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Global Landscape Study on P2G Payments

Summary of in-country consumer research conducted in Rwanda

March 28 - April 8, 2016

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Executive summary

Rwanda was selected as a focus country given the potential reach and varied nature of two key initiatives: the IREMBO e-government platform and the Tap&Go smartcard for public bus transport. Digital payments for school fees and utility payments were also studied.

Tap&Go is privately managed but offers P2G learnings for other countries where public transport is government-run

We sought to answer questions across three key areas:

1. How well did digital P2G payment solutions reach, and address the needs of, the financially excluded?
2. What were effective and sustainable business models between actors, and how were they set up?
3. How do current and planned solutions support and work with the evolving digital payments ecosystem in Rwanda?

We found that government support for digital payments – both for underlying ICT and for financial inclusion – was consistently strong and helped address a number of common P2G barriers…

- Alignment between government agencies, driven by a national payments strategy, to move quickly on partnerships
- Commitment to government investment where necessary, such as in underlying connectivity or agent training
- Understanding of the need to work with, and incentivize, the private sector to delivery digital P2G payment solutions

…while also reinforcing the most common barrier that was not being fully and successfully addressed: awareness

- Across all four initiatives, positive incentives (e.g., cutting to the front of the line) and negative (e.g., greater fees when not paying digitally) were being explored, together with a wide range of marketing and education efforts
- Unusually in Rwanda, mandating digital payments was expected and implemented quickly, often within 6 months

These actions help put Rwanda on a faster path to realizing the benefits of digitizing P2G payments, which include often dramatic reductions in leakages as well as substantial time and cost savings for both consumers and the government.

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Our research spanned four recent P2G initiatives in Rwanda

"Irembo" services

Credit/ Debit card, Mobile Money

Launched: Jul 2015

About: Online government portal providing ~30 services online, e.g., birth certificate.

- Channel: PC, Mobile phone, bank branch
- Instrument: Credit card, mobile money
- Store of value: Bank account, mobile wallet

Private stakeholders: RwandaOnline, Visa, MTN, Tigo, Airtel Money

Government stakeholders: Rwanda Development Board, Ministry of ICT and Youth

Bus transport

Smartcard

*(while not "P2G" in Rwanda, lessons are potentially applicable to other countries)**

Launched: Dec 2015

About: "Tap&Go" allows users to add value on the smartcard and "tap" to pay for each ride on the bus.

- Channel: RFID-enabled[1] terminals on buses
- Instrument: pre-paid contactless smartcard
- Store of value: Stored value account with pre-paid card

Private stakeholders: Kigali Bus Service, Royal Express, RFTC (bus operators)

Government stakeholders: Rwanda Utility and Regulatory Authority (RURA)

School fees

Mobile money

Launched: 2016 (expected)

About: Mobile money service allowing school students to make all fee payments.

- Channel: Mobile phone
- Instrument: Electronic funds transfer
- Store of value: Electronic wallet

Private stakeholders: MTN, Tigo Cash, Airtel Money, R.Switch

Government stakeholders: Ministry of Education (MINEDUC)

"Cash Power" and Water

Mobile money

Launched: 2007

About: Cash Power agents accept payments for pre-paid electricity every month end.

- Channel: Mobile phone
- Instrument: Electronic funds transfer
- Store of value: Electronic wallet

Private stakeholders: MTN, Tigo Cash, Airtel Money

Government stakeholders: RURA, Water and Sanitation Company, Energy Utility Co.

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Note: We selected bus transport example in Rwanda due to its applicability to other public transport systems in other developing/emerging markets; recognizing that public transport in Kigali is not strictly P2G (from the account of the individual to the government entity) since providers are private entities.

(1) RFID is radio frequency identification software uses electromagnetic fields to automatically identify and track tags attached to objects.

