MERCHANT PAYMENTS AND DIGITAL FINANCIAL SERVICES

HANDBOOK

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Merchant Payments and Digital Financial Services

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FOREWORD

This handbook is intended to disseminate lessons learned through IFC's global projects and experiences, and it is designed for digital financial service (DFS) providers who are interested in building and managing a merchant acceptance network. Such DFS providers typically include financial institutions, mobile network operators, fintechs, payment service providers and others. The objective of the handbook is to provide a framework for development of new merchant payment services, highlighting key risks and considerations for both the customer value proposition and the merchant value proposition, as well as the business case for the provider. The handbook aims to share success stories and best practices for product development, with the caveat that digital merchant payments in emerging markets is largely in the early stages of development and a single formula for success has not yet emerged. While risks and nuances of product specifications, incentive schemes and pricing play a key role in the ultimate success of a merchant payment product, the authors would also like to highlight the massive untapped opportunity for digitizing payments and the benefits it can provide for the market and the DFS providers.

The growth of digital finance in emerging markets has continued to increase the usage of financial services by traditionally financially excluded groups such low-income individuals, farmers, women, small and medium enterprises (SMEs), and others. In these markets, digitizing retail payments represents the new frontier for expansion. The customer base understands and appreciates the promise of a digital ecosystem for financial services. For digital financial service providers, digitizing merchant payments implies a bigger ecosystem of products and services for existing customers of DFS providers and thus new revenue streams. This handbook provides resources and tools on digitizing merchant payments for all digital financial service providers who are in the process of launching or expanding their existing merchant payments network in emerging markets to complement their core business of retail financial services.

Transforming retail payments from cash to digital also creates a unique and transformative opportunity for financial inclusion. One of the most important developments is the improvement of data analytic methodologies. As a result, financial service providers are now able to more accurately assess the credit risks of potential customers and confidently provide a range of financial services to individuals and families who previously were excluded from opening accounts, borrowing money, transferring funds and actively engaging with the formal financial economy. The benefits for clients extend well beyond finance. Increasingly, access to this digital highway promotes economic and social inclusiveness, spurs the development of new business models and drives communal prosperity and wellbeing. Larger businesses have begun to institute changes to adapt to the digital age and apply technology to improve operations and business models. The use of data in order to provide a higher quality of service and improved products for clients throughout one's network is becoming an integral part of business for retailers, suppliers, and others in the value chain.

Smaller businesses and individuals at the base of the economic pyramid have largely been excluded from these changes even though they stand to significantly benefit. These new digital tools will allow them to become part of the formal financial system and gain access to banking services such as credit and savings accounts. Furthermore, these small businesses reach individuals who are unbanked or underbanked. These businesses generate an enormous number of transactions which are predominantly made in cash. Thus, these transactions need to be part of the solution to reach unbanked and underbanked individuals.

The opportunity to digitize cash payments to merchants, especially in emerging markets, holds a great deal of promise for digital financial service providers. Currently, cash is by far the most common method of transacting with retailers. A study conducted jointly by the World Bank Group and World Economic Forum estimates that micro, small, and medium retailers make and accept payments of about at US$34 trillion annually in the form of supplier payments, wages and salaries, and receipts from consumers[1].

1 World Bank (2020). "Electronic payments Acceptance Incentives – Literature Review and Country Examples

Of this amount, US$15 trillion of which are estimated to be done electronically and the rest, US$19 trillion, is through cash or checks. Unsurprisingly, developed economies have a greater share of electronic payments.

Converting even a fraction of those payments into digital transactions has the potential to transform the financial services industry by bolstering revenues for providers and delivering a wealth of untapped transaction data that can be used to create new and lucrative financial products and services. The results are likely to benefit underserved communities and lead to more widespread financial inclusion.

The Covid-19 pandemic that emerged throughout the world in 2020 further strengthened the demand for cash-less payments. Many retailers sought to move away from cash to touchless payments by customers, while businesses and individuals looked for alternatives to send money when bank branches and retail outlets were closed. Governments began social cash transfer payment programs to add new liquidity into the economies and sought ways to transfer funds to beneficiaries using digital financial services that would provide touch free and cashless transactions. This surge in demand for digital payments created further opportunities for potential providers to address this market gap. While the full effects of the pandemic may take years to fully understand, it was immediately apparent that the presence of merchant payment capabilities are a required infrastructure in todays market.

Keeping the opportunity in mind, many digital financial services providers, particularly mobile money providers, have started to offer merchant payments in their markets. However, successes are few and far between. For markets to truly unlock the power of merchant payments, public and private sector counterparts will need to work together to create an enabling environment and incentivize customers and merchants to use electronic payments. This handbook focuses on the lessons and insights from the experiences of the private sector financial service providers.

This is the fifth handbook in the series on digital financial services. The four previous handbooks explore a range of topics regarding digital financial services. The first handbook, the Alternative Delivery Channels and Technology Handbook, provides a comprehensive guide to the components of digital financial technology with focus on the hardware and software building blocks for successful deployment. The second handbook, Digital Financial Services and Risk Management is a guide to the risks associated with mobile money and agent banking and offers a framework for managing these risks. The Data Analytics and Digital Financial Services handbook, the third in the series, is intended to provide useful guidance and support on how to apply data analytics to expand and improve the quality of financial services. The fourth handbook focused on Digital Financial Services for Agriculture.

This handbook is organized as follows:

The Introduction provides the rationale for merchant payments and creates the foundation for the sections that follow.

Section 1: The Customer Product provides a summary of experiences and illustrative examples in delivering a robust value proposition to customers, paying close attention to the reasons why certain products resonate with customers.

Section 2: The Merchant Product focuses on how to incentivize merchants to use value-added services. The size of the merchant and the segment of customer that she/he serves plays a significant role in determining which value-added service will be appealing to them.

Section 3: The Merchant Lifecycle describes a systematic approach for using research to design and develop products with attractive value propositions.

Section 4: Developing a Roadmap is intended to support providers as they implement a go-to-market (G2M) strategy. This section covers commercial models, market sizing, technology choices, merchant recruitment, and management.

The Conclusion includes lessons learned from projects thus far drawing on IFC's experience globally.

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ACRONYMS

3D	Three Dimensional
ABS	Association of Banks in Singapore
AISP	Account Information Service Provider
API	Application Programming Interface
APP	Application
ATL	Above the Line
ATM	Automated Teller Machine
B2B	Business to Business
BOP	Base of The Pyramid
BTL	Below the Line
CGAP	Consultative Group to Assist the Poor
CICO	Cash In - Cash Out
COD	Cash on Delivery
CRM	Customer Relationship Management
CVM	Customer Verification Method
DFS	Digital Financial Services
DFSP	Digital Financial Service Provider
ERP	Enterprise Resource Planning
FAQ	Frequently Asked Question
FAST	Fast and Secure Transfers
FI	Financial Institution
FMCG	Fast Moving Consumer Goods
FSP	Financial Service Provider
G2M	Go to Market
GIS	Geographic Information Systems
GSM	Global System for Mobile Communications
GSMA	Global System for Mobile Communication Association
ID&V	Identification and Verification
IFC	International Finance Corporation
IMF	International Monetary Fund
IMS	Inventory Management System
ISO	Independent Sales Organizations
ID	Identity Document
IOS	Internet Operating System
IT	Information Technology
KPI	Key Performance Indicator
KYC	Know Your Customer
LLP	Loan Loss Provisioning
MAS	Monetary Authority of Singapore
MIS	Management Information System
MMO	Mobile Money Operator
MNO	Mobile Network Operator
MSC	Merchant Service Charge
MSME	Micro, Small and Medium Sized Enterprise
MSP	Member Service Provider
MVP	Minimum Viable Product

