Spotlight on Rural Supply:
Critical factors to create successful mobile money agents

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Mobile Money for the Unbanked

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Executive Summary

Although mobile money services have extended further into rural areas than more traditional financial services have been able to in the past, rural customers still remain an underserved segment. However, the financial needs of these customers may be closer to being met, as both providers who operate in predominantly rural markets and providers who have experienced saturated urban centres are starting to show greater interest in reaching these customers. Moreover, increasing evidence shows rural users to be more valuable than just passive recipients, and the growth of ecosystem opportunities in rural areas provide both a social and commercial rationale to expand into the frontier. However, the industry has yet to define the most effective ways to serve these customer because of the challenges associated with creating, managing, and sustaining successful agents in these communities.

To address this supply-side challenge, the GSMA Mobile Money for the Unbanked programme (MMU) conducted research on the supply of mobile money in two predominantly rural markets: Mali and Chad. The starting point was simple: by understanding how successful rural agents operate, the industry can also begin to understand how providers can adapt their operational strategies to serve more remote locations and identify the ones to focus on first.

Although this research did not uncover a silver bullet to mobile money growth in rural areas, it did reveal "green shoots" of opportunity. In both Mali and Chad, there are successful agents operating deep in the frontier without access to either formal financial services or core physical infrastructure like electricity, transportation, and roads. These agents seem to experience a uniquely rural form of success, driven by elements such as high levels of trust and customer loyalty, strong agent relationships, and social networks.

Comparing these two markets, which are at different stages of development, allows for a better understanding of the universal challenges and opportunities of building a rural distribution network and offers some key recommendations for mobile money providers. The good news is that the strongest predictors of rural success are not too different from existing industry best practice, and to better reach rural communities, minor adaptations to existing operational strategies can have a significant impact on success at the periphery.

SECTION 1

A rationale for expanding into the frontier

With more than 103 million active mobile money accounts across 89 markets, mobile money has shown it can extend the reach of formal financial services beyond traditional financial and banking infrastructure.[1] However, while mobile money is a channel for bringing financial services to the poor and underserved, many providers have struggled to find a cost-efficient way to provide relevant and reliable services all the way down to the base of the pyramid.[2]

70%
OF THE GLOBAL POOR LIVE IN RURAL AREAS

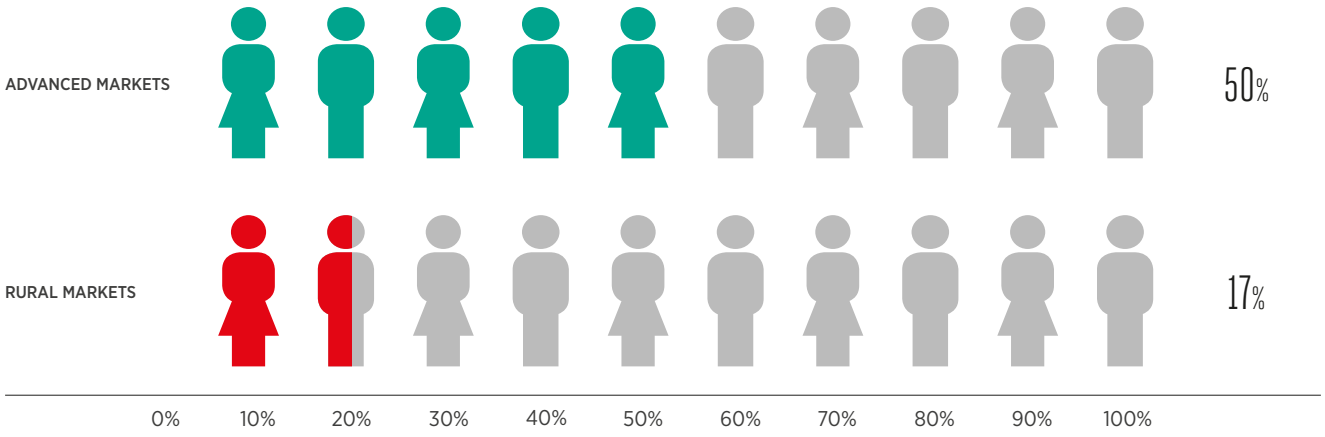
With an estimated 70% of the global poor living in rural areas,[3] this represents a significant potential customer base in communities where mobile money is the only real competitor to cash and informal financial management. Yet this also remains one of the key operational barriers — without access to infrastructure like banking, transportation, electricity and roads, the logistics of managing agents and driving customer growth campaigns in rural areas is a challenge.[4] In Kenya, it took five years to increase the penetration of formal financial services to 59% of rural households (through channels such as banks and M-PESA), and while this is successful by any measure, "the reduction of exclusion has been much slower in the rural population than the urban."[5] In the 2014 GSMA Global Adoption Survey, only a small minority of respondents reported any data on rural customers. Those who did lagged behind Kenya with more than half of all registered customers based in urban areas. Moreover, in countries where urban centres are few, providers cannot afford to wait for their services to expand organically in rural areas. Providers who operate in countries like Mali and Chad acknowledge the need to expand into rural because rural means scale.

From a macro perspective, there is evidence that mobile money is slower to scale in predominantly rural countries. A GSMA analysis of mobile money in rural countries[6] has found there is still a wide gap in terms of how much of the addressable mobile money market[7] has been captured compared to countries where mobile money is more advanced. Advanced markets have captured 50% of the addressable market,[8] whereas primarily rural markets have only captured 17 percent. Although this figure does not incorporate any informal OTC that may be occurring in rural areas, these markets remain a source of untapped potential.

1. GSMA Mobile Money for the Unbanked (MMU), "State of the Industry: Mobile Financial Services for the Unbanked", 2014. Available at: http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2015/03/SOTIR_2014.pdf
2. Jennifer Frydrych and Hege Aschim, GSMA Mobile Money for the Unbanked (MMU), "Extending reach: Mobile money in rural areas", October 2014. Available at: http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2014/10/2014_DI_Extending-reach_Mobile-money-in-rural-areas.pdf
3. IFAD, "Rural Poverty Report," 2011. Available at: http://www.ifad.org/rpr2011/report/e/rpr2011.pdf
4. Jennifer Frydrych and Hege Aschim, GSMA Mobile Money for the Unbanked (MMU), "Extending reach: Mobile money in rural areas", October 2014. Available at: http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2014/10/2014_DI_Extending-reach_Mobile-money-in-rural-areas.pdf
5. FinAccess, "National Survey 2013: Profiling developments in financial access and usage in Kenya", October 2013. Available at: http://fsdkenya.org/publication/finaccess-national-survey-2013-profiling-developments-in-financial-access-and-usage-in-kenya/
6. At a macro level, there is significant variation in the definition of "rural". For this analysis, "rural markets" are defined as developing low-income markets with greater than 30% GDP from agriculture. To control for the impact of regulation, markets without an 'enabling regulatory approach' were removed from the analysis. An 'enabling regulatory approach' means that by implementing the recommendations of global standard setters, the regulator has taken a functional and proportional regulatory approach that allows banks and non-bank providers to compete as well as to establish different types of partnerships for the provision of mobile money services.
7. The addressable market is the number of GSM connections in a country.
8. Advanced markets include any mobile money market with greater than 35% active mobile money penetration. Rural markets that qualified would be included in this aggregation.

FIGURE 1

CAPTURED ADDRESSABLE MOBILE MONEY MARKET
(ACTIVE 90-DAY CUSTOMERS PER GSM CONNECTIONS)[9]



There is also a rationale for advanced markets to expand into the frontier. Evidence from the *Helix* Institute suggests that in Kenya, Tanzania and Uganda, urban centres may be reaching a saturation point. Agents identified competition as one of the biggest barriers to performing daily transactions; in fact, agents in Nairobi, Kenya, conducted the lowest number of median transactions in the country.[10] As growth in urban markets slows, demand from rural users creates a compelling proposition. However, in both mature and nascent markets, how to reach rural segments effectively is still a blind spot in the industry.

Methodology and approach: Defining success factors for rural agents

GSMA's research seeks to understand the challenge of supplying mobile money in rural areas. Much existing research on low-income and rural mobile money users focuses on demand,[11] but there was a gap in terms of supply-side research. The starting point was simple: by understanding how successful rural agents operate, the industry can also begin to understand how providers can extend the reach of their networks sustainably. The insights shared in this publication are based on an analysis of successful rural agents in Mali and Chad. Conducted in partnership with Orange Mali, Tigo Chad and Altai Consulting, the underlying objective of this research was to better understand what success looks like in rural areas, and how it has been achieved, so that providers can be in a better position to enable this success in other markets.

In order to identify the critical success factors for agents working at the frontier, the concepts of "success" and "rural" had to first be defined clearly.

"**Success**" is a relative term that was adapted to both the market and provider. To distinguish successful agents from active or dormant agents, a bottom-up approach was used which relied on transactional data analysis. Mobile money agents were assessed and segmented using transactional data based on cash-in and cash-out values. Four segments were identified: dormant (no transactions were made during the month) and three terciles (lower, middle, and upper). Agents in the upper tercile were considered 'successful', while agents in the lower and middle terciles were considered 'active'. Success in the context of this research did not take into account agent profitability, and only considered transactional data rather than cost of sales at the agent point.

9. GSMA Analysis.
10. *Helix*, Agent Network Accelerator Surveys for Kenya, Tanzania and Uganda, from 2013 and 2014. Available at: http://www.helix-institute.com/data-and-insights
11. Existing demand-side data on low-income consumers includes Finscope surveys, FITS survey, FinAccess Kenya, and CGAP's work on low-income customers in Senegal and Côte d'Ivoire, etc.

As "**rural**" can vary dramatically from market to market,[12] the ability to complete this research hinged on crafting a comparable and tangible definition that could be used across multiple markets. As a starting point, agent locations were mapped using a proxy of base station GPS coordinates and call detail records (CDR). Data from NASA's Global Rural-Urban Mapping Project, which delineates a country's urban areas by stable night-time lights, was then used to demarcate urban areas. A five-kilometre radius was fixed from the centre of each urban settlement, except for capital cities, where the perimeter was 10 kilometres. Agents located outside this radius were considered rural. In this publication, all references to urban and rural align with these definitions as they were used throughout the research.

Data analytics, quantitative phone surveys, and qualitative face-to-face interviews were used throughout the research. In Chad and Mali combined, over 2,000 different agents were interviewed and more than six months of transactional data was analysed. For details on the methodology and variables tested, see Appendix A.

SCOPE OF THE RESEARCH: WHAT THESE FINDINGS DO NOT ADDRESS

The focus of this research was to generate insights into how to successfully serve rural mobile money customers. The findings centre on the practical operational insights derived from an analysis of rural agent networks in Mali and Chad. Therefore, although other areas are critical in the frontier discussion, such as partnership models with rural MFIs, the effectiveness of specific use cases, the evolution of the rural ecosystem and rural customer retention trends, they are only tangentially discussed in the context of this work. This research is a baseline and to fully realise the potential of rural, these other dynamics also need to be iterated and considered, both in operational strategies as well as in future industry research.

Hypotheses for other variables, including branding materials, cost of capital/profitability, mind-set/satisfaction, and training, were also within the original scope of the research. However the data collected for these proved challenging to draw concrete conclusions. Although we continue to expect that these variables have an impact on an individual agent's success, the analysis did not yield adequate evidence to be able to take a position for this paper. Therefore, the data around these variables has been excluded.

Focus on Mali and Chad

Country selection was a critical part of the research process as partners had to have both adequate core operational infrastructure and a strategic vision to extend into rural. Orange Mali and Tigo Chad offered markets where reaching rural is critical for the sustainability of the service. Moreover, both partners have demonstrated strong operational foundations as part of their core service offering.

Orange Money Mali, launched in 2010, is in the midst of rapid customer adoption. As of October 2014, the value processed by Orange Money was equivalent to more than 20% of Mali's GDP.[13] However, with 58% of Orange Money users in the capital Bamako and 61% of the Malian population living in rural areas, Orange has acknowledged that bringing Orange Money to rural areas will be crucial to reaching scale and becoming financially sustainable.

Tigo Cash Chad is Millicom's "most successful launch to date", reaching 8.5% GSM penetration in less than 10 months[14] — the fastest penetration rate of all Millicom markets. Moreover, with 78% of the population living in rural areas, Chad is in the minority of primarily rural markets where mobile money has driven early adoption. However, Tigo has acknowledged that even with strong early growth, the opportunity to reach rural customers has not been fully realised. As a younger mobile money service than Orange Money, Tigo Cash provides a contrast by examining a deployment in a more nascent stage of development.

12. Jennifer Frydrych and Hege Aschim, GSMA Mobile Money for the Unbanked (MMU), "Extending reach: Mobile money in rural areas", October 2014. Available at: http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2014/10/2014_DI_Extending-reach_Mobile-money-in-rural-areas.pdf
13. Le Figaro, "Les actifs africains d'Orange valorisés à 10 milliards", 14 October 2014. Available at: http://www.lefigaro.fr/secteur/high-tech/2014/10/13/32001-20141013ARTFIG00338-les-actifs-africains-d-orange-valorises-a-10milliards.php
14. Millicom, Q3 2013 Results Presentation (Slide 12), 21 October 2013. Available at: http://www.millicom.com/media/371252/Q3_2013_Results_Presentation.pdf

There is no silver bullet for mobile money growth at the frontier. Analysing these two markets allows us to better identify and understand the universal challenges and opportunities of building a rural distribution network. The findings of this study aim to help operators prioritise where and how to adapt their operational best practices in more remote locations to increase the likelihood of success.

