

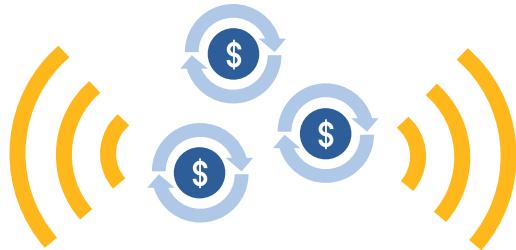
Proximity Matters: Five Case Studies in Closing the CICO Gap

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Cash-in, Cash-out (CICO) still matters for financial inclusion



In the last 5 years, a growing body of evidence has shown that adoption and use of financial services are strongly correlated with the proximity of physical cash access points (see Appendix).

5.3 million mobile money agents in 90 countries globally*

Providers of Digital Financial Services (DFS) have deployed massive numbers of agents in a growing number of countries around the world to meet customer demand.



However the deployment of these agents has been uneven within markets, with large areas and population segments still lacking physical access. Increased proximity is needed in these frontier – hard-to-serve - areas.

CICO agents in frontier areas face increased challenges



Agents in these areas face increased challenges compared with their urban counterparts including lower demand, more expensive liquidity management and limited working capital availability. This means that even when agents are present in rural areas, the quality of these agents may be poorer.

Through five case studies, this paper highlights innovative approaches that providers and policymakers are implementing that could address some of the challenges faced by frontier agents.

Full versions of 4 of the 5 case studies can be found on the Microfinance Gateway:
<https://www.microfinancegateway.org/library/frontier-agents-case-studies-brazil-india-mexico-and-tanzania>

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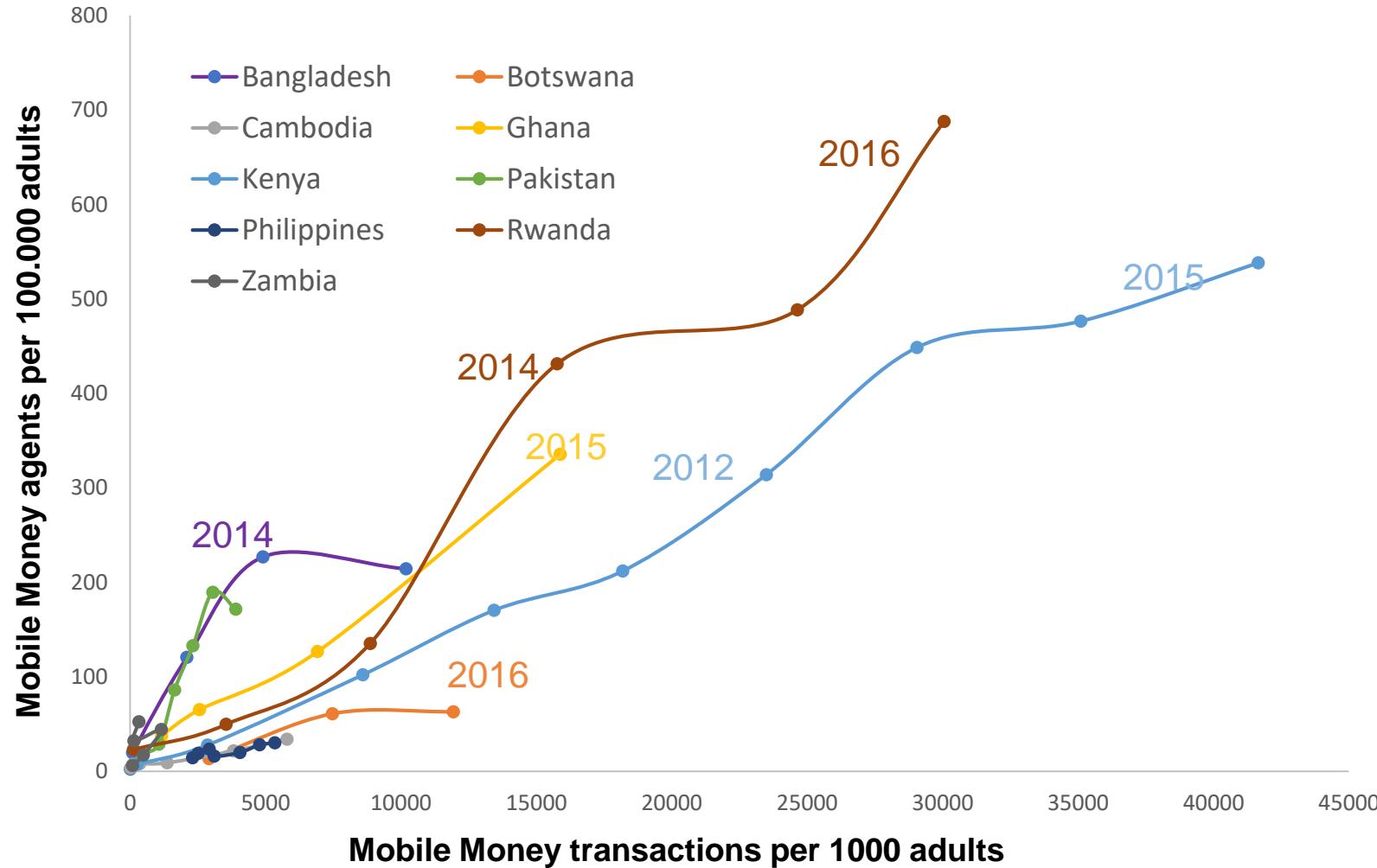
PAYGo as super agents: OGE, Tanzania