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We gathered insights about individual initiatives and the broader ecosystem from 25+ policy and implementation experts and 30+ consumers

	Expert interviews	Focus group discussions	Intercept interviews
	Interviews with strategy, policy and implementing organisations (26 interviews)	Interviews in groups of 5-6 individuals with users of digital P2G services (27 users)	One-on-one interviews with non-users of digital P2G services (6 non-users)
Objective	Get further details and insights, including country-specific nuances, on: • Approaches to setting up digital P2G systems, role of government • All-in costs of creating and running a digital P2G system • Data on volumes and value of P2G, and value from a P2G perspective • Additional initiatives identified for study	Gain user perspectives on: • Needs of consumers and relevant P2G services • Drivers of and barriers to adoption and use • Usability of individual digital P2G platforms through one-on-one user tests	Get consumer-level perspectives on: • Awareness and adoption related challenges from non-users • Test before/ after user experience for P2G payments, where feasible

Methodology	• One-on-one in-person interviews with:
	  • Government: Ministry of ICT and Youth, Rwanda Revenue Authority, Rwanda Utility and Regulatory Authority, Rwanda Development Board (ICT), etc.
	  • Private sector: MNOs (MTN, Tigo), Aggregators (PivotAccess, MVEND), RwandaOnline, Private banks, etc.
	• 60-90 minutes per interview
		• Small group of 5-6 participants per FGD for targeted discussions
		  • 4 FGDs – 2 in urban Kigali and Nyamata (urban and peri-urban), 2 in Musanze (peri-urban and rural) with users of digital P2G services (1 P2G initiative per FGD group);
		• ~90-120 minutes per discussion
			• One-on-one conversations with potential digital P2G users:
			  • 1-2 interviews per P2G initiative in both rural and urban areas
			• ~40-45 minutes per conversation

The field research team also personally tested the UI/UX of P2G services under study

Note: Research was conducted by the Dalberg team in Kigali across March 28th and April 8th, 2016

Key questions

Themes	Key questions
Relevance and financial benefits for the poor	• What are the specific pain points associated with making P2G payments at government offices today—and what is the impact of these pain points on consumers' lives? • How are consumers addressing these pain points / overcoming the challenges associated with making payments to the government? • To what extent are consumers aware about digital alternatives to P2G payments? • What are the perceived—and actual– benefits and challenges associated with making P2G payments? Do consumers consider digital P2G payments to be better than their cash-based alternatives? • What are the key barriers to adoption for digital P2G initiatives?
Costs and barriers of service	• What is the business model for each service, and how are individual players incentivized? • How does the payment flow from the consumer to the end account, and what margin is recouped by players at each stage? • What are the costs of running P2G payments for players along the value chain? Who bears the costs and for how long? • What are the potential revenues from providing this service? How do providers view revenue potential, based on market analyses/projections? • What are the key barriers and incentives for private providers to operate in this space?
Partnerships and coordination among key players	• How important is P2G to the national ICT agenda? What efforts is the government taking to digitize P2G payments? • What are the main trends in financing ICT infrastructure in the country? • Who are early players in the digital P2G space? Do they face any specific barriers or challenges?

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The digital payments ecosystem in Rwanda has made rapid progress in the last few years

2008	2015
• Cash as the predominant payment system	• Cash still predominant payment system, e-payments increased 1,027% between 2012-2014[1]
• All interbank payment systems (clearing and settlement) were semi-manually processed in paper form	• The Rwanda Integrated Payment Processing System (RIPPS) includes automated transfer system (ATS)
• No mobile money operators in 2008, MTN first entrant in 2010	• There are 21% active mobile money users and 11% active bank users[2]
• There were 23 ATM machines in the country; penetration was 1 ATM per 400,000 inhabitants	• There are over 343 ATMs, representing 6.6 ATMs per 100,000 adults
• There were 120 POS devices, of which only 20 were active; penetration was 1 POS per 75,000 inhabitants	• There are over 1,000 POS devices, representing 21.7 POS per 100,000 adults

Government of Rwanda (GoR) has made big investments in driving ICT since its launch of Vision2020 in early 2000 – to build Rwanda as a regional ICT hub.

Specific initiatives include:

- o Developing independent national data centre
- o National fibre optic network completed in 2011 to accelerate e-governance and e-payments initiatives
- o Launched "IREMBO" to digitize government services online in PPP structure
- o Promoting interoperability among financial service providers

Rwanda has successfully integrated digital payments as a core part of its national payments strategy[2]

Source: National Payment System Framework and Strategy: Vision 2020, [PDF] National Bank of Rwanda, December 2015; Rwanda Development Board

(1) Transaction value increased from USD 130 million in 2012 to USD 1,465 million in 2014 (National Bank of Rwanda)

(2) Source: FII (Financial Inclusion Insights) Survey Rwanda (2015)