TABLE 1

TIGO CASH AND ORANGE MONEY AT A GLANCE

	TIGO CASH (CHAD)	ORANGE MONEY (MALI)
LAUNCH DATE	NOV 2012	MAY 2010
PRODUCTS OFFERED	• Airtime top-up • P2P transfer (domestic) • Merchant payment • Other bulk payment	• Airtime top-up • P2P transfer (domestic) • Merchant payment • International remittances • Bill payment
MARKET CONTEXT	Tigo Chad reached 8.5% GSM penetration in less than 10 months after launch, which was the fastest rate of penetration of all Millicom markets.	As of October 2014, the value processed by Orange Money was equivalent to more than 20% of Mali's GDP.
% OF TOTAL POPULATION CONSIDERED RURAL[15]	78%	61%
% OF TOTAL AGENTS BASED IN RURAL AREAS[16]	34%	15%
% OF RURAL AGENTS CONSIDERED SUCCESSFUL[17]	10%	23%

15. World Bank data.
16. "Rural" is defined as 5km outside an urban centre and 10km outside a capital city. The data is based on a transactional analysis conducted between May 2014 (in Mali) and December 2014 (in Chad).
17. Transactional data analysis for Orange Money, Mali and Tigo Cash, Chad (of total agent base).

TEXT BOX 1

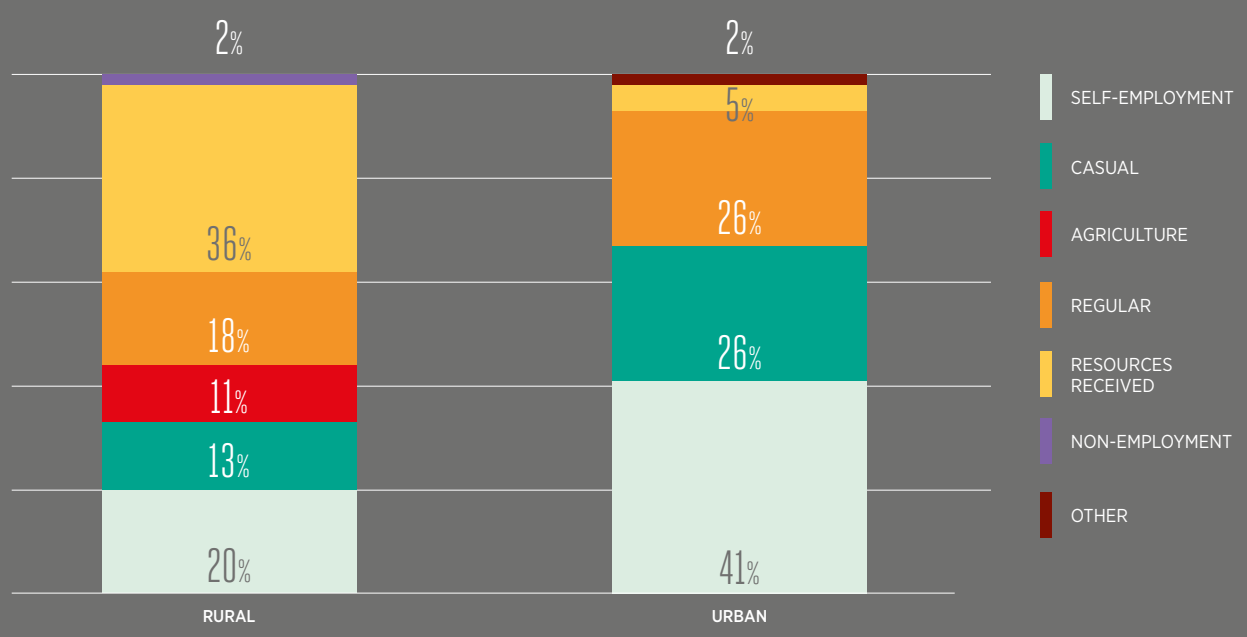
UNDERSTANDING MOBILE MONEY USERS AT THE FRONTIER: A CLOSER LOOK AT USAGE

While the dynamics of the supply chain were central to this research, it was also important to shine some light on the demand side to better understand the needs of rural mobile money users and the potential of this market segment. Although the rural segment is often considered a passive recipient of mobile money, as illustrated in the "send money home" use case, rural households manage a much broader portfolio than just remittance. A significant body of knowledge exists on the complex financial lives of the poor.[18]

In Kenya, rural households are more reliant on remittance than urban households, but these sources of income are predominantly used for income smoothing. Agriculture, self-employment, and casual employment are all critical sources of income in rural areas.[19] Studies of smallholder households in other markets reflect the same complexity of rural financial management, where households balance many sources of both income and expenditures.[20]

FIGURE 2

MAIN INCOME IN RURAL AND URBAN AREAS, ACTUAL CASH FLOWS (%)[21]



An analysis of customer transactional data in Mali and Chad provided some initial insights into the profile of active rural customers: although fewer in number, they are not simply passive recipients. This analysis is preliminary, however, because it has not been tested over time. In both Mali and Chad, these findings reflect customer activity in one month: February 2014 for Mali and December 2014 for Chad.[22] Also, unlike the agent analysis, these findings do not examine other variables that may have influenced customer activity rates. Despite the limitations of the data, however, this snapshot reveals the potential of mobile money in the rural context.

18. Examples of existing demand-side data on low-income consumers include FinScope surveys, FITS survey, FinAccess Kenya, and CGAP's research in Senegal and Côte d'Ivoire.
19. FSD Kenya, "Kenya Financial Diaries", August 2014. Available at: http://fsdkenya.org/publication/kenya-financial-diaries-shilingi-kwa-shilingi-the-financial-lives-of-the-poor/
20. CGAP, "Focus Note: Early Insights from Financial Diaries of Smallholder Households", March 2015. Available at: http://www.cgap.org/sites/default/files/Focus-Note-Early-Insights-from-Financial-Diaries-of-Smallholder-Households-Mar-2015.pdf
21. FSD Kenya, "Kenya Financial Diaries", August 2014. Available at: http://fsdkenya.org/publication/kenya-financial-diaries-shilingi-kwa-shilingi-the-financial-lives-of-the-poor/
22. Analysis is based on an exhaustive transactional dataset for these months in Mali and Chad.

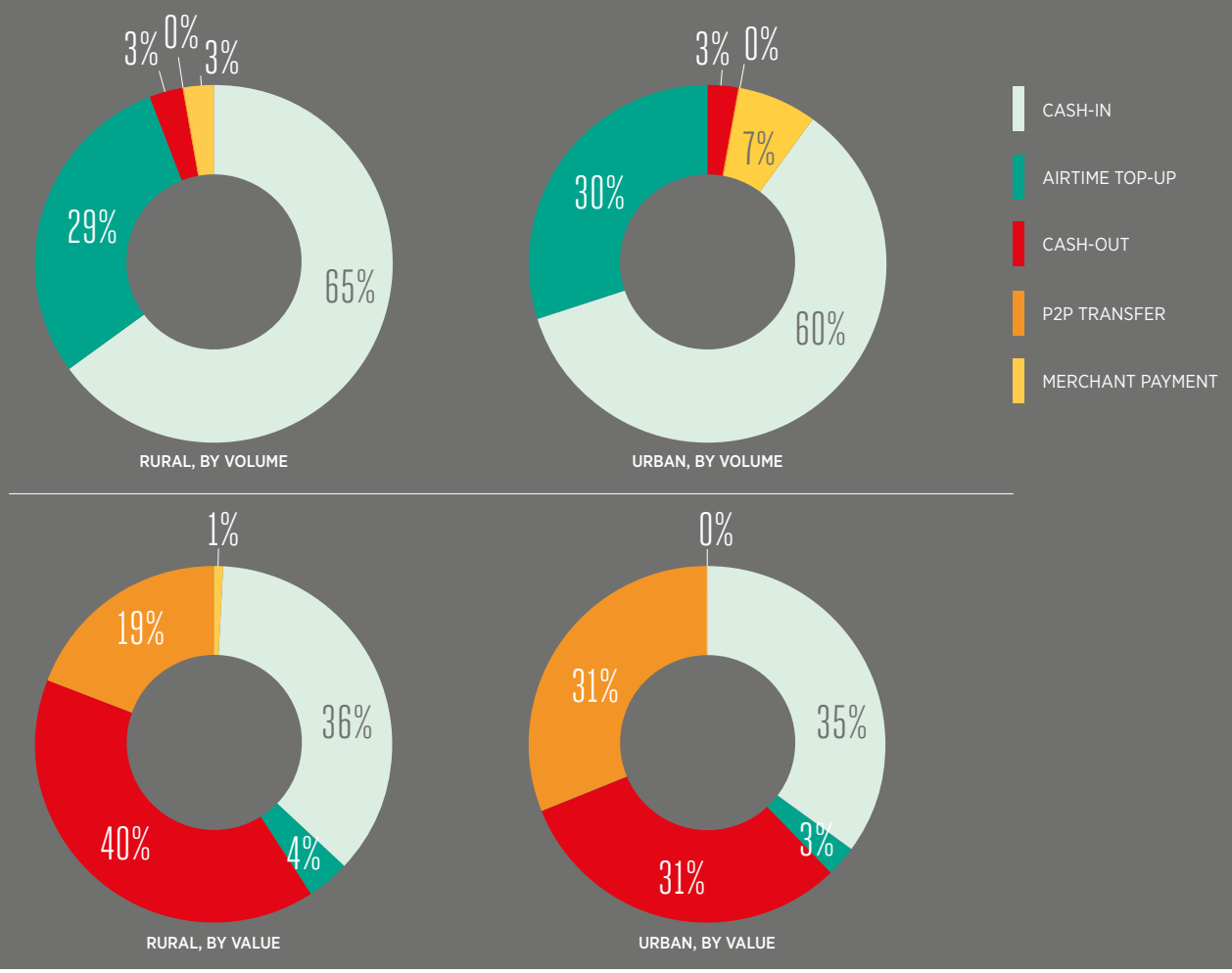
In Mali, the transactional analysis showed that rural users had the same transaction frequency and cash-in/cash-out ratio as urban mobile money users, but their average transaction values were greater. The average total transaction value per rural user was 34% greater than the average value per urban user.[23] Comparatively, GSM usage in Mali followed a more traditional trend, with total usage in urban areas 27% greater than in rural areas.[24]

In Chad, the total value and volume transacted in rural areas is still a fraction of what is transacted in urban areas. Nearly three times as many transactions occur in urban centres as in rural, and five times as much value is transacted by urban users than rural users.[25] This is not surprising given the stage of development of Tigo Cash, and reinforces the theory that mobile money uptake follows an urban-to-rural adoption pattern.

However, what is unexpected in Chad are the trends in usage among rural customers. If the passive recipient model applied to rural customers in Chad, there would be a significant increase in cash-out activity, particularly by value, amongst rural users. Product usage between urban and rural customers in Chad was not significantly different on a percentage basis. While there is higher cash-out activity amongst rural users, this segment is still also active in cash-in, airtime top-up, and P2P transfers.

FIGURE 3

TOTAL RURAL AND URBAN MOBILE MONEY USAGE FOR TIGO CHAD, BY VOLUME AND VALUE (30-DAY)[26]



23. Transactional data analysis for Orange Money, Mali.
24. Ibid.
25. Transactional data analysis for Tigo Cash, Chad.
26. Ibid.

SECTION 2

Key Findings - Enablers of success at the frontier in Mali and Chad

There are successful rural agents in both Mali and Chad. In Mali, for example, as many as 13% of "very isolated" agents are considered successful.[27] By analysing these "green shoots", this research aimed to reveal what contributes to success and how this can help providers to better serve rural customers. However, the findings are not that different from existing industry best practice, and providers will not be compelled to abandon their current operational strategies to reach rural customers. Instead, these findings reveal clear, but subtle, differences between urban and rural contexts. Trust, liquidity, profitability, quality, and a decentralised management model are all core elements of operational best practice. However, within the complex economic, logistical and social dynamics of these countries, there are evident, although subtle, operational implications for providers seeking to extend reach sustainably. This section outlines the key findings as well as how providers in other markets can use these findings to inform their operational strategy in rural areas.

#1 Local context matters: Prioritise regional growth

IN BOTH MALI AND CHAD, MARKET CONTEXT WAS A CONSISTENT PREDICTOR OF SUCCESS

In both Mali and Chad, market context was a consistent predictor of success for rural agents, suggesting that prioritising growth by region has a higher return on investment than organic growth. While there were clear differences in both markets, the economic landscape enabled a significantly higher percentage of successful agents in each market.

Analysing both telco call detail records (CDR) and mobile money transactional data against key macro-economic attributes can help to visually pinpoint regions with higher transactional potential. In Chad, this analytical approach uncovered an opportunity in areas where financial needs are extremely acute and the cost of brick-and-mortar banks make it impossible to serve: border towns and refugee settlements.