1. Proximity Matters for Financial Inclusion

Financial services use without proximity is rare

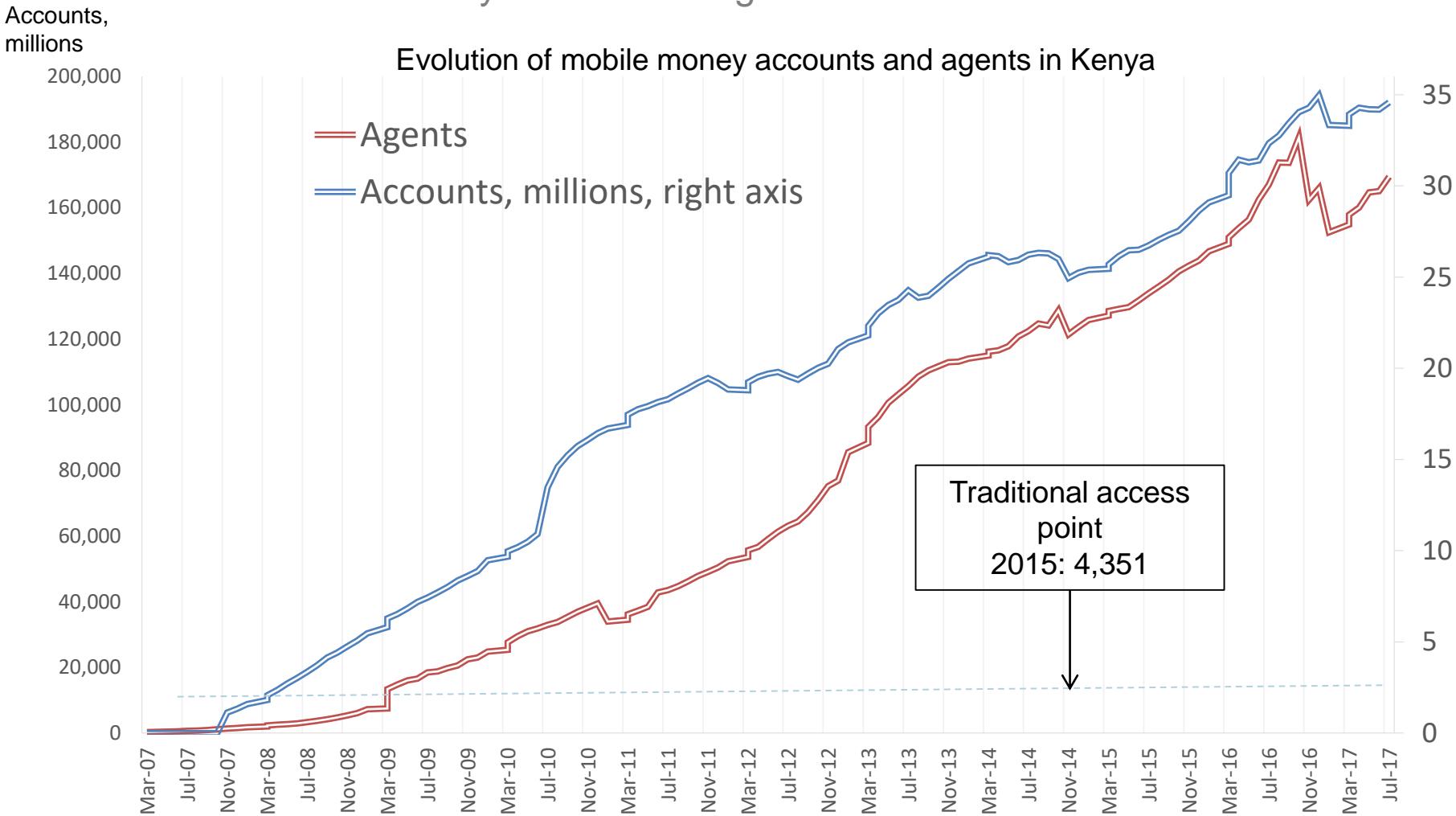
In 9 leading DFS markets, mobile money use tracks closely with agent proximity



Source: CGAP based on IMF-FAS data, 2017. Selection based on data availability. The reporting methodology might duplicate some access points for mobile money, see [CGAP 2016](#) and [Helix 2017](#).

Even in Kenya, demand for agents is still growing

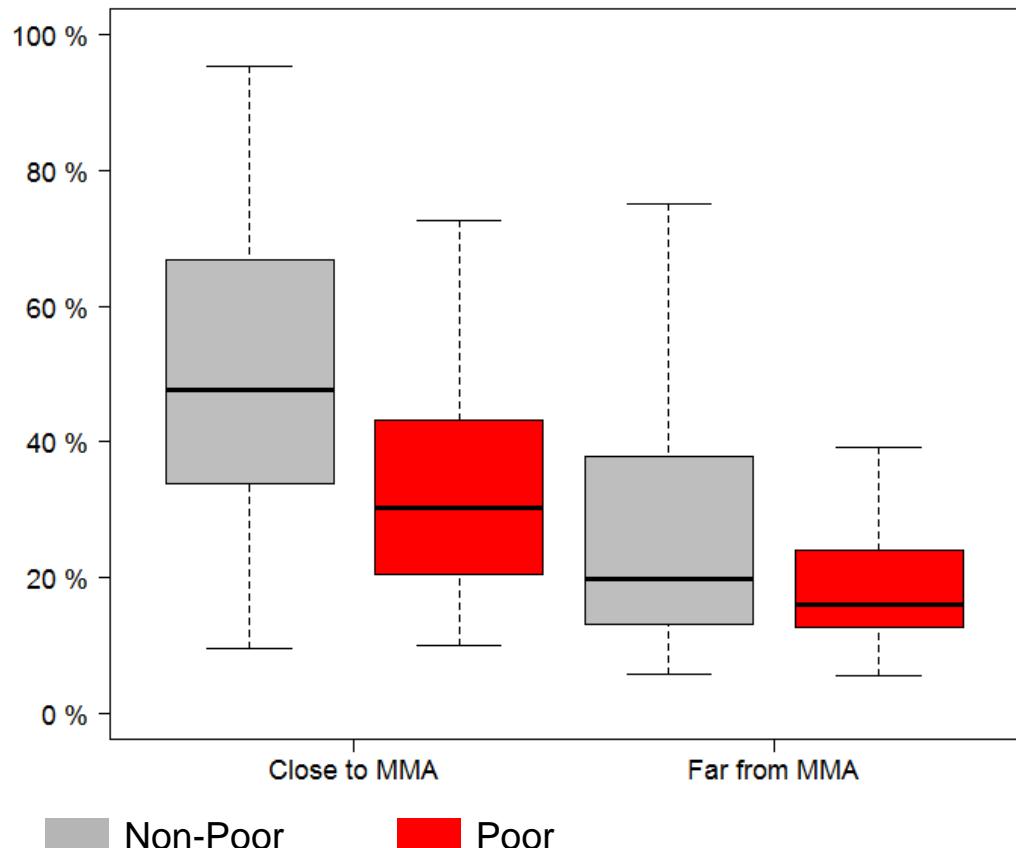
Although almost 70% of the population already uses mobile money, agent growth continues to track closely with account growth.



CICO network expansion often remains sub-optimal in reaching rural areas.

CGAP conducted geospatial research in Tanzania to explore the link between agent proximity and financial inclusion

Active MM user (90 days) in rural areas: predicted probability



It found both poor and non-poor households in rural areas are twice as likely to be active mobile money users if they live within 5km of a mobile money agent.

Source: CGAP/Flowminder Analysis.
Based on a heavy data-mining and analysis exercise on a variety of supply and demand-side data from 2013 (the last year all the data was collected), including FII, Findex, ANA and FSP Maps. Although the data is five years old, CGAP used it to test hypotheses on how supply and demand interrelate to predict frontiers in DFS in Tanzania. This analysis is still highly relevant.

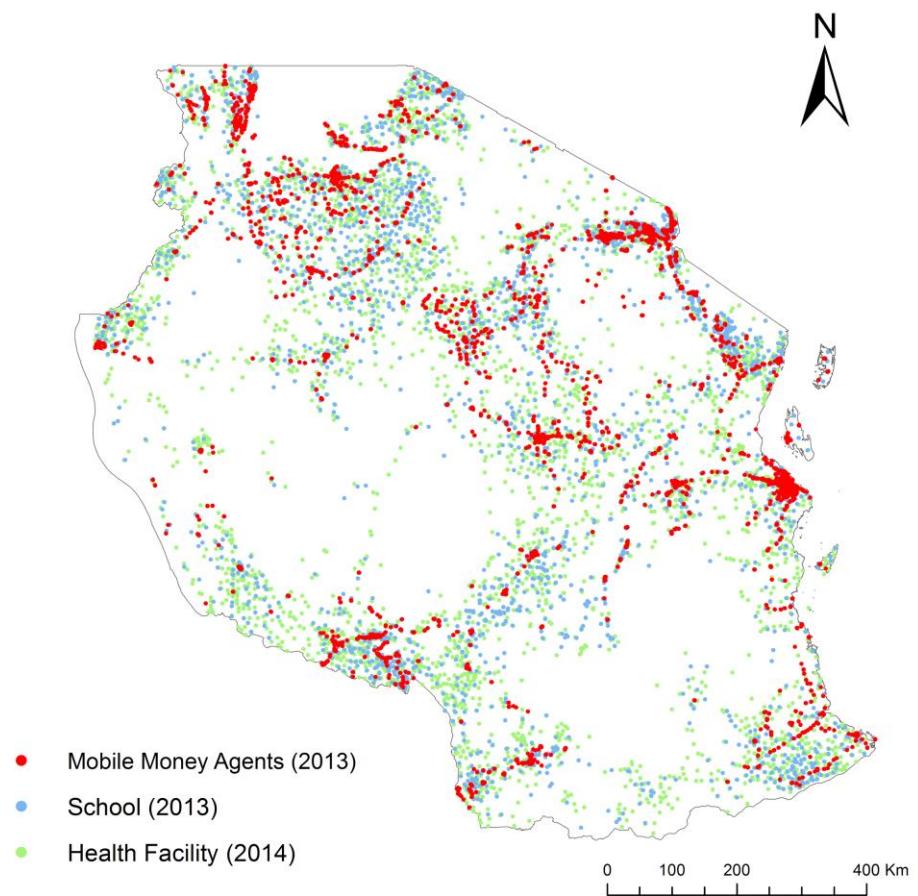
Number of agents doesn't matter... if all agents are in the same places

