



Integrating Digital Financial Services into Agricultural Value Chains

A Bangladesh Market Landscape Assessment

SEPTEMBER 2016



INTEGRATING DIGITAL FINANCIAL SERVICES INTO AGRICULTURAL VALUE CHAINS: **A Bangladesh Market Landscape Assessment**



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ACRONYMS

ATM	Automated teller machine
AVC	Agricultural value chain
B2B	Business-to-business
BB	Bangladesh Bank (Central Bank of Bangladesh)
CI/CO	Cash-in / Cash-out
C2B	Customer-to-business
DFS	Digital financial services. This term is used broadly to refer to both MFS and agent banking service offerings where account holders are permitted to conduct financial transactions and other operations outside of a physical bank branch.
DFSP	Digital financial services provider
FMCG	Fast moving consumer goods
KYC	Know your customer
MFI	Microfinance institution
MFS	Mobile financial services
mSTAR	Mobile Solutions Technical Assistance and Research Project
NGO	Non-governmental organization
OTC	Over-the-counter
PIN	Personal identification number
P2P	Person-to-person
SHF	Smallholder farmer
SIM	Subscriber identity module
SME	Small and medium-sized enterprise
SMS	Short message service
USAID	United States Agency for International Development
USSD	Unstructured supplementary service data

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

The digital financial services (DFS) sector in Bangladesh has grown dramatically since its inception in 2011. By 2013, approximately 22% of the adult population reported using such services,¹ a figure that had risen to 33% by 2015.² Given these broad, positive market developments, a targeted assessment was commissioned to evaluate whether opportunities existed to integrate DFS offerings within agriculture value chains prioritized by USAID Feed the Future (FTF) programming, as well as other market-based or development program-based initiatives.

This report contains observations and analysis regarding the financial/payments patterns, needs, and preferences of multiple agricultural value chain (AVC) actors, namely smallholder farmers (SHFs), backward market actors (e.g., input retailers), and forward market actors (e.g., collectors), in the FTF Zone of Influence in the southern region of Bangladesh. The assessment also sought to gauge the strategic commitment, service offerings, and operational capacity of DFS providers as they relate to serving these different rural market segments, which drive economic activity in predominantly agricultural regions.

The assessment concludes with a series of recommendations that are intended to highlight potential ways forward for service providers or development organizations to integrate the use of DFS offerings within AVCs.

¹ Intermedia, "2013 FII Bangladesh Wave Report"

² Intermedia, "2015 FII Bangladesh Wave Report"

KEY OBSERVATIONS & FINDINGS

Based on focus group discussions, key informant interviews, quantitative survey data, and market research results a variety of observations and findings were developed that illuminate the financial services needs of selected AVC actors across a range of value chains. Key observations and findings include:

- » SHF engaged during the assessment exhibit a **mixture of formal and informal financial instrument use**, basic familiarity with microfinance institutions (MFIs) and banking services (loans and savings), and an interest in accessing specific formal banking products but find the terms and conditions difficult to meet.
- » **Access to and awareness of mobile technology is well-established** among the SHF engaged. However, device ownership and individual SIM registration varies by gender (with women having somewhat less direct access than men) and voice calling represents the dominant use case.
- » Experience using SMS and USSD channels via mobile phone is limited. Therefore, the **agent banking channel**, which offers account **access via biometrics rather than a text-based interface** via mobile device, offers a lower friction/lower skill threshold for account usage.

- » The savings behavior of SHFs engaged reveals a mix of formal and informal methods. **Formal savings practices vary considerably** by type of crop grown both in terms of amounts saved and frequency of saving. While over **60% of SHFs surveyed had formal savings** there is still an opportunity for financial services providers to offer improved products to SHFs. Additionally, there is a deposit mobilization opportunity using the digital channels to cost effectively introduce new products to non-savers.
- » SHF have a **surprisingly diverse transaction map** (meaning the number, type, location, and patterns of payments or transfers with other market actors); which suggests that **new digital payments alternatives could be a viable transaction method** for SHFs and these counterparties.
- » To varying degrees, all AVC actors—including SHFs—experience **working capital shortages** and could benefit from access to formal lending/credit facilities that are better aligned with their transaction patterns and revenue generating potential.
- » AVC actors higher up the chain exhibit transaction patterns that are more sophisticated and robust than SHFs, involving a larger network of counterparties, spread out over a much wider geography, with higher average values and volumes, and greater cash management requirements.
- » Backward market actors (input companies, dealers, and retailers) are **more attractive acquisition targets** for DFS providers given that their distribution chains are tighter with fewer intermediaries and have well-established hierarchies where the apex organization has a stake in enhancing product distribution. They also sell into multiple AVCs, and enjoy an **influential role with other AVC actors**, including SHFs, which would support further DFS acquisition efforts.
- » Most AVC actors exhibit **basic awareness and familiarity with MFS product offerings but perceive the service as exclusively a money transfer offering** with a cost-prohibitive fee structure not well-suited to their transaction patterns and needs.
- » Of the AVCs targeted during this assessment, **more similarities were observed than differences in terms of transaction behavior** (i.e. number and type of relationships, payment methods used) **and financial needs** (e.g. access to working capital). Where variations were observed, they were driven by differences in crop(s) grown that corresponded to different input requirements (i.e. fertilizer, pesticides), number of harvests, the presence of additional forward market actors, and crop storage potential. These factors influenced the type and degree of financial services and payments needs.

Key informant interviews were held with selected DFS providers in order to gain insights into their reach, capability, strategy, and commitment to serving rural communities. Key observations and findings include:

- » **All DFS providers (DFSPs) engaged during the assessment identified rural expansion as a commercial priority** and are committing financial and human resources to increase financial services presence and user enrollment. Multiple providers expressed a willingness to approach rural expansion by **servicing the financial and related transaction needs of multiple actors** within a given value chain.
- » At least two DFS providers identified their intentions to expand product offerings (i.e., credit, lending, savings) either through partnerships or internal development; however, the market remains largely unaware of these developments and a **significant investment in marketing/promotion will be required to shift perception** and drive a greater diversity of transaction behavior.
- » Multiple service providers are **prioritizing rural merchant acquisition** and specifically view retailers at the small and medium-sized enterprise (SME) level as **an attractive and underserved market segment** with a diverse set of needs (i.e., savings mobilization, access to working capital, digital payments).

RECOMMENDATIONS

A. DFS Providers

DFS providers should prioritize those AVC actors (i.e. input companies, commodity wholesalers and traders) whose **transaction networks straddle cash and digital operations** and who typically conduct higher value, higher frequency transactions that involve a large number of actors. These actors can serve as key entry points into specific value chains as their involvement and influence can serve to stimulate broader acceptance and usage at other levels, including SHFs.

Specifically, DFS providers should consider the following activities or approaches to support product positioning, adoption and usage for “cash-digital straddlers”:

- » Businesses-to-business (B2B) transaction pricing that is flat versus percentage based to more attractively market DFS payments option to clients with high volume transaction needs.
- » Highlight effectiveness of an alternative payments collection method (i.e. speed, reduced leakage, greater visibility into repayment cycles).
- » Highlight extended window of operation (available for longer periods, more days) as a key value proposition that would increase trading activities.
- » Highlight benefits of an alternative cash storage mechanism for AVC actors that are highly mobile and have considerable cash carrying requirements.

- » Consider leveraging the downstream transaction relationships of these more sophisticated AVC actors as a way to more efficiently and cost-effectively acquire additional DFS users (e.g. working with input companies to encourage dealers and retailers to register).
- » Consider development of associated marketing/promotional schemes that would stimulate increased sales and customer loyalty at multiple levels (e.g. backward market actors involved in input distribution).

Two DFSPs expressed a willingness to provide financial incentives to development organizations that would partner to stimulate rural customer and merchant acquisition

Additionally, a holistic approach that seeks to serve multiple actors within a selected value chain would also be advantageous. Such an approach benefits DFS providers by allowing them to more strategically leverage existing transaction networks to accelerate user acquisition. It will also ensure that providers develop and hone a value proposition that is broadly understood and position their products in such a way that demonstrates their utility for multiple market segments. Specifically, DFS providers should consider the following targeted activities or approaches to support product positioning, adoption and usage for other AVC actors:

SHFs: Introduce micro-credit/lending products to extend selling seasons to enable farmers to secure greater revenues from crop sales by

selling at higher prices. Offer customized time or goal-based savings products that either reinforce existing informal savings behavior (e.g. purchase of livestock) or support a greater savings diversification. Promote loyalty schemes (i.e. selected discounting, reward points, limited cash back) tied to recurring purchases associated with farming practices (i.e. purchase of inputs or equipment rental) or other key expenditures (e.g. education fees).

Retailers (Inputs & Commodities): For selected moderate to large size rural retailers who are unbanked or under-banked, cash management can be time consuming, expensive, and potentially risky. DFS providers can alleviate these challenges through an expanded service ecosystem, offers greater convenience (e.g. mobile deposit taking, extended hours), and supports increased digital transactions to reduce cash on hand. Building off a holistic approach to serving value chains, DFS providers should also consider the use of discount/promotional schemes tied to product usage as a way to stimulate sales, strengthen customer loyalty, and attract new customers. For qualifying retailers with adequate cash flow, inventory size, and operating capacity, formal SME credit or lending products could be offered and perhaps linked to digital payments transaction performance as a way to stimulate merchant acquisition.

Commodity Collectors: As one of the more mobile AVC actors with a considerable cash-handling requirement, DFS providers should aggressively position their products as a discrete, reliable and convenient savings mechanism for short or longer-term deposits. Through the acquisition of other actors adjacent

to or above them in their transaction networks (i.e. commission agents, wholesalers, traders), DFS providers can further reduce commodity collector cash handling requirements and facilitate faster, less time- or cost-intensive payments (both collection and initiation). And, although commodity collectors do rely on informal credit and lending to finance their trading operations and secure access to crop yields, the introduction of a bundled DFS offering that included payments, savings, and a micro-credit facility to cover transportation costs associated with crop collection or delivery would represent an attractive product positioning strategy. Furthermore, as with other AVC actors that exhibit high frequency, higher value transaction patterns, offering a payments capability with a pricing model that is service-based rather than per transaction-based (paid annually or on a periodic basis) would strengthen enrollment efforts and drive greater, more frequent usage.

mSTAR/Bangladesh is ready to support DFS providers to expand their services to rural communities. You can learn more about how we can work together [here](#).

B. Development Organizations

Development organizations can improve the impact of their broader programs by selectively introducing and promoting DFS to their stakeholders. Specific recommendations include:

- » Evaluating value chains for DFS potential and considering AVCs with the following characteristics:

- » Moderate to extended selling period (3+ months) where a single SHF may conduct several crop sales over that period
- » Multiple harvest seasons
- » Established agro-enterprises or considerable growth potential that would attract new, sustained corporate investment
- » Designing programs that involve multiple AVC actors, including SHFs, backward and forward market actors focusing on transaction relationships that are well-defined and established.
- » Developing DFS training and engagement strategies that target multiple members within SHF households to minimize confusion or misperceptions about the role and impact of this new service on existing household decision-making and other financial/payments activities.
- » Positioning DFS as a gateway to accessing other valued goods or services for which SHFs must purchase (i.e. new seeds, pesticides, agro-equipment) to drive additional follow-on transaction activities (i.e. basic consumption needs, key expenditures like school fees).

mSTAR/Bangladesh is available to help USAID implementing partners in Bangladesh with any of the above free of charge upon request. You can learn more about how we can support you [here](#).

ASSESSMENT OBJECTIVES & SCOPE

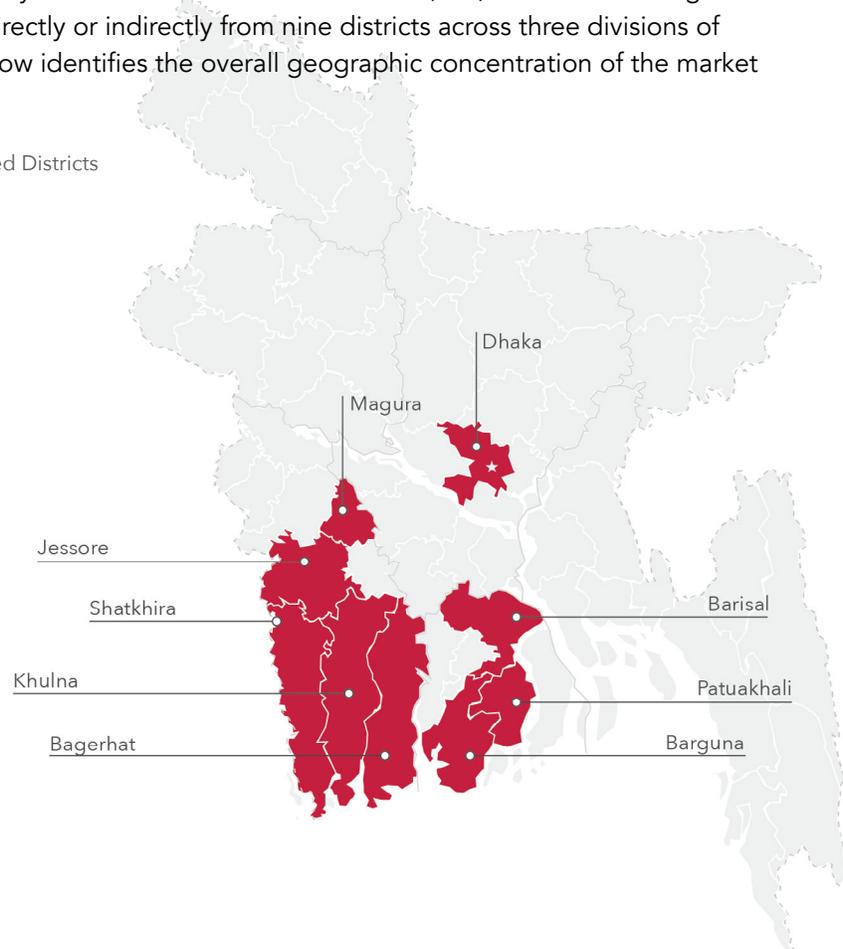
ASSESSMENT OBJECTIVES & SCOPE

This market assessment was conducted with two primary objectives: (1) identify whether opportunities exist to integrate DFS offerings into the financial and payment activities of multiple agriculture value chain actors and (2) develop specific recommendations for DFS providers and development organizations to support strategic planning and implementation activities involving the use of DFS in these contexts. The assessment focused on agricultural value chains and geographies prioritized by USAID's current Feed the Future (FTF) initiatives in Bangladesh. Information was collected directly or indirectly from nine districts across three divisions of Bangladesh. The exhibit below identifies the overall geographic concentration of the market assessment.