Digitizing P2G payments remains at an early stage of development, though momentum appears to be growing given overt government support

Synergy between government and private sector players, that emphasize commercially viable delivery models

Strong participative processes between government and private sector players on core P2G initiatives

- Several discussions between the Ministry of Finance, Education, and National Bank of Rwanda and MNOs and banks have occurred to date, emphasizing the need to digitize school fee payments across all public (and private schools)
- Government of Rwanda (GoR) has partnered with a private company RwandaOnline Pvt. Ltd to digitize at least 100 government services on a revenue sharing bases

Evolving landscape of financial service providers, attracted by strong regulatory policy

Several new players in the digital finance ecosystem, some with a core focus on P2G payments

- The number of issued mobile e-money accounts grew from ~230,000 in 2010 to ~7.6 million in 2015 through the three market players - MTN, Tigo, Airtel.
- MobiCash, global mobile banking player, entered Rwanda in 2015. Mobile-based tax payments were the first service provided through their platform
- Visa launches its service on IREMBO (government P2G platform) within first two-three months of launch in Rwanda

Rapid adoption of digital P2G payments in short time frame among consumers

Positive signs of customer buy-in for digital P2G payments

- Rapid adoption of digital P2G payments launched in the last year. For example, nearly 20% of Rwanda's bus transport market have purchased smartcards within four months of launch
- Smartcard payments and for some IREMBO services (e.g., driver's license test) demonstrated high adoption rates within the initial months in the market

Source: Retail Payment System Statistics, 2010-2015

Government interest in digitizing P2G payments is due to 1) alignment with broader digitization goals and 2) realization of cost and efficiency gains

Illustrative quotes

Savings in operational costs

"The internal [Rwanda Development Board] Strategic Investments Division calculated that the total spend through inefficient administrative systems was 31% of costs…[referring to the cost of collecting payments through cash and paper based systems]" – Rwanda Development Board [IREMBO]

Increased revenues

"With 250,000 active bus users in Kigali, there is potential for over a million transactions per day for smartcards. It doesn't actually take 1 million to break even, because the only cost is the hardware, and the hardware is multi-year investment" – Private Sector Federation, ICT Chamber [Smartcard Tap&Go]

Increased efficiency to track, collect, and process payments

"Once the system is in place, and running efficiently, we can use the data to monitor the timing and location of buses, and even manage the route optimization system better." –Rwanda Utility and Regulatory Authority [Smartcard Tap&Go]

Companies cite the business opportunity in digitizing P2G, including through later-stage data mining and analysis

Illustrative quotes

Strengthen existing business lines

"All our existing customers should be able to avail our service by the end of 2016, in line with the vision of the government to digitize school fees…it takes customers about 3 months to at least make around 3 payments to become very comfortable with the digital payment service" – Tigo Cash Rwanda [school fees as a potential value-added service for less active customers]

Expand to new business lines

"Based on data we were able to collect from existing mobile money users through [confidential MNO], complemented with student performance and school attendance record data, we can know which students to target for a education loan programme... Often they drop out despite being bright students…' – MVEND (School aggregator for school fee payments]

Explore new business models

"We're waiting to make transport payments work, and then see opportunity to expand into payments for other goods and services' – AC Group [Smartcard]

Deeper understanding of P2G business models suggest companies do see substantial profit potential given potential for models to scale, and without government subsidy

Consumers cited a range of time and cost savings as reasons to use digital P2G payment solutions

Key benefits cited from digital solution		Illustrative consumer quotes
Saves time	• No need to visit physical location, saving 10 minutes to a half-day worth of work, or repeated visits • Incentives for using the digital method, e.g., jump the queue if you have a smartcard on public buses	*"No need to wait at the bank which wastes my day" (school fees)* *"I can jump the queue with the smartcard, no need to wait in line" (Smartcard)*
Saves added costs	• No transport fees to visit distant government offices, such as when applying for a birth certificate or license • Zero or low convenience fees, except for school fees (less than 500 RWF or USD 0.60)	*"No need to visit 6 different government offices..." (IREMBO)* *"If you added up all the transport costs to get a driving license, that's 10% of the actual fees..." (IREMBO)*
Timely payments	• Able to pay before deadline, e.g., school fee payments 1-2 days before the deadline when all banks are crowded, and customers risk added punitive charges in case of late payments	*"Instant and timely payments for school means I do not need to worry if I am running late at work...I can pay remotely" (school fees)*
Financial incentives	• Offers of up to 60% when purchasing a digital bundle, such as monthly bus pass • Loyalty discounts, such frequent use of mobile money	*"Discounts from purchasing many times at once" (Smartcard)* *"I already use mobile money, so when I got this service I get money back sometimes…" (utilities)*
"Bonus" or added benefits	• "Cash control" – self-discipline by using digital vs. cash payment methods	*"Instead of using cash to buy impulse purchases (e.g., jewellery), I am now more disciplined (Smartcard)*

