

Fitting the Pieces of the Liquidity Management Puzzle

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This paper is part of a series of synthesis papers that summarise data on agent networks. We have collected the data over four and a half years from nine countries in Africa and Asia through the Agent Network Accelerator (ANA) project¹. *MicroSave's Helix* Institute of Digital Finance implemented the ANA project, with funding from the Bill & Melinda Gates Foundation, the United Nations Capital Development Fund (UNCDF), Financial Sector Deepening – Uganda (FSDU), and Karandaaz Pakistan. This paper synthesises knowledge and data on liquidity management approaches to ANA research markets and beyond.

The [past decade](#) has seen the proliferation of Digital Financial Services (DFS) deployments across the globe. Stakeholders have [different objectives for engaging in DFS](#), from extending financial inclusion for the unserved or underserved populations to cost-cutting and diversification of revenue streams. Agent networks have become the channel of choice for delivering financial services to customers, as they present a low-cost alternative to brick-and-mortar solutions and use existing bank branch networks or Mobile Network Operator (MNO) distribution networks, or both.

A key challenge to the credibility and sustainability of agent networks is ensuring adequate liquidity – in the form of sufficient cash and e-float to facilitate transactions.

While this is difficult, DFS providers, master agents, and agents have devised innovative ways to support liquidity management. This paper draws on Agent Network Accelerator Surveys across Pakistan, India, Indonesia, Bangladesh, Kenya, Uganda, Tanzania, Zambia, and Senegal, which used both quantitative and qualitative instruments. It discusses what liquidity management entails, the implications of poor liquidity management, the existing models of liquidity management and their successes and shortcomings.

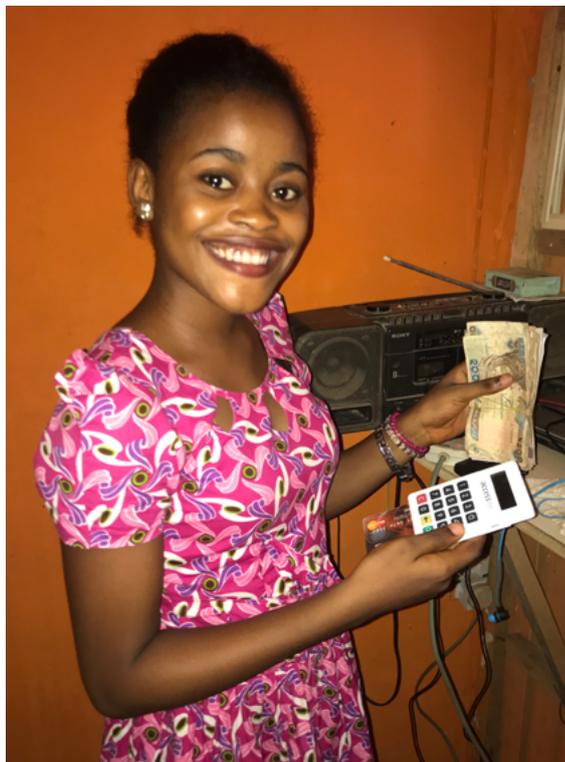
The past decade has seen the proliferation of Digital Financial Services (DFS) deployments across the globe.

1. Defining Liquidity Management

This paper defines liquidity management as all the activities involved in maintaining sufficient e-float and physical cash at the agent outlet, to perform cash-in/cash-out transactions. The distinction between cash management and e-float management is important.

E-float refers to the balance of electronic money (e-value) present in an agent’s wallet or account that is used to process customer transactions. When a customer makes a deposit (cash-in), the agent transfers e-value from their wallet or account to that of the customer in exchange for an equivalent amount of physical cash. When a customer withdraws money (cash-out), the agent issues physical cash to the customer in exchange for an equivalent amount of e-value.

E-float management is the process of ensuring that the amount of e-value present in the agent’s wallet (on the agent till) is sufficient to process customer deposits. Cash management refers to the steps involved in obtaining physical cash, either in exchange for e-value or as an amount dedicated to the agent business, used to perform customer withdrawals. This is commonly referred to as ‘re-balancing’.



1. See Appendix A for further detail on the data and countries covered.

2. Describing Liquidity Management in ANA Countries

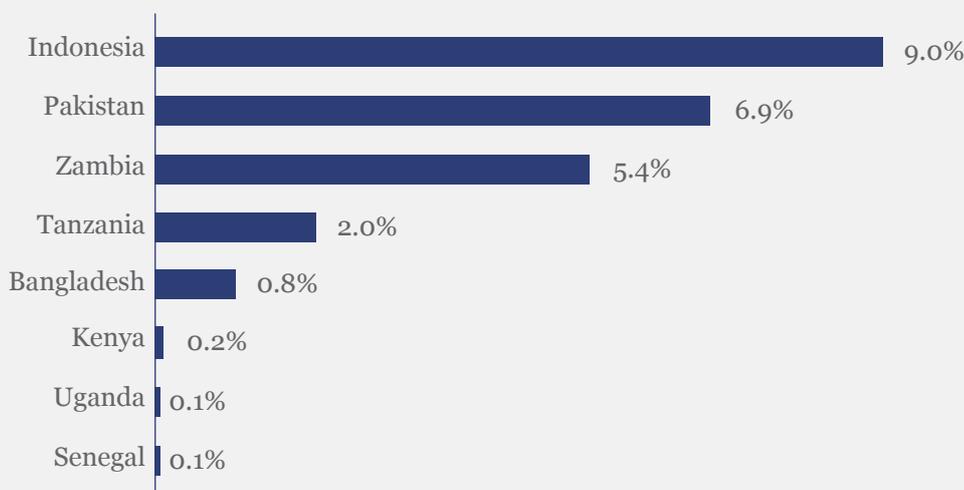
The challenges that agents encounter in liquidity management are similar across the markets studied. Figure 1 suggests that agents struggle most with unpredictable fluctuations in client-demand, time spent on rebalancing activities (when delivery of cash or e-value is not an option), and lack of capital.

Figure 1. Number of ANA countries (out of nine) reporting as top three barriers to liquidity management



In East Africa, longer travel times to rebalancing locations are statistically associated with less frequent rebalancing. This is because agents, or their staff, may have to shut shop and incur travel expenses, rebalancing fees, and tips during the rebalancing process. The rebalancing costs in proportion to the monthly revenues of agents are the highest in Indonesia and Pakistan (Figure 2). This is primarily due to the relatively low revenues of agents.

Figure 2. Rebalancing costs as a percentage of agents' monthly revenues



Agents in Zambia, Kenya, Senegal, and Indonesia primarily use banks to rebalance. In contrast, agents in Tanzania, Uganda, Bangladesh, and Pakistan also use master agents or aggregators as well as fellow agents to rebalance. In the former countries, agents generally rebalance every third day, compared to every other day in the latter.

DFS practitioners often assume that agents need more cash than e-float in rural areas on a presumption of higher demand for withdrawals among rural residents who receive remittances. However, Figures 3 and 4 demonstrate that with the exception of Indonesia, the demand for e-float is higher in both urban and rural areas – although it is easier to rebalance in urban areas due to ease of access to rebalancing facilities. Higher rates of agent non-dedication in rural areas in Zambia and Kenya help explain why fewer agents there struggle to get cash – as agents can dip into the cash generated by the parallel business when needed. Agent liquidity management-needs appear similar across locations, with agents needing assistance to convert cash into e-float.