Exhibit 1: Concentration of Selected Districts for Field-based Data Collection

TARGETED GEOGRAPHIC AREA

1. Bagerhat
2. Barisal
3. Barguna
4. Dhaka
5. Jessore
6. Khulna
7. Magura
8. Patuakhali
9. Shatkhira



METHODOLOGY

METHODOLOGY

This assessment employed a hybrid approach that collected quantitative and qualitative information from two types of market actors: a) those involved in AVCs (i.e. SHFs, backward market actors, and forward market actors) and b) those involved in providing DFS or related services (i.e. 3rd party providers, banks, and mobile network operators).

Information was sourced in one of four ways: 1) focus group discussions (FGDs); 2) key informant interviews (KII) conducted by the external consultant and members of the mSTAR/Bangladesh team; 3) a quantitative field survey of 400 growers conducted by a local market research firm (Consiglieri) sponsored by the USAID Agricultural Value Chains Project, implemented by DAI; and 4) prior assessments conducted by the mSTAR/Bangladesh team pertaining either to AVCs or DFS.

Exhibit 2: Below summarizes the types of direct data collection conducted.

DISTRICT	COLLECTION ACTIVITY	TOTAL NO. CONDUCTED	TOTAL NO. OF PARTICIPANTS	TYPE OF MARKET ACTOR
Jessore				
	KII	9	9	Input Dealer/Wholesaler (1) (Backward Market Actor) Input Retailer (1) (Backward Market Actor) Commission Agent (2) (Forward Market Actor) Commodity Collector (2) (Forward Market Actor) Commodity Transporter (1) (Forward Market Actor) Commodity Wholesaler (1) (Forward Market Actor) Commodity Retailer (1) (Forward Market Actor)
	FGD	2 (2 Male)	22	Smallholder Farmers (rice, seasonal vegetables)

Bagerhat				
KII	9	9		Input Dealer/Wholesaler (2) (Backward Market Actor) Input Retailer (1) (Backward Market Actor) Commodity Collector (1) (Forward Market Actor) Commission Agent (1) (Forward Market Actor) Commodity Transporter (1) (Forward Market Actor) Commodity Wholesaler (1) (Forward Market Actor) Sub-Assistant Agriculture Officer (1) Farmers' Association (1)
FGD	2 (1 Male/1 Female)	22		Smallholder Farmers (rice, seasonal vegetables, aquaculture)
Dhaka				
KII	7	10		Bank (2) [MFS & agent banking service providers] MNOs (2) 3rd party MFS provider (1) IT service provider (1) 3rd party provider (1)

FGD Guides & Question Sets – A total of 4 FGDs with 10-12 SHFs each were mobilized in two districts: Jessore and Bagerhat. Discussion questions were organized according to the following key topic areas:

- » Current Process for Selling Crops, Making Purchases
- » Household Financial Management
- » Financial Services Awareness, Access and Use
- » Mobile Technology Awareness, Access and Use
- » DFS Offering Awareness, Access, Use and Perceptions
- » Receptivity to Payment Alternatives

Key Informant Interviews (KIIs) – In addition to SHF, 18 KIIs were conducted with a range of AVC actors. Seven Dhaka-based KIIs were also held with a variety of commercial service providers that directly provide DFS or have offerings that support such services:

A. Field-based: Questions were organized according to the following topic areas:

- » Business Overview: Priorities, Organization and Key Activities
- » Key Transaction Parties
- » Current Financial Services/Payments Needs and Transaction Patterns
- » Current Mobile Technology Use
- » Awareness, Usage and Perceived Relevance of DFS

B. Dhaka-based: Key topic areas and specific probing questions focused on:

- » Strategic Focus and Commercial Priorities
- » Service Offerings
- » Operational Footprint and Capacity
- » Rural/Ag Strategy and Initiatives

With respect to indirect information collected, the external consultant designed DFS-related questions for incorporation into a field questionnaire enumerated by a local market research firm Consiglieri as part of a broader assessment on patterns of financial flows within selected value chains commissioned by the USAID Agricultural Value Chains project, currently managed by DAI. Key topic areas of the questionnaire included:

- » Crops Cultivated and Land Related Issues (Use, Ownership, etc.)
- » Household Income and Expenditures (Types, Values, Frequencies)
- » Financial Behavior (Savings, Credit & Loans)
- » Interaction with other agriculture AVCs
- » Transaction Patterns Associated with Crop Sales
- » DFS (Awareness, Access and Usage)

Based on reported population figures from the Bangladesh Bureau of Statistics (BBS) for the 20 Districts included in USAID's FTF initiative, a sample size of 400 surveys was selected. The survey design also sought to capture information across a range of value chains, to reflect the variety of crops grown in the Southern delta region, the differences in value chain organization, as well as the types of actors involved as these factors impact activity patterns associated with cultivation, harvesting, and selling. Exhibit 3 presents a breakdown of grower surveys by value chain.

Exhibit 3: Breakdown of Grower Surveys by Value Chain

VALUE CHAIN	SAMPLE SIZE
Flower	40
Coir	40
Mango	40
Potato	40
Tomato	40

Source: Consiglieri Market Research Report 2016 (pending publication)

**OVERVIEW:
AGRICULTURAL PRODUCTION &
VALUE CHAIN MODELS**

OVERVIEW: AGRICULTURAL PRODUCTION & VALUE CHAIN MODELS

Agriculture comprises 16% of GDP and accounts for 46% of the employable workforce in Bangladesh. The average plot size is less than 1 hectare (Ha). While some farming techniques within certain value chains do increasingly involve the use of industrial equipment and mechanization, the majority of SHFs still rely on traditional practices that are highly labor intensive. Additionally, only a small percentage of total production makes it into commercial channels (percentage varies greatly by crop and geography).

Given the geographic focus of USAID's FTF initiatives, and based on the type of crops grown by SHFs who participated in FGDs and survey questionnaire, a sub-set of four (4) agricultural value chains (AVC) was selected for analysis under this assessment. They include:

1. Lentils
2. Mangos
3. Rice
4. Winter Vegetables

Drawing from elements of an evaluation framework common to both USAID and CGAP regarding the applicability of DFS in the agriculture sector, this section proposes a two-level framework for classifying these crops.³

The first level assesses the degree of commercialization that characterizes these AVCs, and places them along a defined spectrum. This spectrum divides into three categories: 1) limited commercial/ subsistence, 2) mostly commercial/loosely organized, and 3) commercial/tightly organized. As shown in the Exhibit 4, these categories vary based on several factors such as:

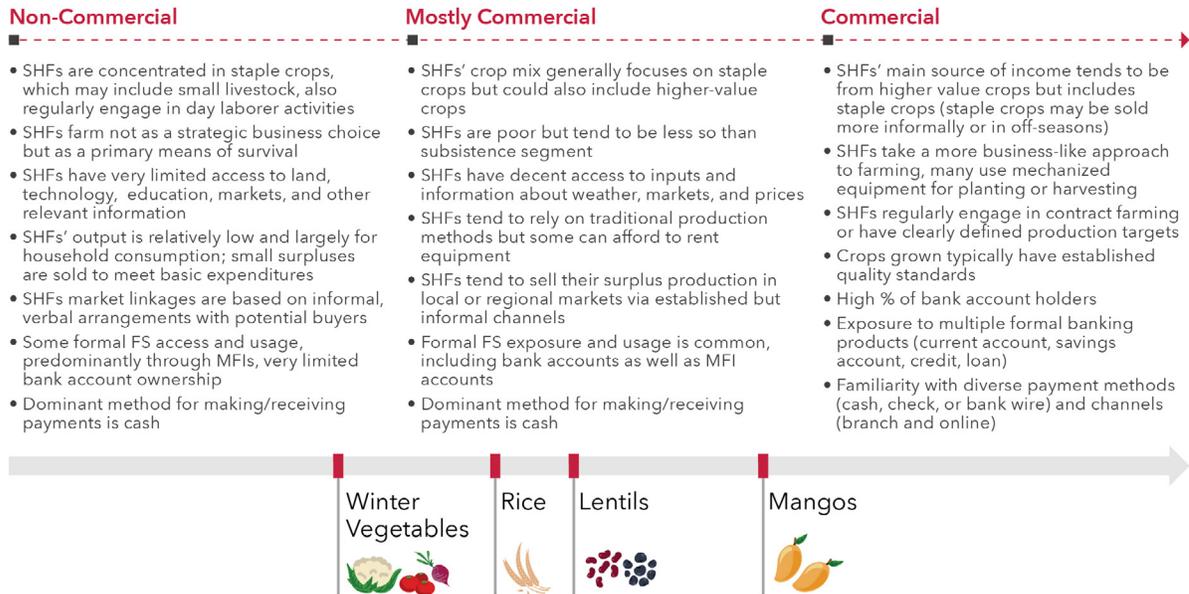
- » SHF approach to farming
- » Diversity of crop cultivation
- » SHF practices, knowledge and capacity
- » Degree of SHF access to markets and linkages with other AVC actors
- » Financial services/payments usage and sophistication

³ [Guide to the Use of Digital Financial Services in Agriculture](#)
[Segmentation of Smallholder Households: Meeting the Range of Financial Needs in Agricultural Families](#)

This spectrum and the associated categories are meant to be broadly indicative of the degree of organization within AVCs and the SHFs that grow certain crops. In the case of Bangladesh,

as with many other markets, issues of plot size, land ownership, and crop specialization do not allow for simple classifications.

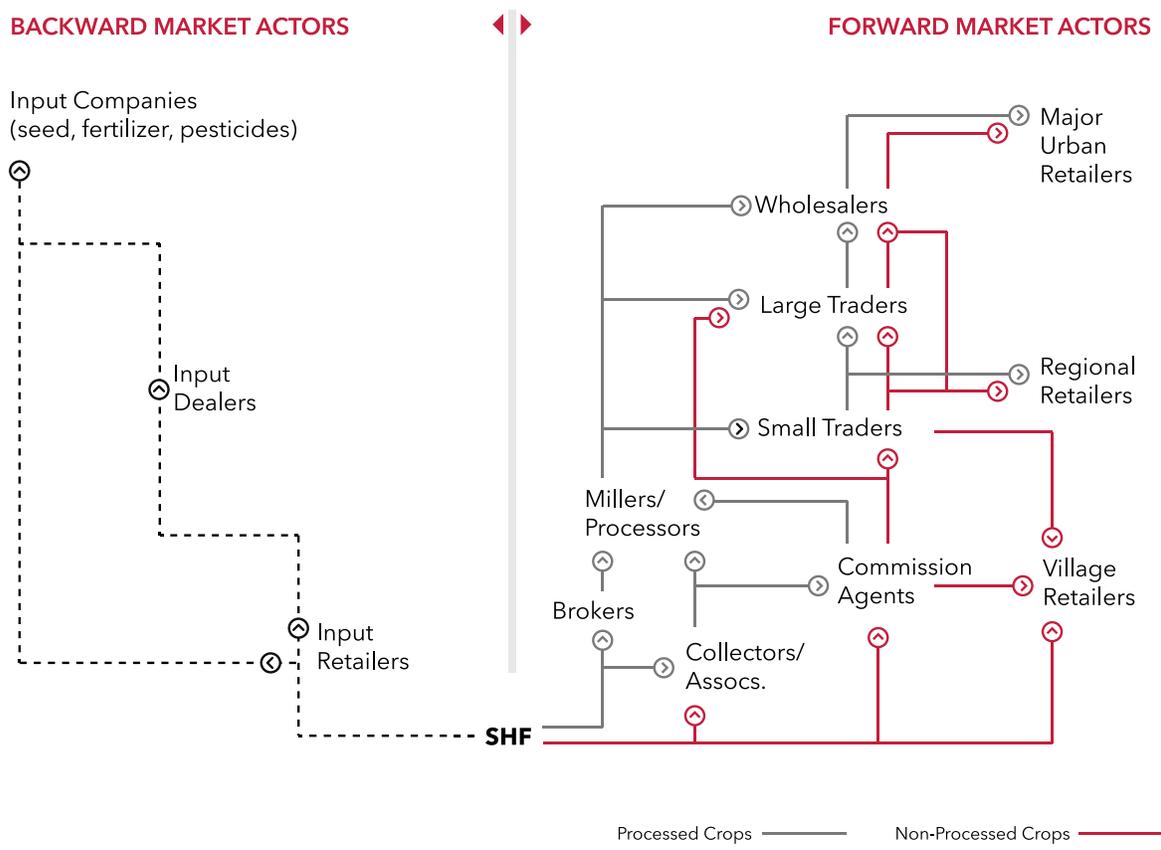
Exhibit 4: Organization of Selected AVCs Based on Degree of Commercialization



Of the SHFs engaged either in the FGDs or the field survey questionnaire, a significant percentage of those that grew crops for domestic consumption such as food staples (i.e. rice, lentils, potatoes) grew a primary crop with up to two harvest seasons and then engaged in off-season cultivation of other crops (i.e. summer or winter vegetables). This degree of diversification means that SHFs are implicated in multiple AVCs, which impacts the types of market linkages they possess and the relationships they have with other AVC actors. It also contributes to variations in terms of their access to formal and informal sources of financing.

Related to issues of commercial organization, the second level differentiates AVCs according to transactional dynamics such as dominant payment methods, transaction frequencies and volumes, timing of payments, or the availability of formal or informal financing. These dynamics are shaped in large part by the number and type of actors present as well as the density of layers within a value chain. Based on geographic scope of this assessment and the crops selected, and as depicted in Exhibit 5 on the following page, two basic models exist: processed and non-processed.

Exhibit 5: Key Actors Involved in Processed vs. Non-Processed Agriculture Value Chains



In the case of AVCs involving processed crops, the presence of millers alters transaction dynamics, as most millers employ a network of brokers that buy on behalf of specific millers to guarantee a steady supply of crops to meet processing targets. Many millers regularly inject liquidity into the value chain through informal credit financing during the planting season to bind growers in advance and guarantee that their crop yields will only be sold to that particular miller. While informal

financing is common to both processed and unprocessed AVCs, there are fewer millers relative to buyers of non-processed crops (i.e. collectors, commission agents, and occasionally traders or wholesalers). Millers, therefore, enjoy an advantage when negotiating prices with growers during harvesting/selling seasons.

While the differences between processed and non-processed crops are important, the fundamental transaction flows and relationships are similar.