Bus smartcard example: Digital payment results in up to RWF 125 (~USD 0.2) in saved costs, and at least 10 minutes of time

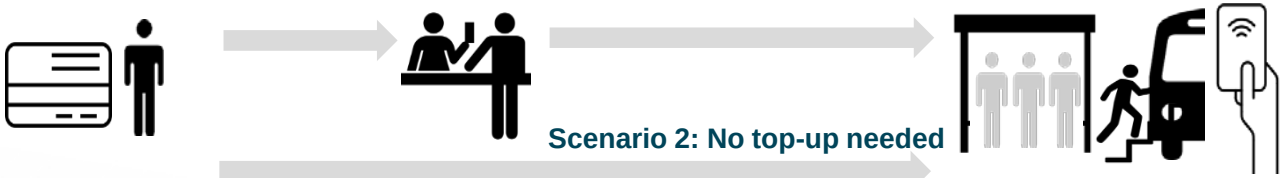
Cash-based system

Time taken	*10 – 60 mins*	*0 – 40 mins*	***10 - 100 mins***
Costs	*0*	*RWF 120 – 250 (flat charge per line)* *+ in case of no change, additional fee foregone (5-10%)[1]* *+ surge pricing during rains (20% per bus ride)*	***RWF 120–325***

Smartcard system

Scenario 1: Purchase/top up card at card agent

Scenario 2: No top-up needed



Time taken	*5 – 30 mins* *(based on agent availability)*	*0 – 5 mins* *(priority boarding[4])*	***0- 35 mins***
Costs	*RWF 500 for card[2], RWF 500+ top-up,* *<60% promo offers[3]*	*RWF 60-250*	***RWF 60 – 250*** ***+ card costs[2]***

Once mobile money is introduced as a means of top-up for the smartcard, customers will benefit from further reduced time and costs (no need to physically visit an agent to top-up in case of low balance)

(1) Customers are forced to forego the extra change in case the bus conductor does not have any change. This can be particularly challenging for poor customers, as there is no way of collecting the value foregone at a later date and this accumulates over a period of time. (2) RWF 500 charged once upfront and at the time of loss for the card (3) a promotional offer of RWF 12,000 for 200 rides up to one month was offered at the time of launch (and is still offered, as of March 2016. (4) Smartcard users can jump the line and board the bus first, allowing them to get preferred seating on the bus, which is usually crowded. For bus rides that are still not yet 100% cashless, customers still wait for non-smartcard users to collect their paper ticket first and then board the bus

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The government flagship portal, IREMBO, has the potential to be a big game changer in the digital P2G landscape in Rwanda

IREMBO: Private-public sector partnership for digitizing government services

Overview:

- In April 2014, the Government of Rwanda and RwandaOnline Platform, Ltd. (ROPL) entered into a 25 year public private partnership to build IREMBO, an integrated e-governance solution for Rwanda's citizens and businesses.
- IREMBO has the ambition of being Rwanda's "one-stop shop" for citizens using government services.

Business model:

- Rwanda Online gets up to 31% share of service fee, for non-free services (31% for services of 1,500+ RWF; others on sliding scale)
- Once launched on IREMBO, the manual service needs to be phased out within 12 months. Those government department not phased out within this time frame pay added charges increase

Key incentives for private players:

- Significant volume of transactions, with exclusive rights over the first 100+ "priority" services (i.e. services with high relevance to users)

Key outcomes and plans ahead:

- ROPL expects to surpass its targets of the number of services digitized within one year of launch (by July 2016)

"We are committed to making the portal a success…40% of all efforts related to IREMBO are focused on the end-user experience and requirements" - Rwanda Development Board