Figure 3. Percentage of rural agents, by type of liquidity they usually need when rebalancing

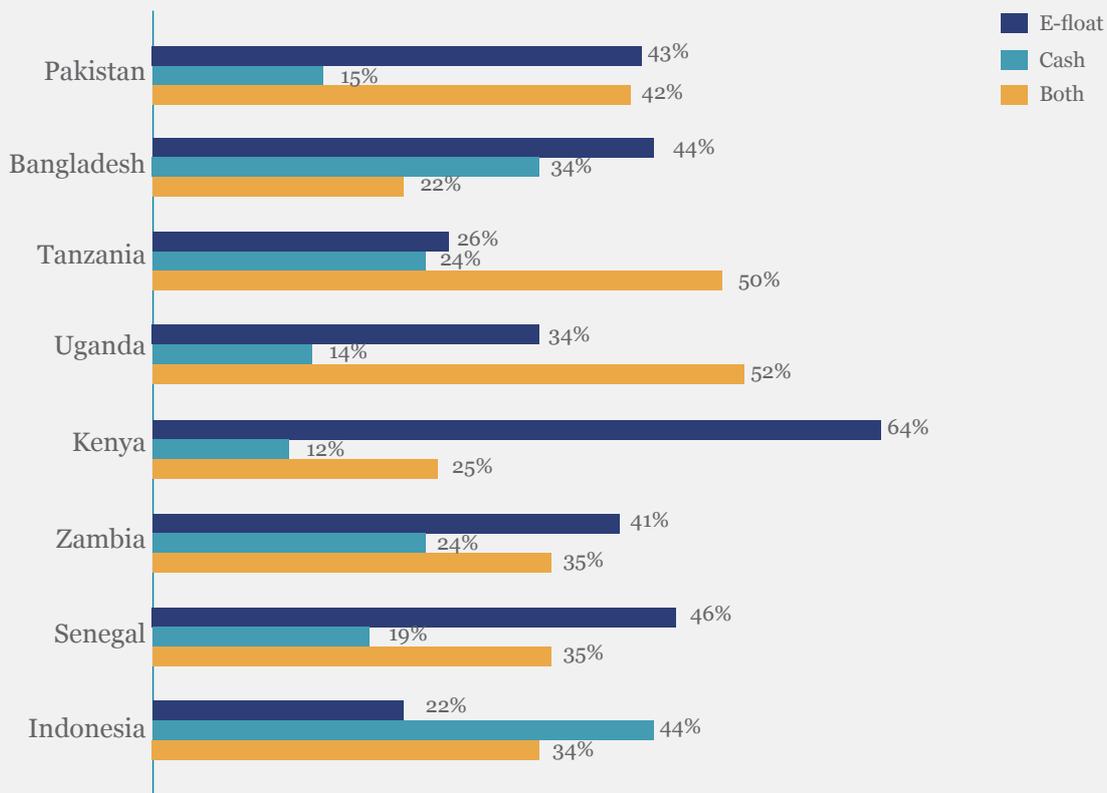
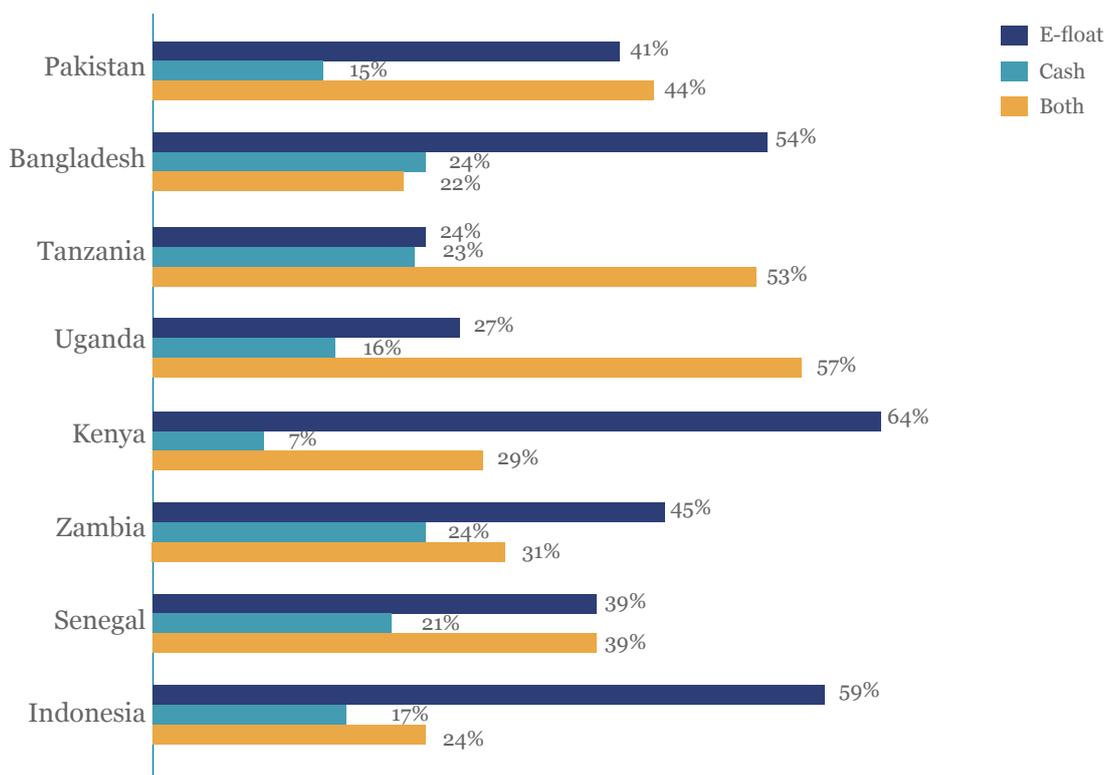
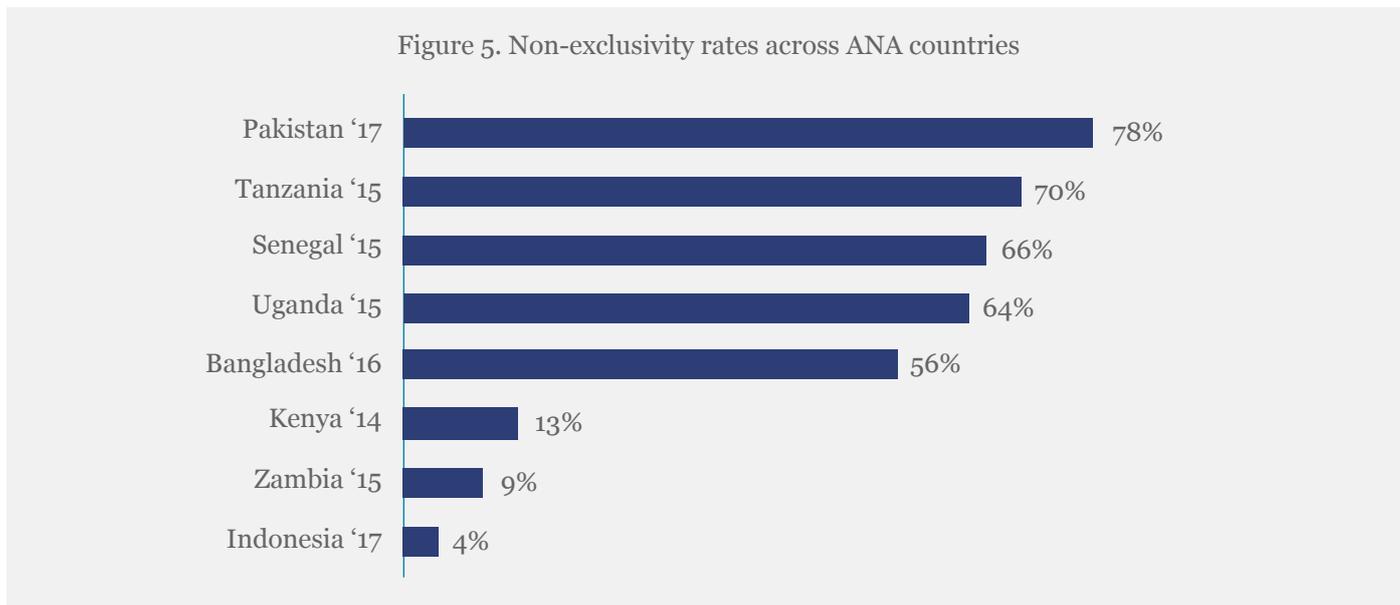