**OBSERVATIONS & FINDINGS FROM
DEMAND SIDE ASSESSMENT**

OBSERVATIONS & FINDINGS FROM DEMAND SIDE ASSESSMENT

This section presents responses to FGDs, survey questionnaires, and key informant interviews. They are organized according to the following respondent types: SHFs, Backward Market Actors, and Forward Market Actors. Individual profiles have been developed for each AVC actor, providing highlights from selected topic areas covered in each of the field collection tools. Additional observations and findings follow each table presented in the following Exhibits below, which have been grouped into three key themes: 1) Key Transaction Relationships and Patterns, 2) Financial Services/Payments Needs, and 3) Relevance of Mobile Technology. These summary observations laid the foundation for subsequent analysis regarding the applicability of DFS offerings relative to specific AVC actors and the integration potential for DFS more broadly to serve the needs of multiple actors within a given value chain.

Exhibit 6: Smallholder Farmer Profiles

SMALLHOLDER FARMER PROFILE

KEY TRANSACTION PARTIES, PROCESSES & RELATED OPERATIONS	FINANCIAL SERVICES AWARENESS, ACCESS & USAGE	RELEVANCE OF MOBILE TECHNOLOGY
<ul style="list-style-type: none"> » Key Parties: Input retailers and dealers, commodity collectors, brokers/co-ops, hired service providers (i.e. transport, irrigation, agro-equipment), land owners » Location: Crop sales conducted at village market (bazaar), farm gate, or collection center » Payment methods: cash or credit (issued by multiple AVC actors), majority receive one-time lump sum payment for crops sold 	<ul style="list-style-type: none"> » Awareness: Majority know MFIs, most know banks, some are familiar with more than one type of financial product » Access: Given proximity of farms to village center/bazaar, reaching a bank branch is not expensive or time-consuming; MFI loan officers travel to farmers on a weekly basis to collect payments 	<ul style="list-style-type: none"> » Access: Majority of farmers (male and female) can access a phone without much difficulty » Role of Gender in Access: More males than females have their own devices; significant number of females did not have SIMs registered in their own name

SMALLHOLDER FARMER PROFILE (CONTINUED)

KEY TRANSACTION PARTIES, PROCESSES & RELATED OPERATIONS	FINANCIAL SERVICES AWARENESS, ACCESS & USAGE	RELEVANCE OF MOBILE TECHNOLOGY
<ul style="list-style-type: none"> » Core transactions post crop-sale: debt repayment, new inputs, food, and household items » Transport: On foot, bicycle, tri-cycle, hired motorized transport » Travel costs: Cited as manageable (25-150 BDT) » Distance: On average 3-8 km (to village market) / < 50 minutes (to collection center) 	<ul style="list-style-type: none"> » Usage: MFI loans are most common, some bank loans depending on farmer capacity and crops grown; balance minimums and annual fees (e.g. 500-600 BDT) from banks are hard to meet as are documentation requirements; savings habits are well-established but amounts and frequencies vary widely and a function of crops grown 	<ul style="list-style-type: none"> » Usage: Voice consumption is dominant, limited texting in Bangla or English; most have purchased airtime from agents and can check balance; some farmers are beginning to source local market prices via mobile by calling people in the bazaar

Source: Key Informant Interviews & Consiglieri Market Research Report 2016 (pending publication)

Financial Services Awareness, Access & Usage

The majority of SHFs engaged in FGDs or surveys are aware of formal financial services providers (MFIs and banks) and some are familiar with more than one type of financial product (loan, current account, savings account). MFI loans were the most commonly cited formal financial product used and most SHFs expressed satisfaction with the MFI's quality of service; however, they felt the weekly repayment schedule was both difficult to meet and unrealistic given their cash flow patterns. Formal savings practices were observed (weekly, monthly, or annual cycles were reported) but these practices varied widely by the type of crop grown. Cash is the dominant method for making and receiving payments but SHFs are exposed to transactions that leverage a digital channel (i.e. money transfer via an MFS agent and utility bill payment).

Role of Mobile Technology & Usage

Most male SHFs own their mobile devices (either basic handsets or feature phones), have SIMs registered in their names, and have recently completed the new biometric registration requirement issued by the government. Female SHFs reported lower handset ownership but felt they could access a mobile phone without too much difficulty. Inbound and outbound voice calling were the dominant use cases cited and digital airtime top-up via an agent is a commonly understood practice. There was limited experience with sending or receiving SMS and no experience transferring airtime digitally to friends or family. A number of SHFs in different FGDs mentioned they are now regularly calling contacts at one or more nearby markets to collect price quotes to strengthen their negotiating position with commodity collectors or other buyers.

Snapshot of Value Chain Actors



COMMODITY COLLECTOR PROFILE (FORWARD MARKET ACTOR)

KEY TRANSACTION PARTIES, PROCESSES & RELATED OPERATIONS	FINANCIAL SERVICES AWARENESS, ACCESS & USAGE	RELEVANCE OF MOBILE TECHNOLOGY
<ul style="list-style-type: none"> » Key Parties: Growers (including SHFs), commission agents, wholesalers, hired transport service » Payment methods: All transactions are cash-based unless purchases are made on credit (2-5 day repayment window typical) » Transaction Patterns: Buying networks are diverse and can include a large number of parties; grower networks in excess of 200 SHFs, up to 10-15 commission agents reported » Seasonal transaction patterns (post-harvest), trading period can last up to 7 months » During busiest trading periods, hundreds of cash-based transactions made daily; fixed locations are rare, one collector rents retail shop space » Transport: Must hire transport to move crops, this can increase time (logistical coordination) and cost expenditures » Some collector territories are highly localized, other have a widespread buying territory (instance of daily trips 80+ km to major regional market) 	<ul style="list-style-type: none"> » Awareness: Most are familiar with formal offerings (banks and MFIs) » Access: Formal account ownership is low » Usage: One collector reported having a micro-savings account through an MFI » Sometimes high cash on hand at end of day, sense of security risk is increased » One collector uses bKash to deposit cash on hand when traveling long distances to mitigate carrying large sums at night 	<ul style="list-style-type: none"> » Awareness: Moderate, understands basic voice and data service offerings » Ownership: All have own mobile device and registered SIM cards; most own basic or feature phones » Usage: Considerable inbound and outbound calling for trading (coordinating pick-up/drop-offs, price, etc.); communicate mostly with hired transport and prospective buyers (i.e. commission agents, wholesalers)

Source: Key Informant Interviews & Consiglieri Market Research Report 2016 (pending publication)

Key Transaction Parties, Processes & Related Operations

Commodity collectors are predominantly informal micro to small-enterprises that are highly mobile and rely almost exclusively on cash or informal credit arrangements to conduct buying/selling transactions. During busy trading periods, collectors directly conduct or coordinate through hired staff

hundreds of transactions a day. While some collectors operate within a fairly restricted geographic area, up to three or four villages, some collectors have more expansive trading territories. This requires considerable communication, cash management planning, and established relationships with hire transport services to arrange pick-ups and drop-offs.

Financial Services Awareness, Access & Usage

Of the collectors engaged in this assessment, formal financial services access is limited. One maintains a micro-savings account with an MFI as part of the loan offering. Cash handling risks are higher among collectors than SHFs as they may find themselves far from home after trading

hours with large sums of cash on hand. Another collector reported using bKash as a way to deposit funds in the evening, drive home, and then withdraw those funds the next day. He commented that he knows of other collectors who have used bKash in a similar fashion.

Exhibit 8: Input Dealer Profiles

INPUT DEALER PROFILE (BACKWARD MARKET ACTOR)

KEY TRANSACTION PARTIES, PROCESSES & RELATED OPERATIONS	FINANCIAL SERVICES AWARENESS, ACCESS & USAGE	RELEVANCE OF MOBILE TECHNOLOGY
<ul style="list-style-type: none"> » Key Parties: Input companies, input retailers, SHFs, hired transport service » Payment methods: Cash is dominant method for incoming and outgoing payments; making/receiving payments via bank wire transfer can involve considerable wait time at branch » Transaction Patterns: Most have been in business for over 5 years; average staff size < 3; inventory includes seeds, pesticide, fertilizer, and feed » Operate out of a single, fixed location with on-site storage; capacity ranges from 10-22 MT; » Transactions year around with seasonal spikes (pre-planting); during busiest months, over 100 sales transactions per day » Accounting is paper-based with use of a calculator » Transport: Limited number of suppliers, networks range from 1 – 6; hired transport used for collection/delivery; infrequent resupply requirements » Some maintain direct contacts with growers (up to 500 reported by one dealer); occasionally use own transport and staff to collect outstanding debts 	<ul style="list-style-type: none"> » Awareness: Sophisticated understanding of banking services » Access: Most have bank accounts, branches are within easy walking distance » Usage: Financing needs are sourced from family, trusted informal lenders, or formal lending and credit facilities from banks and MFIs; reported interest rate range of 12 -18% (but typical MFI loans typically carry a 25-31% rate) » Structured payments process (bank wire) already in place for input restocking among dealers that source from government warehouses » Cash handling on-site not viewed as a major cost or concern; periodic deposits at branch before closing keep cash on hand levels low 	<ul style="list-style-type: none"> » Awareness: Moderate to sophisticated, understands most voice and data service offerings » Access: All own their own devices with individually registered SIMs » Usage: Used to coordinate business activities (transport logistics, inventory management); many owners provide stipends to staff for work related calling /texting; some also provide post-sale advice via mobile to SHFs

Source: Key Informant Interviews & Consiglieri Market Research Report 2016 (pending publication)

Key Transaction Parties, Processes & Related Operations

Input dealers occupy the role of middleman/distributor, sourcing either from private companies or government-run input warehouses. Dealers are typically formal, licensed enterprises that are familiar with non-cash methods of payment (e.g. bank wire transfer) and frequently rely on bank branches to execute inventory purchases. Sales transactions are mostly conducted in cash; however, dealers will offer credit lines to buyers (either retailers or SHFs) on a selected basis. Dealers engaged cited repayment default as a concern, especially among SHFs, and must often expend resources (staff, transport, fuel) seeking collection.

Although somewhat skeptical, dealers welcomed the prospect of a new digital services that would allow them to collect repayments remotely and at little or no cost.

Role & Relevance of Mobile Technology

Input dealers reported heavy mobile phone usage on a daily basis for business activities. Voice calling was the dominant use case cited, with at least one dealer commenting that he often provides advice to SHFs post-sale (proper application of fertilizer or pesticides). Additionally, some dealers will provide stipends to staff to subsidize their business related phone activity.

Exhibit 9: Input Retailer Profiles

INPUT RETAILER (BACKWARD MARKET ACTOR)

KEY TRANSACTION PARTIES, PROCESSES & RELATED OPERATIONS	FINANCIAL SERVICES AWARENESS, ACCESS & USAGE	RELEVANCE OF MOBILE TECHNOLOGY
<ul style="list-style-type: none"> » Key Parties: Input companies, input dealers, SHFs, hired transport service » Payment methods: Incoming and outgoing payments are predominantly in cash; instances of customer-to-business (C2B) transactions with bKash so SHFs can pay an outstanding balance » Transaction Patterns: Inventory includes seeds, fertilizer, pesticides, small fast moving consumer goods (FMCG) items » 1-2 fixed locations with limited on-site storage; most are sole proprietorships with 1-2 staff (often family); typically rely on more than 2 suppliers, upwards of 6 	<ul style="list-style-type: none"> » Awareness: All are familiar with multiple formal financial service offerings (banks, MFIs, etc.) » Access: Bank account ownership & usage varies; most have at least 1 bank account » Usage: Current accounts and savings are most common; Cash handling or payments not cited as a major cost or concern 	<ul style="list-style-type: none"> » Awareness: Moderate, understands basic voice and data service offerings » Access: All have own mobile device and registered SIM cards » Usage: Mix of personal and business use, voice calling dominant; communicates with AVC actors up and down the chain (dealers to SHFs); mostly for inventory delivery coordination

INPUT RETAILER (BACKWARD MARKET ACTOR) (CONTINUED)

KEY TRANSACTION PARTIES, PROCESSES & RELATED OPERATIONS	FINANCIAL SERVICES AWARENESS, ACCESS & USAGE	RELEVANCE OF MOBILE TECHNOLOGY
<ul style="list-style-type: none">» Transactions year around with seasonal spikes (pre-planting)» Active in marketing/promotion via word of mouth, formal above-the-line marketing from input companies viewed as ineffective» Transport: Proximity to input distribution networks varies but many offer direct delivery with cash on delivery requirement» Rent up to 4 vehicles during peak periods (3-5 months in duration)		

Source: Key Informant Interviews & Consiglieri Market Research Report 2016 (pending publication)

Key Transaction Parties, Processes & Related Operations

Input retailers operate out of fixed locations, are frequently sole proprietorships with limited staff, and many are not formally licensed. Transactions are largely cash-based and occur year around with seasonal spikes (pre-planting). Inventory resupply is done either via delivery from input company or dealer, or the input retailer arranges hired transport to collect new stock. In both cases, cash on delivery is required and input retailers must maintain adequate liquidity on delivery or collection days. Insufficient cash on hand may restrict a retailer's ability to complete resupply transactions. Some retailers enjoy an informal credit line with either the company or the dealers, which they must repay on an annual or semi-annual basis.

With respect to customer sales, retailers deal largely in cash but will issue credit to certain customers (typically family). One retailer reported accepting payment via bKash from SHFs who did not have enough cash to pay the full purchase amount. The retailer allowed those farmers to return home and then conduct a person-to-person (P2P) transfer via bKash to cover the remaining balance. This retailer commented that he was comfortable with the arrangement and would be open to continuing to use bKash in this way.

