Economía	National institution	www.ipe.org.pe
Stanford University	University	https://www.stanford.edu
Gsma	Association	www.gsma.com
Consejo Nacional De La Competitividad	Governmental entity	www.cnc.gob.pe
Banco Central De Reserva Del Perú	Governmental entity	www.bcrp.gob.pe
Center For Financial Inclusion	Think tank	www.centerforfinancialinclusion.org

Endnotes

1. <https://usa.visa.com/dam/VCOM/download/visa-everywhere/global-impact/impact-of-electronic-payments-on-economic-growth.pdf>
2. BIM is discussed in further detail in Section 3 of this study.
3. As of the 13th of July 2016 there were 180,000 registered users. Interview with Pagos Digitales Peruanos.
4. Interview with Banco de la Nación and Ministry of Economy and Finance.
5. Findex 2014.
6. A shadow economy consists of the production of goods and services which escape official detection in the estimation of a country's GDP and deprive governments of resources that should be otherwise invested for the public good.
7. Prof. Friedrich Schneider's estimate from the MasterCard's and INNOVALUE's "Social cost of cash in Peru" report.
8. Please refer to INNOVALUE's and MasterCard's "Social Cost of Cash in Peru" report.
9. As of June 2016, https://www.mef.gob.pe/index.php?option=com_content&view=article&id=2565&Itemid=101548&lang=es
10. Law N° 27972, 2003, <http://portal.jne.gob.pe/informacionlegal/Documentos/Leyes%20Org%C3%A1nicas/LEY%20ORG%C3%81NICA%20DE%20MUNICIPALIDADES%20LEY%20N%C2%BA%2027972.pdf>
11. IDB's "Proyecto Pagos Digitales de Gobierno para Promover la Inclusión Financiera" (Digital Government Payments Project to Promote Financial Inclusion)
12. <https://www.betterthancash.org/tools-research/toolkits/government/readiness-engagement/prioritizing>
13. <https://www.betterthancash.org/tools-research/case-studies/country-diagnostic-nigeria>; <https://www.betterthancash.org/tools-research/case-studies/country-diagnostic-the-philippines>; <https://www.betterthancash.org/tools-research/case-studies/country-diagnostic-colombia>
14. Average growth calculated by using World Bank data set, <http://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=PE>
15. Refer to Annex A for a detailed map of Peru.
16. Unesco: <http://www.unesco.org/uii/litbase/?menu=4&programme=41>
17. Source: <https://stats.oecd.org/glossary/detail.asp?ID=2789>
18. The "Social cost of cash in Peru" study can be requested by writing to: felipe.rincon@mastercard.com
19. The Globalist | Biography of Hernando de Soto
20. The "Social Cost of Cash in Peru" study can be requested by writing to: felipe.rincon@mastercard.com
21. The "Social cost of cash in Peru" study can be requested by writing to: felipe.rincon@mastercard.com
22. Please refer to INNOVALUE's and MasterCard's "Social Cost of Cash in Peru" report.
23. Based on analysis reported in this study, primary research and INNOVALUE analysis.
24. World Bank, 2014 data, Superintendencia de Banca, Seguros y AFP.
25. <https://mef.gob.pe/contenidos/archivos-descarga/ENIF.pdf>
26. Please refer to action 3 and 6 in page 73 of the National Financial Inclusion Strategy (<https://mef.gob.pe/contenidos/archivos-descarga/ENIF.pdf>)
27. The "Social Cost of Cash in Peru" study can be requested by writing to: felipe.rincon@mastercard.com
28. <http://cs.stanford.edu/people/eroberts/cs201/projects/third-world/peru-overview.html>
29. ProInversión, Red Dorsal Nacional de Fibra Óptica, <http://www.proyectosapp.pe/modulos/JER/PlantillaProyecto.aspx?ARE=0&PFL=2&JER=5682>
30. Internet users are individuals who have used the internet in the past 12 months. Internet can be used via a computer, mobile phone, digital TV, or other means.