NFC	Near-Field Communication
NRIC	National Registration Identify Card
OER	Operating Expense Ratio
OTP	One-Time Password
P2P	Person-To-Person
PIN	Personal Identification Number
PISP	Payment Initiation Service Provider
P&L	Profit and Loss
POS	Point of Sale
QAT	Quality Assurance Test
QR	Quick Response
QSR	Quick Service Retail
RTGS	Real Time Gross Settlement
SGQR	Singapore QR Code
SIM	Subscriber Identity Module
SME	Small and Medium Sized Enterprise
SMS	Short Message Service
STK	Sim Application Toolkit
UAT	User Acceptance Test
UPI	Unified Payments Interface
URL	Universal Resource Locator
USD	United States Dollar
USSD	Unstructured Supplementary Service Data
VAS	Value Added Service

All dollar amounts are U.S. dollars unless otherwise indicated.

EXECUTIVE SUMMARY

The International Finance Corporation (IFC) collaborates with like-minded institutions around the world that are developing digital financial services (DFS) with the goal of expanding financial inclusion to unserved and underserved individuals, and to small- and medium-sized enterprises (SMEs). The collaboration takes the form of projects in advisory and investment areas. Through interactions with clients, stakeholders in the financial inclusion sector and the broader industry globally, digitizing merchant payments is an important goal for many DFS providers.

Achieving this goal would allow them to develop an ecosystem of digital products and services that would reduce customers' dependence on cash and increase their usage of digital finance. Converting cash payments into digital payments implies a significant opportunity to increase business revenue. Digitizing merchant payments has the potential to expand financial inclusion. First, it increases the number of products and services available to customers of DFS providers. Secondly, digitizing merchant payments implies that there is an electronic record of all transactions. Merchants, who are typically micro, small and medium enterprises (MSMEs), can leverage the data for a multitude of purposes, including inventory management, customer relationship management, and as a proxy for formal financial histories to access credit. Unfortunately, despite its obvious advantages, there are very few examples of successful implementations of digitizing merchant payments in emerging markets. Conversations with DFS providers reveal that they are seeking tools and information to launch merchant payments that incentivize both customers and merchants. This handbook is an attempt to summarize existing knowledge and research with respect to digitizing merchant payments. It provides practical guidance for those who wish to launch a merchant network. And, it offers background information for expanding existing networks, creating markets between agents and merchants, and developing new products to support their growth.

This handbook identifies a range of customer needs and explores approaches for improving the customer value proposition for merchant payments. As described above, this value proposition needs to be better than cash. Some potential solutions that have emerged include Unstructured Supplementary Service Data (USSD), a mobile communications protocol for two-way data exchanges; application-based mobile money payments; QR codes; card-based payments; and social media integrated payment platforms. There is no global solution that works across all markets and segments. The first section describes each of these products in detail and provides examples of markets where each has proved to be successful. Thus, one of the conclusions of this section is that practitioners must closely look at their markets and target segments before picking the appropriate product for their target customer profile. Ultimately, practitioners may wish to work towards interoperable systems that can accept different types of payments for different purposes under one system.

Section 2 approaches the problem of unlocking merchant payments from the merchant's perspective. The merchant needs to have incentives to accept non-cash payments from customers. Here the handbook focuses on value-added services (VAS) and other programs specifically designed to persuade merchants to accept non-cash payments. Typical value-added services used by practitioners include access to working capital loans, inventory management services, payment applications, targeted marketing platforms and merchant referral and loyalty programs. One of the exciting outcomes of digitized payments is the electronic list of transactions. Access to this data makes the VAS possible and can transform how merchants, who are also SMEs, become more efficient and join the formal financial system. In this section we use a simple segmentation of all merchants into large and small retailers and manufacturers to explain how each VAS is relevant for each type of merchant. Practitioners can decide which VAS is applicable based on the kinds of merchants in a network.

Section 3 describes the merchant product lifecycle approach that IFC uses to develop products and elaborates on processes for practitioners who are looking to launch a merchant network. Importantly, this approach emphasizes that successful implementation relies upon convincing value propositions for customers and merchants. Furthermore, the value proposition will need to offer higher utility than cash, which is universally accepted and generally convenient for low-cost transactions. The approach is systematic and consists of several sequential steps. It begins by segmenting merchants and customers, then mapping the ecosystem and payments points of the potential users. This information is used to identify the likes and dislikes of customers

and merchants alike, and thereby developing a product and distribution strategy. The next step is to create a prototype of the product and test it with the target customers and merchants. Finally, the resulting information is used to update the business case and refine the final product to be delivered to the client.

The last section provides a potential roadmap for practitioners who wish to launch a merchant network. We provide a list of the key activities and the stakeholders' roles and responsibilities for building a merchant network. Merchant training, awareness building and onboarding are key activities that cannot be taken lightly.

Notably, significant investments in terms of human and financial resources are required to build an effective merchant network. GSMA reports that most mobile money providers claimed that building a merchant network was just as onerous as building an agent network.[2] Additionally, merchant networks need to be significantly larger than agent networks. Looking at more advanced markets, the United States is a good example. It has 17 times more Point of Sale acceptance locations than ATMs, according to the IMF Financial Access Survey. Given the number of times the average person pays for something in any given day, mobile money providers need to be committed to building a large network of merchant acceptors.

The handbook is intended to provide a framework for analysis and development of merchant payment products. It offers practical advice based on IFC's experience assisting DFS providers to expand financial inclusion and improve institutional performance. In order to launch and nurture a successful merchant product, practitioners will need to listen to customers and merchants, invest in the appropriate resources and be open minded to change. The proliferation of merchant payments in Sub-Saharan Africa has been limited with many failed attempts by payment companies, MNOs and financial institutions. There are not enough examples of success stories to build an exact recipe for success. However, IFC believes that with a thoughtfully designed approach, businesses can simultaneously grow their revenues and cultivate a more financially inclusive community in their markets.

2 GSMA (2014). Setting up shop: Strategies for building effective merchant payment networks; Findings based on the State of the Industry Report

INTRODUCTION

Merchant payments are an important milestone in the evolution of digital financial services. They can lead to greater DFS usage and value-add for consumers and businesses. The digitization of retail payment flows represents a significant use-case for mobile money and an opportunity to reduce reliance on cash and increase digitized payment flows. In 2016, the World Bank estimated that 75 percent of all retail payments in Sub-Saharan Africa, amounting to $1.1 trillion, were transacted in cash. In high income countries, less than 30 percent of retail payments were made using cash. Thus, the business opportunity for merchant payments is significant. The GSMA estimates that globally, the value of cash payments in retail is 100 times more than all the payments made currently on mobile money platforms.[3]

Converting these cash payments into mobile money payments at merchants would increase revenue for mobile money platforms. Merchants are generally characterized as small businesses with retail presence that supply goods and services to local communities. In developing countries, these SMEs represent an important driver of economic growth and employment. Formal SMEs contribute up to 60 percent of total employment and up to 40 percent of national income in emerging economies. This number is greater when including informal and microenterprises. However, it is well established that SMEs face challenges to access formal credit, an important prerequisite for growth and expansion. The World Bank estimates that 70 percent of all micro-, small-, and medium-sized enterprises do not have access to credit. This gap in access is estimated to represent $2.6 trillion for informal and formal SMEs. This gap exists because banks are unable to perform a full credit analysis of these enterprises, often because they do not have verifiable records of revenue or they lack a formal credit history. Digitizing merchant payments would provide a more thorough view of transactions that can lead to improved credit for SMEs, an important goal in the mission to expand financial inclusion.