27. "Isolation" is a sub-segment of the rural definition used in this research, and refers to an agent's proximity to the nearest road. Agents who are "very isolated" are roughly more than 2 kilometres from the nearest road. This analysis was completed only in Mali, where more detailed availability of road and infrastructure information for the market was available at the time of analysis.

In southern Chad, the villages of Goré and Dilingala are located near refugee settlements for people fleeing violence in the Central African Republic. Chad is the eighth largest refugee-hosting country in the world, with 452,900 refugees at the end of 2014.[28] While both the remittance and financial service needs of these populations have already been documented,[29] the challenges of reaching these populations often prove overwhelming. However, international and NGO support[30] has helped to contribute to strong agent transaction levels in these villages which indicate a consistent demand. Five of the 13 agents (or 38%) who serve these areas can be classified as successful.[31] This is significant given that, on average, only 10% of rural agents in Chad are successful. While these agents have other attributes that increase their likelihood of success, the concentration of successful agents in these villages is due, in large part, to the market context.

By contrast, rural agents in Mali cited mining, agriculture, and trade as key drivers of economic development.[32] While these economic activities do not necessarily apply to the entire market, it is worth comparing one rural gold mining region to the average (see Text Box 2). Fifty-six percent of rural agents were successful if they were located near a gold mine, compared to 23% of successful rural agents located elsewhere.[33] Unlike other parts of the world, gold mining regions in Mali have been fractured until recently, with significant gold volumes coming from informal or artisanal mines. A more fractured supply chain means higher quantities of smaller transactions. While these environments are risky and potentially unsustainable for banks to build a branch, they are ideal locations for mobile money.

Not surprisingly, there are clear differences between Mali and Chad in terms of where mobile money is thriving. In Mali, gold mines drive activity, while in Chad, other economic hubs such as border towns and refugee settlements represent an opportunity for Tigo Cash. Despite these differences, expanding into the frontier requires greater investment in strategic growth because local context matters. Allowing a sales team to focus on any and all new areas may prove to be an expensive customer growth strategy for providers, while investing instead in data analysis, geo-mapping, and market landscaping could enable operators to extend their reach into rural areas strategically, improving the likelihood of success for themselves and their agent networks.

> "The situation is quite good, the village is dynamic, and there is more money than before because people come for trade activities."
>
> *Agent in Badenko, Kayes, Mali*

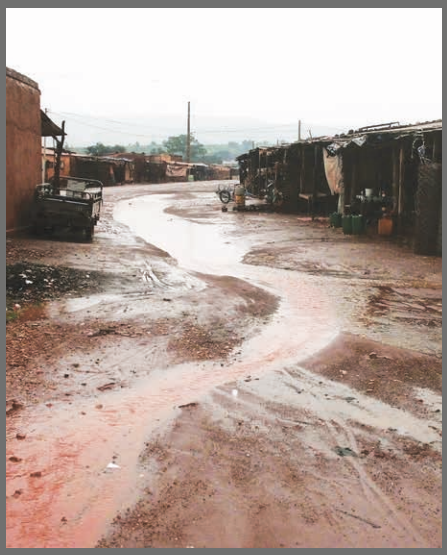
Regional prioritisation is a straightforward concept, but in practical terms, creating an easy mechanism to identify opportunities efficiently may seem a complicated task. However, user-friendly and actionable geo-based go-to-market tools can be designed at a relatively low cost. Mobile operators are particularly well positioned to create greater visibility in their market through an asset they already have: data. More specifically, the combination of CDR data, base station locations, and mobile money transactional data are a powerful triumvirate. In addition to transactional data, investing in research at a regional or district level focused on socio-economic trends may help shed light on growth opportunities. This may be particularly valuable in early-stage deployments, where transactional data may lack depth. In both Mali and Chad, additional qualitative research helped to paint a more accurate depiction of drivers for transactional growth. With these data sets, both transactional and/or qualitative, operators can build an efficient go-to-market tool to guide their rural expansion. A go-to-market tool was developed for both Tigo Chad and Orange Mali, and it has already had an impact on the success rate of agents. In Mali, Orange found that by using their data to prioritise growth, they saw new agent activation rates as much as double in rural areas. For a full description of how to build this tool, including technical notes and implementation details, see Appendix B.

28. UNHCR, "Global Trends: Forced Displacement in 2014", 2015. Available at: http://unhcr.org/556725e69.html
29. GSMA, "Disaster Response: Mobile Money for the Displaced", December 2014. Available at: http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2015/01/Disaster-Response-Mobile-Money-for-the-Displaced.pdf
30. UNHCR Tracks, "A New Home and a Helping Hand", 3 June 2015. Available at: http://tracks.unhcr.org/2015/06/a-new-home-and-a-helping-hand/
31. Transactional data analysis for Tigo Cash, Chad.
32. Quantitative phone-based interviews with Orange Money agents, Mali.
33. Transactional data analysis for Orange Money, Mali.

TEXT BOX 2

THE GOLD STANDARD: AGENT PROXIMITY TO GOLD MINES LINKED TO SUCCESS IN MALI

In Mali, urban and rural agents situated near one of the six main industrial gold mines are more successful than agents located elsewhere in the country. In urban areas with gold mining activities, 46% of agents are considered successful, compared to only 23% of agents in urban areas overall. In rural areas with gold mining activities, 56% of agents are successful compared to only 23% of agents in rural areas overall.[34]



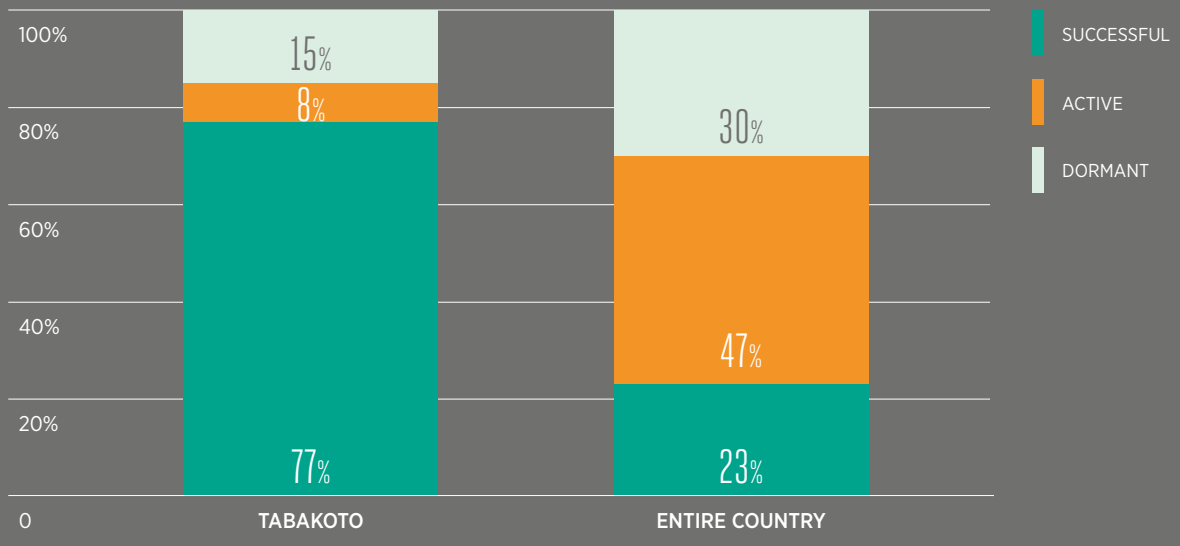
A TABAKOTO STREET

As an example, Tabakato is a gold mining village located 400 kilometres from Bamako in the southwest corner of Mali near the Senegalese border. The Tabakoto gold mine is the fifth largest producing mine in Mali. Of agents who operate in the village near Tabakoto (home to just under 10,000 people), 77% are considered successful. Furthermore, the number of agents operating in Tabakoto is greater than the average of other similarly-sized villages: 13 agents compared to only 4.4 agents elsewhere.[35]

Mali is Africa's third largest producer of gold and, until the government ban in 2014, informal or artisanal mining represented as much as 30% of exported gold from Mali.[36] However, even in formal mining areas like Tabakoto, there is a lack of banking infrastructure to serve this economic hub. This dynamic of high economic activity coupled with a fractured supply chain and/or low physical infrastructure has proven to be an ideal frontier investment for Orange Money.

FIGURE 4

SHARE OF SUCCESSFUL RURAL AGENTS IN TABAKOTO VERSUS THE ENTIRE COUNTRY[37]



34. Transactional data analysis for Orange Money, Mali.
35. Ibid.
36. Please see:
    • Tiemoko Diallo, Reuters, "Artisanal mining drives Mali gold exports up to 67.4 T in 2013", 27 May 2014. Available at: http://www.reuters.com/article/2014/05/27/mali-gold-idUSL3N0OD2YU20140527;
    • Reuters, "Mali's gold exports down 21 pct in 2014 on drop in artisanal mining", 8 April 2015. Available at: http://www.reuters.com/article/2015/04/08/mali-gold-exports-idUSL5N0X53FU20150408;
    • Olof Drakenberg, "Mining in Mali: A Background Note for the Swedish International Development Cooperation Agency", July 2010.
    Available at: http://sidaenvironmenthelpdesk.se/wordpress3/wp-content/uploads/2013/04/Mining-in-Mali-a-background-note-for-Sida-final-2010.pdf
37. Transactional data analysis for Orange Money, Mali.

#2 Creating successful rural agents: Rethink the agent profile and selection criteria

In both Mali and Chad, rural agents look different from their urban counterparts. This critical finding shows that more nuance is required when profiling agents than previously thought. Industry best practice suggests that agents should be recruited based on the following characteristics:[38]

- Ability to maintain cash and e-float balance
- Strategic retail locations
- Literate staff
- Trusted by the community
- Potential customer reach

However, an examination of agent networks in Mali and Chad makes it clear that, to be successful in rural areas, providers should adapt their recruitment strategies in rural environments and invest in specific rural agent profiles with the greatest likelihood of success. In addition, the data alluded to potential opportunities for operator collaboration around distribution in the rural context.

FOCUS INVESTMENT ON FEWER AND MORE SPECIFIC RURAL PROFILES

In both Mali and Chad, successful rural agents exhibit different characteristics than successful urban agents. Despite some variation in market context, rural agents tend to be older, with more established businesses and a broader product portfolio and, in Mali, are the first to market.[39]

RURAL AGENTS TEND TO BE OLDER WITH MORE ESTABLISHED BUSINESS AND A BROADER PRODUCT PORTFOLIO

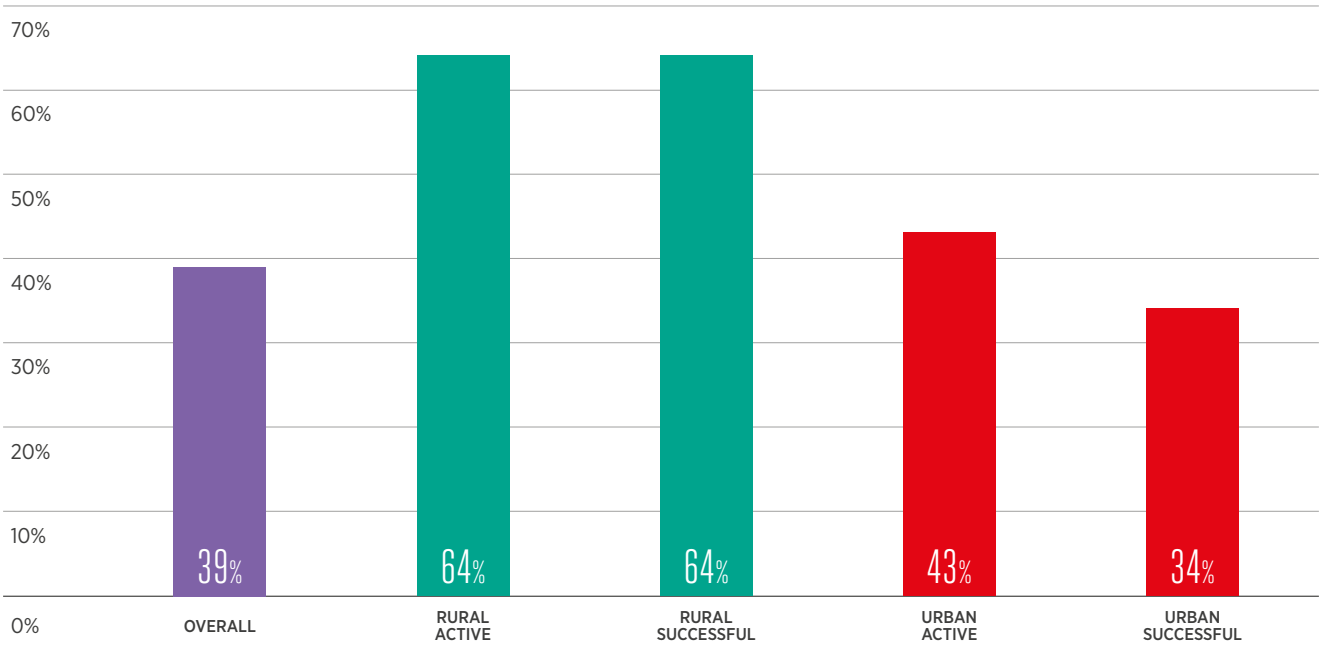
In terms of success factors for agents in Mali, first movers[40] have a significant advantage over their competitors: as much as 40 percent. In rural areas, this advantage is magnified since incumbents have an 80% revenue advantage over competitors.[41] Although the first mover trend was not observed in Chad, the agent's profile was a core determinant of success in both markets.