31. GSMA analysis, Country Overview: Peru, February 2014, <https://www.gsmainelligence.com/research/?file=140224-peru.pdf&download>
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33. Infraestructura de redes móviles en el Perú: Análisis y recomendaciones para promover su mejora, <https://www.osiptel.gob.pe/documentos/infraestructura-redesmoviles-peru>
34. AFIN, 'Plan Nacional de Infraestructura 2016 – 2025', page 103, refer to 'Antenas de telefonía móvil' http://www.afin.org.pe/images/publicaciones/estudios/plan_nacional_infraestructura_2016_2025_2.pdf
35. Perusmart.com, 2014.
36. As of the 13th of July 2016 there were 180,000 registered users. Interview with Pagos Digitales Peruanos.
37. Even though there are multiple examples of successful closed-loop schemes (e.g., M-Pesa), these schemes tend to restrict the traction of the initiatives in an ecosystem where the player launching the initiative is not positioned as the main player in the market, with a much stronger position compared to all other players in the market.
38. However, it has to be taken into consideration that small players have struggled to participate to these initiatives due to relatively expensive fees based on the scale of operations.
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40. <https://www.betterthancash.org/news/blogs-stories/modelo-peru-a-unique-approach-to-financial-inclusion>
41. For further details please refer to the following documents: <http://www.fitel.gob.pe/archivos/FI514b6ada1dd1b.pdf>; <http://www.fitel.gob.pe/archivos/FI5769b0bf0b7e1.pdf>
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43. Superintendencia de Banca, Seguros y AFP, Boletín Informativo Mensual, Noviembre 2015, <http://www.sbs.gob.pe/app/stats/EstadisticaBoletinEstadistico.asp?p=1#>
44. Numbers in chart are rounded to the nearest whole number.
45. INNOVALUE analysis, and analysis supported by interview with Banco de la Nación and available statistics displayed in Figure 14.
46. <https://www.cgap.org/sites/default/files/Brief-Driving-Scale-and-Density-of-Agent-Networks-in-Peru-Jan-2015.pdf>
47. Banco Azteca, Banco Central de Reserva del Perú, Banco de Comercio, BCP, Banco de la Nación, Banco Financiero, Santander, Citi, Interbank, Scotiabank, BanBif, Banco Falabella, Banco GNB, Banco Ripley, BBVA Continental, ICBC, Mibanco, Agrobanco, Caja Arequipa, Caja Cusco, Caja Huancayo, Caja Metropolitana, Caja Piura, Caja Sullana, Caja Tacna, Caja Trujillo, CreditScotia
48. World Bank, Payment Systems Worldwide, 2010, http://siteresources.worldbank.org/FINANCIALSECTOR/Resources/282044-1323805522895/121534_text_corrections_3-15.pdf
49. Banco Central de Reserva del Perú, <http://www.bcrp.gob.pe/docs/Sistema-Pagos/Ley-29440.pdf>
50. SBS is the agency responsible for the regulation and supervision of the financial system, insurance, and the private pension system in Peru, as well as the prevention and detection of money laundering and terrorist financing.
51. Figure 15 is focused just on payments and excludes the settlement of securities. Funds transferred via check are available to the beneficiary in t+1 day for transactions made before 6pm, otherwise t+2 days. Credit transfer funds are available to the beneficiary on the same day. Refer to Annex D for further details on regulation.

52. Interview with expert and IDB's report.
53. World Bank most recent available data, 2009 data set for Brazil, Argentina, Chile, and Uruguay
54. World Bank most recent available data, 2014 data set for Brazil, Argentina, Chile, and Uruguay
55. Banco Central de Reserva del Perú, 'Cashless payment instruments, automatic teller machines, and virtual banking' 2010 – 2015, tables 43 and 44, http://www.bcrp.gob.pe/bcr/index.php?option=com_content&task=category§ionid=16&id=65&Itemid=367
56. Interview with Banco de la Nación and Ministry of Economy and Finance.
57. Most recent data from the Central Bank of Peru. BTCA measurement toolkit has been taken into consideration where possible in relation to the availability of data.
58. Most recent data from the Central Bank of Peru. BTCA measurement toolkit has been taken into consideration where possible in relation to the availability of the data.
59. Banco Central de Reserva del Perú (Central Bank of Peru) is the governing body for the payment system, with its mandate being to promote the safety and efficiency of the system. The Central Bank also regulates and manages the national LBTR (real time gross settlement system). SBS is responsible for the regulation and supervision of the financial, insurance, and private pension systems, and preventing money laundering and terrorist financing. SBS leverages PAU (plataforma de atención al usuario) as well as SBS' information service created to support consumers, and provides guidance on activities and services offered by companies in the financial, insurance, and private pension industries. INDECOPI works to promote competition and protects intellectual property rights in the Peruvian economy. It maintains technical, economic, budgetary, and administrative autonomy and is responsible for applying fines in violation of consumer protection law. Comisión de Protección al Consumidor (CPC) is the body of INDECOPI designed to impose administrative sanctions and corrective measures established in the Consumer Protection Law. Servicio de Atención al Ciudadano (SAC) is a service offered to citizens for questions related to consumer protection in regards to various types of services including payments.
