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Mobile payment services in developing countries

Information, trust, and training: The ingredients for retail agents' success

In brief

- Financial services in developing countries are often expensive, leaving many of the poorest citizens without access to bank accounts. However, the growth of mobile payment services have been seen as a way to increase access by allowing individuals to send and receive payments through their phones.
- Although there has been much research on the benefits of 'mobile money', there has been relatively little academic inquiry into the firms who provide such services and their effectiveness.
- This research comprised of two country level surveys of the retail agents involved in selling mobile payment systems in Bangladesh and Tanzania. Its aim was to understand their relationship with the distributors or master agents for whom they sell the service for.
- The findings of the research suggest that the performance of retail agents in Bangladesh and Tanzania are strongly affected by the relationship they form with their distributors or master agents, particularly in terms of communication, training, and goals.
- The researchers conclude that in order to improve the performance of retail payment agents, it is important to select agents carefully and train them well.

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Mobile payment in developing countries

Access to banking services is often expensive in developing economies, and this restricts the ability of consumers and employers to reduce financial costs and risks. Moreover, banks in developing countries have tended to avoid the low returns and high risks involved in serving the segment of the market living in poverty. Thus, the lack of financial provision impacts disproportionately on the poor (Banerjee and Duflo, 2011). For the unbanked, the alternative payment mechanism is cash, but it is costly to store and expensive and dangerous to transport. Hence large segments of population in developing economies use costly (and risky) informal financial mechanisms, such as money lenders or hand-delivered cash transfers.

Recently, information and communication technology has developed in such a way that some of these longstanding market failures in the provision of financial services in developing countries may begin to be addressed. By developing transaction and loan products that can be accessed directly through mobile phones (e.g., MShwari loan products in Kenya), mobile payment systems (MPS) may alleviate the constraints on the market of banking services provision. Mobile payment services may also foster financial inclusion in developing countries by providing a cheap and secure way of transferring, and in certain cases, storing money

Despite the considerable potential of this innovation for economic growth, relatively limited research has been undertaken on the firms that provide mobile payment services in countries where the poorest members of society are largely excluded from financial services[1]. To do so requires the collection of primary data at the firm level, which we undertook via two country level surveys of the agents involved in the provision of MPS. We conducted our research in Bangladesh and Tanzania, each representing a different case of mobile payment diffusion. Bangladesh has facilitated a bank-led approach to MPS while Tanzania, one of the world's fastest growing mobile markets with 31.8 million accounts, has followed a telecom-led approach like its neighbour Kenya.

Through this research, we are interested in understanding how different ways of configuring the supply side of the provision of MPS may affect the expansion and performance of the mobile payment providers. We use our dataset to explore the relationship between firm capabilities and the spread of MPS service, as well as the relationship between the organisational architecture of firms and their performance.

Our findings suggest that the performance of retail mobile agents in

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1. Important research however has been undertaken on the impact of the introduction of MPS on consumers and on the financial behaviour of the poor (Jack and Suri (2011, 2014); Mbiti and Weil (2011)).

Bangladesh and Tanzania is strongly affected by the relationship that they form with their distributors or master agents. Specifically, goal congruence, bidirectional flows of information, and quality and quantity of meetings and training affect all aspects of retail agent performance. These effects on performance are supported by the quality of retail agent's human capital, motivation, and choices that retail agents make to specialise their business.

The policy implications of our work resonate with the concerns of practitioners and policymakers about the role of retail agents in the mobile money ecosystem. Even with advances in peer-to-peer mobile payment technologies, retail agents continue to be the backbone of mobile money infrastructure. The selection, engagement, and performance of retail agents affect diffusion of mobile payments networks and their effectiveness in bridging the gaps in access to financial services[2]. Our research clearly shows that in order to improve the performance of retail payment agents, it is important to select agents carefully and train them well. A further significant factor in company success is the establishment of a relationship of trust and open communication between retail agents and the mobile payment operators and their surrogates.

What are the key factors determining the performance of mobile payment agents?