Successful rural agents in Mali and Chad had a broad product portfolio, which was not matched by their urban counterparts. In urban areas of Mali, the majority of successful agents operate kiosks — small, dedicated shops focused purely on the delivery of Orange Money. Generally in urban environments, operators often seek to diversify their mobile money agent network beyond their GSM network because the requirements to deliver mobile money are considerably different.[42] However, the opposite seems to be true in rural areas of Mali and Chad. More than two-thirds of active and successful rural agents in Mali offer SIM and airtime scratch cards, whereas 80% of dormant rural agents offer no other service aside from mobile money.[43] In urban areas, the split is much less pronounced. A similar trend occurred in Chad, where 88% of agents also sell SIM cards and 85% also sell airtime.[44]

38. GSMA Mobile Money for the Unbanked (MMU), "Building a Network of Mobile Money Agents", 2012. Available at: http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2012/03/building.pdf
39. Quantitative phone-based interviews with Tigo Cash agents in Chad and Orange Money agents in Mali.
40. In this research, first movers were Orange Money agents with the earliest registration date in Orange's transactional dataset.
41. Transactional data analysis for Orange Money, Mali.
42. GSMA Mobile Money for the Unbanked (MMU), "Building a Network of Mobile Money Agents", 2012. Available at: http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2012/03/building.pdf
43. Quantitative phone-based interviews with Orange Money agents, Mali.
44. Quantitative phone-based interviews with Tigo Cash agents, Chad.

FIGURE 5

ORANGE MONEY AGENTS IN MALI THAT OFFER SIM AND AIRTIME SCRATCH CARDS (%)[45]

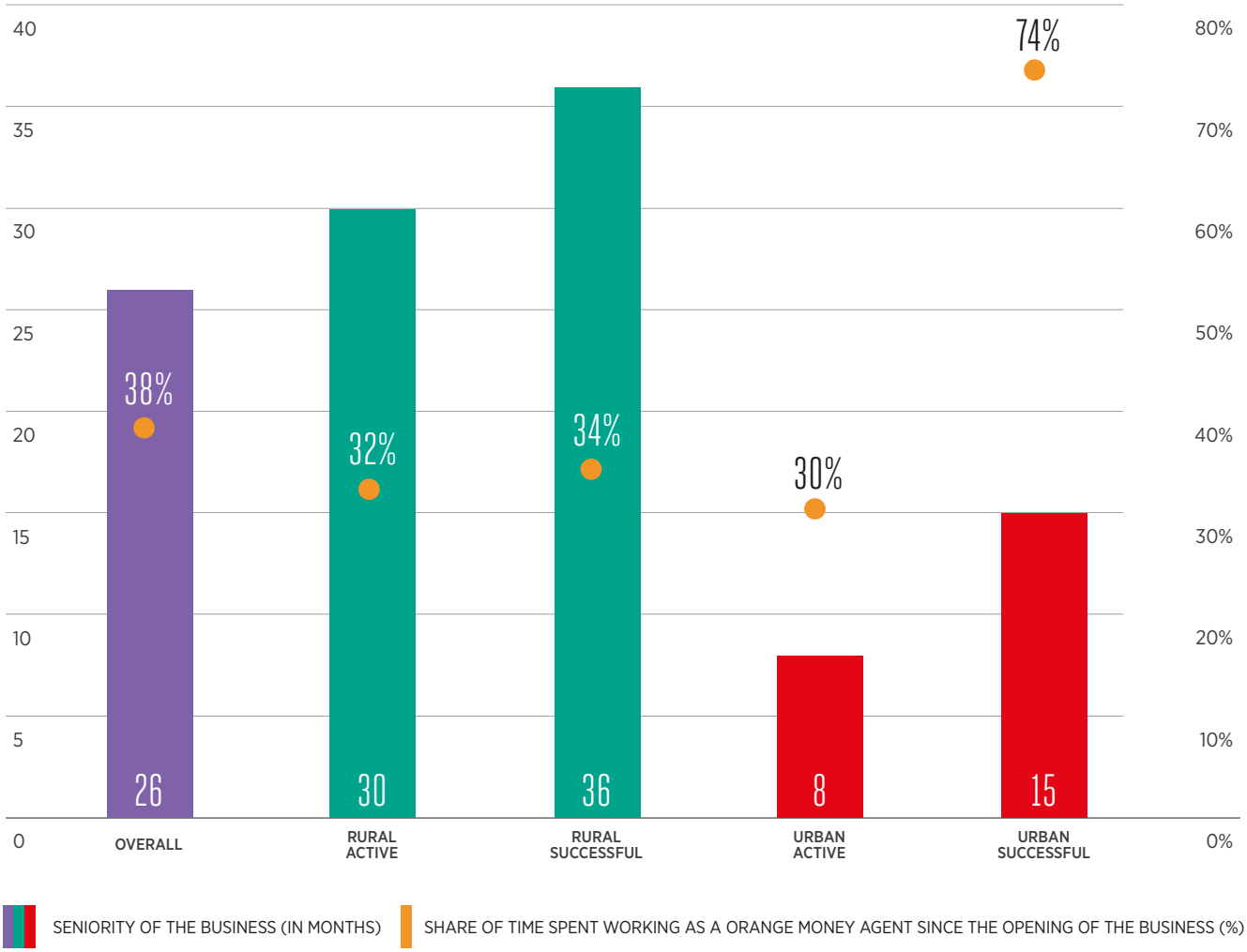


Finally, the size and seniority of an agent's shop were two additional indicators affecting an agent's ability to deliver mobile money successfully. In both urban and rural areas of Mali, the greater the number of staff capable of conducting Orange Money transactions in a shop, the greater the likelihood of success.[46] In rural areas only, the seniority of a shop was another key indicator of success. In contrast to urban areas, where Orange Money shops tended to be dedicated, newly-opened kiosks, thriving shops in rural areas tended to be at least three years old.[47] The findings in Chad echoed this trend, although with only a minor influence on success.

45. Quantitative phone-based interviews with Orange Money agents, Mali.
46. Ibid.
47. Ibid.
48. Ibid.

FIGURE 6

SENIORITY OF BUSINESS AND TIME DEDICATED TO ORANGE MONEY IN MALI[48]



Why this significant dichotomy between urban and rural indicators? The variations indicate two main differences: demand and operational requirements. On the demand side, relationships and trust are proving critical at the frontier. A transactional analysis of mobile money in Chad estimated that more than 80% of rural customers regularly return to the same agent.[49] While it is challenging to directly link this customer behaviour to loyalty (as opposed to access, for example), the importance and commercial impact of loyalty among rural customers has been documented in other sectors.[50] An agent's ability to build trust with customers is critical in any environment, but at the frontier, finding an agent that customers trust is a safer and more efficient investment. An older established business with a moderately active customer base is, in simple terms, a validation of a community's trust.

80%

OF RURAL CUSTOMERS IN CHAD REGULARLY RETURN TO THE SAME AGENT

49. Transactional data analysis for Tigo Cash, Chad.
50. Alex Douglas, 7 May 2015, "The impact of service quality on rural customer loyalty behaviors". Available at: http://www.researchgate.net/publication/275954767_The_Impact_of_Service_Quality_on_Rural_Customer_Loyalty_Behaviours

By contrast, recruiting an agent and shop with a broad product portfolio has a practical operational advantage. In rural contexts, liquidity management remains a critical lynchpin (this is explored in a later section). However, a broad product portfolio demonstrates an agent's ability to invest in mobile money, which, while important in urban environments, is critical in rural areas, particularly where there is no financial infrastructure. Moreover, the fact that successful shops may offer a greater diversity of goods, including SIM cards, demonstrates a logic inherent to living in rural areas. In rural areas, there tends to be a lack of diversity of shops in size and number compared to urban. Therefore the centralizing force of one core shop serving the community is practical. Rather than pepper rural areas with multiple shops, providers may find greater returns in "doubling down" on a smaller number of well-placed and established agents.

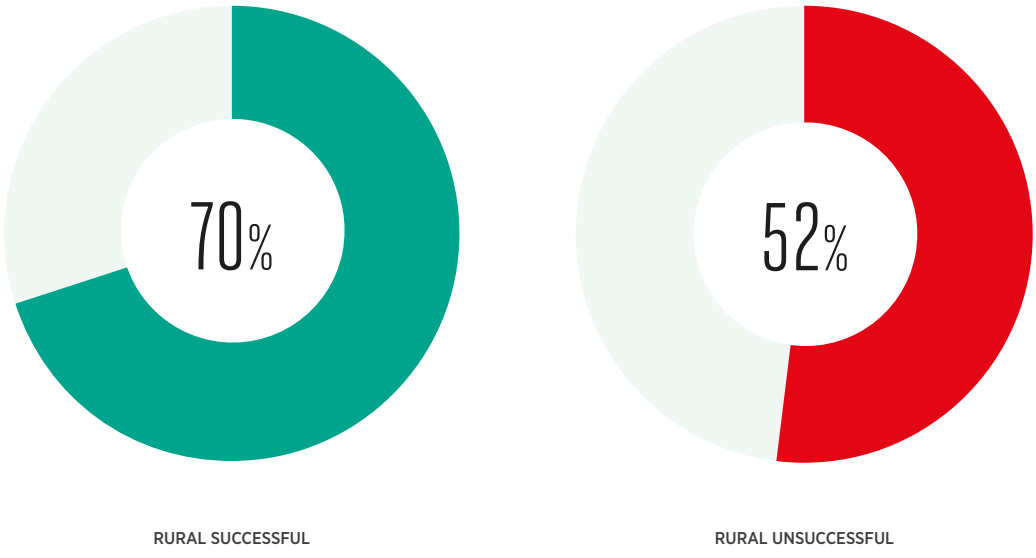
EVALUATING THE ROLE OF OPERATOR COLLABORATION IN THE RURAL CONTEXT

Managing resources efficiently is critical for service provision expansion to rural areas. This is true not only for mobile money, but also for mobile coverage, where operators are increasingly turning to mutually beneficial solutions, such as passive and active infrastructure sharing in rural areas.[51] This approach is an obvious solution and in the context of mobile money, there is value in exploring the feasibility of agent network interoperability as a means to share costs and extend the reach of the service.

This hypothesis has become all the more interesting given findings from Chad. For rural agents in Chad, the most significant determinant of success was whether an agent also offered Airtel Money, the only other mobile money service in Chad.[52] In addition to Tigo Cash, more than half of agents overall also offer Airtel Money in addition to products such as electronics and pharmaceutical items. While a shop's particular product diversity was not statistically significant, it was significant that 70% of successful rural agents also sold Airtel Money (compared to only 52% of unsuccessful rural agents and 51% of all agents).[53] This finding not only reinforces that rural agents operate differently, but it could also justify exploring agent interoperability (see Text Box 3). This finding could also be an opportunity for cost savings if providers explore creative solutions in rural locations.

FIGURE 7

TIGO CASH AGENTS OFFERING AIRTEL MONEY (% OF TOTAL)[54]



51. GSMA Intelligence, "Closing the coverage gap - a view from Asia," June 2015. Available at: http://www.gsma.com/mobilefordevelopment/closing-the-coverage-gap-a-view-from-asia
52. Quantitative phone-based interviews with Tigo Cash agents, Chad.
53. Ibid.
54. Ibid.

TEXT BOX 3

AGENT INTEROPERABILITY: AN OPPORTUNITY AT THE FRONTIER?

As the industry evolves, there is growing interest from providers in exploring account-to-account interoperability. As a way to reduce inefficiency and costs for agents and increase overall transaction volumes, account-to-account interoperability is no longer a question of if, but when.

However, other forms of interoperability are not as imminent. For example, agent interoperability — where agents can serve customers from different providers using one float account — remains largely untested due to the persistent lack of clarity on the operational implications, business model, and strategic rationale. While liquidity management is still a major barrier even in mature markets,[55] operators that consider their agent networks a key differentiator have yet to invest significantly in solving the practical challenges of agent interoperability.

The findings in Chad may therefore prove to be a timely demonstration case. In both Mali and Chad, rural agents have a distinctly different profile than their urban counterparts. However, in Chad, the distinguishing factor between rural and urban agents is directly linked to the competitive nature of its market. Beyond the fact that 70% of successful rural agents also offered Airtel Money, the correlation was also statistically significant.[56] While it is too simplistic to conclude that agent interoperability could universally extend reach, it helps to rationalise the role that agent interoperability could play at the frontier.

Assuming the trend in Chad continues in other competitive markets, agent interoperability could be a tangible way to extend reach more efficiently and sustainably. At the frontier, agent interoperability could:

- **Reduce pressure on agent liquidity** because agents would no longer be required to manage multiple float accounts.
- **Reduce management costs for providers** by pooling resources to manage the agent network.
- **Increase mobile money access and usage for rural customers** by building a more robust and sustainable agent network.