Tanzania 2013: Agent networks are skewed towards the same areas

Despite 9x more access points, agent networks cover a far smaller share of the population than schools and health centers

This is a matter of distribution strategy, not absolute numbers of agents

SERVICES <5 KM AWAY	NUMBER	%AGE OF POP. <5 KM AWAY
Health Facility	~7,000	58%
School	~5,000	69%
MM agent	~45,000	44%



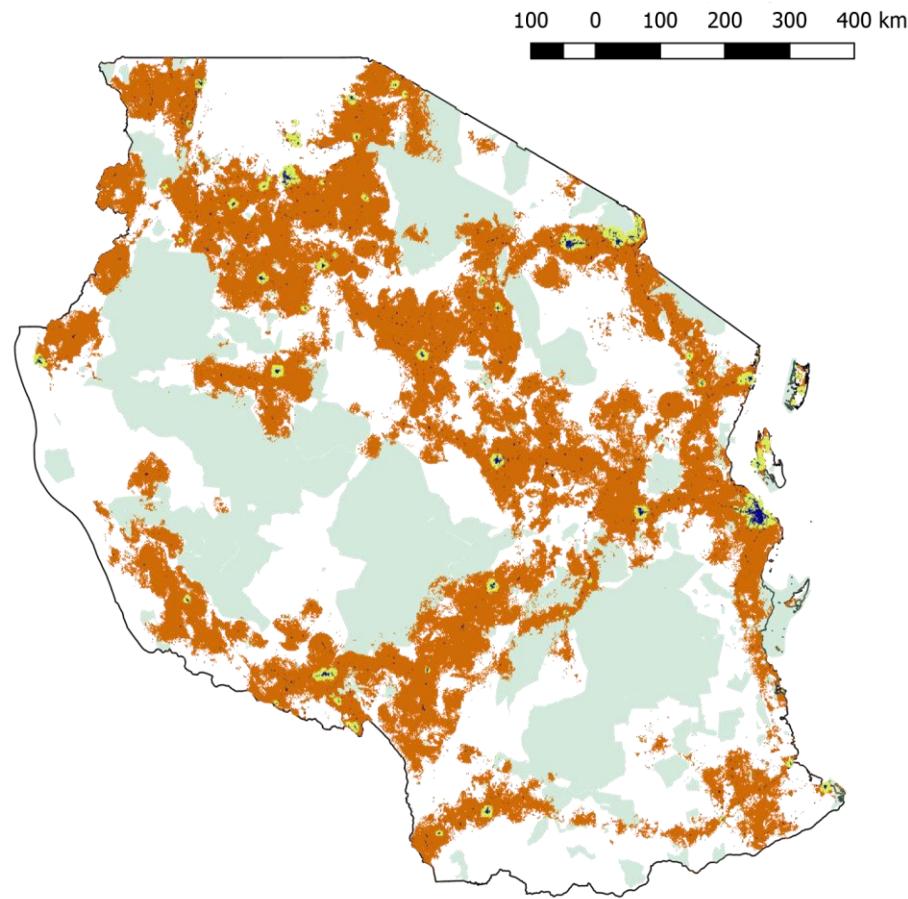
Source: CGAP/Flowminder Analysis.

Lack of coverage may not be due to lack of demand

CGAP identified frontier areas with latent demand but no agents (orange)

Despite latent demand in frontier areas, providers continue to expand agent networks in more heavily served areas

- 2013–'14 footprint, ~45.000 access points
- Viable areas with no agent presence
- Short-term, business-as-usual expansion
- National parks and protected areas



Agent network challenges
extend beyond deployment.

Persistent challenges exist across agent networks

These challenges are often exacerbated in frontier areas

Agent Revenues ≥ Agent Expenditures

Revenue Challenges:

- Commission structures provide inadequate incentives
- Low demand, especially in frontier areas
- Unclear assessment of adjacencies or indirect revenue for retailers

Operational Challenges:

- Expensive and time-consuming liquidity management
- Limited working capital availability and cost
- Hardware/connectivity cost and system reliability
- Lack of provider support
- Lack of infrastructure

Business Model Interaction Challenges:

- Product design: use cases, transactional mix and interfaces
- Balance between exclusivity and aggregation

The following case studies demonstrate ways providers and policymakers have sought to address one or more of these challenges.



2. Case Studies

Five innovative approaches that could improve the viability of frontier agents.

Each case study addresses one or more of the challenges to agent viability

	Revenue side challenges			Operations side challenges			
	Low demand	Indirect revenue	Liquidity mgmt.	Capital scarcity	System reliability	Provider support	Lack of infra.
Analytics Oxxo, Mexico		✓	✓	✓	✓	✓	
Aggregation Selcom, Tanzania	✓		✓				
Deployment Model Tiering Oxygen, India	✓			✓	✓		✓
Public Policy Intervention Brazil	✓		✓	✓		✓	✓
PAYGO solar as super agents Tanzania	✓		✓				✓

Case Study 1

Analytics: Oxxo, Mexico



Oxxo's experience shows that rigorous data tracking and analytics of agent operations provides insight into the customer experience and can help optimize liquidity levels and indirect revenue.

Doing this remotely has significant implications for cheaper and effective management of rural agents.

Background

OXXO is Mexico's largest corner store retail chain and agent network



15,500
stores

110,000+
employees

11 million
daily customers



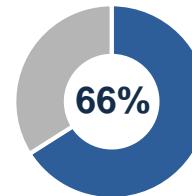
2 million financial transactions per day

Includes transactions processed on behalf
of financial services providers and others
(e.g. mobile top-ups, bus tickets)



4 million
registered
mobile
numbers

**Payment platform for more
than 900 service providers**
Offering 1,100 products,
480 of which have national coverage.



7.3 million
Saldazo accounts sold

**Percentage
of active
accounts**

Simplified account offered in
partnership with Citibanamex.
Activity rate: Positive balance
in the account or at least 1 trx
(monetary or non monetary)
in the last 8 weeks.



**Agent for
11 banks**

AFIRME

BANORTE

BBVA Bancomer

citibanamex



Banco Forjadores
Grupo ACP

HSBC

INBURSA

LIBERTAD Servicios Financieros

Santander

Scotiabank®

Oxxo's use of analytics

For OXXO, the use of analytics was central to its expansion strategy when it entered the Agent Network Management business in 2010.

