

Digital Savings Groups



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About SEEP



SEEP is a collaborative learning network. We support strategies that create new and better opportunities for vulnerable populations, especially women, to participate in markets and improve their quality of life. For over 30 years, our members have served as a testing ground for innovative strategies that promote inclusion, develop resilient markets, and enhance the livelihood potential of the world's poor. SEEP's 100 member organizations are active in 150 countries worldwide. They work together and with other stakeholders to mobilize knowledge and foster innovation, creating opportunities for meaningful collaboration and, above all, for scaling impact.

For more information, visit www.seepnetwork.org or follow on Twitter [@TheSEEPNetwork](https://twitter.com/TheSEEPNetwork).

About FSD Africa



FSD Africa is a specialist development agency working to reduce poverty by strengthening financial markets across sub-Saharan Africa. Based in Nairobi, FSD Africa's team of financial sector experts work alongside governments, business leaders, regulators and policy makers to design and build ambitious programs that make financial markets work better for everyone. Established in 2012, FSD Africa is incorporated as a non-profit company limited by guarantee in Kenya. It is funded by UK aid from the UK government.

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1 INTRODUCTION

Savings groups are a local response to the inability of financial institutions to effectively reach remote, marginalized and low-income communities. Savings groups are savings-led, enabling local capital formation; and, critically, lending is based on local assessment of repayment risk.

Digital Savings Groups are technologies and systems that digitize savings group records, procedures or transactions.

Savings groups struggle, however, to satisfy members' needs for transparency and a growing range of financial services – including long-term savings, and access to larger, long-term credit. 'Digital Savings Groups' may change that.

The SEEP Network defines digital savings groups (DSGs) as **"technologies and systems that digitize savings group records, procedures or transactions."** What is most exciting about the growing range of DSG solutions is their potential for scale. At least two billion adults worldwide are financially excluded. In the last few decades, savings groups promoted by development organizations have reached about two percent of this population, with little

apparent incentive for market actors to train new groups or work with existing groups. DSGs may create those incentives, reduce the cost of training, and dramatically increase the potential for outreach.

Digital savings groups may also improve the user experience. Digital savings groups offer greater transparency and time efficiency for members. They may also enable members to access a growing range of financial services, based on a financial history that they can share with financial service providers who participate in a marketplace that develops around the groups.

This learning brief – based on a survey of 12 DSG solution providers¹ – examines the design options, and essential tradeoffs in solution development. The target audience includes philanthropic entities, as well as private sector actors – impact investors, microfinance investment funds, banks, non-bank lenders and mobile network operators – that recognize the commercial potential of new digital approaches for savings groups. Fintech innovators may also find this document useful for identifying new opportunities and risks in developing digital solutions for savings groups.



HIVEONLINE

¹ Afya-Plan, Aga Khan Foundation Tanzania, Angle Dimension, BezoMoney, CARE, DreamStart Labs, Emergent Payments, Exuus, Finlok, MaTontine, Mvend, Pact, and WeTrust. For a detailed description of these solutions – and other technologies for savings groups – see the Savings Groups Technology Toolkit (<https://mangotree.org/Technology-Gallery>)

2 THE BENEFITS OF DIGITAL SAVINGS GROUPS

This section describes the potential benefits of digital solutions for savings groups. These solutions include both digital record-keeping tools for cash-based groups, and solutions based on digital payments.

IMPROVED ACCESS TO CREDIT

A safe place to save is, on its own, hugely powerful for the poor. Social support, advice and networking are other substantial benefits, which may matter as much as the financial services from the group. But access to larger, more affordable sources of capital is a constant priority for households and small businesses at the base of the pyramid, and lending may prove to be the biggest driver of scale and sustainability for digital solution providers.

The ‘special magic’ of savings groups derives from the fact that they are internal to the community, as opposed to formal financial institutions which are external to it. Social norms and bonds are the basis of loan assessment and enforcement, rather than the community’s resistance to it. ‘Dead capital’ that formal institutions ignore when evaluating borrowers is easily considered by groups that understand the unique context of their members. A son who is apprenticed to a goldsmith is an asset to his landless village household, every bit as much as the land title held by a wealthier neighbor. Savings groups can take these informal assets into account whereas formal institutions cannot. Conversely, a client that parades out a neighbor’s cow for an MFI fieldworker could never, and most likely would never try, to deceive her savings group this way.

Flexibility in loan recovery is the other side of the same coin. Under adverse conditions such as a poor harvest, civil strife or a public health crisis, or simply as the financial circumstances of members change unexpectedly, groups adapt in ways that formal institutions cannot. Loans to otherwise faithful members are restructured without shame or penalty, based on the group’s norms or perhaps just their spontaneous, sympathetic decisions (after all, next time it might be any of the other members).



DAN CHURCH AID

An important limitation of savings groups, however, is limited capital, particularly in groups that distribute their fund at short intervals. Some members may need bigger loans than groups can reasonably provide. In other cases, members may need loans at the same time, such as around planting season or a holiday.