COMMISSION AGENT PROFILE (FORWARD MARKET ACTORS)

KEY TRANSACTION PARTIES, PROCESSES & RELATED OPERATIONS	FINANCIAL SERVICES AWARENESS, ACCESS & USAGE	RELEVANCE OF MOBILE TECHNOLOGY
<ul style="list-style-type: none"> » Key Parties: SHFs, commodity collectors, commodity retailers, commodity wholesalers, millers » Payment methods: Mix of digital and cash-based transactions (buyers wire funds to agent and agent pays SHF in cash) » Regular extensions of informal credit (2-3 day period) to traders » Transaction Patterns: Seasonal transactions patterns (post-harvest), active trading period up to 7 months » High transaction volumes and cash handling needs but mostly use buyer’s funds to pay SHFs » Fixed location (auction floor) / on-site storage; multiple staff (full- and part-time), up to ~20 » Source crops either directly (one network included 2,000 growers) or indirectly via crop collectors (as many as 15) » Transport: Collectors will occasionally bear cost of transport/ delivery, usually born by SHF 	<ul style="list-style-type: none"> » Awareness: Well-established understanding of formal banking offerings » Access: Most have at least one bank account; some have accounts with multiple banks » Usage: Current or savings accounts are most common products, limited use of bank or MFI loans (preference expressed by key informants for informal lending from family and friends) » Given the geographic dispersion of buyer networks (i.e. traders, wholesalers) and the need to conduct high frequency, larger volume transactions remotely via wire transfer, bank accounts are an essential payments tool 	<ul style="list-style-type: none"> » Awareness: Moderate to sophisticated, understands most voice and data service offerings » Access: All have own devices, most feature or basic » Usage: Used for personal and business reasons; for business, heavy daily communication with multiple AVC actors (transporters, staff, buyers, etc.); some offer permanent staff an airtime stipend (100-200 BDT)

Source: Key Informant Interviews & Consiglieri Market Research Report 2016 (pending publication)

Key Transaction Parties, Processes & Related Operations

Commission agents are medium to large scale, formal enterprises with high intensity transaction profiles. Their transaction counterparties are numerous (hundreds of SHFs and dozens or more of traders/wholesalers/collectors) and often highly dispersed geographically. Their daily business operations are labor-intensive, often requiring 10-15 additional part-time staff during peak trading months. Commission

agents must actively manage cash liquidity levels on-site to pay farmers for crops delivered. Agents or designated staff are required to make recurring trips to the bank to confirm the arrival of wire transfers from prospective buyers and withdraw the necessary funds. Occasionally, SHFs will accept sales on credit. Payment is typically made within a 2-3 day window, which requires SHFs to leave the farm and return to the local bazaar for collection.

COMMODITY WHOLESALER PROFILE

KEY TRANSACTION PARTIES, PROCESSES & RELATED OPERATIONS	FINANCIAL SERVICES AWARENESS, ACCESS & USAGE	RELEVANCE OF MOBILE TECHNOLOGY
<ul style="list-style-type: none"> » Key Parties: SHFs, commodity collectors, commission agents, traders, commodity retailers, hired transport services » Payment methods: Transactions are a mix of digital and cash; wire transfers used with commission agents, traders, other wholesalers; cash used with retail customers or smaller buyers (e.g. retail stores), informal credit lines for trusted retailers only » Transaction Patterns: Fixed location with on-site storage; some wholesalers have an additional warehouse off-site; mix of full and part-time staff (ranges from 5-30); » Continuous sales throughout the year with seasonal spikes (post-harvest) lasting 3-5 months » Significant cash handling requirements as wholesaler or authorized staff conduct large numbers of crop purchases on a daily basis » Paper-based accounting with use of a calculator; some wholesalers issue paper receipts against transactions » Transport: Hired transport needs are considerable for crop collection; during peak trading periods, 10-12 large trucks are rented 	<ul style="list-style-type: none"> » Awareness: Well-established understanding of formal banking services » Access: All are banked, some have multiple accounts with multiple banks » Usage: Credit and overdraft facilities are dominant products for business activities with some savings accounts for personal use » Cash handling on-site not viewed as problematic, proximity of multiple bank branches allows for frequent depositing 	<ul style="list-style-type: none"> » Awareness: Moderate to sophisticated, understands most voice and data service offerings » Access: Owners have mobile devices and registered SIMs; owners and staff have either feature or basic handsets » Usage: Daily, high intensity use; communication with multiple AVC actors in the chain (buyers, suppliers, transporters, staff); mostly for transport logistics; many provide small daily stipends to staff for calling

Source: Key Informant Interviews & Consiglieri Market Research Report 2016 (pending publication)

Key Transaction Parties, Processes & Related Operations

Wholesalers are medium to large scale, formally licensed enterprises that maintain at least one fixed location (warehouse) and conduct trading activities year around with seasonal, post-harvest spikes that can last 3-5 months. As with commission agents, wholesalers maintain a mix of full and part-time staff, are experienced

with both digital and cash-based transactions, and have a considerable cash management requirement. However, unlike commission agents, wholesalers must manage the physical transportation of both cash and commodities over a wide trading area. The movement of such large volumes of commodities often requires renting and coordinating upwards of a dozen trucks from one or more service providers.

COMMODITY RETAILER PROFILE

KEY TRANSACTION PARTIES, PROCESSES & RELATED OPERATIONS	FINANCIAL SERVICES AWARENESS, ACCESS & USAGE	RELEVANCE OF MOBILE TECHNOLOGY
<ul style="list-style-type: none"> » Key Parties: Commodity wholesalers, hired transport service, end consumers » Payment methods: All sales are cash-based, occasional use of wire transfers to pay suppliers » Transaction Patterns: Single, fixed location; employs up to 2 staff (relies mostly on family); limited on-site storage (inventory usually lasts 10-15 days) » Sells variety of perishable foods, FMCG items; sales are relatively steady throughout the year » Sources crops from up to 3 different suppliers, multiple suppliers of FMCG items » Cash handing on-site not cited as a major problem » Transport: Depending on location (city vs. peri-urban vs. rural), convenience and cost of inventory resupply varies » Some FMCG suppliers offer delivery but sourcing other inventory usually involves transport hiring costs and coordination 	<ul style="list-style-type: none"> » Awareness: Exposed to formal banking services given location in city center » Access: Urban retailer was banked (but penetration within this segment in peri-urban and rural areas is likely much lower) » Usage: Current account for holding sales revenue and processing payments to suppliers 	<ul style="list-style-type: none"> » Awareness: Moderate, understands basic voice and data service offerings » Access: Owns own device and has registered SIM » Usage: Mix of personal and business purposes, voice calling is most frequent activity; dominant use for business is communication with suppliers to negotiate prices and coordinate deliveries

Source: Key Informant Interviews & Consiglieri Market Research Report 2016 (pending publication)

Key Transaction Parties, Processes & Related Operations

Commodity retailers are typically sole proprietorships or micro- to small-scale, many of which operate informally. These retailers operate predominantly cash-based businesses and will often maintain a diverse inventory that includes commodities and non-food FMCG items (i.e., toothpaste, soap, washing detergent). Average ticket sizes are much smaller relative to other forward market actors and retailers located in cities are typically

banked while the majority of retailers in peri-urban and rural areas have limited access to formal financial services.

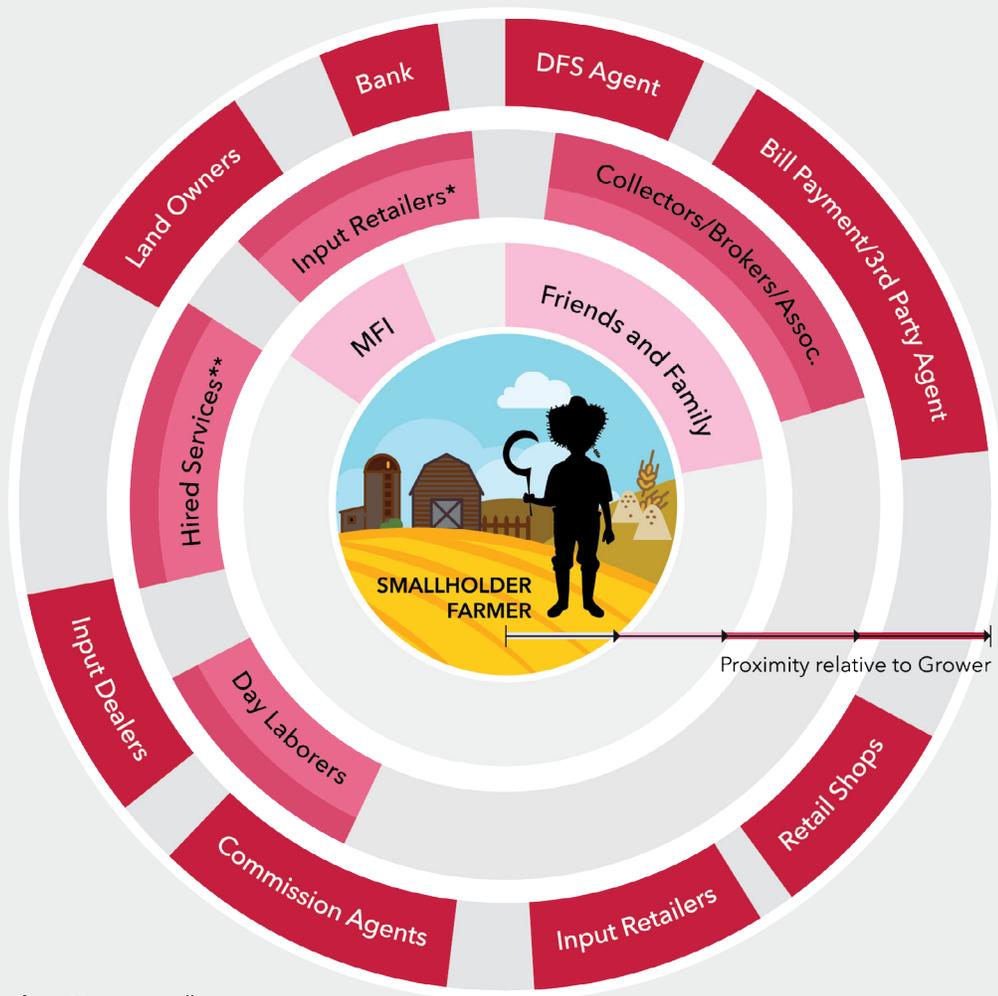
AVC ACTOR TRANSACTION MAPPING

For the purposes of this assessment, the transaction relationships and patterns observed during the field market research are presented from a SHF perspective. As noted in the summary table above, other AVC actors exhibit a wider range of transaction behaviors and often use more than one payment method (e.g. wire

transfers or MFS). Of the SHF engaged during the field assessment, most exhibited a diverse range of transaction relationships, which can be grouped into three geographic rings: 1) in the village, 2) between the village and local bazaar, 3) in the local bazaar or beyond. As Exhibit 13 below illustrates, these transaction counterparties are mostly concentrated

in local bazaars and are micro, small or medium enterprises. Given the proximity and concentration of these counterparties, the daily routines of SHFs are not greatly inconvenienced by the process of buying inputs, selling crops or conducting other financial or payments transactions pre- or post-harvest (i.e. savings deposits, bill pay, or merchant purchases).

Exhibit 13: SHF Transaction Relationship Map



*Input Retailers: Nearer to village

**Hired Services: Tillage/irrigation/transportation

Most transaction counterparties are well known to SHFs, although the level of trust and familiarity varies.⁴ As shown in the table below, the patterns of these transactions, especially those involving actors within the value chain, are recurring and largely cyclical. Transaction patterns with actors outside the value chain,

such as loan repayments, savings deposits, or bill payment, are also recurring but do not always follow crop production cycles. Of the SHFs surveyed, the most commonly cited seasonal relationships were with input retailers, NGO block supervisors, and land owners.

Exhibit 14: Transaction Patterns between SHFs & Other Value Chain Actors

ACTORS	FREQUENCY (N = 400)					
	DAILY	WEEKLY	MONTHLY	SEASONAL	IRREGULAR	DO NOT TRANSACT
Land Owner	0	2	1	58	9	30
Input Retailer	4	3	2	70	12	9
Block Supervisor (NGO-MFI)	10	2	1	61	13	13
Day Laborer	9	1	1	53	21	15
Transport Provider	7	1	2	38	12	40
Commodity Collector	5	2	1	24	3	65
Commission Agent	2	1	1	10	1	85
Large Wholesaler	0	0	1	2	1	96
Others	0	0	0	2	2	97

Source: Consiglieri Market Research Report 2016 (pending publication)

Depending on the type of transaction, SHFs may enjoy more or less freedom in terms of where and who they transact with and on what terms. With respect to pre-planting activities, SHFs have less freedom vis-a-vis backward market actors (e.g. input retailers or dealers/

wholesalers) given SHFs' preferences for convenience and proximity, the overall number of backward market actors in a particular area, the prevalence of informal credit offerings that bind SHFs to a particular actor, and the role of family or trusted community members who

⁴ In the case of forward market actors, some collectors, brokers, or traders may come from outside a SHF's Union or District. As they are less well known, SHF will take certain precautions when conducting negotiations and almost never agree to crop sales on credit.

can influence where other SHFs will buy their inputs.⁵ Hired service providers (i.e., tilling, irrigation, or planting) represent another group of key transaction counterparties that SHFs must engage on a seasonal basis when they have the funds. In contrast to pre-planting activities, post-harvest selling activities typically afford SHFs greater freedom of choice in terms of where to sell and who to sell to given the greater diversity and number of prospective buyers.⁶

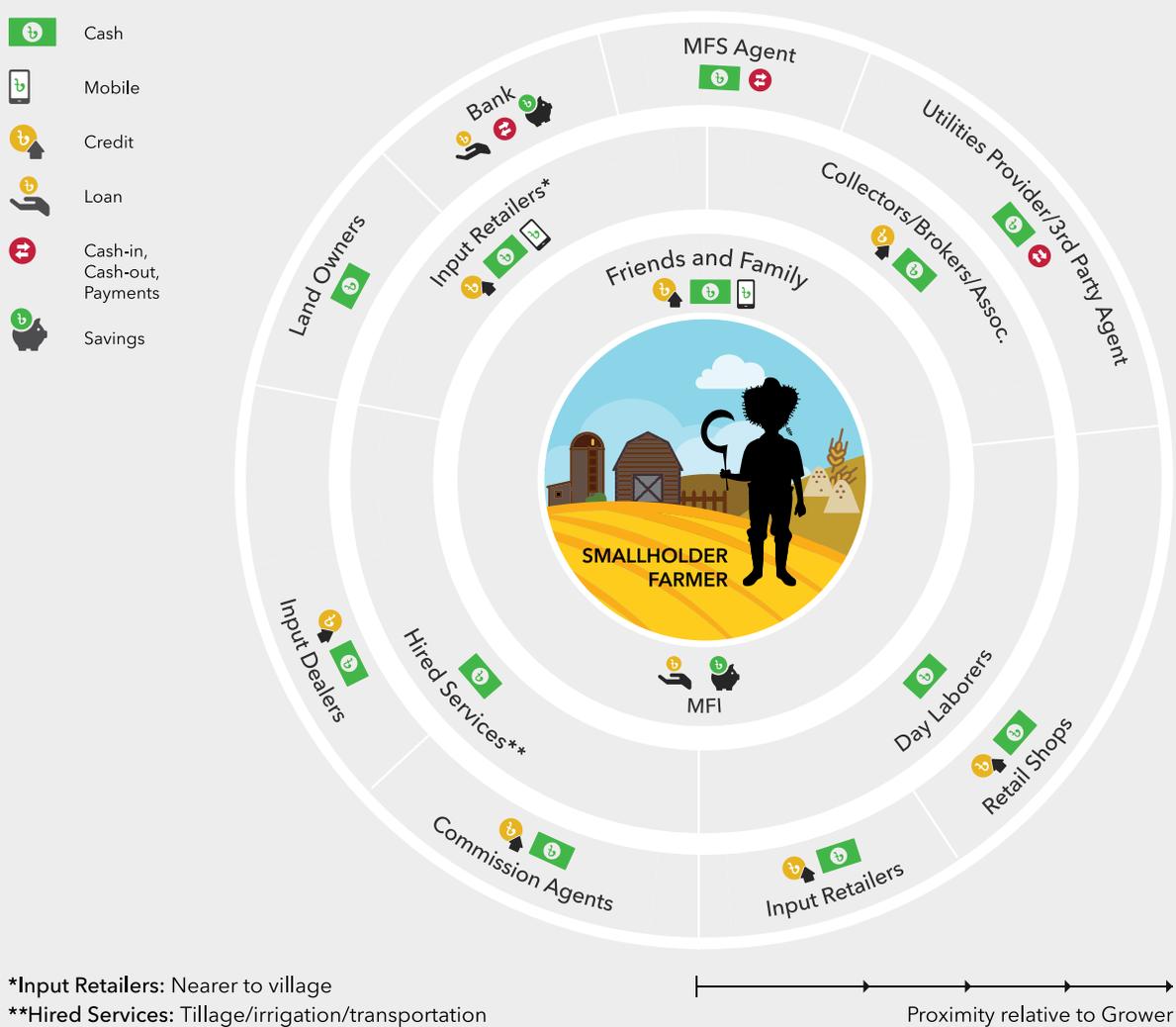
In terms of transactions that take place outside the value chain, SHFs regularly interact with formal financial service providers (typically MFI loan officers and, less often, bank branch tellers), utilities providers (or their 3rd party payment collection representative), and local retailers. Cash is the dominant method of payment, although there is a well-established system of informal credit that SHFs will resort to, if necessary.