Our survey is designed to delve deeply into the organisational arrangements within the suppliers, with additional heterogeneity being provided across countries and form of provider (banks versus telecom companies). The decision to provide MPS may require new resources and capabilities for both banks and telecom companies. Banks operating in this market may need to target a type of consumer that they do not traditionally serve, while telecom companies (telcos) lack experience in the banking business model of intermediation. We centre attention in our work on the intermediary for both types of provider in the supply of MPS; the *distributor or master agent* and their relationship with the actual supplier, *the agent*. Retail agents are typically shop or stall owners, selling a variety of mobile payment services directly to the customer, typically as only one element of their business, while the MPS provider, be it a bank or a telco, contracts only with the master agent (see the organisational structure in the Appendix).

Central to the business model but unlike either banking or mobile network operators (MNOs), mobile payment providers use an intermediary, called a *distributor or master agent*, to help the retail *agents* with their liquidity management (rebalancing cash and e-float). Managing and expanding the agent network is critical for the successful performance and growth

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2. GSMA (2015). State of the Industry Report: Mobile Money.

of the mobile payment system. Retail agents (henceforth agents) are the customer facing side of the company, conducting all the cash-in and cash-out operations. From the perspective of the company, if there are too many agents, some of them will be unable to generate enough business to cover the cost of liquidity management. On the other hand, if there are too few agents, customers may not be served adequately and business growth may be limited.

Context: Bangladesh and Tanzania

Both Bangladesh and Tanzania have relatively established mobile payment systems. The first product was launched in 2006 in Bangladesh (MobiCash/Grameenphone) and in 2008 in Tanzania with M-Pesa (Vodacom). These countries have been chosen because they represent different organisational orientations of the provision of mobile payment services. Bangladesh, following the Central Bank's "Guidelines on Mobile Financial Services (MFS) for the Banks" (September 2011), has favoured a bank-led approach to mobile money through partnership models led by banks with organisations such as BRAC and DBBL. Tanzania has instead followed a telecom-led approach driven by telecom companies such as Tigo, Airtel, and Vodacom.

Data collection

We collected information on 700 retail agents in Bangladesh from March-April 2016 in four different administrative divisions (Dhaka, Rajshahi, Barisal, and Chittagong) covering different rural and urban areas. We conducted the data collection in Tanzania from May-June 2016. In total, we obtained a sample of 400 interviews, in three different locations: Dar es Salaam, Morogoro, and the coastal region (Pwani).

In Bangladesh, we see from Figure 1 that 57% of the agents were located in Dhaka, and the rest were split evenly between the districts of Barisal, Chittagong, and Rajshahi. We found that 92% of the retail agents were located in an urban area, 94% of them were stationed in a fixed spot (in opposition to mobile), and only one agent was female (see Table 1).

In Tanzania, Figure 2 reveals that 50% of the retail agents in the sample were located in Dar es Salaam, the capital city, while the rest were divided evenly between Morogoro and the coastal area. We found that 84% of the agents were located in an urban area, 99% of them were stationed in a fixed spot (in opposition to mobile), and 55% were male (Table 1).

14.29%   14.29%

14.29%

57.14%

Barisal	Chittagong
Dhaka	Rajshahi
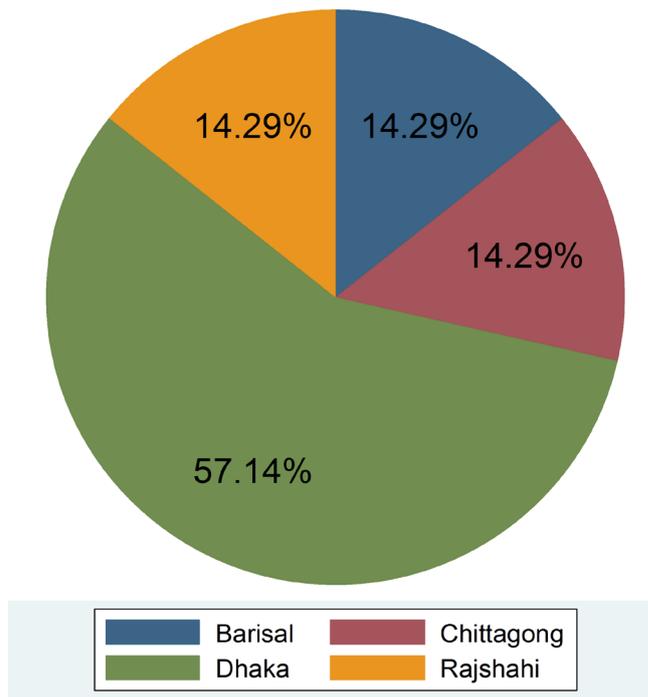
Figure 2: Geographic coverage - Tanzania