Figure 4. Percentage of urban agents, by type of liquidity they usually need when rebalancing



Agent non-exclusivity further complicates the agents’ task of maintaining sufficient levels of e-float and physical cash for the agent business (Figure 5). We explore the implications of managing float across providers in section 4.

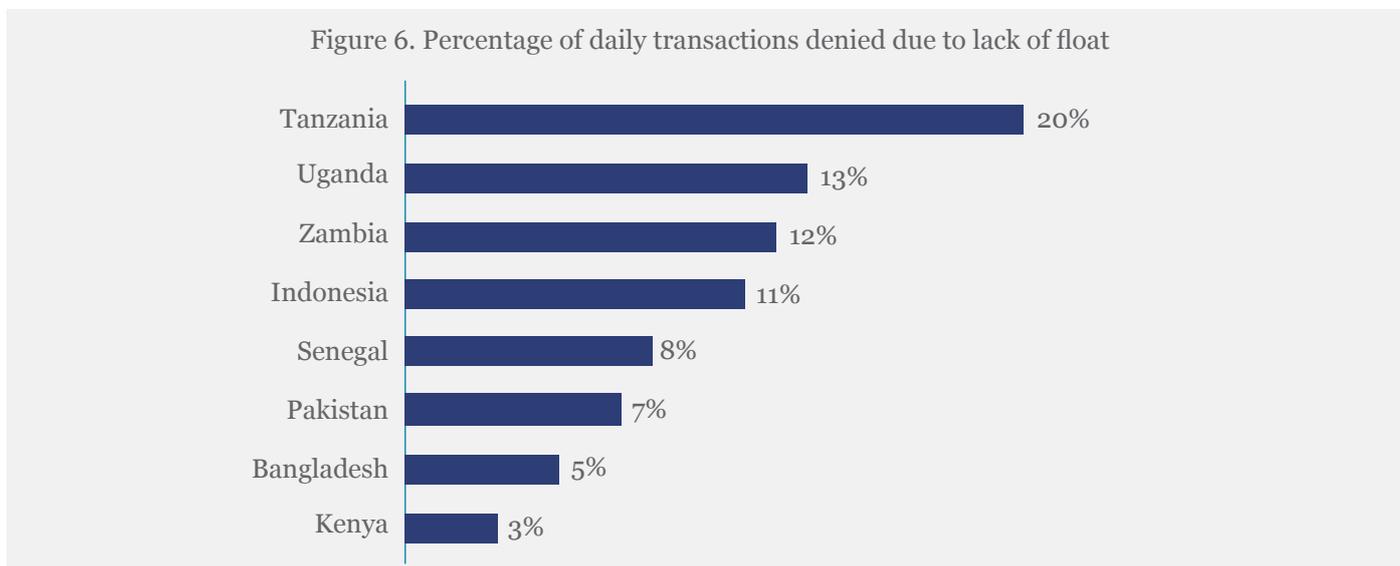


3. Impact of Failed Liquidity Management

Liquidity management is a challenge for providers and agents alike, in new as well as established deployments, across markets. Ineffective liquidity management has a broader impact on the sustainability of agent deployments. The following results are from the ANA research reports, and are further corroborated in *MicroSave’s* briefing notes – [Agent Dormancy: Impact on Customers](#) and [Agent Dormancy: Reasons and Remedial Measures](#).

3.1 Denial of Transactions and Reputational Risk

Agents who fail to manage liquidity effectively are forced to deny transactions when they do not have either e-float for customer deposits or physical cash for withdrawals or both. In Tanzania, agents report denying as many as 20% of the daily transactions conducted (Figure 6). At times, rather than admit that they are not able to facilitate a transaction for want of liquidity, [agents tell customers that the provider systems are down](#), which poses a reputational risk to the provider.

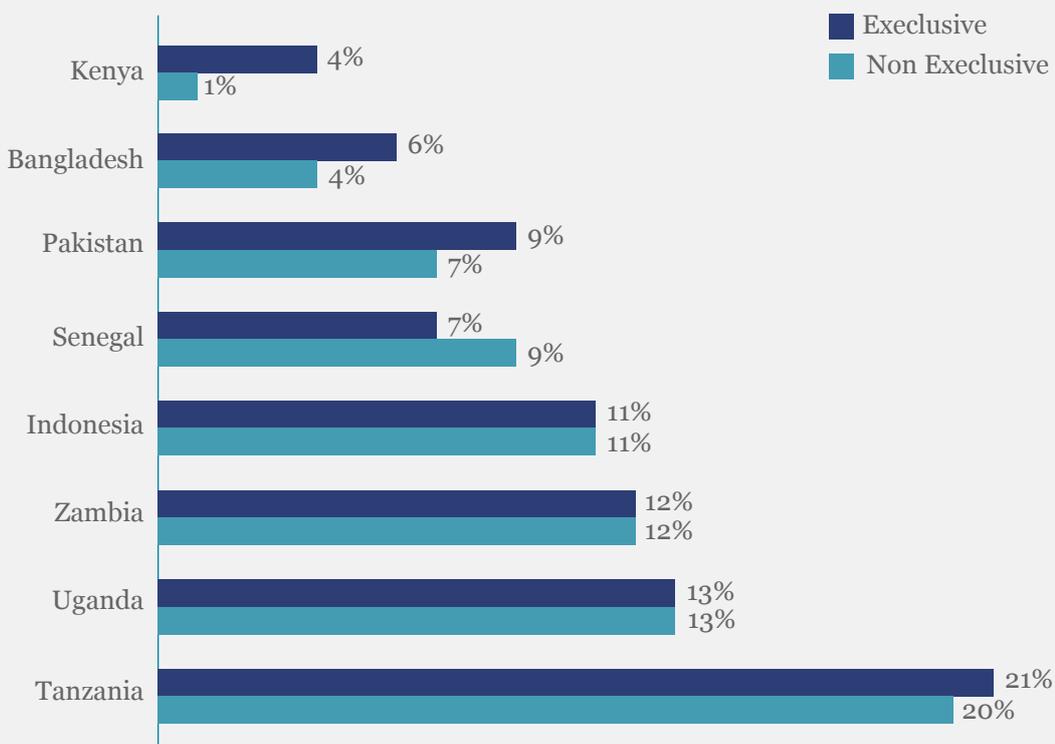


As alluded to above, non-exclusive agents have a harder time managing liquidity across the different providers they serve. Anecdotal evidence suggests that non-exclusive agents may allocate more money to transacting with their favourite provider, with provider loyalty usually driven by commissions earned and the support services provided. If this general wisdom were true, non-exclusive agents would be expected to deny, on average, a greater share of their transactions. However, the data in Figure 7 shows that exclusive and non-exclusive agents across the research markets generally deny a similar percentage of transactions for a given provider. One explanation for this could be the float management arrangements of some master agents and aggregators that manage non-exclusive agents are able to move float between providers at the agent-level.