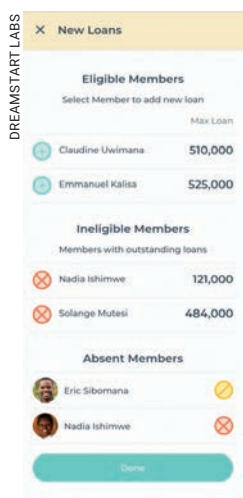
SAVE groups in Rwanda have access to a line of credit to improve their ability to meet members’ demand for loans.

Users of SAVE, a DSG solution in Rwanda powered by Exuus, have the option to deposit a portion of their fund against a line of credit that allows the group to issue more loans than internal funds would otherwise allow. Exuus’ banking partner charges the groups 2% per month on the declining balance, leaving a considerable margin on the 5-10% per month the groups charge members.

The solution allows groups to accumulate their fund for a maximum of five years which, when combined with the line of credit, should enable groups to make larger loans that compete favorably with offerings from formal financial institutions.

PROFIT ALLOCATION

Groups that maintain paper records typically struggle with profit calculations unless all members save equally. Allowing savings to vary between members, and over time, encourages better capital formation by allowing those who can save more to do so. But this variability also complicates the process of allocating profits each time the fund is distributed, or dividends are paid. Digital solutions manage these profit calculations for the group, removing the complexity and encouraging members to save more in the knowledge that they will be paid a fair and accurate share of the profits.



DreamStart Labs has created an interesting feature in its DreamSave application which goes beyond the automation of profit calculations at the end of the operating cycle. DreamSave allows members to see their share of accumulated profits in real time, alongside a predicted final savings and profit total at the group's agreed liquidation date. Displaying progress and predicting the final outcome of each member's savings habits serves to both instill confidence in the process and encourage greater savings – and a spirit of healthy competition. This progress information sits alongside

a saving goal that each member declares at the beginning of the cycle and adjusts dynamically as their savings rates increase and decrease with each meeting. It is easy for members to see how their savings decisions affect their progress toward their goal.

TIME VALUE OF MONEY

The time value of money – the allocation of more profit to savings that has been in the fund for a longer period – is important to members' willingness to save. Groups that maintain paper records might need to treat all savings equally when allocating profits, irrespective of when the money was contributed. In this case, without some limit on savings, members who can afford to contribute large amounts late in the cycle have the opportunity to capture a larger share of profits.

Digital solutions for savings groups can eliminate members' concerns about profit capture by respecting the time value of money. If savings contributed later in the cycle attracts less profits than savings contributed earlier, there is no opportunity to take advantage. The reverse is also true – if the benefits of time value of money calculations are explained properly, members will be motivated to save more and save earlier in the cycle, supporting the development of the fund. The positive effects of time value of money calculations will be more pronounced as cycles lengthen.

WITHDRAWALS

Savings groups allow – at least notionally – the withdrawal of savings, typically without profits. Access to savings, whether through frequent liquidations of the fund or by withdrawal is supportive of high savings rates. Members with unreliable incomes, or those who are simply reluctant to borrow, might withhold savings they would otherwise have contributed to the group fund. Digital solutions that respect time value of money calculations can allow members to withdraw savings, without foregoing the profits they have accrued.

When speaking of withdrawals, with or without profits, there is an important caveat. In practice, the profits (or losses) of a savings group cannot be known until all loans are recovered, and the cycle has ended. The prospect of members exiting from their share of future losses, by withdrawing savings when they perceive loans are becoming risky, would increase other members' risk. Exuus, for example, mitigates this risk by requiring group approval of any withdrawals.

REDUCED MEETING TIMES AND IMPROVED ACCURACY OF RECORDS

Savings group members must sit through the lengthy process of counting cash and completing meeting records – including savings deposits, loan disbursements, interest calculation, loan repayments and contributions to other funds the group may manage. This work takes longer when there are concerns over the accuracy of records, or if records and cash balances fail to reconcile. Digital solutions drastically reduce the time spent in meetings and eliminate much of the scope for error and the mistrust that can result from manual records.

Digital recordkeeping applications – such as CARE’s Chomoka and DreamStart Labs’ DreamSave solutions – can be used with a single, shared Android device.

Pre-existing groups can also implement these thoughtfully-designed, intuitive applications mid-cycle, facilitating rapid scaleup. Both applications can be used offline, increasing the potential for outreach into remote rural areas. Groups are not required to back up their information to the server, but doing so enables members who have personal devices to receive transaction confirmations and balance records individually.

By ‘digitizing’ the recordkeeping and automating calculations, these solutions are eliminating time wasted making calculations and maintaining paper records, and also improving members’ confidence that calculations are accurate. This is a winning combination that should improve confidence, increasing savings rates and reducing the scope for conflict.



CATHOLIC RELIEF SERVICES

INCLUSION AND POWER DYNAMICS

The impact of DSG solutions on inclusion and power dynamics is not yet known. What is clear, however, is that these tools will alter the ability of more vulnerable populations to participate in, understand and benefit from savings group activities – in positive, negative, and unintended ways.

If they are designed with the least formally educated members in mind, DSG solutions could shift responsibility – and power – away from the more literate and numerate members of the group that might otherwise be entrusted

to manage the records. This could be empowering of less socially and economically powerful members, and could be particularly beneficial to women and youth. This is a worthy objective for DSG solutions, the best of which will provide all members equal access to information and encourage full participation in group decision-making.