25%   50%

25%

Dar es Salaam	Pwani
Morogoro	
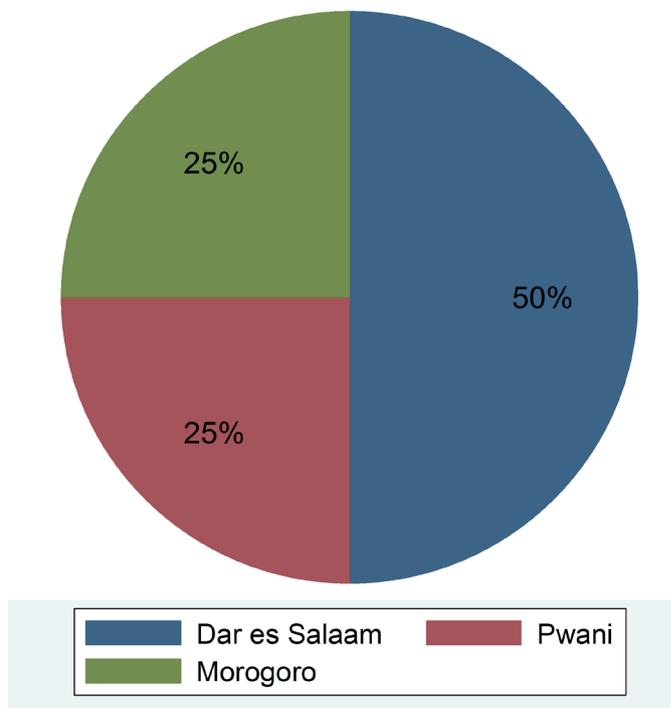
Table 1 – Summary statistics

Variable	Whole sample		Bangladesh		Tanzania		Means difference Bangladesh-Tanzania	
	Obs	Mean	Obs	Mean	Obs	Mean		
							t-stat	
Frequency meeting distributor[1]	1077	5.22	700	6.22	377	3.36	-32.46	***
Satisfied relation with distributor	1084	0.77	693	0.78	391	0.74	-1.48	
Nb of training received	1100	1.48	700	1.27	400	1.85	6.38	***
Adequate training	973	0.94	646	0.96	327	0.89	-4.35	***
Male	1100	0.83	700	1	400	0.55	-23.96	***
Owner dummy	1100	0.7	700	0.86	400	0.42	-17.38	***
Age	1098	29.9	699	31.29	399	27.47	-8.39	***
Level of education	1057	2.47	658	2.71	399	2.07	-8.94	***
# providers served	1100	2.41	700	2.24	400	2.7	6.68	***
MPS revenues, share of total[2]	1080	2.83	687	2.29	393	3.77	16.54	***
Stationed	1100	0.96	700	0.94	400	0.99	3.92	***
Nb of employees	1100	1.67	700	1.84	400	1.36	-8.33	***
Intensity of competition[3]	1100	3.53	700	3.54	400	3.51	-0.59	
Security is an issue	1100	0.29	700	0.2	400	0.45	9.06	***
Perception security risk[4]	1100	3.28	700	3.32	400	3.22	-1.81	
Time nearest provider (min)	1100	6.2	700	4.12	400	9.85	4.74	***
Travel time to get cash (min)	1086	34.56	700	6.79	386	84.92	16.71	***
Nb of transaction denied/week	1090	10.41	697	8.39	393	13.99	3.51	***
Age mobile money business	1063	4.9	695	5.07	368	4.59	-4.4	***
Days open/week	1100	6.56	700	6.59	400	6.51	-2.27	**
Hours open/day	1099	6.15	700	6.13	399	6.19	0.97	
Agent's motivation for starting their Mobile Payment Agency business								
To increase my business	768	0.89	602	0.89	166	0.88	-0.27	
My clients asked for it	768	0.34	602	0.42	166	0.05	-9.53	***
Chosen by the provider	768	0.01	602	0	166	0.02	2.1	**
Chosen by the distributor	768	0.03	602	0.03	166	0.02	-0.29	

3. 7 "Everyday", 6 "2 to 3 times per week", 5 "4 to 6 times per week", 4 "Once per week", 3 "Between once per week and once every two weeks", 2 "Between once every two weeks and once per month", 1 "Less than once a month".