Access to provider data would enable further analysis of liquidity management. However, data alone may not resolve the issue of lack of float. This is because typically, providers, master agents, and aggregators monitor float levels on a real-time basis and provide SMS notifications to agents when float balances are low. However, these monitoring systems can only capture data on transactions rejected through insufficient liquidity, not the potential transactions that the agent rejects before the transaction is attempted. The data in figure 7 is derived from quantitative analysis of information that agents have provided.



Figure 7. Percentage of daily transactions denied due to lack of float, by exclusivity



3.2 Reduced Agent Profitability

A paper from *MicroSave's Helix Institute*, [Successful Agent Networks](#), highlights sustainability as one of the key dimensions of the success of an agent network. Sustainability is determined by how profitable the business is to the agent and their motivation to remain an agent. Across virtually all ANA countries, more frequent rebalancing is associated with higher agent business turnover.² Similarly, in most markets, agents who deny a higher percentage of their transactions are statistically less profitable³. Because transaction volumes drive agent profitability, liquidity outages have a negative impact on the sustainability of individual agent businesses and the agent network as a whole. The more transactions an agent denies, the less profit they receive, which in turn undermines the agent value proposition.

3.3 Loss of Customer Trust

When an agent who does not have enough cash or e-value turns away customers, it undermines the customers' trust in the system. [Building trust in DFS](#) is a major hurdle that financial service providers have to overcome to drive adoption and usage. This is particularly true for developing countries where smartphone prevalence is low and customers are most comfortable with face-to-face interactions. [Repeated denials lead customers to avoid ill-reputed, illiquid agents](#), who then fall dormant due to insufficient demand.

3.4 Agent Workarounds

In five ANA markets, we found that agents who conduct higher value transactions rebalance more often. When faced with liquidity hurdles, agents devise workarounds to maximise the number of transactions conducted. In Kenya and Tanzania, agents who deny transactions do more transactions on an average than agents who do not deny any – so agents who are busier may have greater problems managing liquidity. Some agents resort to [transaction revenue honing and transaction pooling](#). Agents practice transaction revenue honing where commissions are tiered into bands. They encourage customers to transact at the lower end of each commission-based tier – thus maximising their commissions. Transaction pooling is a practice where agents will pool among themselves and provide each other either float or cash, or both, when required.

3.5 Compromised Digital Innovation

A lack of liquidity can compromise digital innovation through a downward spiral of trust, where few transactions lead agents to reduce liquidity, which leads to still fewer transactions and less liquidity. This then reduces transactions and income, and can lead providers to under-invest in the systems to support DFS innovation and management, when in fact they actually need to invest more in managing liquidity, downtime, and unauthorised fees, to encourage usage. Graham A.N. Wright has noted this in his blog [‘Can Digital Financial Services Turbocharge Financial Inclusion?’](#).

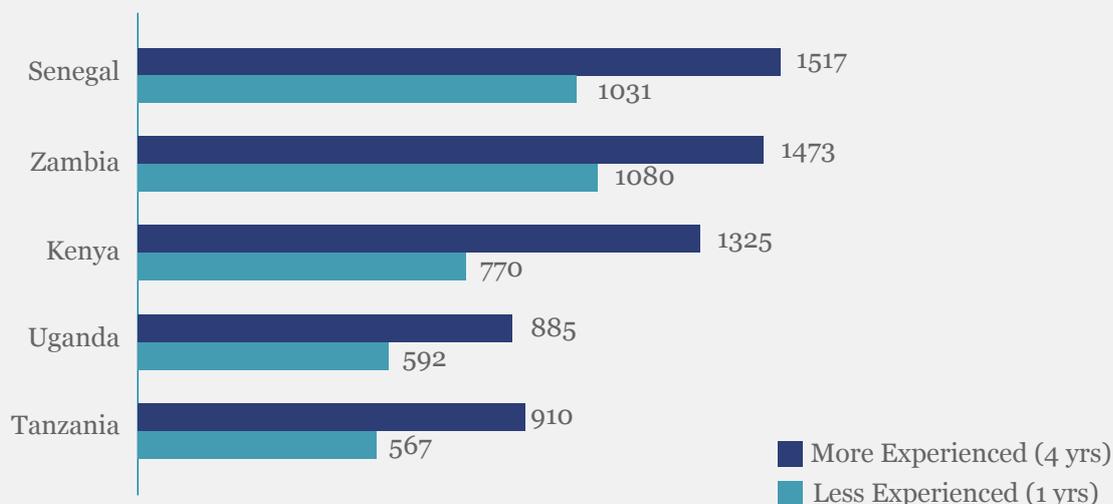
3.6 Reduced Agent Investment

More sophisticated DFS platforms allow providers to support agents with information on when they will need to rebalance and, in some cases, facilitate the [delivery of liquidity to the agent outlet](#). In the absence of these sophisticated liquidity support structures from the provider, agents have to maintain more float – thus requiring significant investment and effort to manage liquidity in order to be transaction-ready for customers. This, in turn, reduces the return on investment from the DFS business. When the returns on these investments are not very attractive, agents will divest to other more lucrative ventures, with lower operational risks and cost. In ANA markets, agents who have been in operation longer in general hold significantly more float, perhaps either because those who have not grown the business have reduced investment and eventually churned out, or because those with greater float enjoy higher transaction volumes and profits, or both. This can be seen in Figure 8.

2. With the exception of Indonesia.

3. With the exception of Kenya and Senegal, where the relationship is not statistically significant.

Figure 8. Average amount of e-float held by ANA agents (USD)



Qualitative observations through ANA research reveals that Asia (India, Pakistan, and Bangladesh) has agents who make more commissions because the businesses are mostly operated by the owners themselves who are able to invest more, without fear of staff stealing the money.

4. Why Is Liquidity Management So Difficult?

An effective liquid network offers rebalancing that is: (i) cheap, (ii) fast, (iii) frequent, and (iv) available on the basis of predicted client demand.

This section describes factors that make it challenging for providers and agents alike to achieve optimal liquidity management.

4.1 Whose Responsibility is It?

One of the reasons liquidity management remains a challenge is the lack of clarity on the responsibility of managing liquidity. Mobile money and agent banking guidelines that govern agent network operations provide no instructions on liquidity management for DFS stakeholders. Instead, regulators focus heavily on reducing risk through agent screening criteria and processes, and on consumer protection through disclosure and process. In Kenya, current policy limits the options to provide liquidity management assistance through agent banking – a financial institution is unable to transport cash directly without an armoured vehicle, which prevents liquidity delivery to agent locations⁴. However, the delivery of cash is popular in [Bangladesh](#) and [Pakistan](#) and has been increasing in other countries. Figure 9 shows the growing trend in liquidity delivery.



