Background

India is the largest milk producer in the world, with total production of 111 million tons of liquid milk in 2011 and production growing annually at 3-5% (FAO, 2014). Gujarat Cooperative Milk Marketing Federation (GCMMF), the biggest player in the dairy industry, procures milk from rural areas through its affiliated Village Level Cooperatives Societies (VLCS). In 2013, the 16,914 VLCS across the country procured around 13 million liters per day and 4.66 billion liters of milk from 3.18 million dairy farmers (AMUL, 2014).

Since GCMMF doesn’t require its members to have a bank account, much of this massive milk procurement at Farmgate is presumably paid in cash (Kendall, Standish, Lui and Naurath, 2013). A conservative estimate of Farmgate prices, at around Rs. 20-30 per liter, suggests that daily cash transactions of at least Rs. 240 million are conducted at the village cooperative level alone. Agent fees, audit costs, fraud, and abuse consume around 4-6% of the total transaction amounts (Indian Express, 2012).

In 2010, Sub-K iTransactions, a business correspondent start-up, implemented a pilot project on dairy payments with village cooperatives of GCMMF. The company sought to migrate cooperatives’ payments to farmers, such as revenues from milk or net services provided—like agricultural inputs and veterinary care—from cash to an electronic payment platform, with a view to providing cash access points at convenient locations, promoting financial inclusion among farmers, and reducing the costs associated with cooperatives’ cash payments. Sub-K’s business correspondent network promised cooperatives enhanced value by lowering the risks and costs of cash: agent fees, transit and fraud risks, audit costs, and the cost of financing cash balances. Dairy farmers, on the other hand, would receive savings accounts with all the attendant benefits: indefinite retention of balances, savings, and the opportunity to build credit history. In addition, they would have exact payments credited directly into their accounts without rounding-offs.

The dairy payments service could have been another important source of revenue for Sub-K and its BCOs. The project, however, did not scale up as expected for several reasons:

a) Widespread skepticism among village cooperatives about the new transaction facility, given unreliable mobile ATM performance
b) A lack of clarity among farmers about the bank service charge for opening an account, and about the benefits of a savings account more generally
c) Discontent among cash disbursement agents, who stood to lose a source of livelihood

About BASIX and Sub-K

BASIX Social Enterprises Group, founded in 1996, promotes livelihood through financial services, agricultural services, and institutional development. It calls this the “Livelihood Triad Strategy.” BASIX believes that enterprising poor need more than just credit, they need a full portfolio of services that includes savings, remittances, and insurance. A 2010 study by Vijay Mahajan supports this approach, demonstrating that the poor not only require credit, but savings products
to save for short term contingencies and long-term needs (i.e. pilgrimage or marriage), as well as outlets to receive remittances at a single location (Mahajan and Suman, 2012). Like BASIX, Sub-K was born out of the philosophy that more attention must be paid to expanding the scope of financial inclusion services in rural areas. It seeks to do so via an innovative payment platform.

**Table 1: Financial Inclusion Indicators in India**

<table>
<thead>
<tr>
<th>Indicators (as of 2011)</th>
<th>Urban</th>
<th>Rural</th>
<th>India</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 deposits/withdrawals in typical month, rural (% with an account, age 15+)</td>
<td>5.43</td>
<td>7.66</td>
<td>6.96</td>
</tr>
<tr>
<td>1-2 deposits in a typical month (% with an account, age 15+)</td>
<td>66.66</td>
<td>74.65</td>
<td>72.33</td>
</tr>
<tr>
<td>1-2 withdrawals in a typical month (% with an account, age 15+)</td>
<td>64.24</td>
<td>70.09</td>
<td>68.45</td>
</tr>
<tr>
<td>3+ deposits in a typical month (% with an account, age 15+)</td>
<td>18.79</td>
<td>8.35</td>
<td>11.40</td>
</tr>
<tr>
<td>3+ withdrawals in a typical month (% with an account, age 15+)</td>
<td>18.95</td>
<td>9.48</td>
<td>12.20</td>
</tr>
<tr>
<td>Account at a formal financial institution (% age 15+)</td>
<td>40.95</td>
<td>33.15</td>
<td>35.23</td>
</tr>
<tr>
<td>Account used to receive government payments (% age 15+)</td>
<td>3.99</td>
<td>3.96</td>
<td>3.96</td>
</tr>
<tr>
<td>Bank agent is main mode of deposit (% with an account, age 15+)</td>
<td>3.00</td>
<td>3.12</td>
<td>3.08</td>
</tr>
<tr>
<td>Bank agent is main mode of withdrawal (% with an account, age 15+)</td>
<td>2.68</td>
<td>3.40</td>
<td>3.18</td>
</tr>
<tr>
<td>Retail store is main mode of deposit (% with an account, age 15+)</td>
<td>2.62</td>
<td>2.27</td>
<td>2.44</td>
</tr>
<tr>
<td>Retail store is main mode of withdrawal (% with an account, age 15+)</td>
<td>2.35</td>
<td>1.71</td>
<td>2.03</td>
</tr>
<tr>
<td>Saved at a financial institution in the past year (% age 15+)</td>
<td>12.58</td>
<td>11.15</td>
<td>11.60</td>
</tr>
<tr>
<td>Saved any money in the past year (% age 15+)</td>
<td>26.63</td>
<td>20.81</td>
<td>22.42</td>
</tr>
</tbody>
</table>