If they are not well designed, however, DSGs could create new divides based on device ownership, language and digital literacy. Models that employ a shared device, allowing members to join with no personal device, may favor the members who 'hold the phone.' For solutions requiring a personal device, a mix of devices at the end user level could create asymmetries if more information is available to app users than comes in SMS messages. And the mere presence of technology may redefine what it means to be a member, and community perceptions of who is eligible to join a group.

Product features, partners and trainer incentives will have an impact on who joins and remains in digital savings groups. Models which emphasize access to external capital might affect access by the poorest members of the community. The gender and economic profile of trainers will have some impact on who joins, as will their own incentives, in particular if they facilitate access to supplemental financial services.

The net effect of all of these design factors – including product features, how information is provided and decisions are made, partners, and trainer incentives – is difficult to predict. But the often-held view that technology throws up barriers to adoption is probably short-sighted. If DSGs offer substantial scale advantages over past approaches to savings groups, then intelligent design is the answer to power asymmetries and the potential exclusion of more vulnerable individuals.



THE SHEEP NETWORK



THE SEEP NETWORK

REDUCED TRAINING COSTS

For promoters, much of the cost of training groups relates to supervision of trainers. If digital solutions are thoughtfully designed and easy for groups to follow, they should eliminate much of the scope for error and manipulation that calls for this heavy burden of trainer and group supervision. With digital solutions, although groups remain in charge of their decisions, the ground rules can be enforced by the platform. This creates the scope for arms-length training and supervision at reduced cost.

When training efforts fall short, digital solutions also create scope for remote support by making groups' records available to call center staff, allowing problems to be resolved remotely. In the future, self-support technologies that make use of artificial intelligence may further reduce support costs by assisting groups to resolve issues before the need for central support arises.

Digital methods can also help reduce the cost of training trainers of DSGs. In Tanzania, the Aga Khan Foundation created a set of 25 short reference videos for trainers of its digital savings groups, for costless, continuous reinforcement of information covered in trainings. Social networking approaches might also be employed to reduce the trainer support burden by encouraging trainer-to-trainer interaction.

Lastly, digital solutions create new scope for the recovery of some, or perhaps even all, of the initial training cost, with scale and time. The elimination of direct data collection expenses gives NGOs a strong incentive to onboard groups to a digital solution at their own expense, and several solution providers are already implementing this model and charging for access to dashboards. The scope for market-based services to digital savings groups creates additional

opportunities for the private sector to share the cost of training groups, and members of solutions that employ digital payments might also pay a subscription fee that contributes to training cost recovery.

VSL Associates estimates the average donor cost for training savings groups at \$22 per member. The potential for cost reduction in digital approaches has not yet been demonstrated, and likely will not be for several years. But once it is, the net cost of training members – the reduced initial expense, offset by future revenue – will very likely be a fraction of the current benchmark.

SECURITY OF FUNDS

To some extent, digital recordkeeping already improves the security of funds by limiting the scope for leakage resulting from manipulation of group records. But the greatest enhancement to the security of group funds comes when cash is eliminated altogether. Groups can accumulate thousands of dollars in an annual cycle, exposing them to theft and the risk of physical harm. A 2018 multi-country risk assessment by the SEEP Network estimates that the incidence of theft is two savings groups per one hundred groups, per year, with an average loss per incident of more than \$270.

Cash-based groups may bank excess funds, provided the distance to a branch or banking agent is reasonable. But cash in transit, and those carrying it remain at risk. Solutions based on digital payments eliminate the use of cash entirely, greatly increasing the security of group funds.

DIGITAL IDENTITY AND FORMAL FINANCIAL INCLUSION

The potential for DSGs to support financial inclusion may extend well beyond the core activities of the group. Relating a transaction history to some form of risk rating could create a bridge to formal financial services. Shared and individual devices become a basis for marketing these services, and trainers a potential source of facilitation. Most solution providers envision these 'digital marketplaces' and some form of revenue sharing arrangement with partner service providers. Some also place themselves in the role of consumer advocate, crowding service providers into a marketplace of competing offerings.

Moreover, making transaction histories and other descriptive information portable, for use by members beyond the scope of the DSG solution and its partners, could give millions of members their first real form of digital identity, and potentially a credit history that is recognized by financial service providers. This might be easily achieved where national ID schemes and centralized credit bureaus exist.

Digital savings groups that enable this portability might be particularly powerful for refugees and economic migrants. With some facilitation, migrants might use their new digital identity to prove their creditworthiness to formal institutions.



MERCY CORPS

ECONOMIC INCLUSION

Digital savings groups may also provide a bridge to a wider range of economic opportunities, beyond financial services. Trainers and groups might be formed into networks, improving members' access to market information and an increasing range of suppliers and buyers, enhancing opportunities for production and trade. These networks also provide a valuable source of knowledge and support. Blended learning methods could be used by the private sector and development actors to train producers, making use of a shared group device or members' personal devices.

myWORTH requires members to have a smartphone, given its potential to improve members' access to learning and economic opportunities – including but not limited to financial services.