The value of agent interoperability can only be realised by overcoming these challenges. The business case, technical implementation, and operational strategy require more clarity and analysis. However, if what was observed in Chad is also true in other markets, the rationale for agent interoperability is more tangible. As the opportunity becomes more visible, will agent interoperability also become a question of when, not if?

55. *Helix*, "Agent Network Accelerator Survey: Tanzania Country Report 2013", April 2014. Available at: http://helix-institute.com/sites/default/files/Publications/Agent%20Network%20Accelerator_Tanzania%20Country%20Report%202013_0.pdf

56. P-value (p) is a probability calculated from a given regression that answers the question: "How likely is it that the factor has NO effect on agents' success?" The higher p-value, the more likely it is that any result is random, i.e. there is no connection between the variables. A p-value less than 0.05 has an impact on success. "Offering Airtel Money" as a predictor has p = 0.03, implying it is statistically significant.

TEXT BOX 4

SHOP CHARACTERISTICS AND AGENT SUCCESS IN MALI AND CHAD: WHAT'S THE CONNECTION?

While the following characteristics were not statistically significant for the success of rural agents in Chad and Mali, many of these aspects were considered enablers because they occurred more frequently for successful agents than for active or dormant agents.

- **Shops are open longer hours:** In both urban and rural areas of Chad, successful agents are open longer during the week than their counterparts. A shop tends to be open 82 hours a week on average, but successful agent shops are open 27% longer on average than others in rural areas, and 11% longer in urban areas.[57]

- **Access to electricity:** Successful rural agents in Chad have greater access to electricity than unsuccessful rural agents (38% versus 30%).[58]

- **Distance to a regional department's capital city:** In Chad, the farther rural agents are located from one of the capital cities in the country's 61 regional departments, the more likely they are to be successful. For example, successful rural agents are located an average of 49 kilometres from a regional department's capital city, while other agents are only 39 kilometres away.[59]

Statistically, the following factors had no direct correlation to the success of rural agents.

- **Gender:** Female agents make up only 6% of the sample in Chad and 31% of the sample in Mali.[60] While gender demonstrated no statistical impact on agent success in either rural or urban areas in this research, providers have previously cited that female agents can be strong assets, particularly to attract more female customers to the service.[61] Given the small representative sample size and the existence of other evidence on the potential effectiveness of female agents, this issue would benefit from additional and more focused research.

- **Education:** An agent's level of formal education is not a predictor of success in either Chad or Mali. In Chad, the share of successful urban and rural agents with a university degree was lower than that of unsuccessful agents (for rural agents, it was 13 percentage points lower; for urban, 12 percentage points lower). The majority of successful rural agents had only completed primary school education. This was also the case in Mali, where the share of successful and active rural agents who had attended college was lower than that of their urban counterparts (18% and 24%, compared to 41% and 53%), and lower than the average for the rural agent base (45% of rural agents overall went to college).[62]

- **Distance to urban area or road:** In Chad, a rural agent's distance to a road, the region's capital city, or the nearest urban area has no impact on their success. In Mali, an agent's distance to a main road has no impact on their success as there were successful and unsuccessful agents across all degrees of isolation.[63]

57. Quantitative phone-based interviews with Tigo Cash agents, Chad.
58. Ibid.
59. Ibid.
60. Quantitative phone-based interviews with Tigo Cash agents in Chad and Orange Money agents in Mali.
61. Claire Scharwatt and Elisa Minischetti. GSMA Mobile Money for the Unbanked, "Reaching half of the market: Women and mobile money", September 2014. Available at: http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2014/09/2014_DI_Reach-half-of-the-market-Women-and-mobile-money.pdf
62. Quantitative phone-based interviews with Tigo Cash agents in Chad and Orange Money agents in Mali.
63. Ibid.

#3 Bridging the access gap: Liquidity management at the frontier

Access to cash and e-money underpins most of the operational challenges in rural or remote areas. In both Mali and Chad, the amount of capital an agent could access was a consistent predictor of success, while a lack of cash was a persistent problem. In both markets, having enough cash to perform any transaction drives agents into a cycle of success. Equally, a lack of capital limits an agent's business potential.

The complexity of liquidity management became apparent in the analysis of how agents, and particularly rural agents, choose to rebalance their float. Rebalancing mechanisms in both Mali and Chad provided a window into the financial impact of liquidity shortages, the critical role of financial infrastructure, and how operators could extend their reach in the absence of that infrastructure.

FINANCIAL INFRASTRUCTURE AS AN ENABLER OF SUCCESS

In Mali and Chad, rural agents reported a lack of cash as a significant barrier to performing transactions. In Chad, unsuccessful rural agents reported turning away twice as many customers on average than successful rural agents or any urban agents.[64] Without question, efficient management of liquidity is a critical part of operating successfully in rural environments.

Banks and financial institutions are cited as foundational and necessary infrastructure to help crack the liquidity management problem in remote locations. In fact, there is strong evidence to support the concept of "liquidity tethering", which suggests that agent networks can grow only so far beyond their physical and financial infrastructure before they cease operating sustainably. For instance, *Helix* found that 72% of agents in Uganda are located within 15 minutes of a rebalancing point.[65]

Similar trends were observed in Mali and Chad, where the average travel time to a financial institution is 18 minutes and 27 minutes, respectively.[66] Moreover, having access to a bank is a key enabler of success. In Chad, successful agents in both rural and urban areas were twice as likely to have a bank account as their unsuccessful counterparts.[67] In Mali, more than half (56%) of successful agents had access to a formal financial service, and it was a key differentiator from an active agent.[68]

64. Quantitative phone-based interviews with Tigo Cash agents, Chad.
65. Helix Institute, "Agent Network Accelerator: Uganda Country Report 2013", January 2014. Available at: http://helix-institute.com/data-and-insights/agent-network-accelerator-survey-%E2%80%93-uganda-country-report-2013-0
66. Quantitative phone-based interviews with Tigo Cash agents in Chad and Orange Money agents in Mali.
67. Quantitative phone-based interviews with Tigo Cash agents, Chad.
68. Quantitative phone-based interviews with Orange Money agents, Mali.

FIGURE 8

AVERAGE TRAVEL TIME TO MAIN FINANCIAL INSTITUTION FOR ORANGE MONEY AGENTS IN MALI (IN MINUTES)[69]

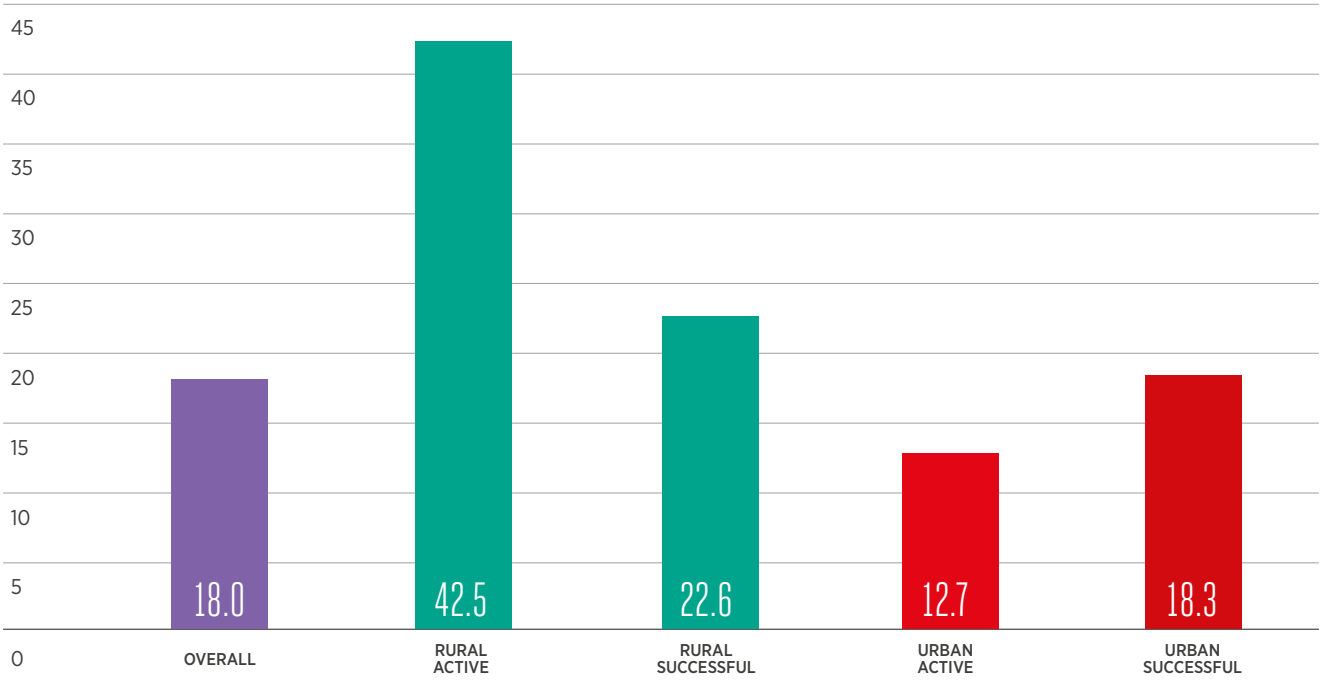
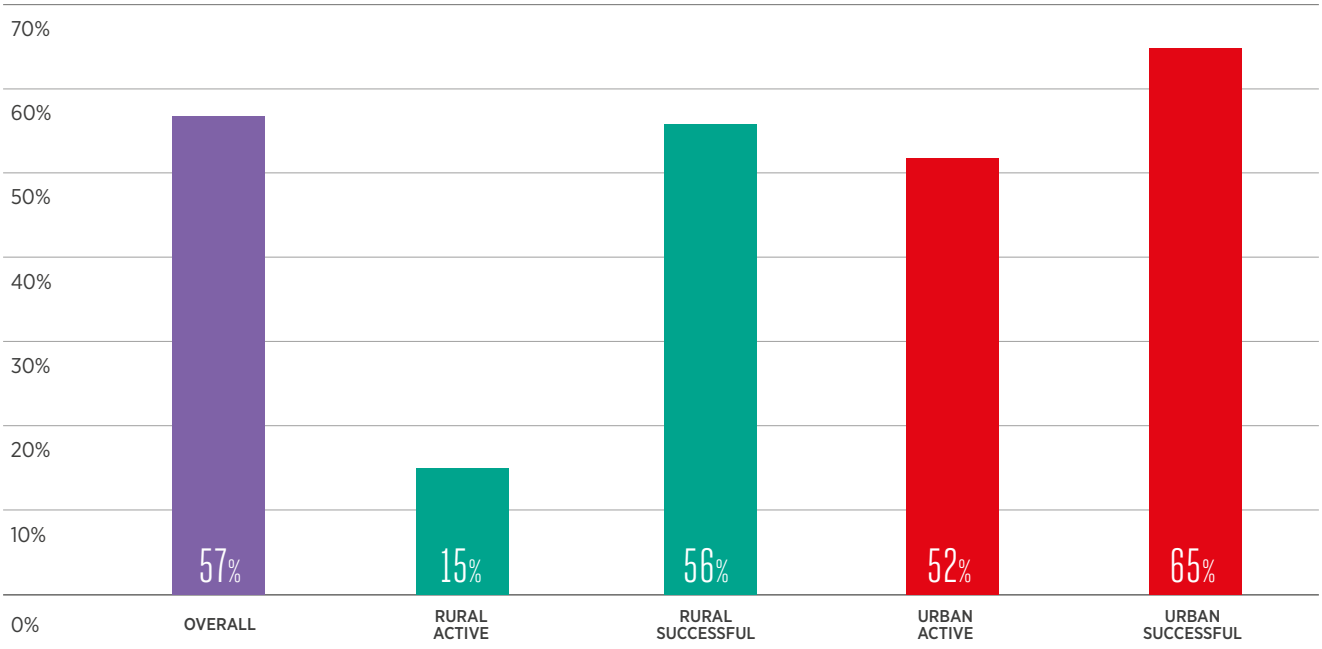


FIGURE 9

ACCESS TO FINANCIAL SERVICES FOR ORANGE MONEY AGENTS IN MALI (%)[70]



69. Ibid.
70. Ibid.

SUCCESS WITHOUT INFRASTRUCTURE: THE ROLE OF MASTER AGENTS AND SOCIAL NETWORKS

While access to financial institutions is an important enabler of success, a significant proportion of agents are able to remain successful despite not having direct access to a bank account. In Mali, 44% of successful agents operate in the absence of a bank, demonstrating that it is possible to manage if an alternative cash management strategy is in place.[71] This trend is more acute in Chad, where 84% of successful agents operate in the absence of a financial institution.[72] Thus, in both markets, agents have proven to be capable of serving customers without access to a financial institution. The question then becomes, how do they rebalance? More importantly, how can operators adapt to better support these agents?

84%

OF SUCCESSFUL AGENTS IN CHAD OPERATE IN THE ABSENCE OF A FINANCIAL INSTITUTION

In the absence of traditional banking, master agents and informal networks become the critical liquidity line for agents who are otherwise disconnected.