4. An order by the then Internal Security Minister in Kenya, John Michuki, following a spate of robberies on cash in transit vans as reported in the Daily Nation, 9th January, 2007.



Beyond the providers, agents in different countries draw from different sources of float or cash. This can be through ‘super-agents’ who manage liquidity locally for a transaction fee, or through ‘master agents’ who manage chains of agents for a share of commissions.

In Uganda, and increasingly in Tanzania and India, master agents deliver cash to high-performing agents in urban centres. Note that the terminology, ‘master agent’ and ‘super-agent’ is not used consistently from country to country.

In this paper, ‘master agents’ refers to third-parties who manage chains of agents and ‘super-agents’ refers to agents who have liquidity and float that other agents may purchase (see 4.5 Liquidity Sources).

Nor are the roles of master agents standardised across markets. A blog by Jacqueline Jumah, titled [‘De-mystifying the Role of Master Agents’](#) explores these interesting distinctions. Under this model, the responsibility for float management falls to the master agent, who often deliver cash to their best performing agents. While this allows agents to concentrate on conducting transactions, they pay for this service through commission share. Note the amount of float held is higher in markets that are not interoperable, as noted in Section 4.6.

4.2 Incentivising Liquidity Management

Providers can reward agents who consistently meet the standards of float management. While we cannot measure the availability of cash at a specific point in time, we can see the adequacy of cash over time by examining the number and value of withdrawal transactions. An instance of an agent who handles fewer or lower value transactions is a clear indication of cash problems, especially if nearby agents are conducting higher volumes. Incentives can include interest earned on float or one-time bonuses.

Another strategy is the education of agents by providers. Agents without adequate training or knowledge of how to operate an agency business are often managing outlets. Providers, therefore, need to educate agents on the both the importance of maintaining, and how to maintain, adequate float. Providers should highlight in their training and monitoring visits that agents who study their need for float as the business grows can serve more customers and thus earn higher commissions.

4.3 Seasonality of Demand

Agents experience high demand during holidays, school opening, market days, weekends, social transfers etc., as noted in the *MicroSave* blog [‘The Ebbs and Flows of Liquidity Management’](#). During periods of high demand, agents experience more frequent issues with insufficient float.

This results in denial of transactions and agents incurring high rebalancing costs as they try to address the demands for liquidity. At the agent-level, agent tracking of agency business trends is crucial to enable an agent to know whether they are in a deposit or a withdrawal zone.

Tracking of transaction trends in a month helps agents know the time/days to have what type of liquidity to cater to their customers’ demands. In turn, providers and master agents should push their analytics further to predict agent liquidity requirements [based on historical transactions data](#).

Armed with this information – providers or master agents must plan for high demand through encouraging higher agent float levels around peak periods, through pushing SMS reminders, and through reward structures.

Visits by master agents and provider or third-party staff appointed to monitor agents, armed with this information, can encourage better float management. Mechanisms to provide float include linking e-float accounts to bank accounts, providing float on credit, and in the case of [NovoPay](#) in India, using advanced GIS systems to match agents with nearby officers who can provide top-ups.

4.4 Agent Recruitment and On-boarding

Many providers have instituted minimum investment requirements, as well as minimum e-float balances, to ensure that their agents have sufficient capital to transact.

However, the drive to get agent numbers, particularly if delegated to [master agents](#), has often led to recruiters cutting corners and on-boarding agents who are unable to maintain enough liquidity to sustain their agency operations.

Since induction training is often largely focused on the operational aspects of running the agency business while leaving out the technicalities of float management, many providers struggle to ensure liquidity in their networks.

4.5 Liquidity Sources and Rebalancing Costs

While banks, followed by provider outlets, remain the primary source for liquidity in the ANA markets, some providers have agreements with either other financial institutions or cash-rich businesses, or both, to provide liquidity in the areas that are located far away from banks.

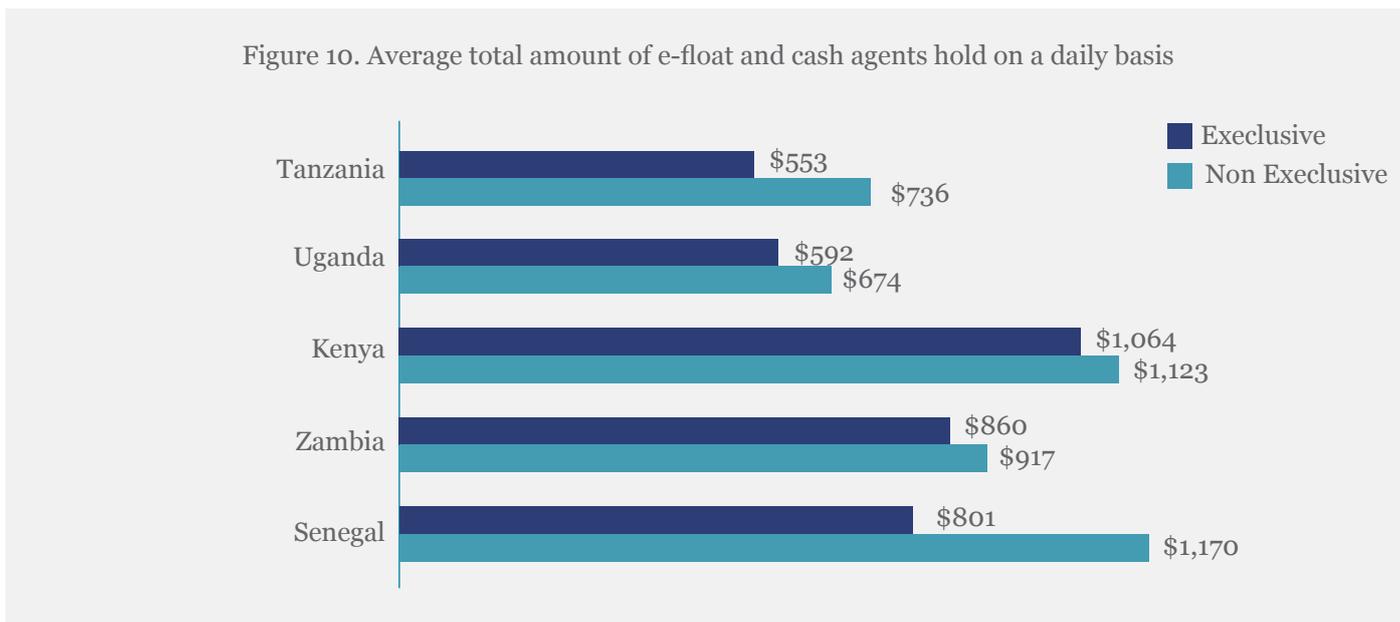
These cash-rich businesses may include supermarket chains or gas stations. However, incentivising rebalancing points to serve agents requires them to charge for the service, which discourages the agents from using it. Some providers have chosen to subsidise rebalancing costs for their agents, which has an impact on the bottom-line of their DFS deployments.



4.6 Non-interoperable Agent Models

In [Bangladesh](#), 94% of agents are non-dedicated, and 56% are non-exclusive. In turn, 22% of the non-exclusive agents were dormant for at least one of the providers that they served. The ANA surveys found that non-exclusive agents had to hold float for each provider. For some, this was a challenge.