Borrowing from its retail expertise, Oxxo applied rigorous analytics and metrics to its agent business from the beginning.

OXXO's use of analytics has mostly focused on increasing operational efficiency of its store network, including the agent banking business.

- Aimed at guaranteeing “time optimization” as the core value for customers.
- Real-time monitoring systems of data patterns, especially risk related.
- Oxxo's analytics are focused in four areas: customer experience, risk management, sales and operational savings.

Example: Banking transaction times at cashier and acceptable wait times for customers

- Shorter wait times
- Better match with customer needs

Impact on operational efficiency

- Cashier training
- System interface simplification

Corrective/improvement actions

Data pattern discovery/insight

Banking transactions should not take more than 1 minute in order to keep customer wait times at acceptable “time optimization” levels

Indicator creation and monitoring

Online monitoring and survey of average cashier time per transaction type, conducted every 6 months

Agent banking services
40 sec – 1 min

Saldazo account opening
3.5 min

Long distance bus tickets
4.5 min

How Oxxo's analytics contribute to addressing agent viability challenges



Revenue side:

Analytics provide deep insight into direct and indirect revenue, as well as associated behavioral patterns. Oxxo's unparalleled visibility into these metrics drives both its core retail business and agent banking operations.



Expenditure side:

The multiple metrics that Oxxo monitors enable agile responses when agents deviate from the desired operational ranges. This is key when managing issues such as cash levels at tills, and associated risk exposure.



Case Study 2

Agent Aggregation: Selcom, Tanzania

Frontier agents struggle with inadequate transaction volumes to justify the level of working capital required. Selcom aggregates agents and pools transactions across several providers, increasing revenue per agent and decreasing working capital costs (as the agent operates from a single, pooled float account).

Background

Agent Aggregation: Selcom, Tanzania

Selcom is an agent aggregator in Tanzania with 17,000+ agent locations, around 25% of market share.

Selcom agents have become de-facto shared agents, enabling an efficient use of the same financial infrastructure across more than 35 MNOs, banks and utility companies.

Selcom Agent Network Management business

+30 providers aggregated on the back end and 17,000 retailers on the front end*



* Retrieved from selcom.net, June 2017.

Selcom's back-end aggregation



Payment Aggregation

- Selcom integrates the payment instrument provider (banks, MNOs) with the back end of third parties (i.e. utilities)
- Without an aggregator, each integration could cost the bank/MNO \$10K-\$30K

Account-to-Account (A2A) Aggregation

- Switching to integrate MNOs and banks and a turn-key offering to enable the mobile banking offering
- Enables end customers to push between mobile wallets and bank accounts
- Provides for seamless collection, disbursement, and circulation of digital payments
- Some banks absorb the A2A costs while others pass a portion on to the end customer

Value Added Services

- Pre-funding, reconciliation, settlement, reversals, connectivity, uptime

Source: See CGAP's [Payment aggregation research](#) for further insight

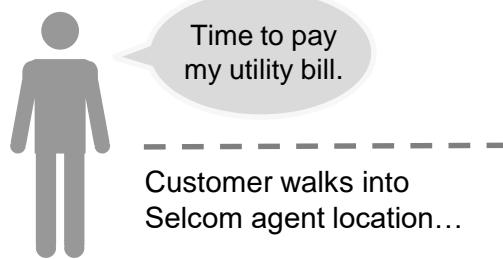
Selcom's front-end aggregation

Thousands of retailers are acquired as agents by connecting to Selcom's platform

- Selcom-branded agents are non-exclusive by definition:
- 17,000 agents using either a mobile or retail POS device to process transaction son behalf of the wide range of entities aggregated in the back end.
- Selcom also actively develops the agent network, seeking to acquire new retailers in order to maximize the transactional volume and the overall efficiency of the business.
- Over half are concentrated in Dar es Salaam. Remaining network covers the next 5 largest urban centers in Tanzania (Arusha, Mwanza, Mbeya, Morogoro, Moshi).

Example of Selcom's front-end aggregation

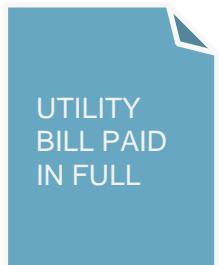
END CUSTOMER



SELCOM AGENT



...and uses the Selcom POS menu or smartphone app at the agent outlet to pay the utility bill via cash.



How Selcom's aggregation contributes to addressing agent viability challenges



Revenue side:

Aggregation enables Selcom to maximize the portion of the transaction pool in a given location that their agents can process, increasing their viability.



Expenditure side:

Selcom agents spend less on start-up and working capital costs as a single float account covers multiple providers.

Case Study 3

Deployment Model Tiers.
Oxygen, India



Most providers operate a single agent model across all geographies in their market.

Oxygen's tiered deployment model enables it to better match local supply and demand.

Where transaction volumes are low and uncertain, agents can start with a less expensive deployment model and move up as transaction volumes increase.

Background

Deployment Model Tiers as growth strategy: Oxigen, India

Oxygen India has implemented an innovative strategy to expand its 200,000 agents network: Deployment Model Tiers

Oxygen's 7 different Deployment Models (DM) allow it to choose the model best suited to local demand. Initial investments range from USD \$8 to \$385.

Lighter DMs are better suited to locations with shallow demand and therefore lower returns. They comprise 94% of the agents and 77% of the transactions volume of Oxygen's network.

Heavier DMs are suitable for locations that require a wider range of services, including banking services. These are deployed in a more limited number of locations, but they drive 23% of transaction value.

Oxigen's business model

Oxigen operates a technological platform and manages a network of independent retailers (also known as agents) that perform financial transactions on behalf of multiple third parties, who pay a fee for the service.



Oxygen operates multiple deployment models

This contrasts with most agent network managers who usually work with a single one

Set-up fee: charged by Oxygen to new agents. Includes training and branding, in some cases hardware.

Oxygen's 7 deployment models:

Cheaper setup fees or lighter development models:

Mobile Agent

Web App

Basic POS

Micro ATM

Banking Portal

Setup fees not applicable:

Corporate
Retail Chains

Consumer
Wallet

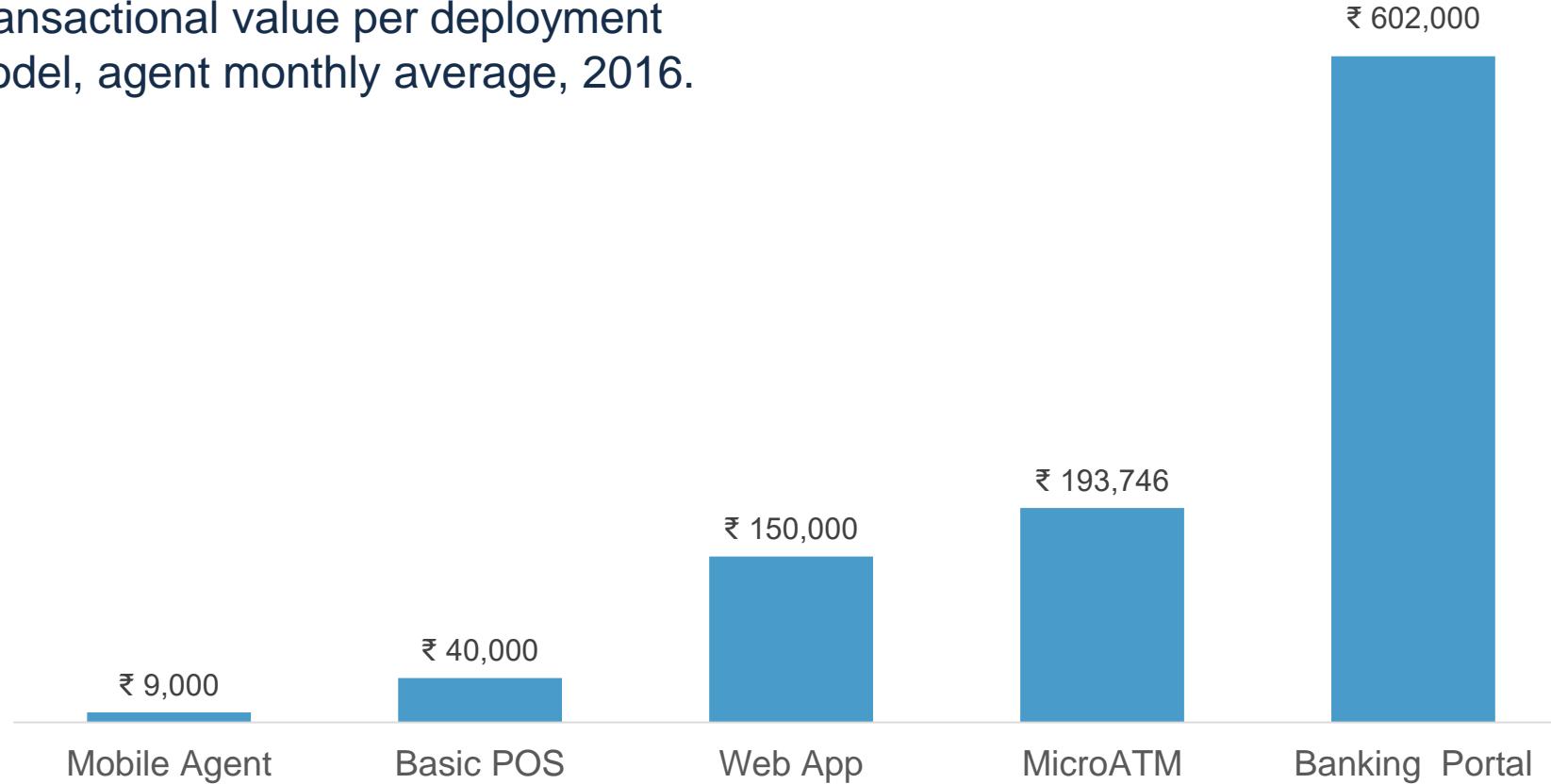
Oxygen's deployment models

Deployment Model	Terminal	Setup Fee	Main TrxTypes	Paper receipts	Biometric
1. Mobile Agent	Mobile, agent's own	₹500 USD ~8	Payments + P2P	No	No
2. Web App	PC & Printer, agent's own	₹1000 USD ~15	Payments + P2P	Yes	No
3. Basic POS	POS, purchase included in setup fee.	₹5000 USD ~75	Payments + P2P	Yes	No
4. Micro ATM	Biometric POS, purchase included in setup fee.	₹10,000 USD ~155	Payments + P2P + Banking	Yes	Yes
5. Banking Portal	PC & Printer, agent's own, Biometric, included in setup fee.	₹25,000 USD ~385	Payments + P2P + Banking	Yes	Yes
6. Corporate Retail Chain	Cashiers, retailer's own	N/A	Payments + P2P	Yes	No
7. Consumer Wallet	Mobile, consumer's own	N/A	Payments + P2P	No	No

Each of Oxigen's deployment models targets very different demand levels

This flexibility enables a better match between an agent and the local demand

Transactional value per deployment model, agent monthly average, 2016.



Note: INR 700,000 = USD \$10,000

How Oxigen's deployment model tiers can contribute to addressing agent viability challenges



Revenue side:

Lighter deployment models are well suited for frontier areas, where transaction volumes might be low.



Expenditure side:

Lighter DMs can be operated at a low cost and in areas with reduced electricity and infrastructure.

Case Study 4

Public Policy Interventions: Brazil



Brazil achieved 100% financial access through regulation and leveraging of state-owned banks and infrastructure (post offices). In order for agent networks to reach the last mile, Brazil illustrates that governments may need to become more involved by offering of incentives or other levers.

Background

Public Policy Interventions: Brazil

With 250,000 access points at its peak, agents cover 100% of municipalities in Brazil

Public policy intervention, channeled through regulation and state-owned financial institutions, played a central role in this achievement:

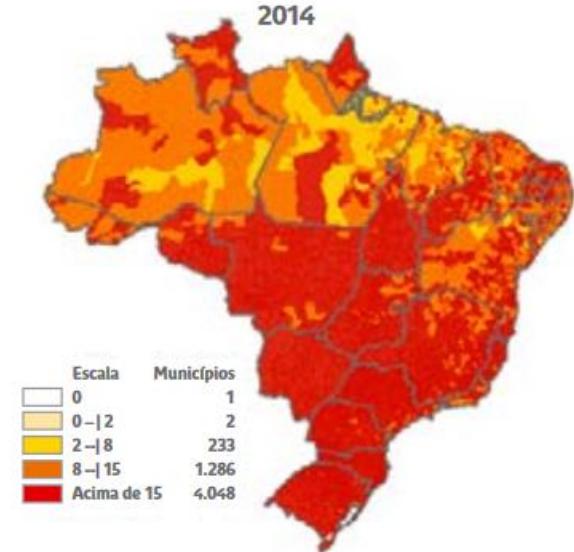
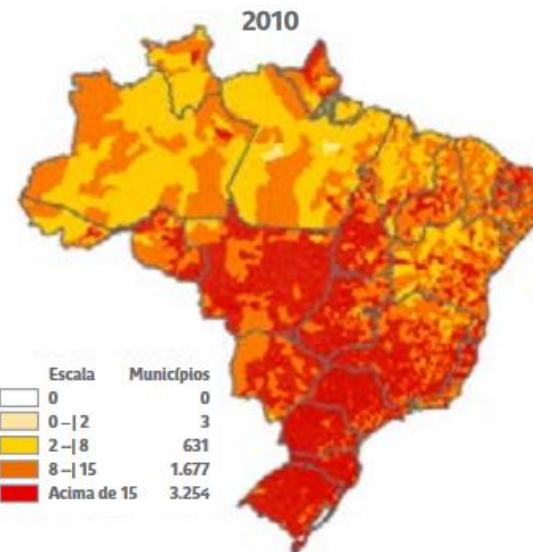
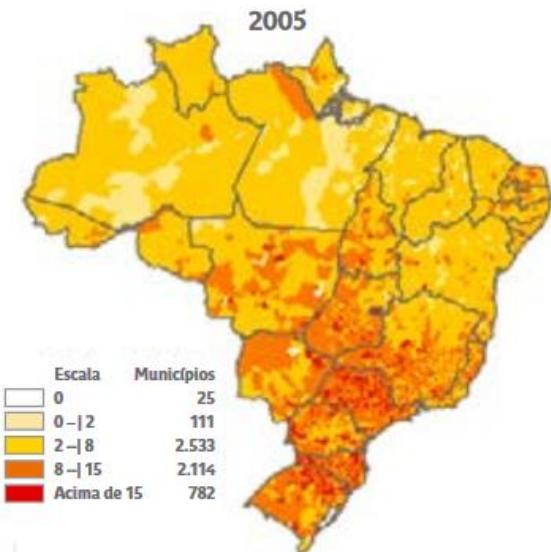
- Regulation struck an adequate balance between growth first and, a decade later, stricter risk management.
- State owned banks and the national post were smart and aggressive in pursuing their financial inclusion objectives in partnership with the private sector, especially in the initial scale-up phase in the early 2000s. Extensive coverage was a specific policy objective.