The economic inclusion benefits of the internet are so pronounced that Pact has chosen to base its myWORTH digital recordkeeping solution for savings groups on personal smartphone ownership. During the design phase, the project team observed that members with smartphones use them extensively to enhance their income earning opportunities. They observed, for example, that members with smartphones use WhatsApp to offer bulk purchase and distribution of goods to other social network members for a small markup.

Pact grew convinced that the cost of a device and mobile broadband access is now sufficiently low, relative to the potential economic benefit of internet adoption, such that



WORLD RELIEF

it decided to encourage savings group members to acquire a smartphone of their own by making it mandatory for the adoption of myWORTH. This strategy, they believe, is particularly well aligned to the needs and habits of youth.

Pact will leverage its expertise in developing relevant, digital training content to supplement information that is already available through YouTube and search engines. The outcomes of improved access to information, communication and financial services will, Pact believes, be greater than the outcomes of access to financial services alone. This may justify the need to grow more slowly, and grow outward from urban areas, as mobile broadband penetration improves.

3 USER EXPERIENCE

Whether ‘analog’ or digital, the ‘product’ from the savings group member’s perspective is really the group itself. A digital solution for savings groups is simply a tool, or a set of tools to improve and enhance the experience of membership. In all the solutions surveyed, members form intimate groups that establish their own interest rate, cycle duration, and lending standards. As they do this, members are not interacting with a platform as much as they are interacting with each other, and then simply using the platform to account for their activities. While the solution might impose some limitations on the group, self-selection and democratic discussion are the core of group life, just as they have always been.

COSTS TO USERS

All the digital recordkeeping tools surveyed are available to users at no cost. Digital recordkeeping solutions do not have an easy way to charge a subscription fee to end users. Nevertheless, some of the onboarding costs can be absorbed by members. Chomoka groups, for example, pay for their shared device and the trainer’s fee.

The introduction of digital payments creates opportunities to introduce user fees; two of the solutions surveyed, AKF in Tanzania and Exuus in Rwanda, charge a subscription fee to end users.

Notably, it is quite typical for members of the informal economy to ‘pay to save.’ Susu collectors in Ghana, for example, typically earn around 3% of savings by keeping one day’s contribution per month of savings. The foremen of Chit Funds in India typically earn 5% of the amounts collected. Markets will differ, but these comparisons may offer a useful point of reference for solution providers as they develop their business models.



JAMIPAY

In addition to any subscription fees, users of digital payments-based solutions must also pay cash out charges, which can be substantial. These costs multiply for users that take and repay loans, and could add substantially to the cost of participation. Users of Exuus’ SAVE solution pay an average subscription fee of around 2% of savings. Cash out fees in Rwanda might amount to a similar 2%, and unless digital payment opportunities exist, would be paid for every loan, withdrawal and distribution.

Total costs to members can add up quickly, especially in proportion to average savings rate of participants. But the costs are not necessarily unattractive. In some areas, ‘insuring’ against the risk of theft is very important, and digital payments-based solutions do this very effectively.

All solutions also substantially reduce the time burden for groups. With or without digital payments, eliminating the need to keep paper records will easily save a half hour or more per meeting. In total, this time savings might add up to 25 hours or more per year, per member.

METHODOLOGY

Most of the solutions surveyed employ some version of an *Accumulating Savings and Credit Association* (ASCA) approach, allowing for variable savings and borrowing according to member demand, during a cycle of a flexible duration determined by the group. ASCA solutions allow groups to establish their own interest rate and make loans to their members based on demand and democratic processes. The system records the agreed amount and duration of the loan, tracks repayment, and issues repayment reminders by SMS. Members can typically withdraw and exit the group at any timer, with the approval of the other members. In addition, digital solutions should allow ASCAs to run longer cycles and build a larger fund, given the improvements to transparency.

In theory, the less flexible *Rotating Savings and Credit Association* (ROSCA) approach should become obsolete. In practice, however, ROSCAs have two interesting advantages. First, there may be a regulatory advantage given that there is no accumulation of a fund. Second, the ROSCA model is already familiar to most communities, reducing training costs. MaTontine's digital payments-based solution in Senegal follows a random draw ROSCA approach for this reason of familiarity.

MaTontine offers members of digital ROSCAs in Senegal the opportunity to take half their payout in advance for a flat fee of 12 percent.

MaTontine offers its solution free of charge to existing tontines, working with fishing, processing, Hajj and other associations that are common in West Africa. Regulations require MaTontine to fulfill 'know your customer' (KYC) requirements directly, rather than make use of information already collected by its partner Orange Money. Customer information is



AGA KHAN FOUNDATION

collected digitally, and each member is given an initial risk rating based on their contribution history and reputation. This is a lengthy onboarding process in response to conservative regulations, but also one which supports MaTontine's ambition to build a marketplace of services for its groups. Once onboarded, MaTontine groups can renew remotely by internet or by calling a call center technician, which most groups prefer.