Thus non-interoperable systems result in a proportionate increase in the level of liquidity held by agents (Figure 10). Among the ANA countries, only Tanzania has a formalised interoperable system that allows agents to share e-float or transfer e-float held between different provider wallets. However, the Uganda Bankers’ Association has been working on a [shared agents’](#) initiative.



5. Liquidity Management Models

Agent network deployments in ANA countries have adopted different models to facilitate liquidity management. These vary depending on whether agents use their own money for operations, their rebalancing method and channel, whether rebalancing is instant, and on the support that agents receive in managing liquidity.

5.1 Owning Float

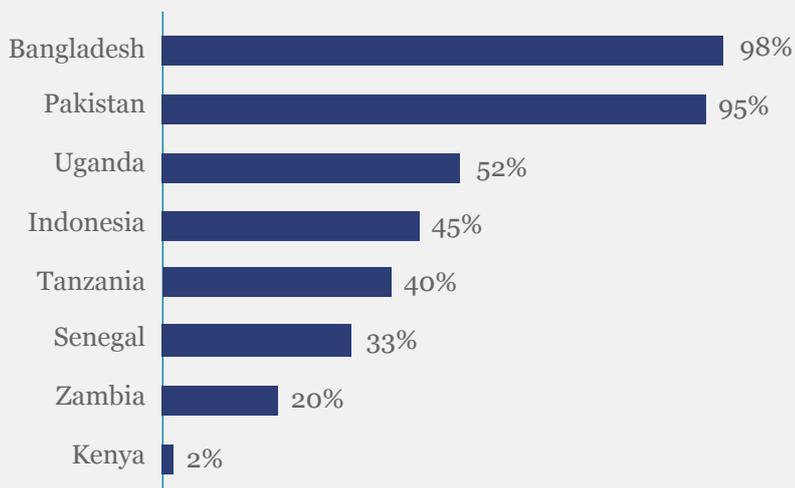
While DFS providers often impose minimum float requirements as part of agent on-boarding, and operational guidelines to ensure that agents hold sufficient working capital for the agency business, agents are not always expected to own their liquidity. As mentioned, in some operations, agents make use of float or cash from master agents or super agents. However, an advantage of having the agent take ownership of liquidity is it gives them full control of their operations and the autonomy on when to rebalance.

When an agent owns the liquidity, the recruitment process is key to ensuring that on-boarded agents have the capacity to raise the necessary working capital. For example, Safaricom requires an existing business (providing six months’ bank statement) to operate M-PESA. An agent must start with three outlets and each is required to invest KSH 100,000 (USD 1,000). Thereafter, outlets are required to hold balances ranging from USD 1,000 to USD 5,000 according to the volume and value of transactions they are conducting. Another provider in Kenya also requires agents to hold varying e-float balances ranging from USD 1,000–USD 5,000 daily, depending on their location (rural or urban). Providers have faced challenges with enforcing this method, as agents may borrow the funds initially to satisfy the setup requirement and subsequently may not sustain the required liquidity balances.

5.2 Delivery as Opposed to Pickup

In ANA markets, some providers offer on-demand or routine liquidity deliveries, while others require agents to travel for rebalancing (Figure 9). Deliveries are trickier for cash than for e-float due to security and cost concerns.

Figure 11. Percentage of agents who report getting liquidity delivered to their outlet



In highly non-dedicated markets like Bangladesh, Pakistan, and Indonesia, where DFS is an add-on to existing businesses, providers have generally sought to facilitate agent rebalancing. In Pakistan, [one provider](#) has made use of the existing support teams from the airtime distribution network to facilitate rebalancing for the agents.

In Bangladesh, distributors conduct regular liquidity deliveries and are available on-demand. In Uganda, providers and master agents use ‘liquidity runners’ to deliver float to some of the larger and more accessible agents. However, master agents interviewed in Uganda expressed their fears of loss in using runner services to deliver cash.

Providers also assist select agents in Senegal and Zambia. Generally, however, agents are expected to pick up liquidity for their operations from rebalancing points, identified by the provider. The agent incurs the cost of transport to the rebalancing point and the charges if any, to obtain liquidity.

5.3 Instant as Opposed to Delayed Rebalancing

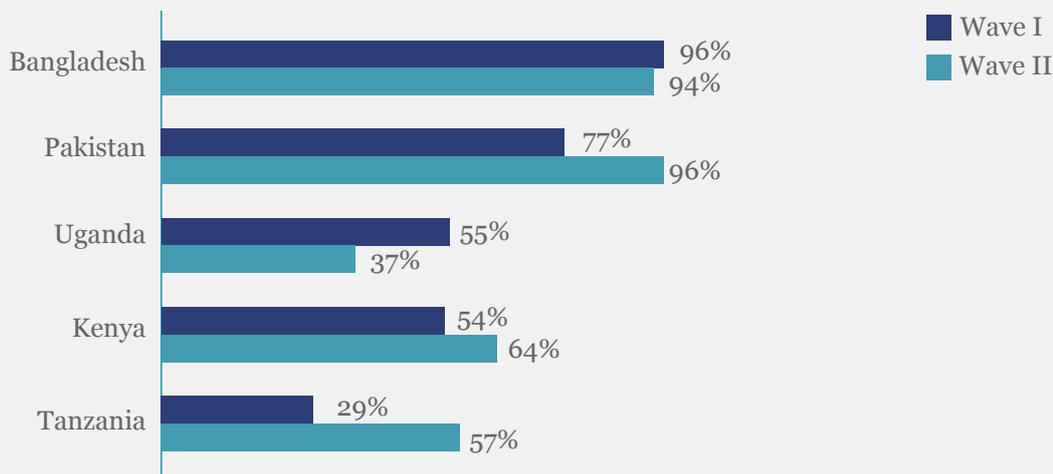
Agent cash-outs are generally immediate. However, obtaining e-float can be instant or delayed, depending on the integration of platforms between a provider and partners that provide rebalancing support. For example, one bank in Kenya requires agents to operate using an agent account, through which they can conduct transfers from a regular bank account into the agent wallet, thus enabling instant transfers.

When an MNO partners with a bank or other institution to facilitate rebalancing, agents may experience delays in obtaining e-float or cash due to lack of integration of platforms. In nascent DFS markets like Nigeria, bank agents can also experience delays with reconciliations effected at the end-of-day. At times, the processes may even be manual. In Malawi for instance, a bank partnership with an MNO requires agents to send a picture of the receipt to the provider after making a deposit to receive e-float on their wallets. Such cumbersome rebalancing procedures increase the costs of liquidity management for agents and providers alike.

5.4 Self-rebalancing as Opposed to Credit

Increasing non-dedication rates across most ANA markets point to the advantages of running DFS operations as an add-on to a parallel business (Figure 12). From the standpoint of providers, non-dedication reduces the pressure on the provider to ensure hefty commissions and enables smoother cash-management at the agent location.

Figure 12. Percentage of non-dedicated agents (running DFS operations in parallel to another business)



The exception is Uganda, where dedication has increased with the introduction of non-exclusivity. With just two major mobile money networks and well-developed master agent networks that actively manage liquidity in urban areas, it is common to see booths or small shops dedicated exclusively to mobile money in the country.

Non-dedicated agents can rely on their existing business to facilitate rebalancing, as cash from parallel sales can be used for customer withdrawals. Adding on a mobile money operation entails few marginal costs other than that of rebalancing. It, therefore, provides an attractive way to diversify income, increase the foot-traffic, and cross-sell products and services to the clientele.