Unlocking the potential of merchant payments has proved challenging even for leading DFS providers. In terms of volume and value of transactions globally in 2018, merchant payments lag behind services such as cash in, cash outs, airtime top ups, bill payments, and P2P transfers. At this juncture, DFS providers are generally aware that they must offer an enticing value proposition that is superior to cash for both customers and merchants if they are going to successfully offer merchant payment options. However, cash tends to be more convenient and cheaper to use than mobile money, particularly for low-cost transactions, and it is accepted everywhere by everyone. There are many challenges and there is yet to emerge a best practice or a winning model. This handbook will help DFS providers formulate strategies for advancing merchant payment operations. It will also examine several case studies to help identify factors that contributed to successful rollouts of merchant payment systems in the past.

3 GSMA State of Industry Report 2016.

Section 1:
THE CUSTOMER PRODUCT

Merchant payment products need to be designed with both the merchant and the end user in mind. Ultimately, for a product to be successful, merchants need to be incentivized to adopt the product and sell it on behalf of the provider. They need to demonstrate to customers that their merchant payment system is superior to cash, is convenient to use and will provide financial opportunities that will benefit their customers' futures. This chapter will focus on the needs of the end-user, the customer, and use examples to illustrate how products have gained traction in the real world. In the next chapter, we will explore the needs of the merchant in utilizing the product.

Customer Needs

It is fair to say that few people wake up in the morning excited to try out a new way of paying for things – such feelings are reserved for the small enclave of worldwide payments experts. Instead, most people need a means of payment that integrates easily with the broader sweep of their economic lives; to be paid for work, to build up savings, to pay for insurance, to send money to family members, to pay utility bills, to pay a door-to-door salesmen, and to buy things, whether in shops or increasingly through ecommerce.

Historically, cash has fulfilled most of these needs, and it has significant advantages. Cash is highly fungible, the transfer of value from one person to another is instant, and there is no transaction fee for the user. Converting to e-money, on the other handle, presents several obstacles. One big one is that a user must physically go to a cash-in or cash-out agent and pay a transaction fee to able to use their e-money.

The proliferation of e-money, and therefore, digital merchant payments in developed markets has been driven by a transition from largely self-employed and transient workers, where transactions are typically made in cash, to salaried jobs, where employers often directly and conveniently deposit wages into their employees' bank accounts.

The demand for merchant payments in these markets has largely been led by customers who do not want to pay the transaction fee or spend time withdrawing cash at branches, agents or ATMs, and began insisting that merchants accept digital payments. Some merchants have been eager to offer new payment products to incentivize customers to patronize them, while others only reluctantly offered them. In western countries, merchant payments are ubiquitous and supported by a seamless customer experience provided by providers such as Visa and Mastercard, whose technology allowed credit and debit cards to be accepted at most POS terminals, regardless of the bank that issued the card. In other words, interoperability was a key factor in driving adoption. In this model, the merchants pay a transaction fee to the bank that issued the POS device and there are no additional transaction costs borne by the customer. The widespread adoption of merchant payments was largely driven by two factors: 1) a great many workers were already being paid digitally via direct deposits, and; 2) they were seamlessly able to use their cards to make purchases from almost everywhere.

In most African and Middle Eastern markets merchant payments have not grown to the same acceptance levels. Many of those economies were built on cash and individuals still receive income in cash, whether it is salaries paid by employers or payments for goods and services if they are self-employed. The market for digital financial services is also highly fractured and there are few examples of ubiquitous switches that allow for interoperability. There also tend to be fees associated with transactions that are not borne by the merchant, so there is little incentive for a customer to use a digital payment system that requires them to physically deposit their cash into an account or wallet, and then pay a transaction fee to buy a good or service.

DFS providers must emphasize building value propositions for customers, as well as merchants, if their intent is to offer merchant payments as a viable standalone product.

Cash, on the other hand, does have significant disadvantages: it is vulnerable to theft or loss; it is difficult to use unless you're face-to-face with the person you're paying; and it is highly visible to family and friends who might like to share in your good fortune.[4]

What's more, cash does not earn interest or enable a digital footprint that can used for creating a credit history or for accessing tools such as budgeting planners. Any alternative to cash should ideally offer all the advantages of cash, none of the disadvantages, and maybe even some additional benefits.

When developing a new merchant payment product, it is key to build a solid value proposition by addressing customers' primary concerns and pain point. To drive customer adoption, DFS providers can:

- Target corporate clients to do bulk payments for salaries, agricultural value chain or other supply chain payments;
- Target governments to do bulk payments for social cash transfers, income tax refunds or pension payments;
- Reduce transaction fees by incentivizing the merchant to pay the fees (see Section 2: The Merchant Product);
- Cross promote other payment products to offer more use cases for e-money such as utility payments, P2P transfers, airtime purchases or savings;
- Cross promote digital lending by using account activity such as merchant payments to develop a credit score;
- Provide incentives to keep cash digital such as interest payments, bonuses for minimum balances or other value-added services such as free insurance, budget planner apps, etc.;
- Emphasize the advantages of digital cash, such as not needing to travel or to spend time standing in queues to make payments.

Of course, it is unlikely that anything is going to displace cash entirely for the foreseeable future. Converting customers who are used cash takes time and effort. Customers may find it easier to adopt some digital transactions over others. Airtime purchases via mobile money or mobile money transfers have typically been the entry level digital products for many who were previously unbanked. Thus, merchant payments as a product category may need to come once the market has shown acceptance of digital finance in general. Within merchant payments, we may well find that in developed markets, selling higher value goods and services benefit from the availability of credit. Similarly, "sin" purchases such as alcohol and tobacco continue to be cash centric for much longer. So, every customer is likely to have at least two means of payment: cash, and a digital means. In what proportions these are used is different between customers depending on need, ease of access and general utility of a digital payment vis a vis cash.

Types of Customer Products and Payment Providers

A range of different solutions to the customer payments challenge have emerged, including USSD and app based mobile money payments, QR code payments, card-based payment approaches and payment platforms integrated through social media. Not all these payment methods are accessible to, or appropriate for, all customers. Some are better for face-to-face or in person payments, while others are better for remote payments. Some require expensive tools to use, such as smartphones, while others are more accessible to people with lower incomes. Different customer segments have different needs for different types of transactions. It is unfortunately the case that there can be no perfect, one-size-fits-all solution. Instead, different payment methods are best suited to different segments. The danger is that this has the potential to result in multiple enclaves of merchants and customers tied to one another by payment method. To avoid this the industry must endeavor to ensure that, where multiple payment methods are in place, they are interoperable with reference to the accounts that lie behind them.