EFFECTIVE MASTER AGENTS ARE KEY TO RURAL SUCCESS

Master agents, or aggregators, are the cornerstone of an efficient and scalable distribution strategy. Master agents are effective intermediaries who buy cash and e-money (float) from the provider and then resell it to agents. They are typically paid a share of the percentage earned on agent commissions (generally an 80/20 split, with 20% for master agents), which creates an incentive to encourage sales and transactions at the local level. This operational and incentive structure proves critical in rural environments. In the majority of cases in both Mali and Chad, an effective master agent enabled a successful agent, particularly in the absence of financial infrastructure.

In Mali and Chad, a master agent is not only the first point of contact for more float or cash, but also for queries about training, branding, technical issues, and more. Of the agents interviewed in Chad, 80% think their master agent is important to their success, particularly in terms of liquidity management, training, and branding materials.[73] A further 50% of agents reported that their master agent was the first person they called when they faced any type of problem.[74]

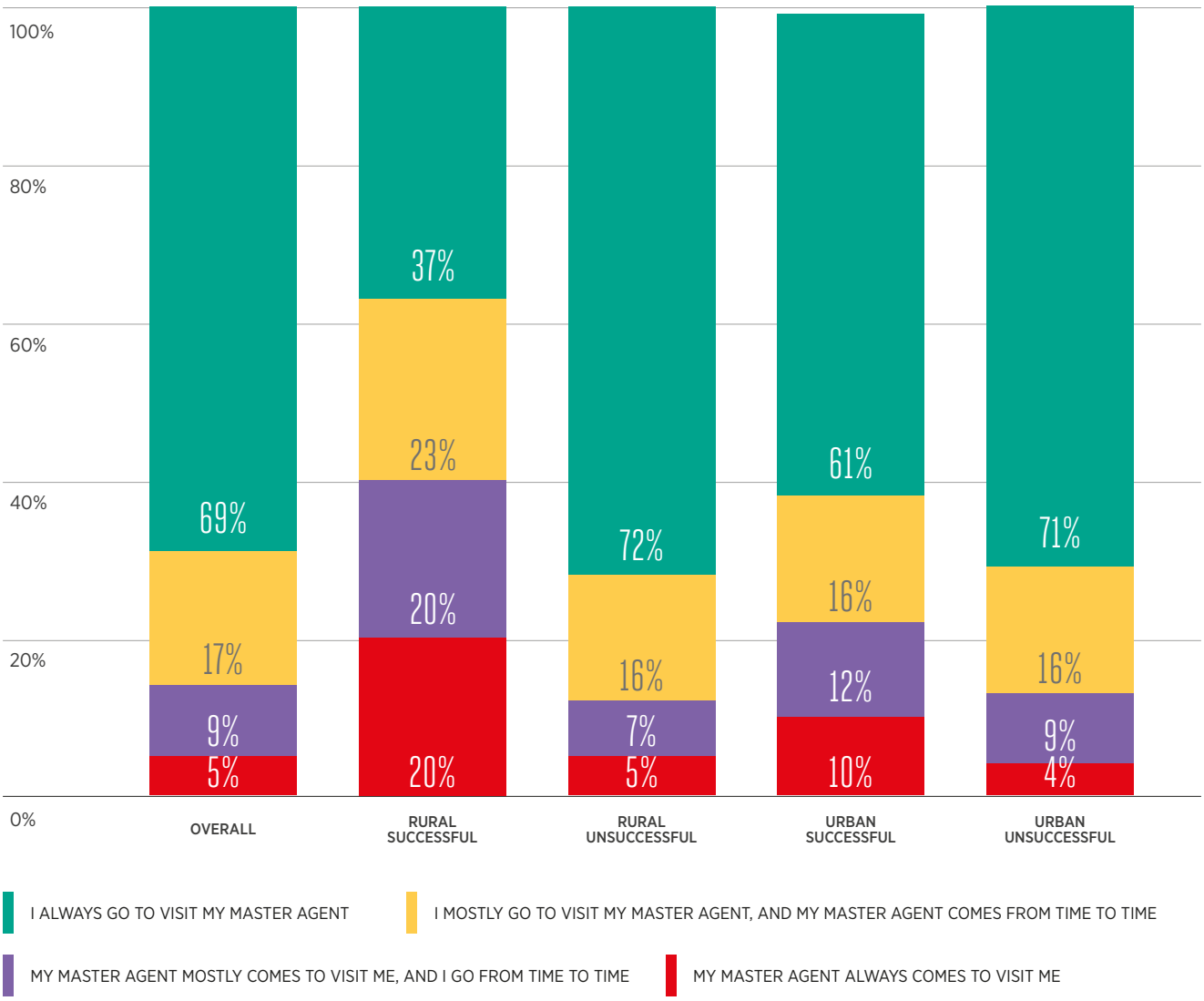
> "Excellent relationship—we meet four times a month. He lives 35 kilometres from here."
>
> *Active agent in Segou, Mali, regarding relationship with master agent*

How actively a master agent managed a rural agent also had a significant impact on success. In Chad, successful rural agents were four times more likely to have their master agent visit them to rebalance.[75] Successful rural agents in Mali followed a similar trend: 60% of agents reported it is always their master agent who visits them.[76] The decentralised distribution model is industry best practice regardless of context but, in rural Mali and Chad, this model is an enabler.

71. Quantitative phone-based interviews with Orange Money agents, Mali.
72. Quantitative phone-based interviews with Tigo Cash agents, Chad.
73. Field-based interviews with Tigo Cash agents, Chad.
74. Ibid.
75. Ibid.
76. Quantitative phone-based interviews with Orange Money agents, Mali.

FIGURE 10

CROSS-ANALYSIS OF TIGO CASH MASTER AGENTS WHO VISIT AGENTS IN CHAD (%)[77]



Beyond a professional relationship, the research in Mali and Chad also found a strong personal relationship between master agents and agents. Seventy percent of master agents surveyed claimed to know the majority of their agents prior to managing them in Chad.[78] This strong social network allows master agents to have an arguably stronger relationship with an agent than an agent and a provider, which in turn can strengthen their influence.

As much as a master agent can be an effective ally, an ineffective master agent can have an equally damaging effect on agents. Poor management, lack of interest, or inadequate incentives result in a lacklustre master agent managing lacklustre agents. Therefore, like agents, master agents need to have a clear selection, on-boarding, and management process. Operators who only invest in on-boarding new agents may risk the long-term success of the agent if the master agent is not equally invested and developed.

77. Quantitative phone-based interviews with Tigo Cash agents, Chad.
78. Field-based interviews with Tigo Cash master agents, Chad.

TEXT BOX 5

THE IMPACT OF TRUST AND SOCIAL CONNECTIONS ON SUCCESS

One minor factor contributing to the success of rural agents is trust and social connections, particularly with master agents and with customers. In Mali, master agents reported that the most important drivers of geographical expansion were whether they had both personal relations and business activities in a region, or just personal relations in a region.[79] In Chad, a large majority of master agents interviewed only operate in one region, and often the main drivers for working in that region are family ties or business connections.[80]

Additionally, master agents in Mali usually have full control over the agent recruitment process, and the majority of master agents reported having a relationship with their agents before hiring them.[81] Often, the most important recruitment criteria cited was whether the agent was an existing friend, partner, or colleague. In Chad, 30% of agents knew their master agent before starting their Tigo Cash business, and 46% of successful rural agents already knew their master agent.[82] Master agents in Chad ranked an existing relationship (friend/partner/colleague) as the second most important criteria for recruitment, after professional experience.[83]

When it comes to customers, social connections are also important. Thirty-seven percent of agents in Chad reported knowing the majority or all of their customers before starting their Tigo Cash business, and 42% of successful rural agents knew the majority or all of their customers.[84] There has been extensive research on understanding customer loyalty amongst the rural poor, and although this segment is harder to reach, it has proven to be loyal to a strong service and sceptical of a weaker service.[85] Building a trustworthy agent network with strong connections to the community can have a long-term impact on customer retention.

79. Field-based interviews with Orange Money master agents, Mali.
80. Field-based interviews with Tigo Cash master agents, Chad.
81. Field-based interviews with Orange Money master agents, Mali.
82. Field-based interviews with Tigo Cash agents, Chad.
83. Field-based interviews with Tigo Cash master agents, Chad.
84. Field-based interviews with Tigo Cash agents, Chad.
85. Alex Douglas, "The Impact of Service Quality on Rural Customer Loyalty Behaviours," May 2015. Available at: http://www.researchgate.net/publication/275954767_The_Impact_of_Service_Quality_on_Rural_Customer_Loyalty_Behaviours

Conclusion and recommendations

Whether or not mobile money successfully reaches rural communities depends on the ability of providers to create, manage, and sustain an agent network within these communities. Rural users are more than just cash-out recipients, and the growth and ecosystem opportunities in these areas are compelling, both socially and commercially.

The research findings from Mali and Chad not only reveal that there are rural agents operating successfully in the absence of infrastructure, but that providers need only adapt, not abandon, best practice to increase the likelihood of creating more successful rural agents. Based on these findings, four key recommendations have been identified for mobile money providers to consider when building and managing a network of rural agents.

- **Local context matters, and data can help to prioritise areas for growth:** In both Mali and Chad, local market context was a consistent predictor of success for rural agents, suggesting that prioritising growth by region has a higher return on investment than organic growth. Analysing both telco call detail records (CDR) data and mobile money transactional data against key macro-economic attributes can help to visually pinpoint regions with higher transactional potential. Further, user-friendly and actionable geo-based, go-to-market tools can be designed at a relatively low cost. The combination of CDR data, base station locations, and mobile money transactional data are a powerful triumvirate. Using these data sets, operators can build an efficient go-to-market tool to guide their rural expansion.

- **Focus investment on fewer and more specific rural profiles:** In both Mali and Chad, successful rural agents exhibit different characteristics than successful urban agents. Despite some variation in market context, rural agents tend to be older, with more established businesses and a broader product portfolio and, in Mali, are the first to market. These variations between urban and rural highlight two main differences: demand and operational requirements. On the demand side, relationships and trust are proving critical at the frontier. An agent's ability to build trust with customers is critical in any environment, however, at the frontier, finding an agent who customers trust is a safer and more efficient investment. On the operational requirement side, recruiting an agent and shop with a broad product portfolio has a practical advantage. A broad product portfolio illustrates an agent's ability to invest in mobile money, which, while important in urban environments, is absolutely critical in rural areas, particularly in the absence of financial infrastructure.

- **Effective master agents can bridge the liquidity gap:** Access to cash and e-money underpins most of the challenges of operating in rural or remote areas. While access to financial institutions is an important enabler of success, a significant proportion of agents are able to remain successful despite not having direct access to a bank account. In the absence of traditional banking, master agents become the critical liquidity line for agents who are otherwise disconnected. In Mali and Chad, a master agent is not only an agent's first point of contact for more float or cash, but also for any difficult questions. As much as a master agent can be an effective ally, an ineffective one can have an equally damaging effect. Poor management, lack of interest, or inadequate incentives result in a lacklustre master agent managing lacklustre agents. Therefore, like agents, master agents need to have a clear selection and on-boarding process.

- **Evaluate the role of operator collaboration in the rural context:** Sharing infrastructure costs in rural areas is one potential way for providers to substantially increase the reach of mobile money services in rural areas. This hypothesis is all the more interesting given the findings from Chad, where the most significant determinant of success was whether a rural agent offered Airtel Money in addition to Tigo Cash. Agent interoperability remains largely untested, however, due to the persistent lack of clarity on the operational implications, business model, and strategic rationale. Could rural areas provide the appropriate context to test new approaches to industry collaboration?

This research evaluated the current dynamics that enabled business to flourish in rural areas with the intent that operators can adapt their strategies to create more of these examples. However, the complexity and variety of individual market contexts means that this research provides only a baseline. As the industry develops and builds an ecosystem, the capacity of mobile money to thrive in rural environments will change and develop as well. Going forward, the willingness of mobile money providers to experiment with rural use cases, partnership models and business dynamics will result in a greater understanding of how far mobile money can extend its reach.

Appendix A - Research methodology

For each market, research and analysis was completed in three stages:

1. **Transactional data analytics,** which leveraged call detail records (CDR) from mobile money agents and customers to gain granular knowledge of each market, in addition to transactional data for agents and customers. The transactional data analysis was primarily used to segment and geo-locate agents to create a baseline for defining successful agents in rural areas. For both Tigo Chad and Orange Mali, one month of CDR data for all mobile money agents, all mobile money customers, and 50,000 random GSM customers was analysed, in addition to one month of mobile money transactional data for all mobile money agents and mobile money customers.

2. **Quantitative phone-based interviews** with a total of 2,000 mobile money agents, selected based on their location (urban versus rural) and their activity level (dormant, active, or successful).