Some agents receive liquidity management support through self-sourced or provider-funded credit facilities. While some banks, such as KCB and Equity Bank in Kenya provide credit facilities for their agents, more mobile operators have been implementing overdraft facilities (in some cases with digital credit providers like [Jumo](#)) to bridge the gap between agent rebalancing trips. Usually, agent performance is the key qualifying factor for this credit.

This is unfortunate, since the agents most affected by liquidity shortages and those in remote areas with high rebalancing costs would be least likely to receive this support. The key concern among providers is to ensure that the agents use the funding given to them for agent operations and do not redirect the funds to other uses.



6. Five Innovative Solutions to Liquidity Management

From the challenges identified through the ANA surveys, what are the potential innovations which can reduce the liquidity challenges that agents face?

6.1 Innovative Agent Platforms

Centralised monitoring systems can help identify agents who consistently fail to hold adequate liquidity. Alerts can then be sent to agents whose float levels have dipped below a recommended level to encourage rebalancing.

These platforms could facilitate a variety of rebalancing mechanisms. These include rebalancing at ATMs, as well as through inter-agent transfers, where agents can ask for and receive e-float from fellow agents. Agents may also choose to deposit or withdraw money from their personal account into the float account remotely without involving the bank. Master agents have already been doing this informally through WhatsApp groups set up by them to manage their agent networks. If providers are able to monitor these activities, they could monitor compliance and define standard operating procedures for their agents.

6.2. Uber-isation of Agents

Building on the ideas around inter-agent transfers, a [recent *MicroSave/Helix* workshop](#) discussed the potential to reduce the dependence on agents by empowering almost every customer to act as cash-in/cash-out points. This, of course, is already being done on an informal basis across the globe – particularly in remote areas that agents, who formally receive support from providers, are unable to serve effectively. Often, local business people or community leaders provide services to convert cash into e-value or vice-versa in an informal manner for a small commission. Using such an approach would mean an increased network of CICO points as well as reduced agency management costs for providers. Customers would benefit from the convenience of proximate services.

In '[Reimagining The Last Mile – Agent Networks in India](#)', *MicroSave* highlighted that “fintech companies can come up with smartphone applications that enable any user to act as liquidity merchants – mimicking what Uber has done for transportation. Similar initiatives can help address cash-needs in the ‘last few hundred yards,’ while agents provide the ‘last-mile’ backup, underpinning a more decentralised cash market.”

The elegance of this solution is that the users do not need to meet or even know one another. The shortcoming is that there is no scope for the exchange of physical cash.

Our discussions with industry stakeholders show concerns for the security of agents who currently operate on such ‘Uber-ised’ solutions. Their concerns are that if agents highlight that they have cash at their outlet, it is an invitation for [robbery and/or fraud, both of which have been growing at an alarming rate.](#)

Eko Financial Services Pvt. Ltd has launched an app called Fundu, which is being geared up for a pilot-test in Kenya. “This app will allow you to act as an ATM... Whenever a Fundu app user near you needs cash, you will get a notification. If you have cash and are willing to provide it, you can accept the request.” The individual will transfer the money to the user’s bank account using his or her virtual address. – LiveMint.

5. This section is an extract from a *MicroSave* blog '[Liquidity – solving agents' perennial problem](#)' developed from insightful inputs from a group of industry practitioners.

6.3 Use of Data Analytics to Predict Demand

Data analytics could be used to monitor transactions and facilitate liquidity management based on historical experiences and trends. This idea is built on a recommendation made by The *Helix* Institute in 2014 and by Harvard Business School in 2017. Using the DFS platform data to identify trends in agents' demand for e-float or cash will assist in planning for peaks and troughs. The platform itself could automatically share this information with agents and master agents to assist them in maintaining adequate levels of liquidity. The analyses would need some modifications to account for unusual and exceptional events that create spikes in demand for liquidity, such as general elections, large sporting events, and intermittent bulk payments like remittances to refugees or government subsidy transfers.

Nonetheless, regular SMSs to agents that predict the likely demand for liquidity on a monthly, weekly, and daily basis would help them to plan better. It would also inform the kind of support needed by providers and master agents, such as facilitating e-float overdrafts for agents (see below) or organising cash pick-up or drop-off at agent outlets. Providers can also use this data to monitor agent activity, which will help identify unusual or fraudulent practices, such as remote deposit, split transactions, and float-hoarding.

6.4 Credit to Allow Agents to Access Working Capital

Agents often cite lack of resources or working capital as the key impediment to financing their liquidity requirements. These impediments are sometimes (but not always) temporary, as a result of seasonal fluctuations. While few mobile network operators are willing to take the risk of lending to their agents, extending e-float on credit provides a significant opportunity to improve liquidity and enhance agent loyalty. If lenders use methods like data analytics, they would be able to predict liquidity-needs and assess the past performance of agents. This should allow lenders to significantly reduce the risk inherent in offering credit to agents.

Furthermore, a system that provides agents with e-float overdrafts to allow them to rebalance using their mobile phones could unlock significant value. It would also reduce the number of transactions declined for want of liquidity. Safaricom, for instance, offers their [premium M-PESA agents](#) short-term weekend/public holiday financing to meet their liquidity requirements. This not only boosts the availability of float but also increases the number of agents working over the weekends when banks and other super agents are closed. A few banks, such as Commercial Bank of Africa and Kenya Commercial Bank, are already taking steps towards this. However, given the sophisticated data analytics and credit platforms required in the process, [fintech companies may be best-suited to provide these lines of credit](#).

6.5 Set-up Digital Ecosystems

A core focus should be on deepening digital ecosystems. [Digital ecosystems](#) consisting of open APIs and fully interoperable platforms would facilitate and encourage the use of digital payments. This can reduce demands to cash-out and the need for agents to rebalance. Similarly, when FMCG suppliers insist on payment for supplies in e-value rather than cash, it can help rural agents use the e-float they accumulate.

We can achieve high-functioning digital ecosystems only if all the players collaborate to increase opportunities for additional digital transactions. Effective liquidity management is key to any trusted and successful agent network. Yet the much-vaunted challenges are all manageable, particularly if providers make use of the capabilities of fintechs and data analytics.

Appendix A: Agent Network Accelerator (ANA) Studies

The [Agent Network Accelerator \(ANA\)](#) project is managed by [MicroSave](#), with funding from the Bill & Melinda Gates Foundation, the United Nations Capital Development Fund (UNCDF), Financial Sector Deepening – Uganda (FSDU), and Karandaaz Pakistan. It is the largest research project on agent networks in the world that aims to increase the global understanding of how to build and manage sustainable cash-in/cash-out (CICO) networks in poor communities and identify factors that drive their success or failure. The research is designed to distil the most salient aspects of strategic operations in agent network management for the DFS industry, including agent network structure, agent operations, agent viability, liquidity management, quality of provider-support, and agent compliance.

[MicroSave's Helix Institute of Digital Finance](#) launched the project in 2013. Since then, The *Helix* has conducted over 38,700 agent interviews in 11 countries, providing assessments to over 40 leading agent networks around the world.

We carried out quantitative assessments in countries where the population of active agents exceeded 10,000 according to recent and reliable data. Where networks were nascent, the team carried out qualitative strategic assessments, interviewing providers, agents, and other DFS stakeholders (See Table A).