4 There is also a cost of cash to the greater economy as it enables significant contributions to GDP to go unmeasured, and therefore, untaxed and offers criminals an opportunity to transact without record.

This may be best achieved by offering different payment methods on top of a single interoperable solution. A further important distinction is that of push versus pull payments. Cash is a push payment; the customer hands the cash to the merchant. Conventional card payments are pull payments; the customer gives the merchant their account details (that is, where to get the money from), and the merchant pulls the money from the customer's bank account to their own (with the help of acquirers, card schemes, etc.). Several digital payment alternatives have emerged in recent years that challenge the domination of pull by using a push model; examples include M-Pesa in Kenya and PayNow QR in Singapore.

Pull payments evolved to provide a solution to problems of poor infrastructure in North America and elsewhere, and they have become a form of "glue" that hold retail commerce together in the industrialized world. They have significant disadvantages for merchants while providing substantial advantages to customers. Remarkable improvements in networking infrastructure in the last few decades, however, have led to increased interest among merchants for push payments. Table 1 summarizes the advantages and disadvantages of each.

Table 1: Versus card schemes: Advantages and Disadvantages of Push and Pull Payments

Method	Advantage	Disadvantage
Pull	Widespread acceptance due to ubiquity of international card schemes Well-developed rules for acceptance and dispute resolution	Transaction costs higher, and settlement to the merchant is slow, impacting liquidity Customers need bank accounts
Push	Low cost transactions and "instant" settlement for the merchant, with consequent liquidity improvements Simplified budgeting for customers – balance is real and live	Potentially more difficult to reverse payments in case of disputed transactions, since the funds have already been transmitted

Mobile Money

Mobile money achieved widespread adoption through the "Send Money Home" model, enabling migrant workers in big cities to easily remit money back to their families. This required the establishment of a widespread, trustworthy and reliable network of cash in/cash out agents, with many (particularly in rural areas) operating their agent business in the same premises as their retail businesses, such as a general store. In this model, agents are paid for services they provide to the mobile money operator (MMO), including cash in, cash out, and customer registration.

Mobile money operators are often considered by their customers to be akin to banks, no matter what financial regulations might suggest. However, there are many differences between banks and MMOs, including the ability to make loans and offer other, more sophisticated financial services. But the core difference, which is relevant to this document is how they make their money. Traditional banks make money by taking deposits and using those funds to provide loans to other customers – but MMOs make their money through small charges on vast numbers of transactions.

It became very clear to MMOs at an early stage in their existence that there are only so many "send money home" transactions that any customer will make. The search for growth therefore led them to seek other transactions, and merchant payments is an obvious option since merchant payments are conducted much more frequently. By capturing the merchant payments market, an MMO could potentially move a customer from one transaction a week to 10 or more.

A complication is caused by the tariffs the merchant is subject to. In the rush to develop a comprehensive service, many of the mobile money operators recruited as many cash in/cash out (CICO) agents as they could. In rural areas, this means that many small shops are also CICO agents.

Since under existing tariffs a CICO agent is typically paid to provide a customer with cash out services, while in their role as a merchant they may in fact be charged to accept a payment, there is a clear incentive for such agent/merchants to refuse to accept a retail payment and insist that the customer 'cashes out' and then pays in cash instead. Squaring this circle will need innovative approaches by the mobile money operators, encompassing ancillary services and benefits to the merchant for accepting payments.

Notwithstanding this complication, it is unsurprising that the leading MMOs developed merchant payment solutions. Two of the most prominent are EcoCash in Zimbabwe, and M-Pesa in Kenya, both of which have enjoyed substantial success. The following case studies present their journey to merchant payments, each having their own purpose for developing the product and different challenges and factors for success.

Mobile Money Case Study: ECOCASH, ZIMBABWE

EcoCash is a remarkably successful mobile money service that has an estimated 97 percent market share for mobile payments in Zimbabwe, with more than eight million registered users. It was established by Econet Wireless in 2011. In common with other such services, EcoCash allows users to deposit and withdraw cash, transfer money, and pay for goods and services, including utility bills, from a mobile handset. Users can also buy pre-paid airtime or data bundles for themselves or others, including those who haven't registered for EcoCash. There is also support for businesses, support for salary payments and other bulk payments, as well as merchant and biller payment acceptance.

Following its acquisition of TN Bank, Econet Wireless launched Steward Bank in 2013 as a wholly owned subsidiary. The acquisition was part of a plan to provide greater support for EcoCash through an entity with a banking license that allows it to offer significantly richer financial services. Steward Bank provides basic banking services for EcoCash customers, as well as operating the EcoCashSave account and the emergency micro-credit service EcoCashLoans. These are 30-day loans, with loan amounts from $5 to $300. They also facilitate the distribution of companion cards on the Mastercard network.

A customer can link an EcoCash wallet to their bank account and transfer funds between the two. There is also the option to top-up the EcoCash wallet at any outlet with a Steward Bank POS machine (connected via ZimSwitch) – by swiping a bank card. This approach may be easier for customers who don't have a smartphone.

Historically, EcoCash has delivered its services using USSD, so that any mobile phone can be used by subscribers with any mobile operator in Zimbabwe. Smartphones are not required, although an EcoCash smartphone app is available for download for both Android and iOS and is increasingly being used.

The success of EcoCash has been attributed to three important factors: 1) Econet's investment in ecosystem innovation; 2) the deployment of a unique merchant distribution network which links wholesale and retail in the ecosystem, and; 3) the market need for mobile money to transact reliably due to the shortage of cash.

These three factors have resulted in EcoCash becoming crucial to the daily economic life of Zimbabweans. In 2018, the Reserve Bank of Zimbabwe reported that digital payments, led by mobile money, accounted for over 90 percent of the $97.5 billion in total value transactions conducted in Zimbabwe the previous year.

The importance of EcoCash was clearly evident the service failed for two days in July 2018 and supermarkets were unable to do business.[5]

Due to local market conditions, merchant payments were the leading use case of EcoCash when it launched. Until relatively recently, to transact a merchant payment a customer needed to access the mobile money menu by entering a USSD code, enter his PIN, select the merchant payment option, enter the merchant ID and finally enter the payment amount. Both the customer and the merchant then had to wait for notification that the payment had been completed. It was a cumbersome process, and many customers chose to instead use cash rather than go through the process.

Recognizing this, EcoCash implemented several initiatives. First, EcoCash launched the Mastercard-branded Express Debit Card, a companion card linked to the customer's wallet, with interoperability being assured through access to the Mastercard network. This is a contactless card, allowing customers to tap on a suitable POS device, with no PIN being required for transactions less than $5; above that value, PIN entry is required. The Express Debit Card can also be used for ATM withdrawals from the wallet, and for e-commerce/remote payments using a virtual card number. The debit card is not cheap to use, however, with a transaction of $20 attracting an ATM withdrawal fee of $2.10, a POS purchase fee of $0.90, or an e-commerce fee of $0.90.

In a similar vein, EcoCash launched the Ta! Sticker, which is intended to be attached to the back of the customer's mobile phone. Linked to the Customer's EcoCash wallet, it allows purchases of up to $3 per day, without any PIN entry, though it does require that the merchant be equipped with an EcoCash Ta! POS device. Customers pay a fee of $1 for the Ta! sticker.