**Source: World Bank Financial Inclusion Index (2011)**

Sub-K was established by BASIX Social Enterprises Group in 2010 when the Reserve Bank of India allowed for-profit companies to extend branch banking services such as savings accounts, remittances, and Electronic Benefits Transfers, among others, through the Business Correspondent (BC) model. The very name Sub-K reflects the model's key values: accessibility, affordability, adequacy, and outreach. In other words, services will be located less than 1,000 meters from customer, cost less than 1,000 paisa or Rs. 10 per transaction, enable transactions of less than Rs. 1,000, and be equipped to serve up to 1,000 customers.

From 2011-2012, Sub-K expanded rapidly from 16,014 customers to 115,908 customers, with cumulative deposits amounting to Rs. 20 million and cumulative withdrawals of Rs. 23 million. Shortly into its third year of operations, however, Sub-K suffered an unexpected backlash during a pilot project, when the village milk cooperatives engaged in its services found the business model untenable.

**How Small Businesses Use Cash: The Current Situation**

India is predominantly a cash economy. In rural areas, only 0.43% of the population use cashless payment methods, and only 11% do so in urban areas (IAMAI, 2013). Indeed, a 2010 report on e-payments by McKinsey indicates that India could save 1.6% of GDP if individuals, governments, and businesses were to adopt cashless transaction methods. According to a 2013 Gallup survey, 92% of the respondents in rural India received payments by cash for sale of agricultural products.

Although cash remains the preferred mode of payment for retailers and small business owners across India, particularly in rural areas, these groups are increasingly accepting cashless payment methods—especially cards. Small business owners cite two advantages of cashless transactions: an
increase in sales, and the reduced cost of handling cash (ie. storing and depositing). Interestingly, despite the latent challenges it faced, Sub-K’s experience in implementing its business correspondent model in dairy payments offers several insights for future interventions in the rural financial services sector:

a) A new business model and technological system may invariably require iterative and incremental improvements. All stakeholders must therefore be willing to face unexpected obstacles and participants must commit to facing and solving challenges as they appear. The Sub-K network, for instance, faced myriad technological glitches when interfacing with the bank’s core system, including network failure and unsuccessful updating of customer’s accounts. These issues inevitably created problems for the reconciling of farmer accounts.

b) Innovators must be able to anticipate opposition from established actors and skepticism from users of old business model. In the case of Sub-K, opposition arose among the cooperatives’ cash disbursement agents, who faced the loss of their 3% commission fees. These agents, already unhappy with the loss of a source of revenue, encouraged farmers to reject the new system and switch back to payment via cash disbursement, a process that—despite being economically inefficient—had been working without complaints.

In short, the huge rural cash economy coupled with the low level of financial inclusion offers immense potential for financial services in rural India, provided there is an enabling ecosystem.

**The Business Correspondent Model and Financial Inclusion**

Sub-K is a business correspondent (BC) organized under RBI Circular RBI/2005-06/288, titled, “Financial Inclusion by Extension of Banking Services—Use of Business Facilitators and Correspondents,” and is part of the Reserve Bank’s 2006 effort to promote financial inclusion among low income groups. BCs such as Sub-K act as agents for commercial banks to enhance customer outreach and provide banking services where expanding the branch network may not be feasible. In India, Sub-K partnered with Axis Bank.

BCs collaborate with technology vendors and Basic Convenience Outlets (BCOs)—which are individual business owners or provision stores. RBI regulations don’t allow BCs, technology vendors, or BCOs to charge fees for their banking services. Instead banks agree via contracts to pay service fees to BCs.