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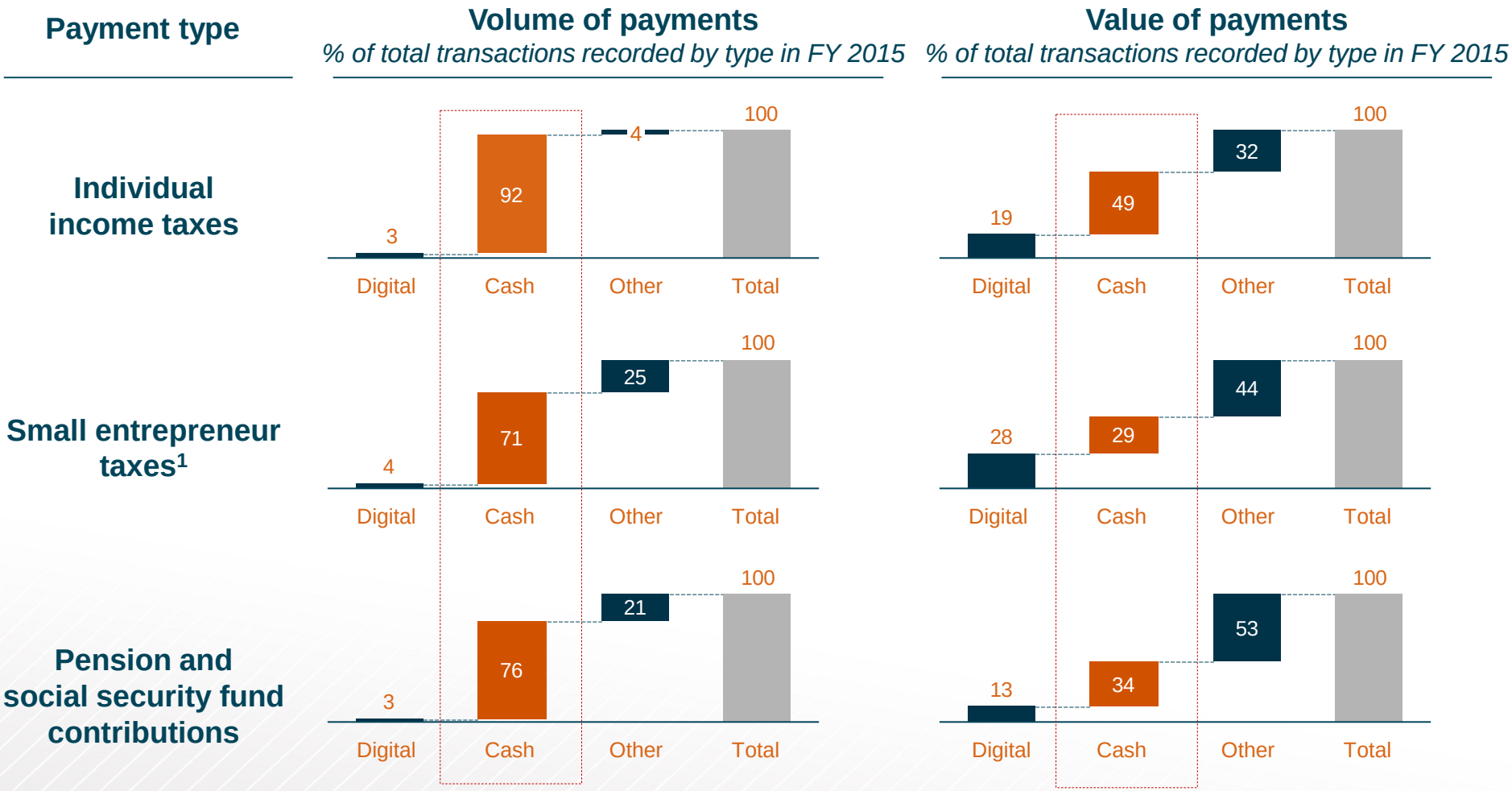
However, greater effort to spur adoption is needed. For example, tax payments can be made digitally but vast majority by volume is still cash



Source: Dalberg analysis; based on estimated collections from FY15-16 recorded by Rwanda Revenue Authority (RRA)

Notes: "Digital" transactions include three types of transactions (1) internet banking, (2) mobile banking, (3) mobile money transactions . "Other" transactions include cheques, payment orders, certified cheques, funds transfer, site to site transfer, etc.