Finally, for users who only use the smartphone app, EcoCash launched QR code payments under the brand EcoCash Scan & Pay, capitalizing on Mastercard's Masterpass QR code system. However, the dominance of EcoCash is now being challenged by its sister company Steward Bank. In early 2019, Steward Bank introduced WhatsApp Banking, though this is currently limited to banking services.

However, at around the same time Steward Bank launched their Sosholoza service, building on their WhatsApp service, which offers interoperability between all mobile money operators and banks in Zimbabwe. Under this approach, it doesn't matter where a customer's account is held – he can still access all services through the Sosholoza service, thus exposing EcoCash to direct competition on an equal footing from all other DFSPs in Zimbabwe. If EcoCash is going to continue to dominate, it will need to continue to innovate in areas such as merchant payments.

Security

EcoCash has relied heavily on the use of USSD to conduct transactions and manage accounts, and they are far from alone in this approach. Although it is recognized that this is often necessary for a range of reasons that are beyond the scope of this document, it should be remembered that USSD has major security vulnerabilities:

- There is no security from the customer's handset right through to an operator's back office systems, allowing hackers to eavesdrop on account details and PINs, potentially leading to loss of customer funds;
- A cyber-attacker can push a USSD session to the customer in a way that looks like the MMO is contacting them. They can use this to ask the customer to change their PIN, which can then be captured, leading to account hijack and loss of funds.

Much the same concern applies to the use of SMS, which should not be used for one-time PINs (OTPs) because they can be intercepted by cyber-attackers; the sole exception being the use of SIM Toolkit Apps that do their own encryption of SMS.

Until the technology to fully secure private data and transactions becomes more affordable for customers and MMOs, careful and sustained monitoring of transactions by MMOs to identify anomalies and intervene appropriately must be a priority.

5 https://qz.com/africa/1321152/zimbabwes-ecocash-mobile-money-crash-has-people-worried/

Mobile Money Case Study:
M-PESA, KENYA

In Kenya, Safaricom's merchant payment service is branded as "Lipa na M-Pesa", which loosely translates as "Pay with M-Pesa." The purpose of developing this service instead of relying on the core M-Pesa P2P service, which could be used to make a merchant payment, is simple; rather than relying on a particular mobile phone as the destination, a merchant account is established, with a merchant ID attached. So, payments under Lipa na M-Pesa are made to a merchant ID, which is referred to as either a "till number" or a "Pay Bill number", according to context.

Lipa na M-Pesa can be used either in a face-to-face environment, or to pay bills such as utilities and school fees. To use the service to pay a bill, the customer goes to his or her M-Pesa STK menu, selects "Pay Bill," enters the destination pay bill number, the amount and the reference. The customer then sends the transaction and waits for confirmation.

Similarly, to pay a merchant face-to-face, the customer goes to his or her M-Pesa STK menu, selects "Pay Bill," enters the merchant's till number and the amount. They then send/initiate the transaction, and both the customer and the merchant wait for confirmation.

This is not an ideal transaction – it certainly can't be called "tap and go." The delivery of the SMS messages to initiate the transaction and then confirm it to both the customer and the merchant can take several minutes, or even more, and it was this issue that caused Safaricom to develop and launch the 1Tap companion card, described in more detail later in this section.

As part of Safaricom's 2018 financial results, the company let it be known that more than 100,000 merchants are registered with the service and customers carried out in excess of 147 million Lipa na M-pesa transactions, which was an increase of 63 percent over the previous year.[6]

The financial director of one of Kenya's largest supermarkets, who asked not to be identified, described some of the reasons for the jump in Lipa na M-pesa transactions:

- The company likes conventional Visa/Mastercard transactions at their tills. They are fast and efficient, they take cash away from the tills, reduce cash handling challenges, shrink queues at the tills and the card terminals are integrated with their tills.
- However, the transaction acquiring banks charge the company around 2.5 percent of transaction value, and they take several days to settle/pay into the company's bank account.
- Conversely, Lipa na M-Pesa transactions are slow, and people get impatient in queues waiting for them to complete.
- This is offset by the fact that Safaricom charges significantly less than one percent to a large retailer; and because it's a push payment, the company is paid "instantly." The supermarket uses this to increase the liquidity in its bank account. By moving funds four or more times a day, they have been able to use the same money twelve times before a card transaction would have been settled. This improvement in liquidity means that they can keep their shelves stacked with fresher goods, improving the proposition to their customers.

Another complexity companies face is the terms under which banks give loans. Often, banks require merchants to conduct a certain minimum number of card transactions (effectively seeking to increase the profitability of the bank's lending by adding card transaction fees to the overall bank income).

The unintended consequence of this, and the considerably more favorable terms of a Lipa na M-Pesa payment over a card payment, results in shop managers reportedly waiting until the minimum number of card transactions have been reached, then turning the card acceptance devices off, and putting up signs indicating that the card machines are broken.

6 http://bankelele.co.ke/2018/05/safaricom-2018-results.html

BREAK OUT BOX 1
BIOMETRICS

The term "biometrics" refers to the measurement and statistical analysis of people's unique physical and behavioral characteristics. A range of technologies are available that implement different aspects of biometrics. These are mainly used for identification and access control, or for identifying individuals who are under surveillance. In the specific area of financial services, biometrics hold significant promise and are likely to be increasingly used for identification and identity verification. Biometrics could reduce fraudulent transactions. With the increased use of smartphones for payments, biometric authentication is becoming more popular for payment providers. It can also be accessible for small retailers and customers, particularly in emerging markets where traditional forms of formal identification may not be as prevalent.

Profile

First, it's important to understand that a biometric is not the same as the thing it's measuring – so a fingerprint is not the same as a fingerprint biometric. Instead, several 'points' are collected, and a statistical analysis of the relative positions/values of those points is generated – the result being a biometric profile, which is stored for future use.

The quality of the biometric profile is linked to the number of points that were identified and collected. The fewer the points, the lower the quality. The number of points can be related to the equipment used for collection/registration, the experience of the registration team, and the appropriateness of the selected biometric for the population being registered (of which more later). Unlike the fingerprint, the biometric profile generated from the fingerprint is not unique. For example, in a country with a population the size of India, the biometric profile generated from one person in even the best circumstances could relate to any one of up to 10,000 other people in the country (though finding those 10,000 people among the 1.25 billion people would be an impossible task).

Identification and Authentication

The confusion between identification and authentication is behind much of the misuse of biometrics. To define them:

- Identification refers to a process through which a customer is identified for the purpose of onboarding, using for example a face or fingerprint biometric.

  This is, unfortunately, largely not feasible using current technologies, at least in the manner it is often presented. Identification can only occur if there is a centralized database of biometric profiles that the captured biometric can be compared with (this is referred to as "1:N" matching). Unless there is a national database of biometrics that is available for customer onboarding, using biometrics for identification is simply not possible.

  Even where there is a suitable database, the technology is not yet reliable enough to support identification. For example, the British police tried it unsuccessfully in London with a very small database of profiles of criminals they were trying to locate, with a feed from a camera pointing at crowds. This was abandoned due to the extremely high rate of false positives being generated – in excess of 90 percent of matches were cases of mistaken identity, despite the small database size. This is nowhere near the reliability financial services would require.