**Challenges for BCs in rural areas**

The rapid growth of BC outlets in recent years can mislead observers into concluding that the BC model has been hugely successful and popular with the customers. But this model suffers from several challenges that undermine the objective of greater financial inclusion. A study by Consultative Group to Assist Poor (CGAP) and coauthors (2012), for instance, listed various challenges that BCs face, such as the dormancy of savings accounts, an unviable business model that depends on banks for commissions, and a lack of diversity in products that restricts revenue. These challenges are further magnified in rural areas, given the lower level of consumer awareness and literacy, lack of infrastructure, geographical constraints, and lower population density. Overall, therefore, rural markets are characterized by lower value and volume of transactions (Exhibit 1).
Exhibit 1: Bank Outlets Opened in Unbanked Rural Areas (thousands)

Source: Reserve Bank of India (2013)

SUB-K iTransactions

Since its inception, Sub-K has focused primarily on a savings-led approach to financial inclusion. Its revenue from savings and banking products, like others in the industry, depends upon its associate bank; Sub-K itself doesn’t charge its customers any fees.

Sub-K uses the agent network model and a technology platform called ‘ViTranSP’ (Exhibit 2). ¹

Exhibit 2: Virtual transaction service provider diagram

Source: Sub-K

¹ A patent on the ViTranSP technology is forthcoming.
The combined equipment, referred to as a ‘mobile ATM kit’ (Exhibit 3) is a low cost mobile phone and printer that uses GPRS/GSM mobile service and biometric fingerprint information for authentication. Sub-K’s technology facilitates interoperability with banking and non-banking company systems. By integrating its system with associated banks, Sub-K seeks to eliminate the processes of reconciliation and cash management seen in other offline technologies, such as smart cards and handheld biometric readers.

Exhibit 3: Micro ATM Kit: Mobile Phone (left) and biometric printer device (right)

Source: Sub-K

Sub-K selects trusted local small business owners as its agents and provides them with equipment and training. To some extent it also provides them with cash for liquidity management, as per the “float management principle,” where Sub-K provides cash in order to reduce the agent’s need and the bank’s risk.

Using such technology, Sub-K is in the process of expanding its services to mobile phone top-ups, remittances, and dairy payments. In doing so it seeks to evolve into a one-stop hub for banking and transactional services, thereby enhance its revenues.

Sub-K has also taken a number of steps to cope with common challenges like fraud, offline transaction, interoperability of banking software, and high costs of operation. Before a transaction happens, the mobile ATM device authenticates a customer’s identity with biometric verification technology and connects to their bank’s Core Banking System (CBS) in real time with the customer ID mapped to the account number at the back end of the bank. The whole process takes under two minutes. The customer then receives a printed receipt and signs the ledger. Transactions and customer accounts can be checked in real-time to see if the right amount has been credited at the right time, thereby reducing incidents of delay and underpayment-rounding off that are common to cash disbursements. By eliminating cards and field staff traveling with cash reduces, Sub-K also reduces its own cost of operations and risk.
**Intervention in Dairy Payments**

**Motivations/purpose, opportunities, value proposition and alternative to cash**

In early 2011, Sub-K initiated a pilot project to test its dairy payments solutions in the state of West Bengal with GCMMF, an apex marketing federation of district level milk producer unions with a membership of 16,914 active village level dairy cooperatives across India. Its VLCS together have around 3.18 million member farmers all over the country. A typical VLCS has four staff members and a daily volume of milk procurement ranging from 1,000-10,000 liters.

A VLCS procures milk from individual farmers and provides a range of other products and services such as veterinary services, cattle feed, and basic health services. Cash payments to farmers are provided after deductions for services provided.

GCMMF uses a Management Information System (MIS) called Automatic Milk Collection Unit Systems (AMCUS) that is focused on supply chain management. It captures information on accounting and procurement operations such as quality and quantity of milk, member information, and payable amounts down to the individual farmer level. AMCUS does not allow for direct transfer of payments to the individual farmers.

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**Figure 1. Milk supply chain for village cooperatives.**

**New cash payment process for dairy societies at the village level**

1. VLCS withdraws cash from its bank account
2. VLCS then makes payment to its members through an individual agent based on the current buying rate of milk. The payment is netted for services charges and associated fees

**Challenges and costs associated with cash payments by village level society**

Key drivers of cost associated with cash payments in a traditional milk procurement center are as follows:

1. Agents receive 3% of cash disbursements for ensuring payments to the farmers
b) Cooperatives must invest in human capital—such as accountants or bookkeepers—to manage cash handling and clerical duties

c) Cooperatives must withdraw cash from bank branches and transport large amount of cash weekly or fortnightly in order to pay producers

d) Portions of cash payments can be lost to theft or fraud

e) VLCS staff may misuse cash, leading to delayed or reduced payments to farmers

f) District level societies require monitoring to ensure that farmers receive the payments they deserve

Implications

a) Farmers are paid in set intervals and do not have the option to park or save money

b) Payments made to farmers are not always accurate; they are usually rounded off to the nearest rupee, causing frequent disputes with farmers about the final amount

As per an estimate by Sub-K, the total cost of cash payments by a village level dairy cooperative society is 4-6% of the total disbursed amount.