(1) Small entrepreneur defined as companies with an annual turnover below RWF 50 million (USD 65,000)

Customer awareness is the foremost challenge being tackled by both government and business players

Given the early stage all P2G initiatives (with exception of utility fees), most initiatives are early stage…

Strategies to drive awareness among customers (not exhaustive)

Initiative	Raising awareness about the availability of a digital solution	Customer education on potential cost savings	Financial incentives to switch to digital payment	Mandating digital payment method
School fees	School annual updates/meetings, SMS updates[1] ●●	Pamphlets to inform children how to use mobile money	Government considering subsidizing cost of service, initially	N/A
IREMBO	Large-scale road shows, mass media campaigns ●●	Large-scale road shows, mass media campaigns ●●	Free service - no added service charges to customers ●	Once ●
Smartcard	On-bus marketing, bill boards, mass media campaigns ●	N/A	Discounts offered of >60% for up to 200 rides ●	Ban on all cash payments across buses by end 2016 ●
Utility fees	N/A	N/A	Free service - no added service charges to customers ●	N/A

(1) Government considering opportunities in raising awareness for customers.

Current initiatives
Potential initiatives discussed in interviews

● Private- led
● Government-led

Persistent challenges for digital solutions generally apply also to P2G; these include not only awareness but also agent training, UI/UX, and connectivity

	Key challenges/ issues faced with digital solution	School fees	IREMBO	Transport	Utilities
P2G specific	**Paying in cash provides consumer benefits** Paying in cash offers benefits to consumers not available via digital payments	✓			
P2G specific	**Digital does not solve the entire process** The entire payment process may require many steps, apart from just the transaction		✓		
P2G specific	**Poor connectivity** Fast, reliable connectivity via broadband landlines or mobile devices is critical to all digital transactions.	✓	✓		✓
P2G specific	**Lack of interoperability** A lack of interoperability and payment methods can hinder consumer adoption	✓	✓	✓	
P2G specific	**Poor government recourse** Users require avenue to claim to complain or claim refunds in case of failed transactions		✓		
Ecosystem	**Limited investment in marketing campaigns** Limited business and government investment (time, money) in marketing directly to consumers, resulting in poor awareness	✓	✓		✓
Ecosystem	**Poor articulation of the value proposition** The opportunity costs of cash payments are not communicated to customers	✓	✓	✓	✓
Ecosystem	**Gaps in agent training** Limited investment or success in training agents to teach consumers to use the digital service		✓		✓
Ecosystem	**Product functionality** Poor product design hampers user experience	✓	✓		

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Annex 1: We consulted 25+ experts during the field visit (1/2)

	NAME	TITLE	ORGANISATION
1	Sharif Hashim Banamwana	Product Specialist	Tigo Cash
2	Gordon Kalema	Principal Technologist, E-Government Services	Ministry of Youth and ICT
3	Kasim Ggombe	Rwanda Country Economist	International Growth Centre
4	Alistair Muhire	Communications Manager	RwandaOnline Pvt. Ltd. (ROPL)
	Daniella Odette Mukayrianga	Programme Manager In Charge Of Payment	
	Oliver Ghihana	Director Legal Services	
5	Jean Claude Gaga	Head Of Commercial	R.Switch
	Zorodzai Mhlanga	Switch Applications Manager	
6	Martin Gasasira	Trade Promotion Specialist	Rwanda Development Board (Trade)
7	Herbert Asiimwe	Director Of Banking And Non-Banking Unit (Financial Sector Development Directorate)	Ministry of Finance and Economic Planning (MINECOFIN)
8	Jean Bosco Sebabi	Deputy Director General In Charge Of Fund Management	Rwanda Social Security Board
9	Alex Karenzi	Mobile Money Corporate Accounts Supervisor	MTN Mobile Money
10	Brendan Maguire	Managing Director	Kigali Bus Services
11	Alex Ntale	Executive Director	Private Sector Federation – Rwanda ICT Chamber
12	Patrick Buchana	CEO	AC Group