In other parts of the world, wherever regulations allow, it is easy to imagine that digital payments-based groups could be onboarded with KYC information collected by the mobile money provider. In this case, the simplest, most familiar solutions might form with a minimum of training cost, or even spontaneously. For this reason, ROSCAs may have a critical place in the DSG landscape. Access to supplemental financial services through a marketplace would address the lack of flexibility in the ROSCA model itself.

TIMEBOUND?

Most of the savings group methodologies promoted by development organizations are timebound. Groups operate over a cycle of about one year, at the end of which all group assets are distributed. This periodic distribution enables members to enter and exit the group more fluidly, withdrawing their savings with the associated profits. The periodic liquidation also serves as an important 'action audit' – a physical verification of the financial status of the group that enhances accountability and transparency.

Given that digital solutions reduce the scope for error and manipulation, it is not yet clear whether the periodic liquidation of group assets remains necessary. Increasing the duration of the typical savings cycle would increase the groups' funds and might therefore be beneficial to the sustainability of solutions which depend upon revenue from supplemental lending.

There are, however, still some potential reasons groups might prefer to maintain operating cycles of relatively short duration. Members who tend not to borrow might prefer regular access to their savings unless they can freely withdraw, ideally with profits.

Frequent distributions also create an opportunity for members to exit. Even those who are satisfied with the membership experience might occasionally like a rest from the pressure to save and take loans. Younger members who tend to migrate may also need this opportunity.



CARE INTERNATIONAL

CASH AND DIGITAL RECORDS...OR DIGITAL PAYMENTS?

Some DSG solution providers are concerned that digital payments-based solutions will scale slowly due to cost and other barriers. Mobile money remains a largely 'cash to cash' system, with underdeveloped ecosystems for digital payments. In some cases, digital transactions might also incur a fee, or be absorbed by the solution provider and passed along to the user in the form of a subscription fee. In contrast, cash-based groups use a digital recordkeeping solution for free, once they have paid for their shared device and any fees charged by their trainer.

Non-financial barriers also act against the adoption of digital payments-based solutions, including lack of devices, lack of familiarity or mistrust. Digital recordkeeping systems can be adopted by groups with just a few confident members, even in mid-cycle. For solution providers focused on building a marketplace and crowding in financial service providers, rapid expansion is an imperative that digital recordkeeping solutions are thought to best address.

But the calculus is not straightforward. Digital payments will create a more credible record of transactions than the self-reported records of cash-based groups. Cash-based groups will most likely also need to transact with formal financial service providers through a group bank account, and this introduces limitations relating to KYC requirements and the availability of bank branches or agents.

Digital payments-based solutions introduce users to mobile wallets and provides the tool for direct transactions with financial service providers. Whether rapid scaleup to cash-based groups or the promotion of digital payments-based groups is a stronger basis to crowd service providers into a 'marketplace' remains to be seen.

Potentially, a digital recordkeeping solution might serve as a mobilization strategy for future users of a digital payments-based solution. DreamStart Labs recently made a significant strategic investment in Exuus and plans to leverage the features of both the DreamSave digital recordkeeping application and SAVE digital payments-based solution to deliver a range of options to suit all users.

DreamStart Labs made a significant strategic investment in Exuus in late 2019, leveraging the features of the DreamSave digital recordkeeping application and SAVE, a digital payments platform for savings groups.



CARE INTERNATIONAL

Emergent Payments is enabling digital savings group members to contribute in cash, through a member-agent. The group itself, however, is completely cashless.

When developing Maximus, a digital payments platform for savings groups in Ghana, Emergent Payments discovered that only about 10 percent of prospective members were already using mobile money. Digital contributions were simply not realistic for the mass market of low-income savings group members.

To resolve this problem, Emergent Payments has recently launched 'Hybrid Maximus', which allows

members to make cash-based contributions through a member-agent, online or offline. The group itself, however, is completely cashless.

Hybrid Maximus does not eliminate the barriers to adoption of mobile wallets entirely, but it does move them 'downstream,' to the point at which members will request a loan or withdrawal. At that point, a mobile wallet will be required, but the motivation to obtain one will be much greater.

WHICH DEVICE?

Let us begin with the possibility of no device at all. DreamStart Labs and CARE have established that it is possible for an individual to participate in a DSG without a personal device. These members can remain informed via information available on the shared group device.

For digital payments-based solutions, a personal device – or at least a mobile wallet – is required. As demonstrated by Hybrid Maximus, the point at which a wallet is required could be delayed until a disbursement from the group, but it will eventually be needed. When it is, however, there is probably little functional difference whether it is operated from a feature phone or a smart device. Transaction confirmations and balance queries, as well as any required approvals, can be based on SMS and USSD menus.

At the group level, an application would be preferable for tasks such as entering membership information, establishing operating parameters, and reviewing status reports. As a shared expense, the cost of the device and communications are not likely prohibitive. The real issue is internet connectivity. In its 2019 State of Mobile Internet Connectivity report, the GSMA predicts that 40 percent of the world's population will remain offline in 2025. They go on to say "...Providing mobile internet access to the 4 billion people currently not connected will be more challenging as they... are disproportionately rural, female, illiterate and older." This sounds very much like a description of the typical savings group member.