4. From 1 "A very small part of total revenues" to 5 "A very large part of total revenues".

5. From 1 "Very Low competition" to 5 "Very high competition".

6. From 1 "Very low risk" to 5 "Very high risk".

The agents' business characteristics

In Bangladesh, Bkash clearly dominates the market with 91% of the agents offering its services, followed by DBBL (66%), Mcash (19%), Mycash (15%), and Ucash (22%). As Table 1 makes clear, agents usually serve more than one provider; indeed, they serve two providers on average, with a maximum of nine. There are fewer providers in Tanzania. There are three key players, each served by almost all the retail agents. Indeed, 93% of the agents offer Vodacom MPS, 76% of them offer Airtel services, and 96% Tigo services. We note that Zantel is very marginal, with only 3% of the agents interviewed offering its mobile payment service. On average, agents in Bangladesh serve more providers than those in Tanzania. Thus, the average is that each agent serves three providers (Tigo, Vodacom, and Airtel), with a maximum of five.

We find that retail agents are predominantly young (under 30 years old), male, and moderately educated. Around 70% have their own business, which are usually small (less than two employees), and the vast majority are stationed rather than mobile in their location. Their mobile business is typically very young, less than five years old, and the agents work very hard – they are on average open 6.6 days per week, six hours per day. These agents usually serve more than two providers, and the MPS activity on average represents only a moderate share of their revenue. The sector is highly competitive, with agents perceiving high levels of local competition in the supply of MPS services. Perceptions of risk are also typically rather high though only a minority have faced a security issue. Turning to the relationship with the master agent/distributor, most retail agents meet their distributor relatively frequently and are relatively satisfied with their relationship. Most have received some, but not much training, but the vast majority consider this to be adequate nonetheless.

There are relatively important differences between Bangladesh and Tanzania in terms of the characteristics of the retail agents, their relationship with the master agents, the business model, and the external context of activity (see Figure 2). Interestingly, there are no significant differences between samples in terms of agents' satisfaction with their master agent and their perception of the competition and of the security risk to their business.

Agents in Tanzania meet their master agent less frequently, while serving more MPS providers than those in Bangladesh. This may reflect differences resulting from the bank as against telco-based MPS system in each country. MPS also represent a higher share of retail agents' revenues in Tanzania than in Bangladesh, though firms have fewer employees on average. It is important to note that 86% of the agents in total reported having another business alongside the MPS activity (95% in Bangladesh and 71% in Tanzania). Generally, this other line of activity is a grocery

store, airtime distribution, stationary shop, or other type of shop (beauty salon, clothing, cosmetics, laundry, etc.). This may indicate that the business model of agents in Bangladesh is much more geared towards diversification of revenues than in Tanzania. However, interviewed agents are also much more likely to be the owners of their shop in Bangladesh, while in Tanzania it is more often an employee (86% were owners in Bangladesh, against 42% in Tanzania). This might suggest two distinct diversification models: on the one hand, a mobile payment activity added to an existing shop in Bangladesh (for instance operating a mobile payment desk inside a grocery shop premises), and on the other hand, a diversification of revenues via the operation of various activities located in different premises, operated by employees and periodically visited by a monitoring owner.

Figure 3: Business characteristics
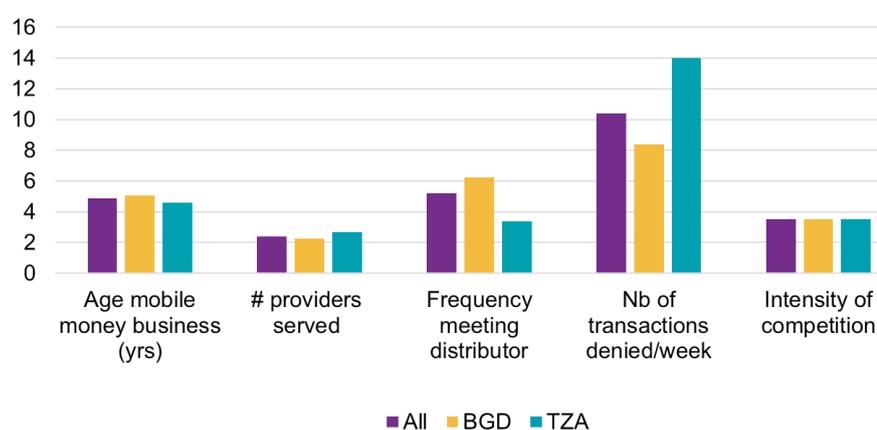
The characteristics of the agents vary also significantly between the countries (see Figure 3). First of all, as mentioned before, agents are almost exclusively male in Bangladesh while it is much more balanced in Tanzania, with 45% of agents being female. Retail agents are also significantly younger and less educated in Tanzania than in Bangladesh, but this might be related to the fact that the interviewed agents tended to be the employees in Tanzania, while they most frequently were the owner of the shop in Bangladesh.