Brazil reached 100% financial access coverage in 2010

Defined as municipalities with at least one agent

Access points per 10,000 municipality inhabitants

In 2013 there were 245,075 agents equaling half of financial access points



Two main conduits for universal coverage policies in Brazil

Extensive coverage was an explicit policy objective

Regulation through the central bank:

An appropriate balance was achieved between innovation and risk management, which was addressed at a later stage in 2011.

State-owned financial institutions' investments:

Aggressively pursued their mandates of financial inclusion but articulated these goals in partnerships with the private sector, turning them into profitable businesses overall:

Correios: National Post

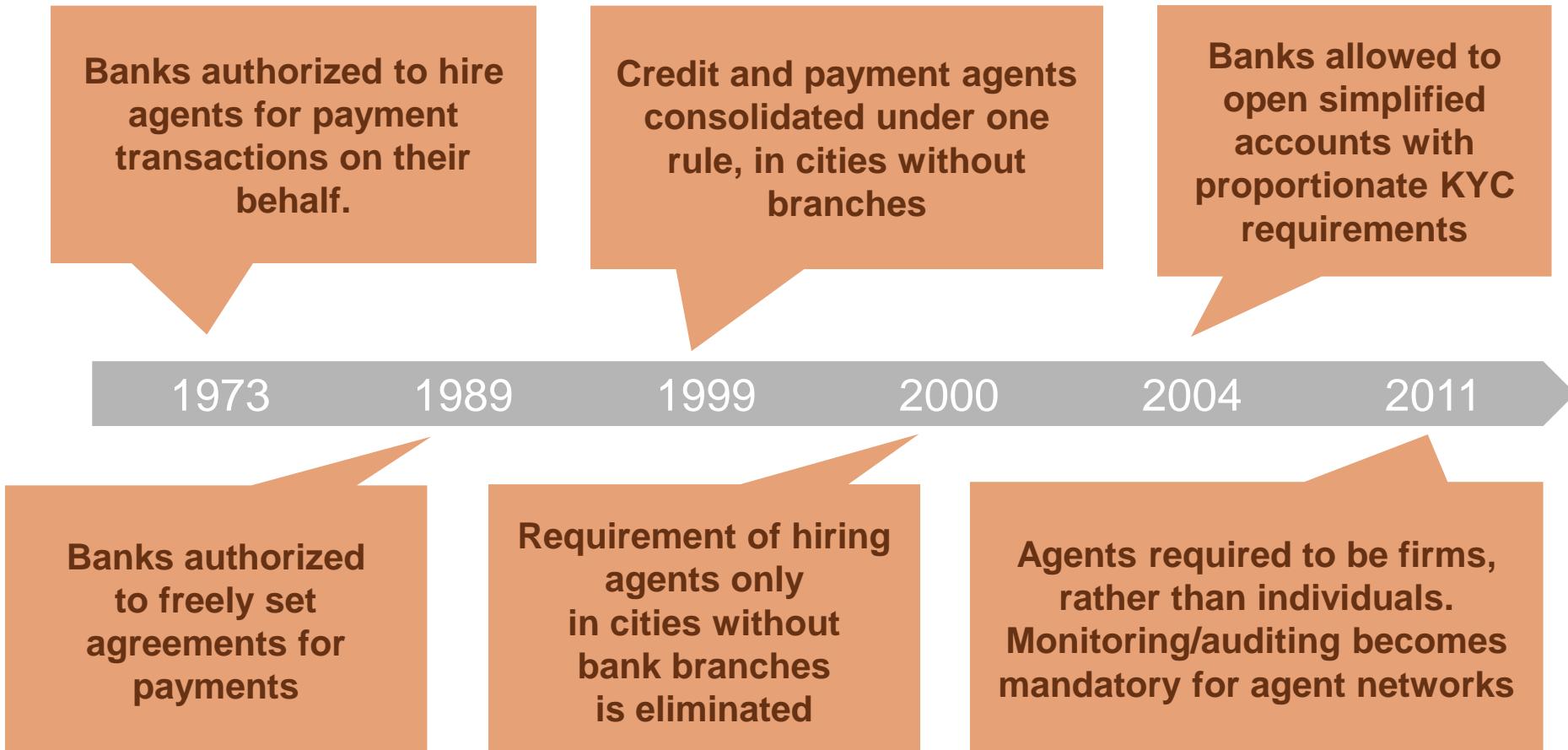
Launched Postal Bank in 2001, which focused on making each postal office an agent location.

Caixa: National Savings Bank

Leveraged its existing lottery network in 2000 to make the outlets also financial access points. It also utilized G2P to increase transactional volumes through the agent network*

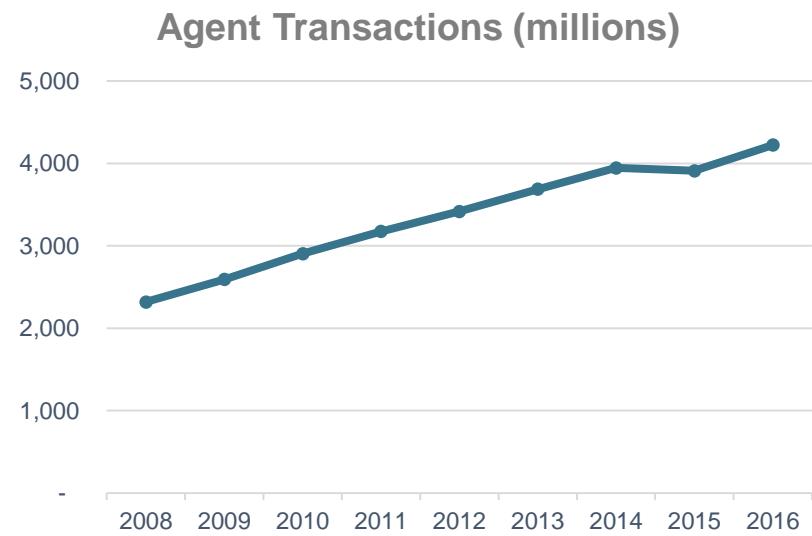
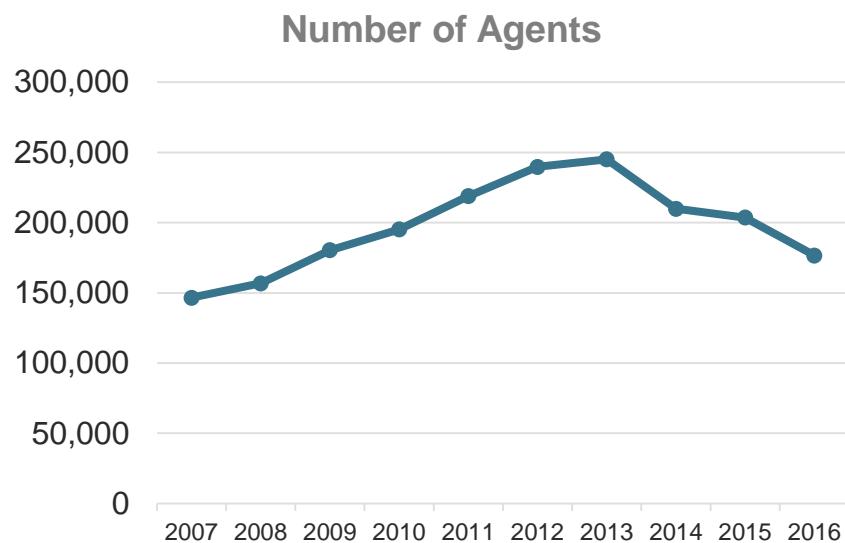
Brazil was an early adopter of agents, starting in 1973

2000 marked the scaling up of the model, while de-risking arrived in 2011



Agents peaked in Brazil in 2013

Absolute volume of transactions still grows, but overall share of transactions conducted at agents decreased from 10% to 7%.