When viewed from the SHF perspective, there was a mix of informal and formal financial instruments in use, offering SHFs the ability to save or to purchase or sell. Additionally, while cash was the dominant payment method observed, SHFs do interact with a number of other counterparties where digital methods of transacting are used (e.g. partial payment using MFS account to input retailers, money transfer, utility bill payment). Exhibit 15 illustrates the range of financial products and payment methods used by SHFs as they interact with other AVC actors and key transaction counterparties outside the value chain.

⁵ SHFs engaged during the field assessment would typically only visit up to 2 bazaars, most of these bazaars are relatively small and therefore would only have 4 or 5 locations where inputs are sold. And while rare, forward market actors can ultimately lose the trust of SHFs if they consistently exhibit dishonest or disrespectful practices.

⁶ This is also a function of whether or not they accepted informal credit or an advance payment for their crops

Exhibit 15: Current SHF Financial Products & Payment Methods



Having collected information on current financial and transaction patterns of different AVC actors, the field assessment then focused specifically on gathering specific insights related

to awareness, access, and usage of digital financial services among the selected AVC actors. Exhibit 16 summarizes the findings from this particular line of inquiry.

AVC ACTOR	OBSERVATIONS & FINDINGS
Smallholder Farmers	<ul style="list-style-type: none"> » A majority have heard of mobile financial services (MFS), can identify up to 2 brands (bKash and DBBL), understand it as a money transfer service; » Those who have used the service, have done so via over-the-counter (OTC) transactions (60% of survey respondents); there is limited individual account ownership (20% of SHF survey respondents); of those with their own accounts, 60% have been enrolled for over 12 months » Over 50% of survey respondents cited cash-in and cash-out (CI/CO) as the dominant transactions conducted. Approximately one quarter of respondents cited using MFS for airtime top-up » MFS agents are easily found, not that numerous, and SHFs are typically loyal to 1 agent. Other than pricing, which nearly 50% of respondents cited as a problem, few other problems were reported (i.e. cellular network coverage, presence of agents) » Despite limited personal use for non-CI/CO operations and generic awareness, survey results suggest there is openness among SHFs from multiple AVCs to use MFS for both payment collection (57% yes / 43% no) and initiation (58% yes / 42% no). Less than 25% of respondents answered they would be “very willing” to either make or receive digital payments
Input Retailers	<ul style="list-style-type: none"> » Most have generic awareness of service, viewed primarily as a money transfer offering; transfers from/to family up to 4x/year (individual transaction ranges from 60 – 126 USD) » bKash and DBBL brand recognition but other brands largely unknown » Beyond P2P use, some use bKash for small value C2B transactions with SHFs, which can mitigate sales loss due to insufficient cash on hand » DFS seen as a viable alternative provided broader acceptance ecosystem is present; essential that actors above are willing to receive payments (i.e. input dealers and input supply companies); one input retailer has already been approached by his supplier to adopt digital payments (bKash or DBBL) » Bagerhat retailers were interested in a B2B service to increase selling opportunities

AVC ACTOR**OBSERVATIONS & FINDINGS****Input Dealers**

- » Spectrum of awareness and usage; most could name bKash and cite money transfer as the primary service but limited knowledge of other operations (i.e. payment collection, bill pay)
- » Receptivity to adoption as part of business transactions was mixed, some major payments (to backward actors) are already mandated via bank wire transfer; cited transaction limits and excessive fees (e.g. BDT 20 charge for each 1,000 transferred) as barriers
- » Concerns regarding SHF capacity to comprehend and use, if SHFs were properly educated and motivated they might reconsider their position

Commodity Collectors

- » Awareness of DFS varies from very limited to knowledgeable
- » Usage varies with one collector already conducting “Me2Me” transactions with bKash (cash-in one place far from village, travel back and cash-out close to home)
- » Others very interested in agent banking, given restricted bank branch hours
- » Others skeptical of broader value as a payments instrument given need to include SHF

Commission Agents

- » Awareness of DFS present in both Jessore and Bagerhat but seen mostly as a money transfer service
- » Common perception that fees were excessive
- » After additional sensitization, commission agents in Bagerhat saw an upside with agent banking given extended hours of operation and increased proximity of service locations, which would extend their trading operations
- » Commission agents in Jessore remained skeptical of DFS value even with a broader acceptance ecosystem

Commodity Wholesalers

- » Some upstream and downstream actors (suppliers and customers) have requested to use bKash for processing transactions
- » Some openness to digital payments but “system” has to be in place, other transactions would need be possible (e.g. B2B, for buying from millers for example)

AVC ACTOR**OBSERVATIONS & FINDINGS**

Commodity Retailers

- » Awareness of DFS in both Jessore and Bagerhat was weak
- » No personal experience using DFS
- » Jessore retailers expressed skepticism that digital payments would offer greater benefits over current cash-based transaction method
- » Many felt current MFS pricing was too high, would be reluctant to use if rates or B2B were the same as P2P

Source: Field Focus Groups and Key Informant Interviews, Consiglieri Market Research Report 2016 (pending publication)

Having considered the financial/transaction patterns, relationships, and needs of selected AVC actors, the next section focuses on the

current landscape of DFS offerings, with an emphasis on each provider's approach to serving rural market segments.

**DIGITAL FINANCIAL SERVICES
PROVIDERS, OFFERINGS & CHANNELS:
OVERVIEW AND FINDINGS**

DIGITAL FINANCIAL SERVICES PROVIDERS, OFFERINGS & CHANNELS: OVERVIEW AND FINDINGS

This section presents observations and findings from key informant interviews conducted with multiple actors involved in the supply of DFS in Bangladesh. At present, there are two types of DFS models—mobile financial services (MFS)/ mobile banking and agent banking—in the market. Each has its own regulatory guidelines governing which entities can be licensed providers, what operations are permissible, and the role and requirements of intermediaries to act as a product distribution channel.

MOBILE BANKING / MOBILE FINANCIAL SERVICES

Bangladesh Bank (BB), the country's central bank, has issued MFS/mobile banking licenses since 2011.⁷ To date, only six of these MFS deployments have reached any significant scale and bKash currently enjoys a dominant position with over 50% market share in terms of customers and approximately 17 million registered subscribers.⁸

In terms of offerings, the majority of MFS providers allow users to enroll in several different types of accounts, including corporate, merchant, collection and individual. The

corporate account has been designed and positioned thus far to serve the bulk payments needs (both initiation and collection) of larger public, private or not-for-profit institutions. Corporate MFS account holders can send or receive payments from individuals as well as make payments to third parties/merchants.⁹

The individual MFS account has been designed to allow for a variety of operations, including: cash-in/cash-out (or CI/CO), money transfer, airtime top-up, bill payment, and merchant purchases. E-value loaded onto an individual MFS account can also remain there free of charge and, therefore, serves as a value interest

⁷ Operating within a “bank-led” framework, all MFS license holders are financial institutions and assume direct operational and managerial control over these services. bKash is the only exception but a notable one given its considerable growth. While majority owned by BRAC bank, it is operated and managed by a 3rd party subsidiary.

⁸ For the purposes of this assessment, significant scale refers an MFS provider that has registered over 1 million subscribers

⁹ Each MFS provider has devised its own pricing schedule, although the majority of them use percentage-based as opposed to flat fees and typically only charge corporate account holders for transferring funds out of their MFS accounts and into a bank account or processing 3rd party/ merchant payments. Refer to this [Mobile Financial Services Comparison Chart](#) for more details.

bearing storage mechanism. Despite offering several types of operations, the vast majority of individual consumers perceive and use MFS products for CI/CO and money transfer purposes.¹⁰ All individual accounts are subject to a standard KYC/registration procedure, with formal documentation requirements (e.g. National ID) that most Bangladeshi citizens are able to meet. Currently, registered individual MFS customers can access their accounts via one of three channels: mobile device, agent, or ATM. Not all MFS providers have integrated ATM networks,¹¹ and the number of MFS-enabled ATM locations is considerably lower than that of physical agents.¹² MFS agents represent the dominant channel through which customers enroll and engage with these products, doing so in an “over-the-counter” (OTC) method.¹³ Finally, as is the case in most markets with several MFS deployments and one dominant player, interoperability is for the most part non-existent.¹⁴

Merchant and collection accounts are still not that prevalent in the market, but are relevant to agricultural value chain actors, particularly for backward market actors. Merchant accounts can be used to accept payments from individual accounts free of charge to the consumer, with the merchant paying a percentage fee, normally between 1-2%. Collection accounts can be

used higher up the chain by dealers to collect payments from merchants.

AGENT BANKING

Although formally authorized by BB since 2013, agent banking services have only recently launched in the Bangladesh market, with up to 12 licenses issued. As with MFS, agent banking licenses can only be awarded to regulated financial institutions. By reducing the initial capital investment and operating expenses associated with brick and mortar branch development through the use of agent intermediaries and new digital technologies, financial institutions can develop alternative business models that make acquiring traditionally underserved market segments more commercially viable. In some instances, financial institutions are now holding two separate licenses that allow them to build out alternative service delivery channels alongside their traditional brick and mortar branch network operations. Two banks in particular—Bank Asia Limited and DBBL—have been the most active to date in developing and rolling out these new agent banking offerings. As with MFS agents, authorized third parties act as intermediaries to enroll clients, provide account access, and facilitate a range of approved banking, payment, or transfer operations.

10 mSTAR/Bangladesh, “MFS Services in Bangladesh” April 2015; airtime purchasing has steadily increased in the last 3-4 years but the number of bill payment or merchant purchase transactions has remained quite low as an overall percentage of unique transactions and overall transaction volume.

11 While the operations permitted at ATMs vary by MFS provider, cash-out and cash-in are the two basic transactions currently available; mSTAR, “MFS Services in Bangladesh” April 2015

12 According to BB, the number of registered MFS agent locations stands at 604,418 as of June 2016. The number of bank branches offering MFS services stands at 2,177. The number of MFS-enabled ATMs ranges stands at 4,750; see mSTAR, “Mobile Financial Services Comparison Chart” April 2016

13 In an OTC scenario, customers initiate an authorized transaction but ultimately the agent is the one that physically conducts the operation from her/his mobile device.

14 At present, two different platforms permit a certain degree of interoperability. SureCash’s platform permits interoperability across the MFS accounts of several bank partners; however, SureCash account enrollment is very low and estimated at less than one (1) million. GP’s MobiCash platform is inter-connected with 6-7 bank partners but cannot facilitate transfers between MFS accounts issued by different banks. MobiCash agents are permitted to use their combined e-float and physical cash reserves to service the CI/CO operations for any registered MFS customer affiliated with a bank partner (e.g. DBBL).

Unlike MFS agents, however, agent banking agents operate accounts either on a platform integrated with the core banking system of the service provider or on the core banking system itself. Therefore, these accounts are more closely integrated with the country's broader financial services infrastructure, permitting a wider range of transfer and payment operations both within and between financial institutions that is currently not possible with a MFS account. In terms of account access, clients

who enroll through agent banking agents are not required to have a registered SIM card or mobile device. While each service provider will determine the exact specifications for account access, most financial institutions are exploring a range of options that involve the use of biometrics and plastic cards.

The following exhibit presents a side-by-side comparison of key features of both MFS and agent banking services.