Figure 4: Characteristics of the agents and their business
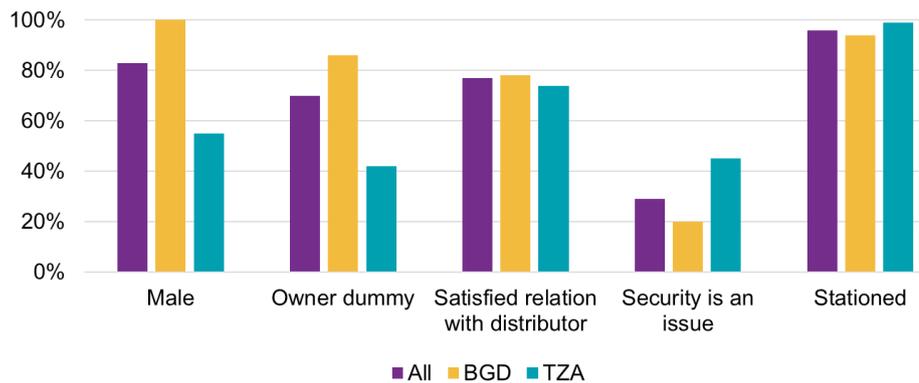
Agents were also asked their motivation for starting their mobile payment agency business (see Figure 4). The number of observations for this question is reduced due to the fact that this it is only applicable to owners, and therefore was not asked to interviewees who were employees. Agents could choose more than one reason. As noted above, the vast majority said that they did so in order to increase their business, reflecting the fact that the MPS activity is generally not the only business operated by the agent. While very few agents declared that they were chosen by the provider or by the distributor in both countries (around 2%-3%), 42% of the agents in Bangladesh also said that one of the reasons they decided to launch this activity was that their clients asked for it, while only 5% said so in Tanzania. This suggests a much more demand-driven approach to mobile payment in Bangladesh.

Figure 5: Motivations for starting MPS
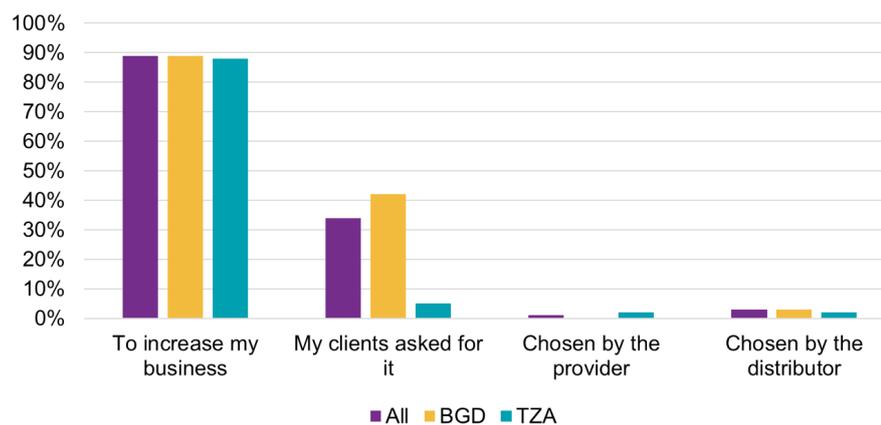
Configuring organisational capabilities for MPS

Our model and empirical methodology

We have collected survey data on 1,100 agents located in Bangladesh and in Tanzania. There is only one wave so the data represent a cross-agent, cross-country dataset. We use our dataset to explore the relationship between firm capabilities and the diffusion of MPS service, as well as between firms' organisational architecture and performance. In particular, we wish to understand the factors determining the performance of mobile payment agents. In the architecture of MPS delivery, the organisational structure is highly decentralised, so we are exploring the factors which facilitate such arrangements delivering good performance at the agent level. We analyse success both in terms of volume of transactions and the rate of expansion of the business (new clients). We focus on three principal areas, each of which are linked to one or more of the five factors outlined above, namely:

- the support that they receive from their distributor;
- the level of agent's human capital; and
- the business model that they have adopted (for instance, whether the mobile payment activity is their main activity, or if it is only an added resource channel).