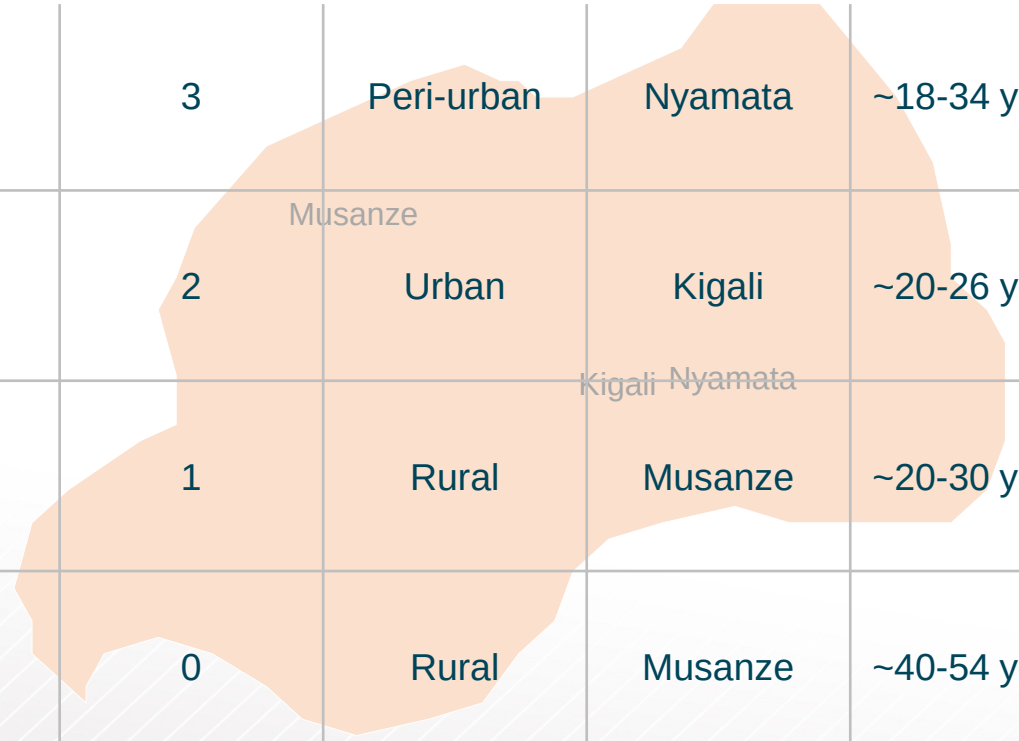
Annex 1: We consulted 25+ experts during the field visit (2/2)

	NAME	TITLE	ORGANISATION
13	Paula Ingabire	External Support Division Manager	Rwanda Development Board (ICT)
14	Emmanuela Katabarwa	Head Of Transport Department	Rwanda Utility and Regulatory Authority (RURA)
15	Lucy Mbabazi	Country Manager	Visa Inc.
	Albert Kinuma	Senior Director,	Visa Inc. (Emerging markets digital)
16	Maurice Kagame	CEO	PivotAccess
17	Vanessa Umutoni	Software Product Manager	
18	Pascal Nyagahene	CEO	MobiCash
19	Theogene Kayumba	Director Of ICT	Ministry of Education (MINEDUC)
20	Bobson Rugambwa	CEO	MVEND
	Doreen Niinsima	Chief Operations	
21	Fred Karara	Business Analyst	Rwanda Revenue Authority
22	Violette Uwamutara	Country Director	Digital Opportunity Trust (DOT)
	Emmanuel Nzeyimana	Country Program Manager	
	Samuel Yesashiwme	Program and Community Manager	
23	Yvon Gilbert Nishimwe	Electronic Banking Manager	Bank of Kigali
24	John Karamuka	Director Of Payment Systems	National Bank of Rwanda
25	Wilson Kamali	Director Of Statistics	National Bank of Rwanda
26	Ivan Murenzi	Program Manager	Access to Finance Rwanda

Annex 2: We conducted four focus groups in rural and urban Rwanda, interviewing 27 individual users and 6 non-users

Participant profile for focus groups

	Focus group participants	Non-user "intercept" interviews	Location	Location	Age mix[1]	Language
IREMBO	5	3	Peri-urban	Nyamata	~18-34 years	Kinyarwanda
Smartcard	10	2	Urban	Kigali	~20-26 years	Kinyarwanda
School fees	6	1	Rural	Musanze	~20-30 years	Kinyarwanda
Utilities	6	0	Rural	Musanze	~40-54 years	Kinyarwanda



Note: Interviews include intercept interviews with non-users of the system. Map for representation purposes only.
(1) Representative age is provided, based on information collected for ~70% total sample size