Exhibit 17: MFS and Agent Banking Comparison

ATTRIBUTES	MFS	AGENT BANKING	COMMENTS
Account Types	<ul style="list-style-type: none"> » Corporate » Merchant » Collection » Individual » Agent 	Based on parent bank product portfolio	Agent banking acts as an additional service channel to issue accounts to clients that were previously unprofitable to serve. Formal bank accounts have a greater range of capabilities and offer greater interoperability.
KYC	<ul style="list-style-type: none"> » Approved government identification 	Approved government identification	<p>National identification card most common form of documentation</p> <p>Agent banking requires more complex KYC similar to the core banking account; MFS require only one page KYC form</p>
Enrollment Requirements	<ul style="list-style-type: none"> » Agents collect and submit registration paperwork » Agents can register customers on the system » Account activation occurs after verification from MFS provider 	<p>Agents collect and submit registration paperwork</p> <p>Agents can primarily register customers on the system</p> <p>Account activation occurs after verification from HQ or nearest branch</p>	<p>Regulatory restrictions on MFS and agent banking providers prohibit real-time activation and may impact penetration</p> <p>Ability of agent banking service providers to more rapidly activate accounts may help encourage greater service usage in rural areas</p>

ATTRIBUTES	MFS	AGENT BANKING	COMMENTS
Use Cases	<ul style="list-style-type: none"> » Cash in » Cash out (multiple channels) » P2P » Bill Payment » Airtime top up » Merchant payment » Bulk payment » Inward Foreign Remittance » Business payment collection » Statement and balance inquiry 	<ul style="list-style-type: none"> » Cash deposit » Cash withdrawal » Savings » Cheque deposit » Funds transfer (within and between financial institutions) » Inward foreign remittance » Loan application » Loan disbursement/ collection » Bill payment » Bulk payment » Business payment collection » Airtime top-up » Statement and balance inquiries 	<p>Primary advantage of MFS is ability to make merchant payments</p> <p>Primary advantage of agent banking account is greater access to additional financial products and being able to use debit card at any merchant point where card payments are accepted</p>
Access Channel	<ul style="list-style-type: none"> » Mobile phone/SIM » Agent with mobile phone/SIM 	<ul style="list-style-type: none"> » Point of Sale (POS) device » Mobile phone/other device (e.g. tablet) » Computer/laptop » Biometric devices 	<p>Exclusive use of mobile phone for MFS reduces agent entry costs</p> <p>Multiple form factors for agent banking expands customer base beyond those customers with SIM cards and offers lower friction transactions at points of service</p>

Source: Field Focus Groups and Key Informant Interviews, Consiglieri Market Research Report 2016 (pending publication)

Collectively, the DFS sector in Bangladesh now offers a range of access points, account form factors, and authorized use cases to serve the financial and transaction needs of multiple AVC actors.

Exhibit 18a highlights key attributes of selected DFS service providers involved in the management or distribution of MFS and agent banking products, while Exhibit 18b provides a snapshot of two of the main mobile network operators. To better determine whether market supply is adequately aligned with the needs,

patterns, and perceptions of AVC actors, questions posed during the key informant interviews were designed to elicit responses that provided greater insight into their strategic priorities, operational capabilities, and willingness to engage rural market segments.

Exhibit 18a: DFS Provider Summary

Bank Asia Limited: Agent Banking Profile

STRATEGIC FOCUS & PRIORITIES

- » Taking long term view toward market penetration on a national scale, focus on rural areas;
- » Emphasis on deposit mobilization, especially through local savings groups (Somites)
- » Want to penetrate money transfer market (domestic & int'l) as well as bill payment;
- » Also developing credit products for rural SMEs, artisans, input retailers and farmers

SERVICE OFFERING

- » Traditional brick & mortar banking for existing clients (corporates, more affluent individual clientele)
- » Mobile app & online banking for existing account holders
- » Agent banking for new, predominantly, rural or peri-urban clients

OPERATIONAL CAPACITY & NETWORK PERFORMANCE

- » Dedicated Agent Banking Unit
- » 330+ agent banking locations across urban, peri-urban, and rural areas
- » 1 rural agent bank location is serving 2,100 clients

RURAL/AG STRATEGY & INITIATIVES

- » Process school fee payments through roving agents
- » Deposit mobilization
- » Leverage G2P and P2G payments in education, agriculture, and health
- » Partner with relevant extension services networks
- » Partnering with multiple private and NGO partners to do micro-credit disbursement and merchant payment
- » Expected that banking agents will offer same product suite (savings, credit, loans) as branch locations

Dutch-Bangla Bank Ltd (DBBL) Profile

STRATEGIC FOCUS & PRIORITIES

- » National orientation; diversified market segmentation (urban, peri-urban, rural);
- » Seeking to provide bulk payment disbursement and collection services to corporates & gov't as well as NGOs
- » Increase deposit mobilization at retail level

SERVICE OFFERING

- » MFS offerings include CI/CO, money transfer, airtime top-up, merchant payments, inward foreign remittances, and limited bill pay (e.g. utilities)
- » Agent banking service with full product suite planned (savings, credit, loans) is envisioned
- » Also prioritizing merchant acceptance
- » Payments collection for major FMCG distributors

OPERATIONAL CAPACITY & NETWORK PERFORMANCE

- » Dedicated Agent Banking Unit
- » Dedicated MFS Unit
- » 130,000 MFS Agents
- » Over 600 agent banking locations nationwide; 50% of Upazilas covered (~250)
- » 6,000 active merchants / 8,000 registered for MFS customers (70% rural / 30% urban)

RURAL/AG STRATEGY & INITIATIVES

- » Explicitly chose rural areas to launch digital merchant payments, saw greater value prop for this service there vs. urban areas
- » Partnering with Shakti Foundation for credit issuance scheme
- » Piloting loan disbursement/ repayment schemes with multiple MFIs serving peri-urban and rural clients
- » Have been looking at serving multiple actors within specific AVCs (tobacco and sugar cane); see greatest potential in "tighter" chains where contract farming is more prevalent or fewer levels of intermediaries
- » Working with APEX Holdings on farmer payments

bKash Profile

STRATEGIC FOCUS & PRIORITIES

- » National deployment focus, see growth opportunities in digitizing multiple payment streams (payroll, NGO, utilities, merchant/retail);
- » Want to aggressively build out merchant acceptance,
- » Also looking to pivot MFS agent network toward on-selling bank partner products (including savings, loans, pension schemes); also considering development of various insurance products (nothing explicitly Ag-focused in the near term)

SERVICE OFFERING

- » MFS offerings include CI/CO, money transfer, airtime top-up, inward foreign remittances, and limited bill pay (e.g. utilities)
- » Merchant acceptance / digital payments

OPERATIONAL CAPACITY & NETWORK PERFORMANCE

- » ~151,000 active agents / 180,000 registered
- » ~32,000 merchants enrolled; two types: merchant "plus" (5,000) and merchant (27,000)

RURAL/AG STRATEGY & INITIATIVES

- » Aggressively targeting rural merchants for bKash payment acceptance (acquisition strategy will be to offer no fees on sales transactions)
- » Working with multiple AVC-focused donors and NGOs to digitize a variety of payment/disbursement streams (i.e. SwissContact, Dutch-based SNV, WorldFish)

Exhibit 18b: Mobile Network Operator Profile

GrameenPhone (GP) Profile

STRATEGIC FOCUS & PRIORITIES

- » Increased focus on data services (mobile internet) and enterprise/business solutions
- » Mass market, national market focus but down market, rural penetration remains a core mission objective
- » See significant opportunities in digitizing G2P and P2G payment streams
- » Will continue to operate MobiCash MFS agent network; no immediate plans to invest further in MFS until regulations change

SERVICE OFFERING

- » Offers USSD gateway to provide account access to bank-led MFS offerings
- » Offers 3rd party MFS agent services for 6 bank partners (majority of transactions are processed on behalf of DBBL)
- » GP-owns and operates MobiCash e-wallet with restricted operational capacity: CI only, no CO
- » MobiCash e-wallet user can also make limited digital payments (airtime and utility bill pay)

OPERATIONAL CAPACITY & NETWORK PERFORMANCE

- » 350,000 airtime distribution points (bulk + retail)
- » 60,000+ MobiCash agents (55% urban / 45% rural)

RURAL/AG STRATEGY & INITIATIVES

- » Launched an Agricultural Extension Services hotline, which GP intends to revamp

Banglalink Profile

STRATEGIC FOCUS & PRIORITIES

- » Prior to the MFS regulations, MFS was a key initiative of Banglalink. As the current regulations do not allow for mobile networks to offer MFS directly, they have instead been giving required support to MFS providers to ensure successful connectivity
- » Focusing on core voice and data value added services
- » Diversified segmentation strategy with an emphasis on corporate/enterprise segments and mass market retail
- » Have made a strategic commitment to serve Ag communities nationally;
- » Actively seeking out partnership with interested NGOs

SERVICE OFFERING

- » Offers USSD gateway to provide account access to bank-led MFS offerings
- » Also offers Bangladesh Post Office money transfer through their network
- » Diversified voice / data services
- » Info-related services targeting specific sectors

OPERATIONAL CAPACITY & NETWORK PERFORMANCE

- » Representatives deferred discussions until after an NDA was in place and a specific project proposal had been submitted

RURAL/AG STRATEGY & INITIATIVES

- » 7676/Krishi – Agricultural Info / Support Call Center (6 live, trained agents offering call back service)
- » 2474 KRISHI Bazaar – pricing info
- » Currently working with IFPRI on a pilot project

Source: Key Informant Interviews

Collectively, DFS providers in Bangladesh offer a range of services that can meet the financial and payments requirements of multiple rural market segments. Having developed new products accessible through innovative, cost-effective delivery channels, service providers are now focusing their efforts on strategies

to deepen consumer understanding of the full functionality of available DFS products. Additionally, MFS providers recognize, and are seeking to overcome, popular perceptions of their products as exclusively OTC-based money transfer services.

Key findings from the key informant interviews include:

- » All DFS providers engaged during the assessment identified rural expansion as a commercial priority and are committing financial and human resources to increase service presence and user enrollment. Multiple providers expressed a willingness to approach rural expansion by serving the financial and related transaction needs of multiple actors with a given value chain.
- » At least two service providers identified their intentions to expand product offerings (i.e., credit, lending, savings, and possibly insurance) either through partnerships

or internal development; however, the market remains largely unaware of these developments and a significant investment in marketing/promotion will be required to shift perception and drive a greater diversity of transaction behavior.

- » Multiple service providers are prioritizing rural merchant acquisition and specifically view retailers at the SME level as an attractive and underserved market segment with a diverse set of needs (i.e., savings mobilization, access to working capital, digital payments).

POTENTIAL DFS OPPORTUNITIES WITHIN AGRICULTURE VALUE CHAINS

POTENTIAL DFS OPPORTUNITIES WITHIN AGRICULTURE VALUE CHAINS

Based on the field assessment and other data sources, we developed a framework to identify specific DFS opportunities within the selected AVCs. Our framework focuses on the following two key areas:

1. Value Chain Attributes: Each value chain has certain attributes (e.g., number of harvests, average transaction size, degree of integration) that make it more or less likely to support the adoption and use of DFS. We evaluated the four value chains (lentil, mango, rice, winter vegetables) and assigned a composite ranking based on their overall attractiveness to service providers as well as their potential impact on the financial ecosystem.

2. Transaction Level Attributes: As shown in Exhibit 16, transactions between various AVC actors require varying types of financial instruments and products. We have organized these transactions by levels thus grouping together transaction pairs with similar characteristics. We then captured the typical buyer/seller relationship, transaction method, transaction schedule, and associated transaction costs at each level. This analysis provided insights into which specific transactions exhibited the greatest need and greatest potential for DFS introduction.

Collectively, these two analysis techniques identify which specific AVC offers the greatest potential for DFS and also the specific transaction types, and associated market actors, who should be targeted by service providers and development actors.

VALUE CHAIN ATTRIBUTES

We evaluated the four selected value chains using the following criteria:

- » **Number of Growers** – Higher number of growers was viewed as positive because it indicated greater number of customers and greater market potential
- » **Number of Harvests** – Higher number of harvests was viewed as positive because it inferred a greater number of transactions and greater utility for a payment product
- » **Degree of Organization** – More organized value chains have hierarchy and structure that can provide downward pressure to adopt DFS to lower level actors

- » **Duration of Selling Period** - Longer selling periods were viewed as positive because they also inferred more transactions and a more consistent need for service
- » **Input Requirements** - Greater amounts of inputs were viewed as a positive because it indicated that SHFs would require DFS that supported both buying and selling activities. It also indicated wider usage across multiple AVC actors

In addition to the criteria listed above we also examined the average expenditures, sales and income for typical SHF households associated with selected value chains. As shown in Exhibit 19, certain value chains generated higher incomes than others. However, nearly all the value chains exhibited significant sales and expenditures indicating a need for some sort of DFS payment service and a viable market for DFS providers.

Exhibit 19: Value Chain Profile

VALUE CHAIN	# OF GROWERS	# OF HARVESTS	DEGREE OF ORGANIZATION	INPUT REQUIREMENTS ¹⁵	DURATION OF SELLING PERIOD	SHF INCOME (USD/YR) ¹⁶	DFS INTEGRATION POTENTIAL
Lentil	>600,000m ¹⁷	2-3	Medium	Medium	4-6 months	\$120	Moderate
Mango	>50,000m	2-4	Medium	Low	2 months	\$574	Moderate
Rice	>13m	2	High	High	4 months	\$119	High
Winter Vegetables	>170,000m	2-3	Low	Medium	2-3 months	\$297	Low

Source: [World Bank, USAID AVC Bangladesh website](#)

Exhibit 20: Income from Agricultural Production (USD/Year/Household)

VALUE CHAINS	CROP GROWN	EXPENDITURE (USD/YEAR)	SALES (USD/YEAR)	INCOME (USD/YEAR)
Mostly Commercial / Processed	Lentil	\$61.95	\$181.16	\$119.22
Mostly Commercial / Non-Processed	Mango	\$434.9	\$1003.5	\$568.54
Mostly Commercial / Processed	Rice	\$193	\$311.32	\$118.3
Non-Commercial / Non-Processed	Winter Vegetables	\$156.8	\$450.82	\$294.05

Source: Consiglieri Market Research Report 2016 (pending publication)

¹⁵ Inputs include seed, fertilizer, pesticide, agro-equipment

¹⁶ A rate of 79 BDT to USD \$1 was used throughout this report

¹⁷ Number of growers represent nationwide figures except for lentils which Southern delta region

Exhibit 21 presents the annual transactions between SHFs and other value chain actors. This reinforces the surprising size and sophistication of the transactions associated with SHFs.

Exhibit 21: Average Transaction Volumes Between SHFs & Select AVC Actors

SELECTED AVC ACTOR TRANSACTIONING W/ SHF	AVG. ANNUAL TRANSACTION (BDT)	AVG. ANNUAL TRANSACTION (USD)	CASH FLOW TYPE: IN VS. OUT
Land Owner	18,366	\$232.48	Cash Outflow
Input Retailer	18,834	\$238.40	Cash Outflow
Day Laborer	34,751	\$439.89	Cash Outflow
Transport Provider	32,338	\$409.34	Cash Outflow
Trader	18,914	\$239.42	Cash Inflow
Commission Agent	39,678	\$502.25	Cash Inflow
Large Wholesaler	27,500	\$348.10	Cash Inflow
Others	37,500	\$474.68	Unclear

Source: Consiglieri Market Research Report 2016 (pending publication)

TRANSACTION LEVEL ATTRIBUTES

A second method used to identify DFS opportunities within AVCs is to examine the attributes of specific transactions conducted

between specific AVC actors. To simplify our analysis, we have organized AVC actors and their associated transactions by level as shown below.