Digital payments-based groups will most likely always require a real time connection to the server, and if an application is used, this means mobile broadband availability. For digital recordkeeping solutions, however, there are effective workarounds to the limitation of mobile broadband penetration. The DreamSave application functions offline when internet is not available, and then performs an automated backup as long as the group has purchased a data bundle. If the group meets outside the data coverage area, the automated backup occurs, and confirmations are generated whenever the device is next in range.

Chomoka provides two options for backups, via both internet and SMS. At the close of each meeting, the application prioritizes backup over internet when it is available and provided the group has a data balance. Otherwise, it will default to the GSM network, sending a series of encrypted SMS messages containing the meeting data, to be reassembled by the server. In this case, groups pay the minor cost of the SMS messages, as

they would do for the cost of data transfer.

This 'dual-mode' feature of Chomoka is potentially very significant, as it provides an option for groups in areas where mobile broadband access is limited, and for whom travelling to a coverage area for backups is not an attractive option. The limitation of this approach relates to updates of the application itself, which are more difficult if the group is not regularly connecting the application to the server via internet.

LEARNING AND NETWORKING OPPORTUNITIES

Without question, savings groups are great places to learn new skills and discover new opportunities. Peers and trainers are a wealth of information on a wide range of issues and opportunities. This may include access to information regarding financial services, non-financial services, goods, livelihoods, and labor market opportunities.

Pact delivers eLearning content to users of its myWORTH application. While Pact's approach is based on individual device ownership, shared group devices could be used to deliver content to groups just the same. For members and groups in remote locations, content could also be downloaded and viewed and interacted with offline.

Trainers and groups that are internet connected might also interact with each other, forming networks for information sharing, peer-to-peer support and problem-solving, marketing and the identification of new opportunities.

Finally, this peer approach might also be used to assist groups to access government benefits, in addition to market opportunities. There is, for example, a long history of Self-Help Groups in India assisting their members to access government programs.

4 THE BUSINESS OF DIGITAL SAVINGS GROUPS

Getting to hundreds of millions of users will require an efficient approach to training DSGs. Sticking close to a familiar approach will be helpful. Chomoka is based on the Village Savings and Loan Association model, making it easy for experienced groups to adopt the application. MaTontine's solution is offered to existing ROSCAs.

Promoting an offering to early adopters of smart devices in urban areas, and then spreading the solution outward as costs fall and mobile broadband penetration improves would be another way to keep costs down. In the extreme case, this might even result in 'viral' adoption of groups, without trainers, in particular if digital training content and self-support tools are provided.

In rural areas, however, and as products increase in complexity, a trainer will be required. Trainers will also be required if regulations require KYC information to be collected by the solution provider. Most likely, mass-market DSG solution providers will need to make trainers central to their business model.



LIFT

VILLAGE AGENTS

For more than ten years, NGO programs have trained ‘village agents’ to propagate savings groups. Village agents are often group members themselves and take on the task of training groups for the status it offers, and the chance to earn supplemental income. It is rarely a livelihood, although this may change in the context of DSGs and the marketplaces that might form around them.

Training of trainers is not necessarily costly. A training of a few days, consisting of a few hundred dollars, might equate to \$2 per future member, or less. The real cost to implementers has always been for supervising village agents and monitoring the results of their work, both of which require costly paid staff.

With digital approaches, the potential to guide the group’s activities – and limit the scope for error and manipulation – offers the opportunity to reduce, and potentially eliminate that supervisory burden. Village agents might simply be trained and then left to train groups to the limit of their ambition, unsupervised, because the solution limits the scope for error, manipulation and resultant poor outcomes for groups. DSG solutions also eliminate substantial data collection expenses.

Somewhat less predictable is the cost of incentivizing village agents to train groups. Evidence from various programs that deploy village agents suggests that a fee of about \$50 per group is sufficient to encourage the average village agent. If that is true, trainer fees may equate to about \$3 per member, allowing DSG solutions to approach a unit cost of \$5 per member – an elusive goal often cited by savings group promoters and their donors.

BACKEND COSTS

Cloud hosting offers what is likely to be the most cost-effective and secure solution for DSGs. At very large scale, the cost of hosting a solution is likely pennies per member, per year. What is relatively more costly is the engineering support for the maintenance of the solution, which also declines with scale and as common issues are resolved. A detailed treatment of hosting and maintenance costs is beyond the scope of this paper, but \$1 per member, per year is likely more than adequate for efficient deployments, and much less at large scale.

CUSTOMER SERVICE

If we assume that the typical customer service call will last 10 minutes, then in the span of a year a call center technician might handle 10,000 calls. The cost of equipping and compensating that technician will vary, but if it were \$5,000 per year, the cost per call might then be \$0.50. How often members would need to call would depend upon the solution itself, and the presence of trainers.

A simple, easily understood solution will cost less to support, both for solution providers and trainers. Simple solutions would also be more amenable to self-support technologies, relieving pressure on both call center and trainers. In the ideal case, calls would be rare and not costly on a per-member basis. The timely resolution of issues will, of course, be indispensable to the success of any digital solution for savings groups. Call center support and trainer incentives should be adequately budgeted for until experience is gained.