Converging causes:

Agent saturation,
less so in lower
income areas

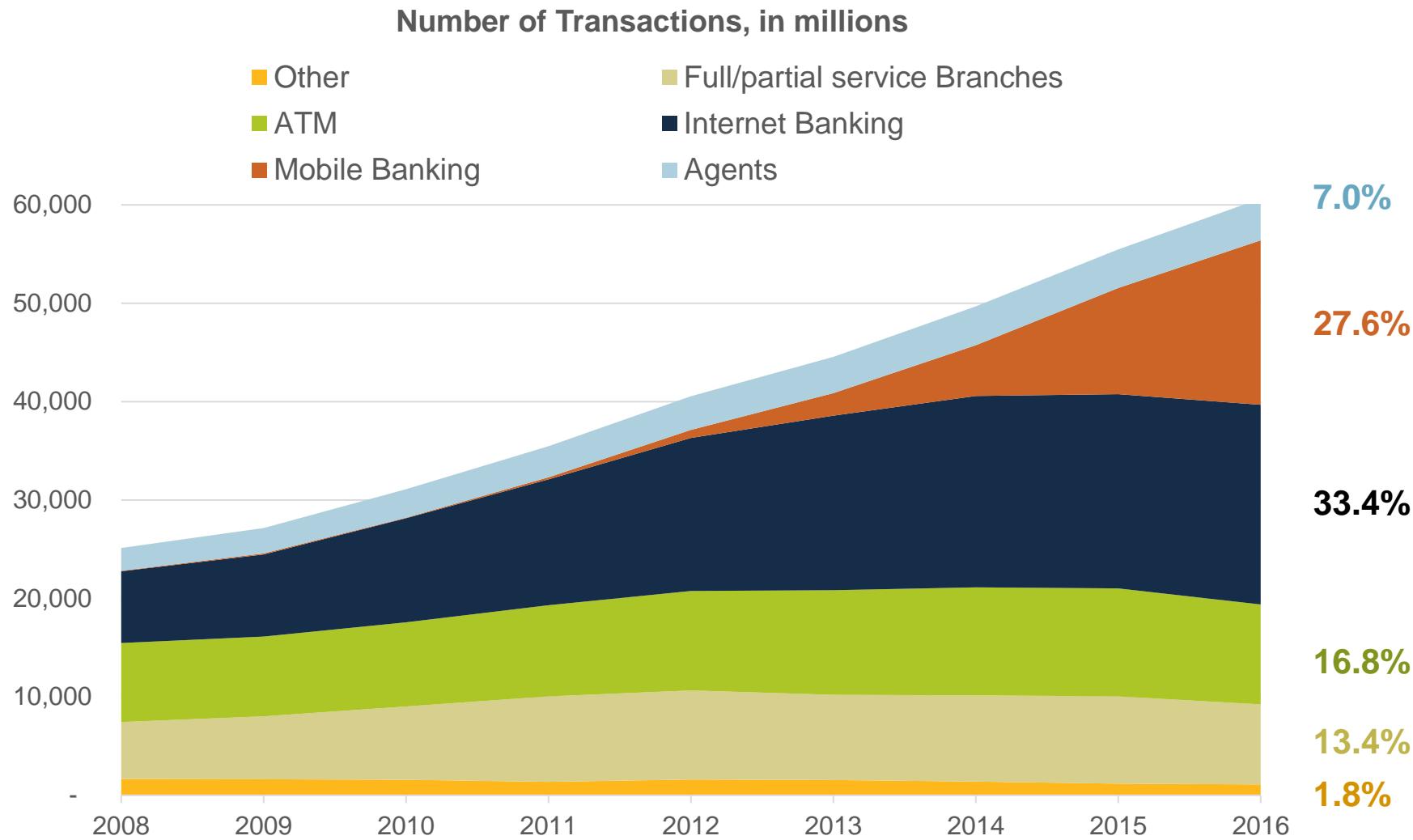
Tighter
regulation

Channel's
decreasing use
relative to mobile

Sources:

BCB: Series Temporais (24905); Relatorio de Inclusao Financeira (2015); Estatisticas Pagamentos de Varejo

As agents peak, mobile transactions take the lead



How Brazil's public policy interventions can address key challenges (1 of 2)

Public policy interventions such as those implemented in Brazil prioritized coverage as an objective rather than leaving it purely to market dynamics.

As the Brazilian agent market goes into a consolidation phase, it is time to revisit operational models to avoid losing coverage in some municipalities, especially underserved ones. Deployment model tiering and aggregation could have a positive impact for this new phase.

How Brazil's public policy interventions can address key challenges (2 of 2)

Government support could also be targeted towards specific areas

In other markets, various potential approaches to public support could be useful, particularly if governments want to focus on specific areas:

- A time bound, declining subsidy
- Leveraging state-owned or state-affiliated assets
- A Universal Coverage Access Fund, modelled on those for GSM networks.

These decisions should be informed by analytics, for example geospatial analytics and an agent census.

Case Study 5:

PAYGo suppliers as master agents: Tanzania



Poor density of mobile money agents has a significant impact on customer experience and the weekly payment collections of PAYGo solar companies. Off-Grid Electric in Tanzania conducted a small pilot to explore becoming a master agent in order to ease the payment friction challenges of its rural customers –while also expanding the agent frontier in rural Tanzania.

Background

PAYGo suppliers as master agents: Tanzania

Off-Grid Electric (OGE) is a start-up that provides solar home systems in Ivory Coast, Rwanda and Tanzania. Tanzania is its biggest market with over 100,000 off-grid customers.

Rural distribution is one of the biggest challenges to serving off-grid markets. OGE leverages informal supply chains to deliver items (solar home kits plus TVs and other items) cost effectively to the “last mile.”

OGE uses the pay-as-you-go (PAYGo) model with mobile money, which gives customers control over how and when to pay for the service. Customers can either pay via a wallet (most likely requiring an agent for cash-in) or over-the-counter at an agent. This means that OGE is reliant on the agent networks of mobile money providers to determine where to expand.

How PAYGo solar might address agent distribution and viability

The Problem

- Target customers for PAYGo solar tend to live in rural and remote areas, off the electricity grid.
- The dearth of agents in areas of operation for PAYGo companies is a real problem: if customers can't cash in, they can't pay.
- In East Africa, solar providers indicate that up to 30% of their users report payment issues, while in West Africa this number is as high as 50%.
- Some providers are resorting to building cash collection points to address these payment frictions.