60. Please refer to Annex D for details of payment regulation.
61. Phishing is a form of fraud in which the attacker tries to learn information such as login credentials or account information by masquerading as a reputable entity or person in email, IM, or other communication channels. Source: <http://searchsecurity.techtarget.com/definition/phishing>
62. Simple transaction issues consist of easily investigable mistaken transactions that are due to system errors or easily investigable issues with no actual economic losses incurred by either the payer or the payee. For example duplicated transactions due to system error are issues that can usually be readily recognized and rectified.
63. Complex transactions issues typically occur when payment credentials are compromised (as in the case of fraudulent transactions) or when the payer deliberately fails to accept a legitimate transaction in order to avoid the actual charge of the payment amount (otherwise known as "first party fraud"). Complex transaction issues imply a monetary loss by one of the entities involved in the payment process, in the case of card payments, typically the issuer that provides indirect payment guarantees to the merchant and account protection guarantees to the cardholder. Based on the card scheme's rules and regulations, card issuers should accept and initiate the dispute when informed by the cardholder and proceed with the related investigation without resistance aside the checks needed to prevent illegitimate cardholder claims.
64. 23 flows in total including G2G.
65. https://www.mef.gob.pe/index.php?option=com_content&view=article&id=2565&Itemid=101548&lang=es
66. The Ministry of the Economy and Finance provided total value and volume data of sub-national flows. This study also used inputs from specific municipalities to estimate the split by payment methods for both value and volume. Please refer to the diagram in Annex C for further explanation.
67. Portal de Estado Peruano, http://www.peru.gob.pe/directorio/pep_directorio_poderes.asp?cod_poder=7
68. SIAF was created in 1997 and 1998 by the Ministry of the Economy and Finance to "clearly, automatically track and control the operations of executive entities and integrate the entities with the national Treasury". SIAF is part of the Ministry of Finance. http://www.mef.gob.pe/contenidos/siaf/documentos/concepto_siaf.pdf
69. Interview with Municipality of San Isidro and Miraflores.
70. An independent entity that collects taxes on behalf of the provinces for the payment of commission fees (SAT has been developed in few provinces of Peru).
71. Interview with Municipality of San Isidro.
72. Interview with Treasury of MEF, Municipality of Miraflores and Municipality of San Isidro.
73. Please note that SAT only collects taxes and fines and does not operate as a disbursement entity.
74. Interviews with Ministry of Economy and Finance, Municipality of San Isidro, Municipality of Miraflores, SAT of Lima.
75. Refer to Annex C and E for further explanation of the quantitative analysis methodology.
76. Numerical score between 1 and 4, with 4 being the highest score and 1 being the lowest.
77. See Figure 6 of the country overview analysis for reference.
78. Interviews with Ministry of Economy and Finance, Municipality of San Isidro, Municipality of Miraflores, SAT of Lima.
79. The scoring has been developed on the basis of grades of adoption of criteria stated by the World Bank Guidelines. http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2016/03/18/090224b082e7e34d/1_0/Rendered/PDF/General0guidel0ent0payment0programs.pdf. A full (black) circle indicates full compliance with the Guidelines while an empty (white) circle indicates least alignment with the Guidelines.
80. The four selected target payment flows at national level are: "Recaudo de tasas y tramites", "Recaudo del Regimen Unico Simplificado", "Pago de Caja Chica", and "Pago de facturas de empresas públicas de agua".
81. Existing entities, such as 'ProInversión' (a private investment promotion agency) have a potential role in helping meet these challenges: <http://www.proyectosapp.pe/modulos/JER/PlantillaStandard.aspx?are=1&prf=2&jer=6867&sec=30>
82. Otherwise referred as "fraudulent transactions".
83. <https://www.the-fca.org.uk/about/the-fca>
84. Principal 6, Principles for businesses, FCA (<https://www.the-fca.org.uk/about/principles-good-regulation>)
85. <https://www.the-fca.org.uk/firms/fair-treatment-customers>
86. <https://mef.gob.pe/contenidos/archivos-descarga/ENIF.pdf>
87. This refers to payment cards, electronic transfers / direct debit and BIM

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