TOTAL COSTS

Onboarding, backend and call center costs are now somewhat predictable, but of course not standard for all solutions. So far, we have a benchmark cost of \$5 to acquire a member, and perhaps \$1 per member, per year, to support experienced groups with hosting, maintenance and call center support. If the typical group will use a solution for 3-5 years, the total cost would be roughly in the range of \$8-10 for that period, or about \$2-3 per year, per member.

Here things get a little harder, because we cannot complete our analysis and reach a final estimate without talking about startup cost recovery and the need to compensate providers and their stakeholders, all of which is context specific. The circumstances of solution providers will vary – some will have better access to subsidy and patient forms of investment than others.

For present purposes, we will simply account for the need to recover some share of startup costs by saying that DSG solutions will cost providers at least \$3 per member, per year.

COVERING COSTS

The main sources of revenue for DSG solution providers are:

- **Fees charged to NGOs for access to monitoring dashboards.** NGOs that add groups to existing digital solutions provide substantial initial support to the scaling process, by both absorbing some of the cost to train groups, and by paying for access to monitoring information. This is good value for the NGO, whose direct data collection programs are very costly. For some of the surveyed solution providers, these fees are a substantial source of early revenue. But long-term, this revenue may gradually decline as those NGOs lose their claim to the ongoing success of groups.
- **Marketplace revenue.** All of the surveyed solution providers expect to generate a substantial share of their revenue from a marketplace of supplemental, digital financial services, whether provided directly or through commissions on facilitated third-party products. Importantly, the bulk of this revenue will be related to supplemental lending. Neither Exuus nor MaTontine, for example, expect earnings in relation to supplemental savings and insurance products to amount to more than five percent of total marketplace revenue.
- **End user subscription fees.** It might be difficult for providers of digital recordkeeping systems for cash-based groups to charge a user fee, but digital payments-based solutions can do so more easily.

If revenue from NGO partners is in fact time-limited, then it is practical to focus on the balance between end user subscription fees and external lending. VSL Associates estimates that, globally, the average savings rate in savings groups is \$70 per member, per year. This is an average, and in many places the rate is lower. Even with multi-year cycles, lending enough external capital to raise our \$3 per member, per year, might put a savings-led approach at risk.

Exuus has developed a 'blended' approach to the sustainability of the SAVE solution, combining end user subscription fees with supplemental lending that, according to its estimates, will allow it to break even with as few as 500,000 users. In the long-term, Exuus projects that about 2/3 of its revenue will come from the subscription fees, while the remainder will come from the line of credit that it provides to groups through its banking partners.

Subscription fees reduce Exuus' dependency on revenue from external lending. This allows Exuus to act as an advocate for the groups, to encourage competition amongst its banking partners, and drive the borrowing costs down for SAVE groups. As evidence of this, Exuus has recently negotiated with a second bank to offer lines of credit at 1.5% per month,



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versus the 2% cost established by its first banking partner. Exuus' income is not affected, because its earnings are based on the guarantee deposits rather than loan revenue.

MaTontine does not charge an end user subscription fee. MaTontine's sustainability relies primarily on a system of individual 'tontine advances' and group liability. At the start of the round, members indicate to their ROSCA leader whether they would like to receive 50 percent of their future payout in advance. These advances cost a flat fee of 12 percent, irrespective of when the advance is authorized or when the payout, which is random, will occur. Members with lower risk ratings are likely to receive their advances sooner, motivating on time contributions.

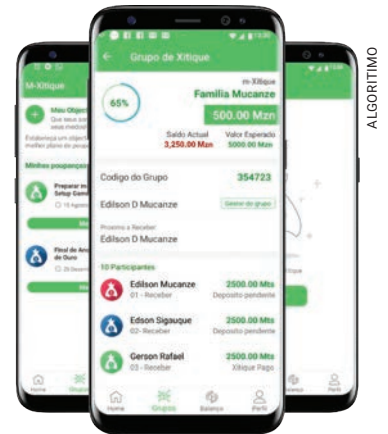
In the absence of subscription fees, MaTontine is more dependent on revenue from external lending. It is also strongly incentivized to lend directly to the groups to maximize revenue, rather than take a share of loan-related revenue from partners in a marketplace. MaTontine will lend directly to members in the future – through the tontine advances – where permitted by national regulatory frameworks, and work with bank partners where restricted. This may also have implications for the structure of the marketplace that develops around the MaTontine groups.

These examples suggest an important potential tradeoff. In the absence of subscription fees, maximizing supplemental loan revenue will be critical. This may affect the dynamic of the group and the savings habits of members. Some products, such as MaTontine, may tolerate the priority for external lending better than others.

Given the potential of DSGs to attract supplemental financial services, members' priorities will evolve, and maximizing savings in the DSG may not matter as much as the opportunity to maximize a score to gain access to supplemental financial services from the future marketplace. In any case, providers with the objective of facilitating a competitive marketplace for external credit at the lowest possible cost, or who want to maximize the savings in savings groups, may want to consider an end user subscription fee to cover at least some of the costs of the solution.

5 CONSUMER PROTECTION

Digital savings groups represent a new, and perhaps far more scalable opportunity for savings group promotion. But they also introduce a new set of challenges relating to consumer protection, and stakeholders need to be alert to the risks, and ensure that data privacy and security standards are adequate. Solution providers must guarantee the continuity of their service and call center support – seven days per week, and 24 hours per day – given that groups rely on the solution for access to their funds.