  It is notable that India, with access to the high profile Aadhaar national identity database, doesn't attempt this. Instead, people are required to provide an Aadhaar number, effectively an index into the database, allowing a far more reliable "1:1" match attempt.

- Authentication, or Verification is the mechanism through which an existing customer, who has previously been onboarded, is issued a new digital identity that includes a biometric. The biometric is then used for authentication, to tie the person requesting service back to the original registration.

  Authentication is considerably more straightforward and reliable than identification. It compares a newly-captured biometric with one stored for the same person – if they match, then the identity of the person can be said to have been authenticated (this is referred to as "1:1" matching).

Some of the most reliable examples of this combine the identification and authentication functions into one; for example, in China both Ant Financial and JD.com have deployed facial recognition technology that allows registered customers (whose biometrics have been captured during registration) to be identified/authenticated at POS by looking into a high quality 3D camera, similar to that found on iPhones. Note that this is reliant on pre-registration and biometric capture, in a well-lit, one-person-at-a-time scenario (see Breakout Box 2: Innovation).

This requires that the original biometric be available for comparison, and this is often the reason for a national identity card, which either provides a pointer to the biometric profile to be used for comparison, or holds the profile itself. This is the mechanism used for e-passport holder authentication. The Aadhaar approach of a central database accessed by Aadhaar number is another solution to the same problem.

Digital Financial Service Providers and Biometrics

Financial service providers who want to use a biometric national identity service for on-going authentication of customers often create a "derived identity," removing the reliance on the national identity service once a customer has been onboarded.

When a digital financial service provider is onboarding a customer, it might seek to identify the customer using a biometric national identity service, where one exists. During this process, the DFSP captures the prospective customer's biometric profile and compares it (1:1) with that held by the national identity service. If it matches, the national identity service might release some additional attributes for that customer, which can be used during customer due diligence (identification and verification, or ID&V).

On successful completion of the process, the DFSP might issue a digital identity derived from the national identity, to be used for example in digital banking or for making purchases. This might include a biometric profile to be used by customers to authenticate themselves when they log on to their bank's services, or to make a purchase (for example, using a bank-issued debit card, which includes a customer verification method (CVM), which might be a biometric or a PIN).

In each case, the biometric matching being undertaken is 1:1, and no 1:N matching is ever attempted.

The Human Factor

When considering deploying biometrics in support of a financial service it is important to understand that any one biometric won't work for every person, and consideration must be given to the suitability of individual biometrics for the target population.

Some examples:

- Fingerprints are notoriously unreliable if most of the people being registered are manual workers, or live in a dusty environment, or are smokers, or are over 50.
- Voice is difficult to use with mobile phones, particularly entry-level feature phones, because cheap phones tend to have cheap, poor quality microphones, which either do not capture the full vocal range or overlay a hiss.
- Face is very vulnerable to different lighting conditions and camera quality; people in rural areas, in dimly lit/dark shops, can find it difficult to use.
- Alternative approaches, such as the use of infra-red light from around the camera to illuminate the subject, and a camera that is sensitive to infra-red light, can help greatly with this problem.
- Biometrics can cause cultural and personal anxiety.
- Not unnaturally, people have sensitivities which affect the usability of some biometrics; so, the various vein biometrics which require you to, for example, place a finger in a tube, tend to be unpopular, and iris biometrics are disliked because people are quite reasonably sensitive about their eyes.

These last two points suggest that a service which relies on biometrics should not settle on just one, and an approach similar to that taken by Aadhaar in India might be appropriate. During registration for that scheme, all ten fingerprints were captured, together with both irises. And now, in an attempt to make the service usable by everyone, facial biometrics are also being captured.

QR Code Products

Quick Response codes – more commonly known as QR codes - are an increasingly common form of merchant payment, with its origins in South East Asia, in particular, Japan and, later, China. The international standard ISO/IEC 18004 for QR codes was approved in 2000. Its first adoption and use in mobile phones came with the rise of the smartphone, when it was used to access information (for example, extracting URLs from posters in public places). For payments, proprietary standards were adopted by Tencent and Alibaba, and a payments industry standard was developed by EMVCo in 2017.

As an important step in increasing customer familiarity with the codes, QR codes were adopted as an integration service for Tencent's social media service WeChat, allowing face-to-face 'friending' by scanning a QR code displayed on a friend's mobile phone screen. Later QR codes were adopted for use in the Alipay service to facilitate Alibaba payments. At the same time WeChat was extended to include WeChat Pay, a payments service directly integrated into the social media service. Both Alipay and WeChat Pay now support both face-to-face and remote payments, the latter encompassing e-commerce and bill payments, including utilities.

There are two broad models to a QR code payment service in a face-to-face environment: either the user presents a QR code for scanning by the merchant, or the merchant presents a QR code for scanning by the user.

Where the customer presents a QR code, the transaction value can be set by the merchant before scanning and communicated to the customer. On agreement, the QR code is scanned, and the merchant's terminal requests payment from the customer's account, either directly from the scheme operator or via an acquirer. Both the customer and the merchant receive a notification of the success or failure of the payment, and the merchant then hands over the goods. In this model, the customer is vulnerable to an unscrupulous merchant setting (and obscuring) the wrong transaction value before scanning. Such a scheme therefore needs a robust claims mechanism.

Where the customer scans the merchant's QR code – which may be useful in some environments, such as quick service retail or market stalls – the transaction is potentially more complex. If the transaction value is fixed, the customer can scan the code, review the transaction details (including the merchant name and value), and agree to the transaction, which is then forwarded to the scheme operator/acquirer, as before.

In general, there are then two options:

- First, and somewhat unsatisfactorily, the customer scans the code, validates the merchant name and then inputs a transaction value – which then notifies the merchant, along with transaction status. If all is well, the merchant hands the goods to the customer; otherwise a dispute arises.
- The second option is to use a dynamic QR code, which necessitates the merchant having either a smartphone or a POS device capable of displaying QR codes. In this case, the merchant enters transaction details into their device, which generates a QR code that incorporates the transaction value as well as the details of the merchant. After scanning the code, the customer reviews the details, and approves payment, and the transaction is then forwarded to the scheme operator/acquirer, as before.

The most prominent examples of QR code payments are AliPay and WeChat Pay. However, these are effectively closed loop payments, with all transactions taking place inside the walled garden of the scheme; a similar approach has been taken by bKash in Bangladesh.

A more open loop approach has been implemented in Singapore, where a series of initiatives have resulted in the development of a national QR code payment service based on bank and nonbank DFS accounts. In contrast, the international card payment schemes Visa and Mastercard have launched multiple services around the word linking QR code payments to debit and credit card accounts.

QR Codes – International Card Schemes

In the wake of the publication of the EMVCo standard, both Visa[7] and Mastercard[8] launched QR code-based payment services in 2017 with a focus on emerging economies. Both Visa and Mastercard are focusing on merchant presented QR codes, whether static or dynamic; where the code is static, the customer is required to enter the transaction amount. The transaction is secured using their card PIN.

Visa and Mastercard have deployed their services in several countries, including India, Pakistan, Kenya, Nigeria (in partnership with Interswitch), Cambodia, Egypt, Ghana, Indonesia, Kazakhstan, Malaysia, Pakistan, Rwanda, Tanzania, Thailand, Uganda and Vietnam. Visa's service is branded as mVisa QR, and Mastercard's as Masterpass QR.