LEVEL	AVC ACTORS
Level 0	SHFs
Level 1	collectors, brokers, farmer associations, input retailers
Level 2	commission agents, millers, processors
Level 3	small and large traders, input dealers
Level 4	commodity wholesalers, input companies
Level 5	commodity retailers

Exhibit 22 illustrates the typical payment modality (either cash or bank transfer) that occurs between AVC actors. We believe that the greatest opportunities exist for those actors who conduct significant transactions up and down

the value chain, interact with multiple other actors and engage in both digital and cash based transactions (wholesalers, input dealers). This concept is detailed in Section 9.

Exhibit 22: AVC Transaction Analysis by Level

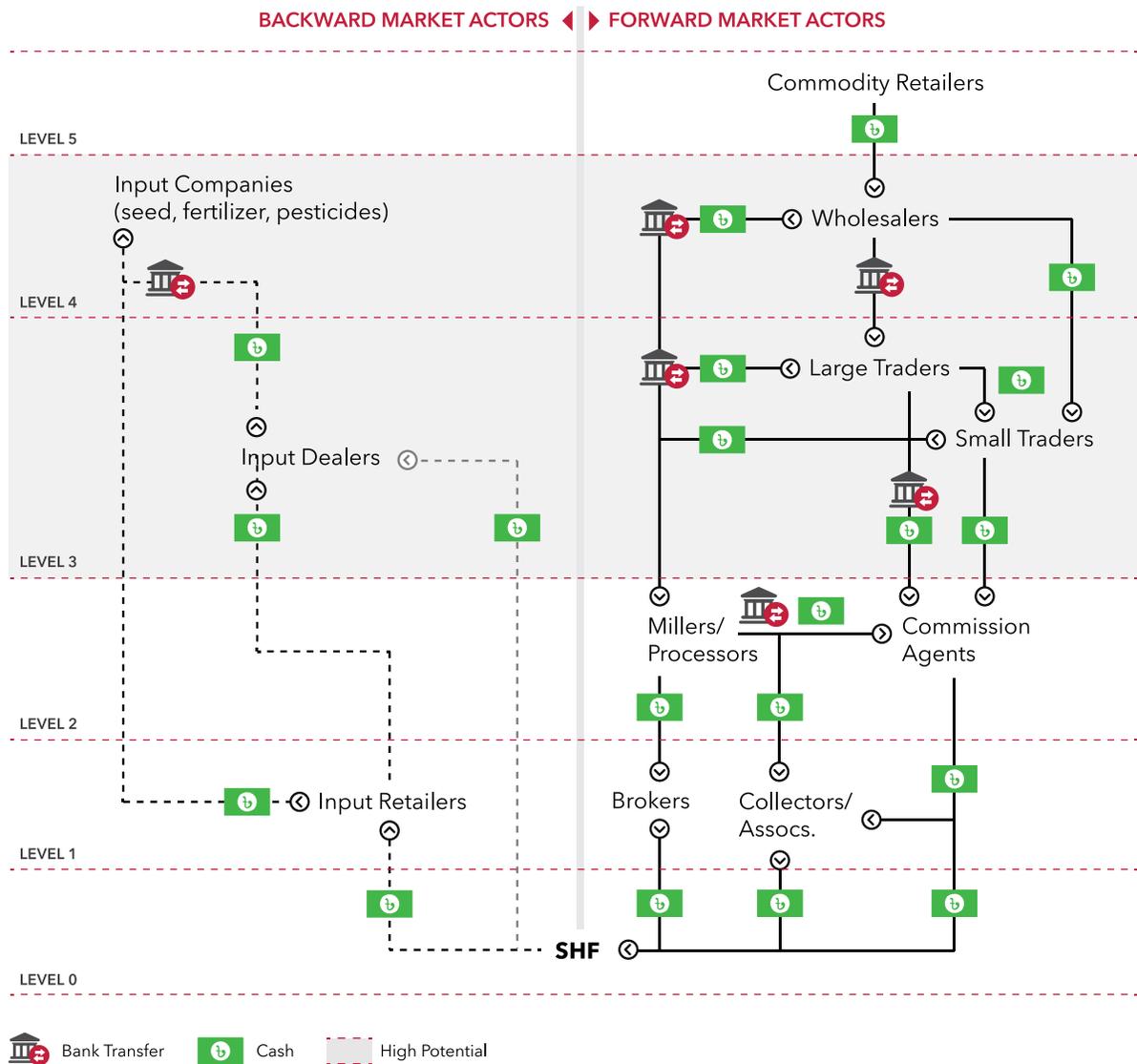


Exhibit 23 summarizes the transaction attributes for each of the five transaction levels. Specifically, looking at type of relationships, transaction method, transaction schedule, and associated costs (transport, time required, other fees). The table below highlights that Level 3

and 4 transactions have the greatest diversity of DFS needs and presents a viable opportunity for a robust integration of DFS services. That said, our analysis indicates that AVC actors and transactions at all levels could benefit from greater DFS adoption and usage.

Exhibit 23: AVC Transaction Analysis by Attributes

	LEVEL 0	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5
Type of Relationships	Well-established, face-to-face interaction, family and community can influence transaction patterns	Well-established, face-to-face interactions with both SHF and buyers;	Diversified, frequent use of staff/other intermediaries to complete transactions	Highly diversified, frequent use of staff/other intermediaries to complete transactions; counterparties are geographically diverse	Highly diversified, frequent use of staff/other intermediaries to complete transactions	Well-established but somewhat diversified; face-to-face interactions with both customers and suppliers
Transaction Method	Cash dominant, in-kind payments or sales credit common	Cash dominant, in-kind payments or sales credit common	Mix of cash and wire transfer	Higher instance of wire transfers	Higher instances of wire transfers	Cash dominant, informal credit common (sales and purchases)
Transaction Patterns	Limited activity between planting and harvesting periods, crop selling takes place over 2-6 months depending on crop; small value amounts	Trading periods can last between 4-6 months, sometimes longer; small to medium value amounts	Average buying/selling period lasts several months; medium to large value amounts	Average buying/selling period lasts several months; medium to large value amounts	Year around sales; medium to large value amounts	Year around sales, resupplying ranges from 1-4 times per month; small value amounts
Associated Transaction Costs	Limited, hired transport into bazaar	Limited, mostly for hired transport, part-time labor	Moderate, part-time and full-time labor for processing, applicable bank fees	Moderate to elevated for traders (transport, labor, bank fees); limited for dealers (bank fees)	Moderate to elevated (transport and labor costs for payment collection or initiation)	Limited, some hired transport, labor

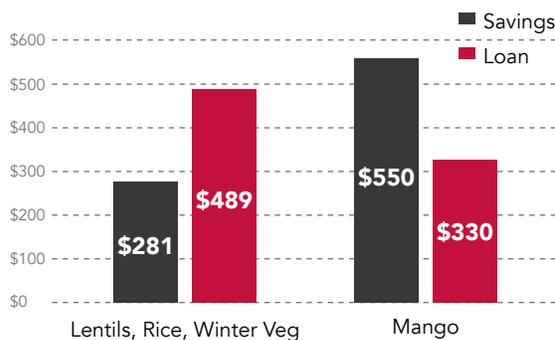
AGRICULTURE VALUE CHAIN ACTOR DFS NEEDS

AGRICULTURE VALUE CHAIN ACTOR DFS NEEDS

Our analysis revealed a range of DFS needs across multiple AVC actors. Key services include payments, savings, and lending instruments. As expected, the importance and specific composition of these services varied by AVC actor. While most of the assessment focused on SHFs, we believe that addressing the DFS needs of other market actors across the AVCs is critical to the successful adoption and usage of DFS products. Additionally, contrary to popular practice, we believe that an initial focus on the product needs of AVC actors further up the value chain will yield greater impact and will eventually result in broader benefits to SHFs.

Smallholder farmers demonstrate both savings and credit needs. Exhibit 24 illustrates the borrowing and savings profiles of the average SHF for selected AVCs.

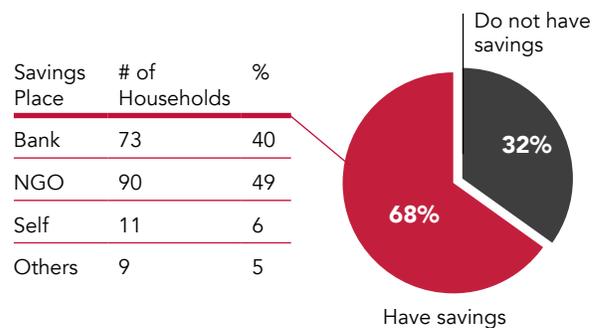
Exhibit 24: Average Annual Savings and Borrowing of SHFs



Source: Consiglieri Market Research Report 2016 (pending publication)

The survey results indicate that a majority of SHFs currently save. Exhibit 25 highlights the percentage of respondents with some form of savings and the mechanism used to save.

Exhibit 25: SHF Savings Profile

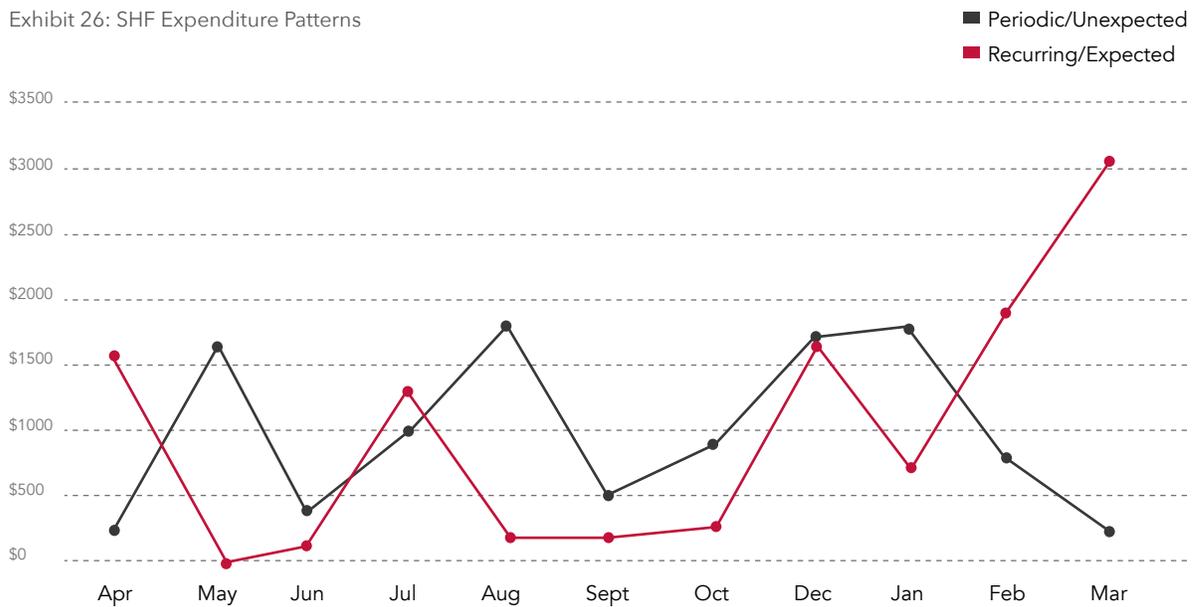


Source: Consiglieri Market Research Report 2016 (pending publication)

The savings and borrowing profiles identified above are reinforced by an analysis of the timing of SHF expenditures, which have been grouped into recurring/expected (e.g. pilgrimage, home construction, wedding dowry) and periodic/ unexpected (i.e. health emergency, legal fees,

tax settlement). These expenditures often take place outside the harvest season and highlight the need for some form of income smoothing (either savings or borrowing). Exhibit 26 illustrates the recurring nature of SHF expenditures.

Exhibit 26: SHF Expenditure Patterns

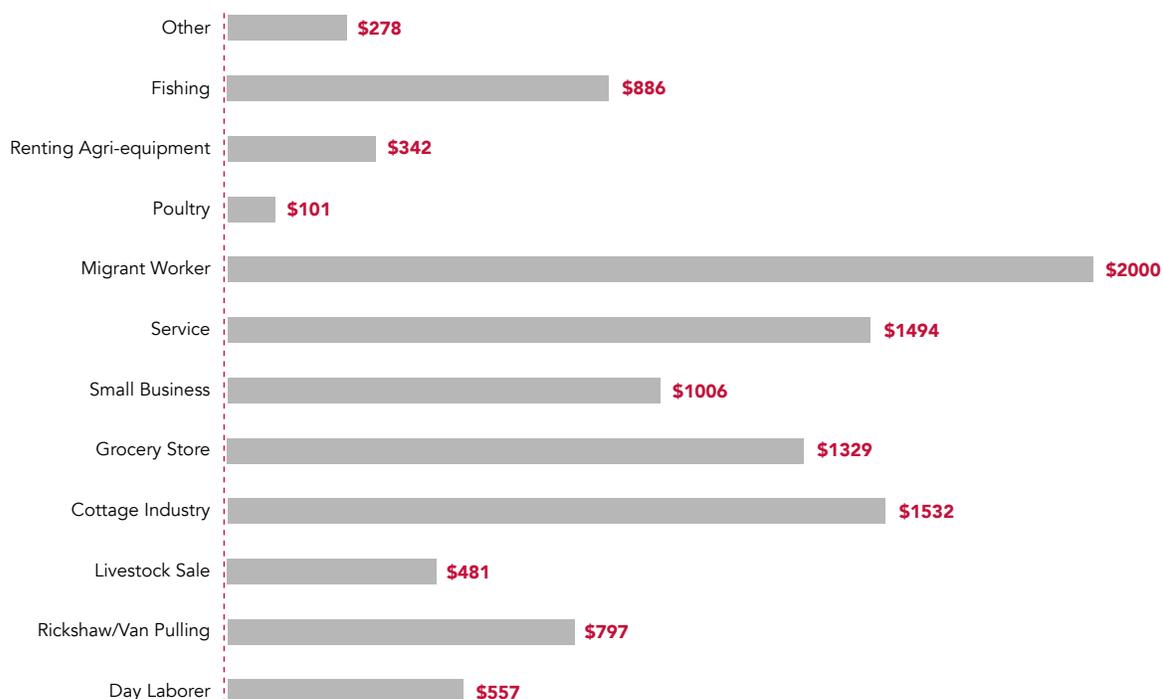


Source: Consiglieri Market Research Report 2016 (pending publication)

Another consideration when assessing DFS demand for SHFs is that most SHFs have additional sources of income outside of farming. How and where this external income is received impacts SHFs' requirements for

payment, savings, and credit instruments. It also impacts DFS product features and introduction strategies. In the following page, Exhibit 27 identifies other income sources for SHFs.