SECURITY OF FUNDS

A well-designed digital payments-based offering keeps funds under control of the group, and in the custody of an e-money issuer or bank, in full view of the banking regulator. The solution provider has no access to groups' funds at any point in the chain of custody. Exuus, for example, developed its 'virtual group wallet' technology to allow members to save, make savings withdrawals, and borrow and repay loans using a virtual account on the SAVE platform. Until returned to members' wallets, funds remain in the custody of the mobile money provider or the bank at all times. Exuus provides the means for groups to account for the ownership of their fund, but it has no access to those funds at any point in the chain of custody.

SECURITY OF DATA

In contrast with group funds, the digital solution provider is the de-facto custodian of the group's data. If the provider does not use proper security measures, hackers or disgruntled employees could copy or corrupt the data and do harm, both to groups and the business. Security protocols should feature the use of strong encryption when transmitting data and storing it on both the phone and server. Steps should also be taken to redact both passwords and personal identifying information such as telephone and national identity numbers to ensure this data is not viewable by non-authorized individuals.

WeTrust believes that the Blockchain offers the best approach to data security for savings groups. Its DSG solution for bidding ROSCAs is based on the Ethereum Blockchain, and the use of a stable cryptocurrency. Through a pilot project, WeTrust and Heifer International are currently testing the concept and an approach to local currency exchange.

DATA PRIVACY

Data privacy standards may not be well established in the national markets where DSG solutions are being deployed, and stakeholders may in fact require that higher standards be met, beyond local requirements. In addition to applicable local laws, the proponents of DSGs may want to refer to the General Data Protection Regulation (GDPR) as the benchmark for best practice in data privacy standards, despite the fact that its legal applicability is only to the data of European Union citizens.

For a digital savings group solution to be GDPR compliant, customers must:

- Have control of their data, and be easily able to give and withdraw their consent to use it
- Have access to a free report containing the data collected about them
- Have the right to obtain a copy of their data for use with other providers
- Receive notification, within 72 hours, of any data breach
- Have the right to request that their data be erased

The group should not be empowered to share sensitive member information. Sharing individual information, such as a credit score for example, should in all cases require individual consent, rather than the consent of the majority.

Solution providers and DSGs will also be exposed to the data privacy standards of any service providers in their digital marketplace. Ideally, these service providers should agree to the same standards based on GDPR, even if not required by law, to protect the solution and its backers.

6 WHAT WILL SUCCESS LOOK LIKE?

This learning brief highlights the various choices and tradeoffs faced by solution providers.

Digital solutions create inter-dependencies between providers, institutional users and groups; and the sustainability of this business system is paramount to groups that depend upon the solution for their operations.

All digital payments-based solutions will first and foremost need a **clear vision for sustainability, backed up by a clear exit plan that can be executed before financial distress occurs**. In the event of financial distress, stakeholders must have a plan in place to allow groups to either complete their operating cycle or recover outstanding loans and refund their members with adequate notice.

In relation to the sustainability of both solutions and providers, donors and investors should recognize the following:

- **Substantial experimentation** will be required before best practice is established, similar to the refinements in savings group methodologies over the past decades; stakeholders are cautioned not to 'pick winners' prematurely, leaving other potentially viable solutions to run out of funds before sustainable scale is achieved.
- To justify their investments, solution providers need to be able to **protect intellectual property**; and funders are cautioned to listen carefully to the needs of providers to maintain their competitive advantage in the market. While governments might build open source stacks to crowd in private sector investment, the production of public goods is not the role of the private sector.

Given the prospect for bridging the gap between informal and formal financial services with digital transaction histories, the success of DSGs will be demonstrated by both the demand for the solutions among end users, and the response from third-party financial service providers wanting to add value for them. The development of these third-party offerings may take longer than the scaling of the underlying DSG solutions themselves. To the extent that a solution depends upon these future marketplace offerings for its sustainability, stakeholders will need to take both timelines into account.



Irrespective of their features, the most successful DSG solutions will probably be those which:

- Provide members with regular access to savings, with or without profit, but never the opportunity to exit from their responsibility for potential losses
- Ensure that all members have equal access to information, including those solutions which allow a mix of devices, or no personal device at all
- Ensure that all members participate in decisions regarding member loan approvals and group requests for external capital
- Have a diversity of revenue sources, reducing the pressure for supplemental lending and the risk of over-lending to groups if they are meant to be savings-led
- Ensure that members understand and approve what will be done with their data, ideally in alignment with GDPR norms

The design and delivery of DSG solutions is more complex, and riskier, than the promotion of traditional savings groups. In the past, savings groups supported by development organizations did not depend upon the sustainability of their promoters, at least not beyond the initial training. For DSGs, the sustainability of groups and the solution provider are intertwined. Without question, the prospect of serving hundreds of millions of people in the next decades – and expanding the services and impact of savings groups – justifies the effort and investment in digital solutions. But patience and prudence will be required to protect the interests of vulnerable users along the way.