In general, these services are only relevant to banked customers who also have an eligible Visa/Mastercard debit or credit card. It is also a requirement that their bank has enrolled in the scheme, as it needs to be integrated into their mobile banking app. To use the service, customers download their bank's mobile banking app onto their smartphone and personalize it with their account details. There is no requirement for specific enrolment to use QR codes.

However, the standards themselves can be used outside the realms of the international payment schemes – one example being EcoCash in Zimbabwe, which uses the Masterpass QR standard in the operation of the EcoCash Scan & Pay service.

QR based payment scheme

Any QR code-based payment scheme needs a scheme operator, responsible for scheme branding at acceptance points, defining the scheme rules and providing a mechanism for handling disputes and exceptions.

In addition, the scheme operator must provide a mechanism for acquiring and settling transactions; this can vary substantially, from the walled gardens of WeChat Pay and AliPay, to the acquiring services provided by the card payment schemes and their member banks, to the open, push payments service developed in Singapore. The scheme operator is responsible for either operating such a service on behalf of the scheme, or securing cost-effective, reliable and enduring access to one for use by the scheme's participants.

QR code payments security

Security concerns have often been raised around QR code payments. There is little security around the codes as currently used; a static code displayed by a merchant could easily be attacked by an unscrupulous criminal sticking their own code over the merchant's code, which might not be noticed. The primary defense against this attack is the use of merchant IDs, registration and real-time notification of payment. Scanning the code simply retrieves the merchant ID, for submission to the scheme/acquirer for payment. An attacker would need to have a valid merchant ID to which payments could be diverted for this attack to be successful, and the merchant onboarding process would provide sufficient information for the criminal to be identified. If a customer made a payment, but the merchant did not receive notification, then the merchant would not hand over the goods and an investigation would be initiated to see where the customer's funds had gone – leading directly to the criminal.

But this is a time consuming and expensive process (in a busy shop with frequent low value transactions the lack of a notification might not be noticed), and it would be better to stop the fraud happening in the first place rather than trying to correct it later.

The first line of defense should be the customer; if the app displayed the merchant's name (the "trading as" name, not the company name), the customer could check that it was correct. This could be part of more robust protection, achieved through the use of a digital signature, so that the merchant ID and merchant name are authenticated by the mobile banking app as well as the customer before the payment is made; in this way, the app can be sure that the merchant name is correct, that the QR code was issued by the scheme, and hasn't been faked (the same approach can be used to secure dynamic QR codes, by using the signed merchant ID and merchant name, and leaving the transaction value unsigned).

7 https://usa.visa.com/about-visa/newsroom/press-releases.releaseId.10956.html
8 https://mea.mastercard.com/en-region-mea/consumers/masterpass-africaqr.html

QR Case Study: **SINGAPORE**

2014: Fast
FAST (Fast and Secure Transfers) was launched by the Association of Banks in Singapore (ABS) in 2014, and is operated by VocaLink (the operator of the UK's Faster Payments service). FAST is a low value service that allows customers to transfer funds almost immediately between accounts held by the 20 participating banks in Singapore.

The sender needs the beneficiary's name and bank account number to send funds. It enables almost immediate transmission and receipt of money, and operates 24 hours a day, 365 days of the year, with a maximum transaction value of S$50,000 ($37,000) per transaction. It directly supports consumer bank accounts, though customers can use FAST to make payments to businesses. Significantly, under the rules of operation for FAST, a transaction is viewed as irrevocable when the remitting customer reviews the details of the transaction and accepts them as complete, therefore initiating the transfer.

2017: PayNow
In 2017, the ABS launched the PayNow service, a low value funds transfer service which is layered on top of the established FAST service. It allows customers to send funds by specifying the recipient's mobile phone number or National Registration Identity Card (NRIC) number,[9] rather than a bank and account number. Customers pay no fees to use PayNow. A customer does not need to register to use PayNow to send money, only to receive.

When making a payment, the sender uses his or her bank's Internet banking platform or mobile banking app, selects the PayNow service, and enters the recipient's mobile number or their NRIC/FIN, together with the amount to be transferred. In response, PayNow displays the recipient's name as verification; if the sender confirms, the funds are transferred using FAST.

2018: SGQR
In 2018, the Monetary Authority of Singapore (MAS) announced[10] the standardization of QR codes for payments across Singapore, with the launch of the Singapore QR Code (SGQR). This facilitated the development and deployment of the PayNow QR code service (and other, competitor services) – an open loop QR code payment acceptance service, open to anyone in Singapore with an account at a DFSP.

The Singapore experience highlights the essential steps in the development and deployment of an open loop QR code payment service, each successive step adding another layer to what came before.

It is noteworthy that low-value funds transfer services are not limited to South East Asia. Although the UK was among the first to deploy such a service in 2008 (and Singapore's FAST service is based on the UK technology, operated by Vocalink), similar services have now been established across Europe's Euro zone as well as in Kenya (PesaLink, which has been in operation for several years), and elsewhere.

9 Foreign residents of Singapore can use their Foreign Identification Number (FIN) instead of the NRIC.
10 http://www.mas.gov.sg/News-and-Publications/Media-Releases/2018/Singapore-Introduces-Worlds-First-Unified-Payment-QR-Code.aspx

International Cards Schemes - Traditional Model

The international payment schemes – principally Visa, Mastercard and UnionPay – have offered card-based products for many years. Their service is based around what is known as the four-party model (American Express is an exception, using a three-party model, with Amex taking on the roles of both issuer and acquirer). In this model:

1. A customer is issued a card by the card issuer – usually the bank that holds the account.
2. To make a purchase, the customer presents the card to a merchant.
3. The merchant's POS device contacts the merchant's bank – the acquirer – which captures the details of the transaction.
4. The acquirer contacts the issuer, to seek authorization for the transaction, based on available balance, whether the card has been reported stolen, etc.
5. The issuer returns the authorization status to the acquirer.
6. The acquirer informs the customer – the merchant – of the result, and the merchant hands the goods to the customer.
7. The customer pays the issuer from his or her bank account.

The card scheme is at the heart of the transaction, providing the glue that holds transactions together (including a scheme network to connect issuers and acquirers around the world), setting standards for all cards, POS devices and interactions, and maintaining and enforcing a comprehensive set of scheme rules that define precisely how the scheme operates, who gets paid, how much and when, and how disputes are resolved. There are additional settlement steps, during which the merchant is paid by the acquirer (less a merchant service charge, or MSC), and the acquirer is paid by the issuer, less the interchange fee.

The payment from the acquirer to the merchant is the final step, and a merchant can expect to receive payment from three to thirty or more days after the transaction itself, depending on the contract with the acquirer. Furthermore, that's not the end of the transaction. For weeks afterwards, the acquirer may choose to "chargeback" payments if they receive a notification of a customer disputing a transaction. Further, merchants are required to use an expensive POS system, for which they may pay a monthly fee; and new merchants may be expected to pay a deposit against potential fraud by their customers to the acquirer, which can run into hundreds or even thousands of dollars.

All of this has led to increasing interest among merchants in push payment methods, such as direct payments from mobile banking apps, making use of low cost, low value instant credit transfer switches, such as FAST in Singapore or Faster Payments in the UK. However, the move to push payments has significant disadvantages for customers, not least when transactions are disputed and refunds are sought, for example.