Potential Solution

There may be a business case for PAYGo providers to be MM agents, leading to a win-win situation:

1. Cash flow for the solar business runs opposite to the typical net cash out pattern for rural agents, as customers are cashing in to pay for the solar service. This lowers the rebalancing cost.
2. Periodic solar payments ensure a steady agent transaction volume.
3. Commissions for non-solar related CICO yields ancillary revenue for agent and PAYGo alike.
4. For mobile network operators this means increased footprint and increased revenues.

Testing the hypothesis: A small pilot and early stage results (1/2)

The Pilot

- CGAP tested this model with Off Grid Electric (OGE) in Tanzania.
- OGE partnered with aggregator Selcom to set up a mobile money agent footprint in places where OGE customers were experiencing payment problems.
- Nine agents were set up with the intent to ramp up collections in 10 OGE designated ‘areas’, while 10 other areas with similar characteristics and payment challenges were provided with no agents.
- Note: these agents had additional sources of revenue apart from mobile money commissions.

Testing the hypothesis: a small pilot and early stage results (2/2)

Initial results

For the PAYGo provider

4 – 7%

Increase in customer payment rate in areas with agents vs. no agents.

For the Agents

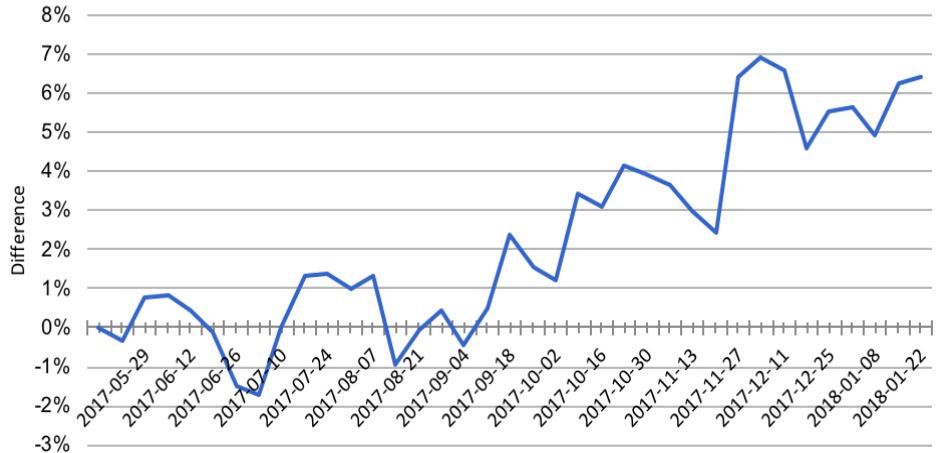
1,178

Total number of transactions¹ in a 4-month period over 9 agents.

\$2,780

Value transacted by the agents over the 4-month period².

Payment Rate Difference between Treatment & Control



Bottom line

- The model had a distinct positive impact on OGE's key metrics of payment rates and cost savings.
- This boost grew clearly over time & may rise further.
- OGE now plans to scale this up, to capitalize on that impact and get more data on the overall economics.

¹This was a very basic pilot, with agents accepting only CI and bill payment transactions. Cash-Out transactions, which are typically higher margin, were not part of this initial pilot.

²Two agents barely performed due to various reasons. If the outliers are removed then the average txn. volume / agent jumps to 167. The median transaction volume is 59 over a 4-month period.

From pilot to scale: what could this look like?

Hypothetical PAYGo provider, with 50K customers, that chooses to become a master agent

Impact on PAYGo provider

10-18

Percentage point incremental bump in annual revenues collected via a master agent model compared to the current payment collection work-arounds deployed by PAYGo providers.

PAYGO providers can capture up to or more than \$1MN in lost revenue annually caused by payment frictions (depending on the growth rate of the business and the level of payment friction faced).

Impact on Agent Viability

120¹

Minimum **volume of monthly** transactions (Cash-In², Cash-Out, Airtime, and Solar bill payments) needed to make a stand-alone agent business viable in a frontier setting. This is a very conservative scenario. On average, agents in Tanzania do around 30 transactions a day (900 transactions a month)³.

In the case of this small pilot, where agents were allowed to offer only select transactions the average transaction volumes / agent were around 32 per month. However, OGE and Selcom are confident of pushing greater volume of customers to these agent outlets in the future, significantly boosting their viability.

How the PAYGo as master agent model can contribute to addressing key challenges

The Off-Grid experiment aimed to explore the question of what types of partnerships could improve agent viability in frontier areas, while addressing the payment friction challenges solar companies faced.

The geographical expansion of solar companies into off-grid frontier areas presents a real opportunity for mobile network operators and aggregators looking to expand distribution rails. The presence of solar companies increases the number of cash-in / bill payment transaction volumes per agent, reducing time to break even on the business. In some cases, solar companies might choose to become master agents themselves in order to expand into currently underserved areas.

Conclusion

Despite large-scale agent networks in an increasing number of countries, growth is uneven. CGAP's research in Tanzania reveals that business-as-usual expansion would have only a minimal impact on financial inclusion.

Agents in frontier areas face similar challenges to those their urban counterparts face (liquidity management, working capital, connectivity) but they are accentuated. They also face unique challenges (low demand and transactional volume). This means that people living in frontier areas might experience both low proximity to financial access points and poor quality.

New approaches led by both private and public sector actors are needed. Rigorous analytics, agent aggregation, deployment model tiers, public policy interventions and partnerships with off-grid solar companies are five models that could be applied to other markets.

APPENDIX: While obvious to some, proximity has not been studied enough

- “We find that greater financial inclusion is associated with [...] lower banking costs and greater proximity to branches”
Allen et al., 2016, on Global Findex.
http://econpapers.repec.org/article/eeejfinin/v_3a27_3ay_3a2016_3ai_3ac_3ap_3a1-30.htm
- “Once [formal] credit is [proximate or available in the municipality], households accumulate more durable goods.”
Ruiz, 2013, on Banco Azteca in Mexico.
<http://documents.worldbank.org/curated/en/465221468286796985/From-pawn-shops-to-banks-the-impact-of-formal-credit-on-informal-households>
- “A lender worked in 52 randomly selected neighborhoods, leading to an 8.4 percentage point increase in takeup of microcredit”
Banerjee et al., 2015, on Microfinance in India.
<http://EconPapers.repec.org/RePEc:aea:aejapp:v:7:y:2015:i:1:p:22-53>
- “Tigo Money Paraguay has achieved one of the most important success Fintech cases with financial inclusion in LAC [...] [by enabling] users to transact with unprecedented proximity.”
Garcia Arabehty et al., 2017, on Tigo Money Paraguay
<https://publications.iadb.org/handle/11319/8439>
- “We estimate that access to the Kenyan mobile money system [...] increased per capita consumption [...] We measured access to the service by the geographic proximity of households to M-PESA agents”
Jack and Suri, 2016, on M-Pesa in Kenya.
<http://science.sciencemag.org/content/354/6317/1288.full>

On the lack of focus, see for example: “Where’s the Bank? Proximity is Critical, So Why Aren’t Academics Writing About It?” by Kendall and Mas. <https://nextbillion.net/wheres-the-bank/>



THE GOVERNMENT
OF THE GRAND DUCHY OF LUXEMBOURG



UDENRIGSMINISTERIET
MINISTRY OF FOREIGN AFFAIRS OF DENMARK



Global Affairs
Canada



Australian Government
Department of Foreign Affairs and Trade