Table A. Study type and sample size, by country and year of data collection

Country	Year				
	2013	2014	2015	2016	2017
Bangladesh		Quantitative (2841)*		Quantitative (2309)*	
Benin			Qualitative		
India ¹			Quantitative (4437)*		Quantitative (3199)*
Indonesia		Qualitative			Quantitative (1383)*
Kenya	Quantitative (3220)*	Quantitative (4126)*			
Nigeria		Qualitative		Qualitative	
Pakistan		Quantitative (3151)*			Quantitative (2563)*
Senegal			Quantitative (1639)*		
Tanzania	Quantitative (2052)		Quantitative (2066)		
Uganda	Quantitative (2028)		Quantitative (2288)		
Zambia			Quantitative (1350)*		

*Includes booster sample for key providers. Outside Tanzania and Uganda, core random samples were 'boosted' with additional interviews for specific providers in order to obtain statistically relevant sample size.

1. Second wave India data was being finalised at the time of paper writing. Because the Indian market underwent a dramatic transition following the demonetization of INR 500 and INR 1,000 denomination banknotes, papers do not present data from 2015 as it has lost relevance.

While *MicroSave's Helix* Institute of Digital Finance directly conducted the qualitative agent network strategic assessments, The *Helix* managed the quantitative studies with data collection outsourced to local data collection and management firms.

Between 2013 and mid-2015, data collection, quality control, data cleaning and analysis were outsourced to the local survey firms. The *Helix* provided the survey teams with the core ANA questionnaire which was administered using Computer Assisted Personal Interviewing (CAPI)². From September 2015, the survey was streamlined to reduce the number of questions and in-house most of data quality control, data cleaning procedures, as well as all data analysis.

Across all countries, we designed the ANA surveys to be nationally representative at the country, rural/urban, and provider levels. The study methodology varied slightly from country to country depending on the agent population data available and which The *Helix* and the local survey firms were able to obtain. In Kenya, Tanzania, and Uganda, we used agent censuses conducted by [BrandFusion](#) as sample frames for the studies. In other countries, The *Helix* compiled publicly available data on agent locations and solicited agent lists from the countries' leading providers.

The sampling strategy in all countries was two-stage stratified cluster random sampling, with administrative units being stratified by region and rural/urban classification³, then drawn at random. Agents are subsequently sampled from the randomly chosen administrative units in proportion to the agent population. In markets where agents serve multiple providers, agents were interviewed about their operations for a provider, randomly selected from the list of all providers for whom the agent has conducted at least one transaction in the preceding 30 days.

Each study was analysed to produce publicly available [country reports](#)⁴, which contain essential information about the performance of agents and providers who manage them. Leading DFS providers also received confidential reports with business intelligence comparing their network to competitors. In addition to country and provider reports, *MicroSave's Helix* Institute of Digital Finance has synthesised ANA data to enhance industry understanding of best-practices and benchmarks for building and managing agent networks across the globe in [blogs](#) as well as the following publications⁵:

- [Designing Successful Distribution Strategies for Digital Money](#) helps providers understand their goals for building an agent network. It subsequently helps them think through the model of building an agent network that best fits their needs.
- [Successful Agent Networks](#) builds on the understanding that networks are the channel providers used to deliver distinct value propositions to different customer target groups. It lays out a comprehensive analytical framework for analysing agent network success along several key dimensions.
- [Agents Count: The True Size of Agent Networks in Leading Digital Finance Countries](#) lays out a framework for understanding agent network size, drawing the distinction between agent tills and agent outlets. It also discusses agent activity rates and calculates customer to agent outlet ratios, providing updated benchmarks for the industry.

2. ANA questionnaires were adjusted to capture market specificities, while preserving the core of the survey.

3. National census rural and urban classifications were used in Pakistan and Indonesia. In Africa, larger and densely populated regional, provincial and district centres are classified as "urban" whereas sub-districts or locations outside major districts are classified as "rural". Similarly, in Bangladesh, Thana and Village Headquarters are classified as "rural" with eight divisional headquarters and districts classified as "urban".

4. Tanzania Country Report based on 2015 data remained unpublished due to the Tanzanian government's restrictions on conducting nationally representative surveys.

5. *MicroSave's Helix* Institute of Digital Finance has also authored the following landmark pieces on DFS product and business model evolution:

- [Finclusion to Fintech: Fintech Product Development for Low-Income Markets](#) This paper is designed to help fintech innovators understand the unique money management strategies used by low-income people in the developing world. It summarises insights from 15 years of financial inclusion research and suggests how cutting-edge technological innovation in the fintech industry could better serve developing world markets.
- [Redesigning Big Data for Digital Finance](#) This paper proposes important strategies that digital finance providers (mobile network operators [MNOs], banks and third parties) should adopt to manage the influx of fintech (technology firms) players into the developing world. It argues that to compete or collaborate with fintech players, providers need to augment their customer data.
- [OTC: A Digital Stepping Stone or a Dead-end Path?](#) discusses the pros and cons of Over the Counter (OTC) transactions and argues that they should be seen as a stepping stone to mobile money account adoption and use.

This compilation of papers draws on the rich ANA data, with the exception of India, to benchmark agent training and support, liquidity management strategies, as well as risk levels across agent networks. The compilation also takes into account the framework presented in the [Successful Agent Networks](#) paper. Each paper uses a distinct analytical approach:

- **Benchmarking Agent Support** classifies 27 leading providers into three groups, according to the providers' agent network management approach: direct, indirect, or hybrid. It further analyses trends between Wave I data collection (conducted 2013–2014)⁶ and Wave II data collection (conducted 2015–2017). Slight variations in data collection approaches across markets as well as differences in levels of market maturity constitute the methodological limitations of this analytic approach. Nonetheless, we believe that the data offers interesting, even if indicative, evidence on the levels of training and support each agent network management models can achieve as well as the effectiveness of agent training and support.
- **Fitting Pieces of the Liquidity Management Puzzle** relies primarily on the latest wave of data collection for each country and country-level analysis, supplementing it with trend-related data as well as provider-level nuance.
- **Measuring Risks in Agent Networks** draws on both supply-side (ANA) and demand-side (Financial Inclusion Insights, FII) data to propose indicators for different types of risks. Both datasets are analysed at the country-level to offer country-wide benchmarks for providers to use.

Appendix B: Relationship Between Provider Support and Agent Performance Metrics

	Initial Training	Refresher	Support Visits
Branding (provider sign and/or colours)	Indirect Waves I & II Hybrid Wave I	Indirect Waves I & II Hybrid Wave II	Indirect Wave I Hybrid Wave I
Professionalism (business hours, call centre number)	Direct Wave II Indirect Waves I & II	Indirect Waves I & II Hybrid Wave II	Hybrid Wave II
Compliance (tariff sheet & agent ID)	Indirect Waves I & II	Direct Wave II Indirect Waves I & II Hybrid Wave II	
Transactions denied due to lack of liquidity	Hybrid Wave II		
Transactions volume		Indirect Wave I Hybrid Wave II	
Profit satisfaction / Retention		Hybrid Wave I	Hybrid Waves I & II

Information in the table is based on statistical tests of groups who receive vs. do not receive various support services (induction, refresher training and support visits) from the provider. Tests were conducted for each of the 27 leading providers in ANA research countries. Results were examined by agent network management model and presented in the table if the bulk of providers belonging to a particular model showed statistically significant differences.

6. Note that we have included the 2014 Kenya data collection, carried out in December 2014, in Wave II.