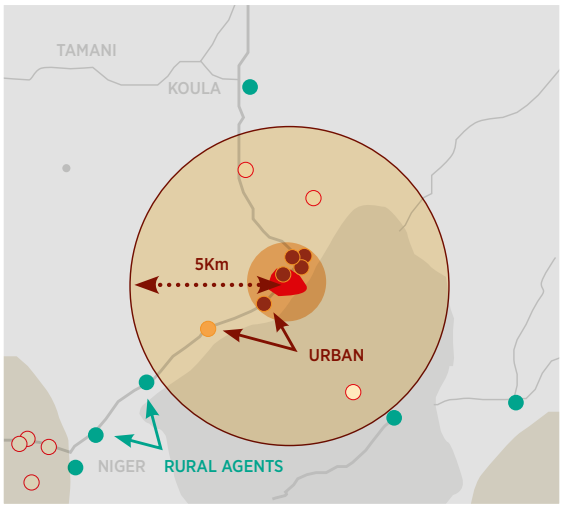
3. **Field-based interviews** with 500 mobile money agents, face-to-face, to capture more in-depth qualitative information. In each market, an additional 40 field-based interviews were done with master agents.

To ensure data collection and analysis were consistent across markets, the criteria for both urban and rural agents, as well as dormant, active, and successful agents, were clearly defined.

Definition of a rural agent

Using the Global Rural-Urban Mapping Project (GRUMP)[86] to identify urban settlements observed from lights at night, urban agents are defined as being located within a five kilometre radius from the centre of an urban settlement (or 10 kilometres from capital cities). Beyond this radius, an agent is considered rural.

Using these parameters, 34% of Tigo Cash agents in Chad are rural and 15% of Orange Money agents in Mali are rural.



86. GRUMP was developed by NASA's Socioeconomic Data and Applications Center. For more information, visit: http://sedac.ciesin.columbia.edu/data/collection/grump-v1

Definition of a successful agent

For each mobile money provider, agents were segmented into four categories based on the monthly value of their transactional activity (dormant, low, medium, and high). These were then classified into three terciles:

1. Dormant: No transactions occurred during the month of analysis
2. Active: A combination of both 'low' and 'medium' categories
3. Successful: Agents who fell into the 'high' category

More information about segmenting agents by transactional activity is available in Appendix B.

Hypotheses tested for identifying success factors

Two groups of hypotheses were tested during the market research to identify critical success factors for rural agents:

1. SHOPS AND AGENT PROFILE	2. OPERATIONAL AND FINANCIAL MANAGEMENT
Agent profile: Does an agent's socio-demographic profile (gender, age, education level, etc.) have an impact on their success?	**Usage:** Is there a link between transaction types and successful agents? What main operational challenges do agents face? Are agents who are mobile better than others?
Shop characteristics: Does the type of shop have an impact on success in rural areas? What about opening hours, energy access, staff, or distribution channels?	**Relationship with master agent:** Are successful agents more likely to interact with their master agent?
Shop locations: Is a shop's proximity to a capital city, bank, main road or master agent a consistent predictor of success?	**Access to finance:** Is there a link between access to finance (such as a bank, MFI, informal services) and an agent's success?
Competitive environment: How does the competitive environment impact an agent's business? Is there any 'first mover' advantage?	**Cash/float management:** Do successful agents manage their cash/float in similar ways?
Branding materials: Does the level of branding have an impact on success in rural areas?	**Cost of capital:** How do successful rural agents manage their costs and cash flows? How is their mobile money investment balanced against other business activities?
Mind-set and satisfaction: Do certain attitudes contribute to a higher likelihood of success?	
Training: How does the quality and amount of training impact the success of an agent?	

Appendix B - Go-to-market and geo-mapping tool

Mobile money providers own extremely valuable assets: telco CDR and mobile money transactional data. These assets can be leveraged to closely monitor their current agent and user base and precisely identify where to expand. User-friendly and actionable geo-based go-to-market tools can be designed at a very limited cost to help a mobile money team answer two main questions:

- **Users:** What geographical areas are well penetrated by mobile money services and what other areas should be targeted to extend reach?
- **Agents:** What geographical areas are well served by an efficient agent network and what other areas should be targeted to increase or decrease the number of active agents?

The following four-step approach can be used to develop the go-to-market tools:

1 COLLECT DATA	2 FORMAT DATA	3 ANALYSE DATA	4 VISUALISE DATA
1.1 Country macro-data	2.1 Value segmentation	3.1 Market penetration	4.1 Excel files
1.2 Transactional data	2.2 Location segmentation	3.2 Competitive environment	4.2 Interactive maps
1.3 Telco CDR		3.3 Usage	
1.4 BTS location			
1.5 Agent's profile			

To request a copy of the Excel go-to-market tool, please email mmu@gsma.com

Collect data

Both internal and external data should be collected and then formatted, analysed and, finally, visualised. Below is the exhaustive list of data needed:

	DATA	OUTPUT	SOURCE	GSM USERS	MM USERS	MM AGENT	BTS	MACRO	TIMELINE
			SAMPLE SIZE	50,000	ALL	ALL	ALL		
INTERNAL DATA	Telco CDR data	Main BTS & telco ARPU (voice, SMS and data)	Internal	✔	✔	✔	-	-	3 months[4]
INTERNAL DATA	Mobile money transactional data	All transaction types, by volume and by value	Internal	-	✔	✔	-	-	3 months[4]
INTERNAL DATA	Mobile money registration	Registration date information	Internal	-	✔	✔	-	-	Latest available
INTERNAL DATA	Master agents / agent structure	Link between each agent and his/her master agent	Internal	-	-	✔	-	-	Latest available
INTERNAL DATA	BTS/CellID coordinates	GPS coordinates	Internal	-	-	-	✔	-	Latest available
EXTERNAL DATA	NASA night light maps	Urban vs rural boundaries	NASA[(1)]	-	-	-	-	✔	Latest available
EXTERNAL DATA	Population data	Population data at the lowest administrative level possible	UN [(2)]	-	-	-	-	✔	Latest available
EXTERNAL DATA	Macro-economical data	Economic hubs, mines, border crossings, oil fields, etc.	Misc.	-	-	-	-	✔	Latest available
EXTERNAL DATA	Administrative area shapes	Administrative area shapes at the lowest level possible	Misc.[(3)]	-	-	-	-	✔	Latest available
EXTERNAL DATA	Road shapes	Road shapes at the lowest level possible	Misc.[(3)]	-	-	-	-	✔	Latest available

Note: (1) http://sedac.ciesin.columbia.edu/data/collection/grump-v1

Note: (2) http://unstats.un.org/unsd/demographic/products/socind/default.htm

Note: (3) http://www.humanitarianresponse.info/

Note: (4) Data from the last three months is ideal, to assess trends. A single month can be used.

Format data

Once data is collected, it must be formatted so it can be properly analysed.

The formatting consists of assigning A) a value segment and B) a location segment to each agent.

A. **By segmenting each agent by value,** a mobile money provider can understand which agents generate value for the business and which ones do not, providing more clarity on which agents should be developed or cut from the service.

B. **By segmenting each agent by location,** a mobile money provider can use two different approaches to manage their network: 1) an urban strategy for agents located in urban centres and therefore close to rebalancing sources, and 2) a rural strategy for remote agents who have less access to managerial or financial support.

VALUE SEGMENTATION

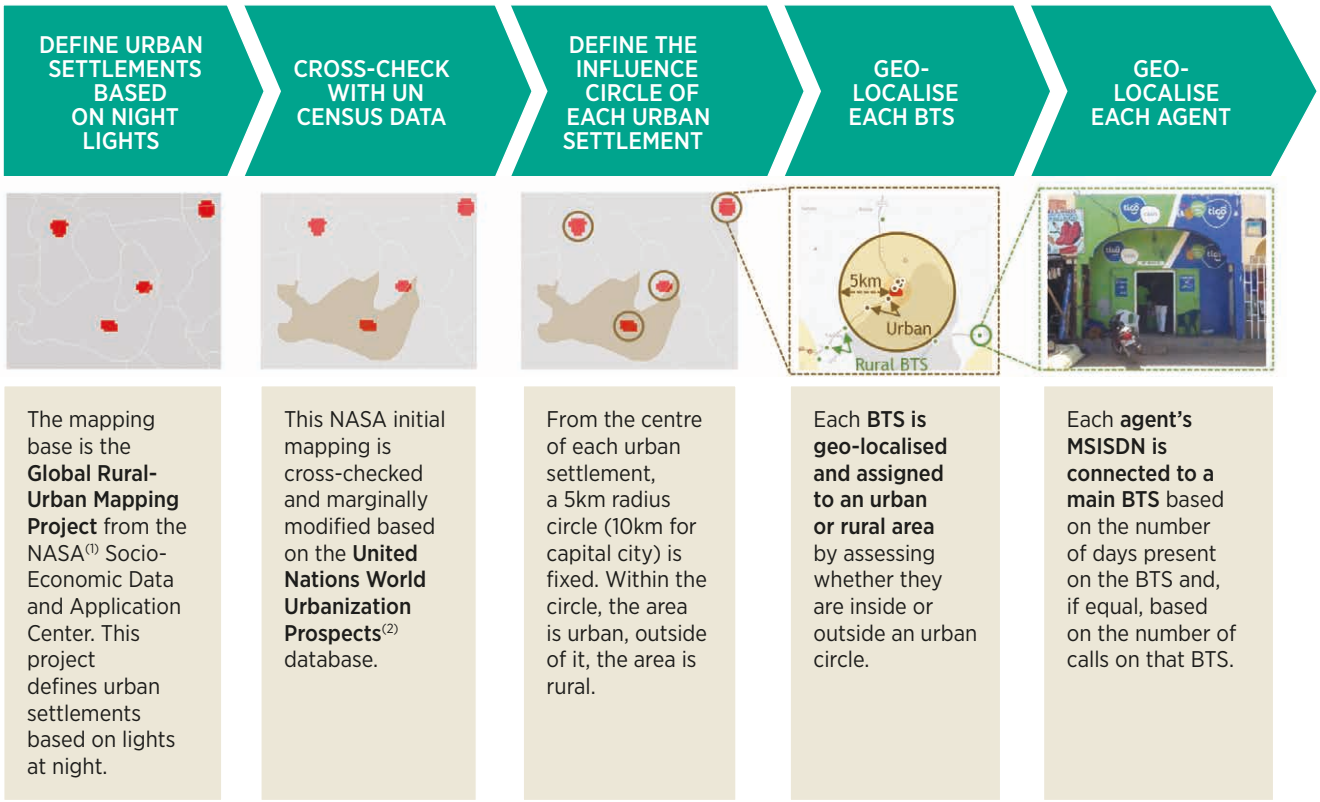
Agents can be segmented based on their **monthly cash-in and cash-out transaction values.**

VALUE SEGMENTATION PROCESS	VALUE SEGMENTATION OUTPUT
• **Step 1:** For every agent, calculate the value of cash-in and cash-out transactions over a selected month. • **Step 2:** Segment all agents with no transactions during this period as 'dormant'. • **Step 3:** Segment remaining agents (with transaction values greater than zero) into three terciles based on their cash-in and cash-out transactions value over the selected month. Or, use your own definition if you already have one. • **Step 4:** Name the higher tercile 'successful' agents. Name the two lower terciles 'active' agents. • **Step 5:** Tag each agent with his/her value segment	SUCCESSFUL — Higher tercile of agents with transaction values > 0 ACTIVE — Medium & lower tercile of agents with transaction values > 0 DORMANT — Agents with transaction values = 0

LOCATION SEGMENTATION

Agents can be segmented based on their distance to an urban settlement. An urban agent is **located within a 5km radius from the centre of an urban settlement** (and 10km radius from capital cities), defined by NASA based on observed lights at night.

The detailed segmentation process is shown below:



This same process can also be used to locate mobile money users.

Some technical requirements are needed to process the data using the above-mentioned method:

1. Intermediate **Python coding skills**: working with large CSV files, querying SQL databases, aggregation algorithms, etc.
2. Intermediate **GIS skills**: CRS, coordinate re-projections, spatial joins, choropleth mapping, etc.
3. Basic **SQL skills**: loading and indexing files, querying data, etc.

The following tools can be used to process this data: QGIS, CartoDB, SQLite, Python 2.7 with Pandas and additional useful packages, any Python-compatible IDE, and computer with sufficient RAM and disk I/O

Analyse data

Once agents and users have been located, several key performance indicators (KPIs) can be designed:

- Market penetration
- Number of active users per agent
- High usage areas

Note: (1) http://sedac.ciesin.columbia.edu/data/collection/grump-v1
Note: (2) http://esa.un.org/unpd/wup/

MARKET PENETRATION

Calculating market penetration at the lowest level possible will help a mobile money provider understand where their service performs well and where the sources of growth are. For example, there is an issue if a particular city or a village has a significantly lower mobile money penetration than the rest of the country. Once this area been identified, a team can be sent to this location to understand the reasons for low penetration and take actions to correct the situation.