**SUB-K’s Solution: The Business Correspondent Model**

To defray the costs associated with cash payments, Sub-K appointed BCOs to provide basic banking services such as account opening, cash withdrawals, or deposits.

**Exhibit 4: Basic Convenience Outlet (BCO)**

Source: Sub-K

These agents were usually local small business owners who were well known to villagers and had shops in prominent and accessible locations in the local market. Capital costs for BCOs were modest: approximately Rs. 15,000. This system required every farmer to have a bank account to
receive payments from the dairy cooperatives. Moreover, Sub-K received ancillary benefits, since BCOs were free to enroll non-dairy farmers for banking services, and dairy payments were only a part of its overall operations. Most of these non-dairy transactions were expected to be EBT payments for workers under the National Rural Employment Guarantee Act (NREGA). The potential economies of scale and scope were thus improved for BCOs that had generally struggled to earn enough commission given limited transactions (Shivshankar and Raunak, 2012).

Under this system, BCOs appointed by Sub-K opened bank accounts for VLCS affiliated dairy farmers and then district level cooperative societies would transfer money to farmers’ accounts directly after deductions. Sub-K would then facilitate the cash disbursement through its BCOs. VLCS could thus remove cash handling from its administrative process.

Exhibit 5: Cash Disbursement Flow

Source: Sub-K

Advantages:
The new system was perceived as offering numerous benefits for dairy cooperatives, dairy farmers, and banks.

Dairy cooperatives received:

a) Freedom from the non-remunerative activity of cash disbursement, which reduced expenses associated with human capital, maintenance, bookkeeping, cash transport, risk of thefts, and other losses with respect to cash
b) Improved cash and liquidity management

Dairy farmers received:

a) The choice of saving and accessing cash whenever necessary
b) Improved transparency of payments without rounding off of payments
c) The opportunity to build credit history, as a result of bank linkage and regular transactions

Banks received:

a) Increases in their deposit base and float amount without traditional investments in brick and mortar infrastructure
b) Access to new customers for the cross selling of asset and fee-based products such as loans, insurance, and investments

Disadvantages:
The new payment solution not only required paperwork for farmers to open accounts, but it ran up against the interests of existing actors. Since the new system required the removal of the cash disbursement process entirely, agents stood to lose their commissions of 3% of cash disbursement, in addition to the income they received from the rounding off of payments. In other words, the new intervention had to contend with bitter opposition.

a) An unproven and new business model being tested in rural areas that have more infrastructural challenges
b) Low level of financial literacy among the rural population of Burdwan district means extra efforts in account opening and concept sharing, translates into extra start-up costs for a pilot project
c) Existing mode of payments has worked for GCMMF affiliated cooperatives across the country. It has proven to be replicable without complaints. A new model being tested would need to meet the hygiene factors first

Exhibit 6: Sub-K Dairy Payment Flow

Source: Sub-K
Current Status and Lessons Learned

The pilot project on cashless payment to dairy farmers could not be replicated and scaled up for several reasons:

a) The Sub-K process was designed for online transactions only, meaning that whenever the mobile ATM kit malfunctioned, BCOs resorted to offline transactions and cash payments and deposits were carried out without customer identification. This created problems on the back end for reconciliation and settlements of bank accounts. Furthermore, it meant that the BCO had to wait for the farmer to come back again to authenticate the offline transaction, and carry sufficient cash with him.

b) Banks charged a one-time service charge amount of Rs. 28 for farmers to open an account. BCOs did not communicate this clearly to the farmers, which creating confusion. As first time bank account users, farmers also did not use their savings accounts frequently, as they were unsure of its benefits.

c) GCMMF and Sub-K disagreed over process. While the new model required GCMMF to introduce changes in its cash disbursement processes and give up control over the final payments to farmers, it was not convinced of the need for removing its agents from the process.

d) Dairy cash disbursement agents who stood to lose their businesses due to the new technology and business model used the initial shortcomings to convince farmers about the futility of the new system—blaming Sub-K in the process.

e) The technology platform that was supposed to overcome infrastructural challenges unique to rural markets didn’t perform as expected. Perhaps the model could have worked after several iterative improvements, but the lack of trained BCOs and a hostile environment stalled the project in its pilot phase, eventually resulting in its termination.

A complex project such as this must be capable of balancing a host of variables: the patience and support of partners, new technology, investments in the training of field staff, and the preparation of a business continuity plan. Critically, it must also prepare to face challenges from the disgruntled market players that are adversely affected by the project.
Reference List