Findings

We found that retail agents' performance in terms of business volumes and growth were enhanced by three key aspects of the relationship with the master agents (and behind that the MPS provider). In particular, in a decentralised organisational structure such as MPS provision, the benefits of goal congruence and mutual information flows between the master and retail agent, indicated by the frequency of meetings and the quantity of training provided, is found to be positively associated with all aspects of performance. The quality of human capital of the agent, captured by his/her level of education, has some positive significant effects on transactions but does not significantly affect business expansion. Thirdly, the specialisation of the retail agent's business, indicated by the share of MPS in total revenue, was found to improve the efficiency of decentralisation as an organisational structure and be positively related to performance. Finally, we also identify strong positive effects on performance from agent motivations, in particular when the motivation to offer the service is related to a desire to increase the agent's business.

Policy implications

Our study has important implications both for policymakers and for business people in the MPS sector. There is some evidence from our study that MPS may address some of the issues for the process of economic development caused by deficiencies in the institutional environment. Thus, security risks in a location increase the demand for mobile money, and more permanent and longer established businesses provide a sounder basis for expansion of the sector. For MPS providers, the key lessons concern information exchange and trust. The development of the MPS business at the retail agent level is driven partly by agents' motivation, but also by the architecture into which the agent is placed. There is a payoff in terms of performance from frequent meetings with the master agent, as well as via the provision of quality training. Careful screening of retail agents to ensure that educational standards are met and that MPS is an important element of the agents' business model can also help to improve business performance in this growing and significant sector.

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Appendix

Organisational structure – the example of Vodacom in Tanzania

Vodacom operates a two-tier structure with individual stores (subagents, in Vodacom's parlance) depending on master agents (or agent Head Offices (HOs)). Agent HOs maintain contact with Vodacom and perform two key functions: liquidity management and distributing agent commissions. Individual stores may be directly owned by an agent HO or may be working for one under contract. In the latter case, Vodacom does not prescribe the terms of agent HO store contracts, so they are free to work out their own liquidity management arrangements and split of agent commissions. Stores are free to switch between agent HOs. This also allowed Vodacom to use informal

'mom-and-pop' stores as sub-agents, while Vodacom's contract was with the HO.
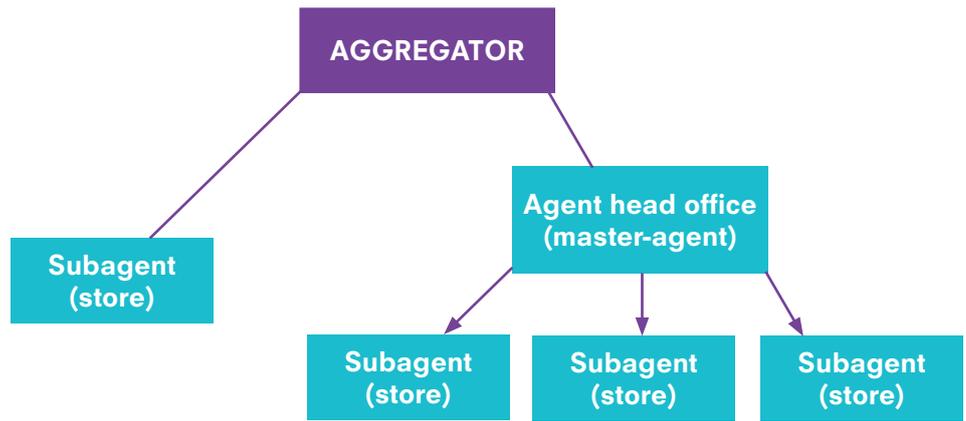
Source: Based on the case of Safaricom in Kenya (owned by Vodafone, same group as Vodacom).
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