To calculate market penetration by administrative level, some basic steps can be taken:

- Aggregate registered users at the chosen administrative level (region, department, commune, etc.), based on the location of their main BTS.
- Divide this number by the official population figures provided by the national statistic body or the United Nations Population Census.
- The result of this calculation is the mobile money penetration rate, by administrative level:

$$\text{MARKET PENETRATION} = \frac{\text{NUMBER OF ACTIVE MOBILE MONEY USERS IN AN ADMINISTRATIVE AREA}}{\text{OFFICIAL POPULATION IN THE SAME ADMINISTRATIVE AREA}}$$

COMPETITION INTENSITY

It is crucial to monitor the number of active agents in a specific area to ensure there is a sufficient level of competition. Indeed, when there are too many agents, the intensity of competition is too high and agent profitability is too low to allow them to make a decent revenue with their mobile money activity. Some agents will not survive and leave the business. Underperforming and dormant agents have a cost and can damage the customer perceptions of mobile financial services.

In the opposite situation, when there is no competition, only a few agents own the entire business in the area and have a guaranteed income. Customers suffer from this situation and might be pushed away from the service because of long queues at the few mobile money agents, lower quality service as agents are focused on volume, etc.

The formula for calculating competition intensity is:

$$\text{COMPETITION INTENSITY} = \frac{\text{NUMBER OF ACTIVE MOBILE MONEY USERS IN AN ADMINISTRATIVE AREA}}{\text{NUMBER OF MOBILE MONEY AGENTS IN THE SAME ADMINISTRATIVE AREAS}}$$

USAGE

Once all users and agents have been localised, aggregated usage figures can be analysed at the chosen administrative level.

By cross-referencing cash-in, cash-out, P2P, merchant payment, etc. with context-specific figures, such as the presence of economic hotspots, mines, oil fields, migration routes, border crossings, etc., the mobile money team will have a better understanding of the market dynamics and be able to tailor its go-to-market tool and prioritise actions to be taken.

Visualise data

The data assessed in the previous stages can become an operational go-to-market tool only if it is presented in a user-friendly way. Two visualisation formats can be used to understand the data: Excel files and interactive mapping.

EXCEL FILES

By aggregating all the data in a comprehensive Excel file, a mobile money team will be able to analyse a wide range of KPIs at several levels: nationwide, by region, by department, by commune, by BTS, and by agent.

Once the Excel file is designed, a mobile money team can focus on specific regions, specific agent segments, specific usage values, etc. just by filtering the data in the spreadsheets.

	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1															
2				Demographics					Indicators				Interpretation of ratios		
3	Region	Department		Population	Registered Users	Active Users	Agents		Penetration Rate Figure	Active/Registered	Competition Intensity Indicator		Penetration Rate Category	Competition Indicator Category	Commune Category
4															
5	**Country**			**1,232,950**	**44,782**	**16,149**	**255**		**1.3%**	**36.1%**	**63**		**Few users**	**Many agents**	**Few users - Many agents**
6															
7	**Region 1**			**1,180,745**	**39,641**	**15,394**	**224**		**1.3%**	**38.8%**	**69**		**Few users**	**Few agents**	**Few users - Few agents**
8	Region 1	Department 1.1		199,999	22,111	9,043	74		4.5%	40.9%	123		Many Users	Few agents	Many Users - Few agents
9	Region 1	Department 1.2		180,343	10,030	2,256	30		1.3%	22.5%	75		Few users	Few agents	Few users - Few agents
10	Region 1	Department 1.3		800,403	7,500	4,096	120		0.5%	54.6%	34		Few users	Many agents	Few users - Many agents
11															
12	**Region 2**			**52,205**	**5,141**	**755**	**32**		**1.4%**	**14.7%**	**24**		**Few users**	**Many agents**	**Few users - Many agents**
13	Region 2	Department 2.1		20,721	2,065	348	9		1.7%	16.8%	39		Few users	Many agents	Few users - Many agents
14	Region 2	Department 2.2		12,903	2,044	85	18		0.7%	4.2%	5		Few users	Many agents	Few users - Many agents
15	Region 2	Department 2.3		18,581	1,032	322	5		1.7%	31.2%	64		Few users	Few agents	Few users - Few agents

EXAMPLE OF DATA AT THE REGIONAL LEVEL

	A	B	C	D	E	H	I	J	K	L	M	N	O	P	Q
1															
2		Location								Competition Intensity				Usage	
3		Region Na	Region_C	Department_Na	Departme	CGI_IN	long	lat	Urban	Agents, lo	% of succesful i	Users, localized	Users/agent	Cashin_Volume	Cashin_Value
4															
5		Region 1	TD01	Department 1.1	TD0101	xxxxxxxxxxxxxx	xx.xxxx	yy.yyyy	Urban	12	67%	1,028	86	4,622	3,455
6		Region 1	TD01	Department 1.2	TD0102	xxxxxxxxxxxxxx	xx.xxxx	yy.yyyy	Rural	7	29%	1,375	196	3,717	1,323
7		Region 2	TD02	Department 2.5	TD0205	xxxxxxxxxxxxxx	xx.xxxx	yy.yyyy	Urban	3	0%	381	127	1,504	899

EXAMPLE OF DATA AT THE BTS LEVEL

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1																
2				Location							Distance				Usage	
3	Value_Segmen	Type_Segmen	Location_S	Region	Code of Regio	Department	Code of Dept	BTS_Principal	BTS_Longitude	BTS_Latitude	Distance to roa	Distance to urb	Distance to de	Distance to reg	Cashin_Volum	Cashin_Value
4	text	text	text	text	text	text	text	text	GPS Coordinc	GPS Coordinc	meter	meter	meter	meter	unit	USD
5	Successful	Mobile Agents	Rural	Region 1	TD01	Department 1.2	TD0102	xxxxxxxxxxxxxx	xx.xxxx	yy.yyyy	76,596	70,610	82,775	74,787	9.0	6.5
6	Active	Mobile Agents	Rural	Region 1	TD01	Department 1.2	TD0102	xxxxxxxxxxxxxx	xx.xxxx	yy.yyyy	1,308	28,739	120,679	39,877	10.0	5.0
7	Active	Mobile Agents	Rural	Region 1	TD01	Department 1.2	TD0102	xxxxxxxxxxxxxx	xx.xxxx	yy.yyyy	1,200	27,709	117,678	34,378	4.0	2.0
8	Dormant	Mobile Agents	Rural	Region 1	TD01	Department 1.2	TD0102	xxxxxxxxxxxxxx	xx.xxxx	yy.yyyy	3,500	13,456	89,037	23,378	0.0	0.0

EXAMPLE OF DATA AT THE AGENT LEVEL

INTERACTIVE MAPS

Maps are extremely user-friendly tools for analysing the market situation, from the highest to the most granular geographical levels. Some easy-to-use tools are available, and for this project, CartoDB has been used.[87]

To visualise the data, two sources will be needed: A) the Excel files developed above and B) administrative area shapes gathered in the first part, 1. Collect data.

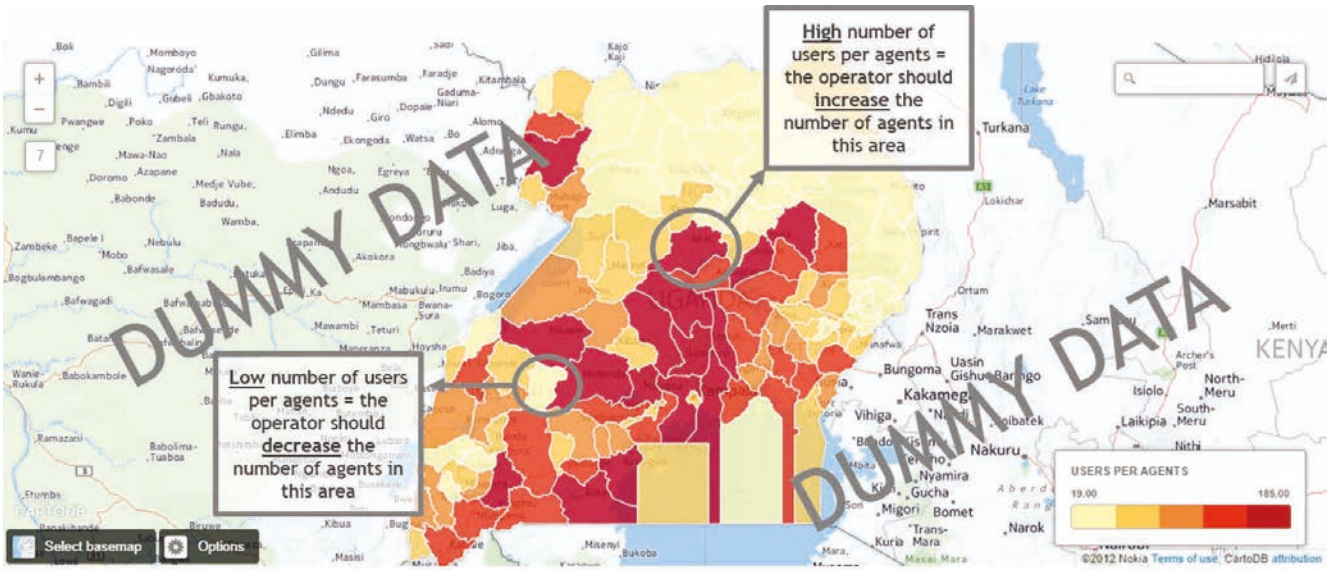
Once both files have been uploaded to CartoDB, the mobile money team can create maps. A large set of tutorials is available on the website: http://docs.cartodb.com/tutorials.html

An unlimited range of maps can be designed. Below are some examples using placeholder data.

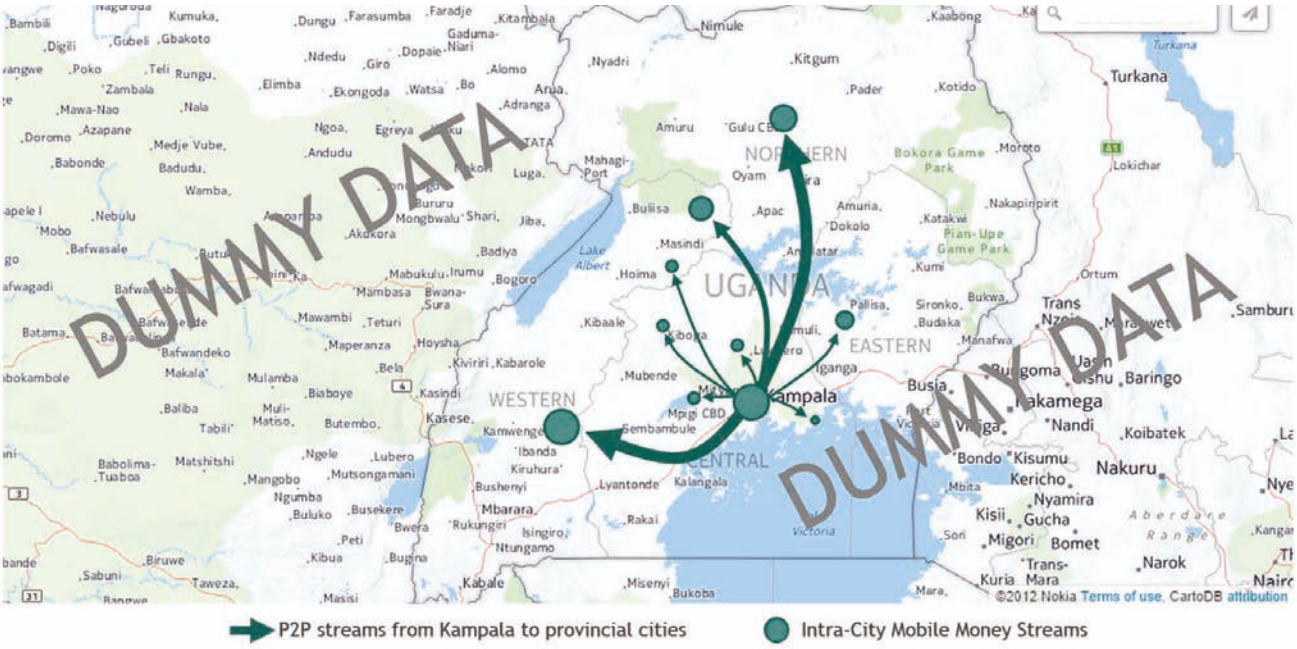
EXAMPLE 1: NASA NIGHT LIGHTS MAP
WHAT CAN YOU DO WITH THIS MAP? THIS MAP CAN BE USED TO DETERMINE URBAN AND RURAL BOUNDARIES.

87. www.cartodb.com

EXAMPLE 2: URBAN VS. RURAL BOUNDARIES – DUMMY DATA
WHAT TO DO WITH THIS MAP? THIS MAP WILL ALLOW YOU TO ASSESS WHICH AGENTS ARE RURAL AND URBAN, AND THEN CONDUCT THE ANALYSIS BASED ON THIS SEGMENTATION.



EXAMPLE 3: DENSITY – USERS PER AGENT
WHAT TO DO WITH THIS MAP? THIS MAP CAN BE USED TO DETERMINE WHERE A PROVIDER SHOULD INCREASE OR DECREASE THE NUMBER OF AGENTS.



EXAMPLE 4: MOBILE MONEY CORRIDORS
WHAT TO DO WITH THIS MAP? THE VOICE/SMS/MOBILE MONEY CORRIDORS HELP TO REVEAL WHERE USERS AND ACTIVE USERS ARE, AND HOW TO MANAGE FLOAT/CASH ISSUES.

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