Exhibit 27: SHF Non-Farm Income Streams (Avg/HH/Year/USD)



Source: Consiglieri Market Research Report 2016 (pending publication)

A final factor influencing the demand for DFS services is the overall variety and intensity of the SHF transaction flow. As shown in Exhibit 28, SHFs regularly transact with multiple AVC actors. This unexpectedly diverse transaction relationship provides further evidence that DFS products geared toward the AVC need to be robust and flexible.

Exhibit 29 presents the financial and transaction needs of selected AVC actors. In most cases, existing MFS and agent banking products and services operating in the Bangladeshi market can meet these needs.¹⁸ It should be noted that in some cases AVC actors are already taking advantage of these DFS products. Exhibit 30 also summarizes the specific benefits or pain points that fulfilling the financial/transaction need would address.

¹⁸ Some existing products and services may have transaction limits which limit their utility to certain AVC actors

Exhibit 29: AVC Actor DFS Financial and Transaction Needs

AVC ACTOR	FINANCIAL/TRANSACTION NEEDS	POTENTIAL BENEFITS OF DFS
Smallholder Farmers	<ul style="list-style-type: none"> » Access to working capital (purchasing of inputs or equipment services) » Access to savings (either capturing unbanked clients or developing better products for current formal savers) » C2B payments (for inputs and other AVC-related purchases) » Receiving money transfers from family/friends 	<ul style="list-style-type: none"> » Lower cost lending options » More secure savings mechanisms that facilitate regular deposits » Remote payment options that reduce travel time and expense » Greater proximity to service locations reducing time away from farming
Input Retailers	<ul style="list-style-type: none"> » Credit repayment (from SHFs) » Loyalty/discount scheme (increase sales revenue) » Savings mechanism (mitigate in-store or in-home cash storage) » Overdraft facility (inventory resupply) 	<ul style="list-style-type: none"> » Improved receivable collection by enabling remote payment » Improved access to working capital through digitally disbursed credit/lending mechanisms enables greater inventory purchases » Increased sales through loyalty schemes (i.e. item-specific discounts, points accumulation, or cash-back rewards) associated with DFS products to stimulate higher value ticket sales of existing customers or attract new customers
Input Dealers	<ul style="list-style-type: none"> » Credit repayment (from SHFs or retailers) » B2B payment (restocking purchases or collection) 	<ul style="list-style-type: none"> » Improved receivable collection by enabling remote payment » Improved access to working capital through digitally disbursed credit/lending mechanisms enables greater inventory purchases
Commodity Collectors	<ul style="list-style-type: none"> » Short-term deposit facility » Ability to travel safely with large volumes of cash » Access to funds to facilitate purchases over a wide geographic area B2B payments (e.g. hired transport) 	<ul style="list-style-type: none"> » Alleviate security risks associated with holding large sums of cash after hours » Can convert e-value back into cash close to the point of sale (e.g. farm gate) via agents or make a digital payment » Discrete, portable method for transporting value instead of holding physical currency

AVC ACTOR	FINANCIAL/TRANSACTION NEEDS	POTENTIAL BENEFITS OF DFS
Commission Agents	» Extended operating window for B2B transactions	» Expands trading by providing access to funds outside standard banking hours
Commodity Wholesalers	» B2B payments (restocking from traders or commission agents) » Extended operating window for B2B transactions (increase	» Alleviates the need to organize large volume of cash to purchase crops » Expands trading by providing access to capital outside standard banking hours
Commodity Retailers	» Credit repayment » Savings mechanism » Overdraft facility	» More secure savings mechanisms that facilitate regular deposits » Improved access to working capital enables greater inventory purchases » Greater proximity to service locations reducing access time away from store

**NEAR TERM STRATEGIES AND
RECOMMENDATIONS FOR DFS PROVIDERS &
DEVELOPMENT ACTORS**

NEAR TERM STRATEGIES AND RECOMMENDATIONS FOR DFS PROVIDERS & DEVELOPMENT ACTORS

This section presents strategies and recommendations for DFS providers and development actors as they relate to service deployment and program design.

DFS PROVIDERS

Based on our analysis, we believe that multiple value chains have at least one actor above the SHF with financial/transaction needs that can be effectively served through the adoption of DFS products. These actors should be prioritized as key entry points into specific value chains as their involvement and influence can serve to stimulate broader acceptance and usage at other levels, including SHFs. Our assessment indicates that these actors (Level 3 and 4)—such as input companies, commodity wholesalers, and large or small traders—interact with a diverse and sizeable number of other value chain actors, which contribute to high volume, high frequency transaction patterns. They also exhibit the greatest exposure to and usage of financial instruments (i.e. formal and informal credit/lending, formal savings, overdraft protection), which suggest that customer acquisition efforts could focus more on product pricing and differentiation rather than on education and awareness. Additionally, their business activities involve the management of

large volumes of cash on a recurring basis that often must be transported over considerable distances. Their position within the value chain, therefore, requires them to straddle the divide between cash and digital transaction methods to a greater degree than most other AVC actors.

Specifically, DFS providers should consider the following activities or approaches to support product positioning, adoption, and usage for AVC actors identified above:

- » Backward market actors (input companies, dealers, and retailers) are more attractive acquisition targets given that their distribution chains are tighter with fewer intermediaries and have well-established hierarchies where the apex organization has a stake in enhancing product distribution. They also sell into multiple AVCs, and enjoy an influential role with other AVC actors, including SHFs, which would support further DFS acquisition efforts

- » B2B transaction pricing that is flat versus percentage based to more attractively market DFS payments option to clients with high volume transaction needs
- » Highlight effectiveness of an alternative payments collection method (speed, reduced leakage, greater visibility into repayment cycles)
- » Highlight extended window of operation (available for longer periods, more days) as a key value proposition that would increase trading activities
- » Highlight benefits of an alternative storage mechanism for AVC actors that are highly mobile and have considerable cash carrying requirements
- » Consider leveraging the downstream transaction relationships of these more sophisticated AVC actors as a way to more efficiently and cost-effectively acquire additional DFS users (e.g. working with input companies to encourage dealers and retailers to register)
- » Consider development of associated marketing/promotional schemes that would stimulate increased sales and customer loyalty at multiple levels (e.g. backward market actors involved in input distribution)

While the assessment recommends that DFS providers prioritize the AVC actors identified above given their financial/transaction patterns and needs, a holistic approach to serving

multiple actors within a selected value chain would be advantageous. This approach benefits DFS providers as it will allow them to more strategically leverage existing transaction networks to accelerate user acquisition. It would also ensure that providers develop and hone a value proposition that is broadly understood and position their products in such a way that demonstrates their utility for a broader market system that includes multiple segments. Specifically, DFS providers should consider the following targeted activities or approaches to support product positioning, adoption and usage for other AVC actors:

SHFs – Introduce micro-credit/lending products to extend selling seasons to secure greater revenues from crop sales. Offer customized time or goal-based savings products that either reinforce existing informal savings behavior (e.g. purchase of livestock) or support a greater savings diversification. Promote loyalty schemes (i.e. selected discounting, reward points, limited cash back) tied to recurring purchases associated with farming practices (i.e. purchase of inputs or equipment rental) or other key expenditures (e.g. education fees).

Retailers (Inputs & Commodities) – For selected rural retailers of moderate to larger size that are unbanked or under-banked, cash management can be time consuming, expensive, and potentially risky. DFS providers can alleviate these challenges through a service ecosystem that is more numerous, offers greater convenience (e.g. mobile deposit taking, extended hours), and supports increased digital transactions to reduce cash on hand. Building

off of a holistic approach to serving value chains, DFS providers should also consider the use of discount/promotional schemes tied to product usage as a way to stimulate sales, strengthen customer loyalty, and attract new customers. For qualifying retailers with adequate cash flow, inventory size, and operating capacity, formal SME credit or lending products could be offered and perhaps linked to digital payments transaction performance as a way to stimulate merchant acquisition.

Commodity Collectors – As one of the more mobile AVC actors with a considerable cash-handling requirement, DFS providers should aggressively position their products as a discrete, reliable and convenient savings mechanism for short or longer-term deposits. Through the acquisition of other actors adjacent to or above them in their transaction networks (i.e. commission agents, wholesalers, traders), DFS providers can further reduce commodity collector cash handling requirements and facilitate faster, less time- or cost-intensive payments (both collection and initiation). And, although commodity collectors do rely on informal credit and lending to finance their trading operations and secure access to crop yields, the introduction of a bundled DFS offering that included payments, savings, and a micro-credit facility to cover transportation costs associated with crop collection or delivery would represent an attractive product positioning strategy. Furthermore, as with other AVC actors that exhibit high frequency, higher value transaction patterns, offering a

payments capability with a pricing model that is service-based rather than per transaction-based (paid annually or on a periodic basis) would strengthen enrollment efforts and driver greater, more frequent usage.

DEVELOPMENT ACTORS

For development actors, such as donors and implementing partners, operating in an agricultural development context, access to finance and financial inclusion may be relevant components of an intervention strategy but are not core mission objectives. However, this report argues that an appropriate introduction of digital financial and transaction services can deliver considerable benefits for not only SHFs but also other AVC actors that will have an appreciable impact on core development objectives (e.g. greater yields, improved yield quality, and higher prices). Therefore, development actors should incorporate DFS products where appropriate and consider bundling the introduction of DFS products alongside other digital non-financial services (i.e. information services related to ag production, harvesting, and marketing).

This market assessment has explored the financial needs as well as the transaction relationships and patterns of SHFs and other AVC actors in an attempt to support development actors in their program planning and decision-making vis-à-vis the integration of DFS products. Many development actors in Bangladesh work in a variety of AVCs, often more than one simultaneously.

This report identifies key attributes and other considerations that would support a prioritization of value chains based on their DFS integration potential. Development actors should analyze their portfolios and apply these observations and insights to select those

programs that offer the greatest potential for success using DFS products. Exhibit 30 presents two program design scenarios, one strong and one weak, that illustrates an effective application of this approach.

Exhibit 30: Development Programming Involving DFS: Scenario Comparison

STRONGER	WEAKER
Agriculture Value Chain Characteristics	
Multiple harvest seasons	Selected value chain has a single harvest season
Moderate to extended selling period (3+ months) where a single SHF may conduct several crop sales over that period	Short selling period (< 3 months) where SHF typically sell the majority of their yield at once
Agro-enterprises already present or value chain exhibits considerable growth potential that would attract new, sustained corporate investment	Degree of commercialization is limited and the presence of formal agro-enterprise (small, medium, or large) is weak or exhibits poor growth potential
Approaches to Integrating & Promoting DFS	
Involvement of multiple AVC actors, including SHF, backward and forward market actors; transaction relationships are well-defined and established	Focus is exclusively on meeting payment collection needs of a single AVC actor, typically SHF
DFS training and engagement strategies that target multiple members within SHF households to minimize confusion or misperceptions about the role and impact of this new service on existing household decision-making and other financial/payments activities	DFS training and engagement strategies that only target males or head of household
Household engagement strategy includes emphasis on youth as a local repository for DFS product knowledge to provide on-going support to other community members after or between sensitizations/trainings	Household engagement strategy excludes youth from participation
Positioning DFS as a gateway for SHF to purchase other valued goods or services (i.e. new seeds, pesticides, agro-equipment) to demonstrate the broader utility of DFS and drive additional transactions (e.g., school fees)	One-time bulk payments to SHF with heavy cash-out requirement

Pilot programs involving DFS in Bangladesh and many other markets have typically focused on bulk disbursements to SHF (either for crop payments or micro-credit/lending) where there is an expectation that recipients will ultimately convert digital value into physical cash. There are two downsides to this approach. The first is that the full value and utility of the DFS product for the SHF is not realized given that they primarily use the service to receive payments and cash out instead of being able to make a variety of follow-on transaction that are essential for agricultural production or

procuring basic necessities. The second is that DFS providers are required to manage physical cash liquidity across their agent networks, which increases service costs. Instead, given their relationships with multiple value chain actors, Development actors should undertake broader engagement strategies that seek to introduce other AVC actors to DFS offerings and encourage their adoption and usage. This will allow DFS providers to expand their acceptance ecosystems and support a more payments-focused service rather than a money transfer service.

ADDITIONAL LINES OF INQUIRY

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The field information and additional data gathering that supported this assessment succeeded in engaging a range of demand and supply side actors within the Bangladeshi market. On the demand side, information was collected from several AVC actors with different roles, transaction activity patterns, and financial capabilities. This allowed for a more nuanced depiction of how certain value chains are structured and what the distinct needs of different actors are. That being said, during the analysis phase of the assessment, a number of opportunities for additional research surfaced that could further support efforts to responsibly and effectively integrate DFS offerings into AVC transactions. They include:

1. Engaging apex enterprises involved in the supply of agricultural inputs to better understand current payment collection practices and identify opportunities to introduce appropriate DFS products or recommend product modifications.
2. Exploring the possibility of alternative vendor financing models for agro-equipment that would leverage DFS products and service ecosystems to identify potential partnerships, strengthen the business model for equipment vendors and improve access to mechanized equipment among SHF.
3. Engaging large and small scale traders to better understand current trading and payment dynamics. These actors appear to have the most robust set of transaction requirements in the value chains where they operate (crop collection, transport, storage, distribution, etc.). Their involvement and the involvement of other actors towards the middle or top of a given value chain may highlight the need to revisit existing regulations and laws regarding DFS transaction limits and volumes. This research could not only benefit service providers but perhaps also inform conversations at the regulatory level regarding how best to monitor and supervise DFS-related transactions conducted by these segments.
4. Undertaking additional field market research of SHF that more explicitly segments the transaction patterns and financial/payments needs of farmers based

on land size, ownership, crops grown, production capacity, etc. This would allow DSF providers to develop more tailored acquisition strategies and potentially support further product development.

5. Conducting assessments of rural acquisition strategies by DFS providers. Many providers expressed the desire to position their services initially as a payments solution for education and health related expenses that would create an entry point for providing additional financial services to rural households (i.e. savings, credit/lending, insurance). This research would support comparisons of DFS acquisition strategies and the identification of the most effective, properly aligned approaches and tactics to serving rural households.

6. Conducting research to better understand how the hired transport sector is structured and what the prevailing transaction patterns and needs are of vendors. Given that hired transportation services were frequently cited by AVC actors as a dominant or essential expense, developing a value proposition for DFS offerings that facilitates payments between vendors and other actors (renters, drivers, etc.) could stimulate broader service acceptance and strengthen efforts to acquire AVC actors that exhibit high frequency higher value transaction patterns.

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