The international card schemes make a strong proposition to customers, built on a long-term strategy of universal acceptance; you (the customer) don't need to have relationships with multiple merchants, this is the 'master card' that gives you access everywhere; the 'visa' that lets you access any merchant. However, this proposition only persists as far the customer experience reflects it, and it has been dented in recent years by the reality of limited acceptance due to high merchant fees, the high cost of compliant POS devices and the lack of a clear proposition for less affluent merchants and their customers.

This has led to two quite separate responses, aimed at customer and merchant segments at opposite ends of the spectrum. First, the schemes have helped their (card issuing) member banks to recruit and retain more affluent and more profitable customers by developing their customer retention portfolios. This includes tactics such as discounts at retail chains, cashbacks on purchases, a small discount on fuel in partnership with a national chain, a facility to tie card usage to the earning of 'points' which can be redeemed for discounts on hotels, flights etc. Second, a growing awareness that there are many transactions that are being 'lost' by established banks to mobile money operators has led to initiatives to develop less expensive, mobile phone-based payment acceptance devices, and transaction fees that are considerably more attractive to small merchants with a less affluent customer base, together with incentives to use the schemes' services. Often these initiatives are in partnership with transaction acquiring banks.

These initiatives have resulted in considerable interest from several countries schemes to form partnerships with non-traditional issuers, such as mobile money operators issuing companion cards for their wallets: Vodacom in Tanzania (with a virtual card program) and EcoCash in Zimbabwe (physical cards) being prime examples.

Traditional Model Case Study:
VERVE

Verve is a multinational payments scheme developed in 2008, owned and operated by Interswitch. Originally available only in Nigeria, it has now been launched in Kenya, Uganda, and Gambia as well. Although Nigeria remains the dominant market, Verve is issued by 40 banks in Africa with more than 30 million payment tokens (cards) in circulation.

In March 2013, Discover Financial Services partnered with Interswitch, which enabled the acceptance of Verve Cards across the Discover global network, covering 185 countries and territories. However, although it is an international brand, Discover's acceptance is not widespread outside the US, focusing on travel and premium retailers. In addition, Verve cards are accepted by merchants in those countries where the acquiring bank has an agreement with Interswitch.

Traditional ModelCase Study:
M-PESA KENYA COMPANION CARDS

A companion card is issued by the operators of some payment methods in addition to their core use cases, in order to facilitate face-to-face retail payments. For example, M-Pesa in Kenya issued the 1Tap card in three different form factors: card, phone sticker, and wristband (though only the card form has been widely available). The card is intended to be associated with a customer's existing M-Pesa account. The 1Tap card was intended to address some of the common issues with the existing Lipa na M-Pesa merchant payment service, by speeding up transactions, reducing errors and improving customer privacy. The 1Tap solution requires that accepting merchants must invest in a POS device, separate to the mobile phone they have traditionally used to access the M-Pesa service. Further, this same device was the only option for large retailers, such as supermarkets, wishing to accept 1TAP payments – there was no mechanism for integrating it into their existing POS/back office systems. This has met significant resistance, and customers with 1TAP cards can have trouble finding a merchant that will accept it, and therefore are forced to revert to the existing Lipa na M-Pesa experience.

This underlines the issue with companion cards; persuading small retailers to make the necessary investment is very difficult without some form of compensatory benefits (and for most, improved transaction times are not a relevant form of compensation); and larger retailers need POS integration before they will adopt it, even if they can see the benefits. Perhaps if POS integration were addressed, the higher visibility in supermarkets and other large stores might encourage customers to take up a 1Tap card – which may in turn begin to encourage smaller retailers to adopt it.

Social Media Payments

There is increasing interest worldwide in the integration of payments into social chat apps, in large part because of the success of WeChat Pay and AliPay, as well as the rollout of similar services in recent months.

Social Media Case Study: WECHAT PAY AND ALIPAY

WeChat Pay has its origins in social chat, and the desire to send funds to friends, whereas the origins of Alipay are in commerce, and the desire of its owner Ant Financial to give its e-commerce merchants and customers a simple way to transact on its Alibaba e-commerce site. WeChat has around one billion active users, and Alipay has around 900 million. Both rely on customers' access to smartphones. According to the GSMA, smartphone penetration in China reached 69 percent in 2018 and is projected to reach 88 percent by 2025.[11]

The success of WeChat Pay and Alipay should not be underestimated.[12] Between them they conduct more than 93 percent of mobile payment transactions in China. In 2017, each organization processed more payments per month than PayPal's total of $451 billion for the whole year, amounting to a remarkable $12.8 trillion in mobile payment transactions from January to October 2017. These two platforms have made mobile payments the norm in China, not only in supermarkets and corner shops but also in the collection of money via QR codes for street musicians and beggars[13].

WeChat Pay and Alipay are both aimed at banked customers. WeChat Pay allows billers such as utility providers to present bills to customers, who can then pay the bill with a tap of a button. Face-to-face payments are straightforward; QR codes are everywhere.

For its users, WeChat has become their digital super ID that covers almost every aspect of their life. These include convenient features like splitting bills between friends, which also adds "peer pressure" since it's inconvenient for everyone if someone opts out. Therefore, WeChat has become a hybrid social e-commerce platform that's become indispensable to Chinese millennials.

Alipay has moved beyond its original focus on Alibaba and e-commerce, to become a generalized payments service, allowing customers to pay bills and shop face-to-face, mirroring WeChat Pay, with a move to QR codes (AliPay QR code payment at Hong Kong's subway system is imminent) and face recognition. However, it retains its strength in e-commerce, which probably explains why, despite having fewer monthly active users than WeChat Pay, it is significantly bigger in terms of monthly transaction values.

Ant Financial and Tencent are both evaluating the potential of rolling out their payment services in South East Asia and Africa. This is separate from rolling payments acceptance out worldwide, which is principally aimed at serving affluent Chinese tourists – for example, WeChat Pay and AliPay are both accepted at tourist sites across London.

11 https://www.gsmaintelligence.com/research/?file=4ac41ce0d0e94cd567ed0d19289a3d7d&download
12 http://techgenix.com/alipay-and-wechat-pay/
13 https://www.ibtimes.co.uk/beggars-china-now-accepting-donations-via-mobile-payments-qr-codes-1618396

Social Media Case Study: WHATSAPP

Facebook's WhatsApp service has been successful as a messaging service with more than 1.5 billion active users at the beginning of 2018. India is the biggest single market, with somewhere around 300 million active users. By these measures, WhatsApp is considerably bigger than either WeChat or Alipay. The principal differentiator until recently was the lack of an integrated payments service.

WhatsApp Payments was launched in India in early 2018 in direct competition with PayTM, Mobikwik and other established payment services. The service was developed through an integration with the national Unified Payments Interface (UPI) into the India Stack. This enables WhatsApp Payments to interface with bank accounts to send and receive payments.

An unregistered customer who receives a notification of a payment is required to setup payments by linking their bank account to WhatsApp, so that funds can be transferred. Reportedly the expansion of the service in India has been slow due to regulatory issues. Despite this, it was recently announced that WhatsApp Payments will be launched in Mexico, Brazil, and the UK soon. Beyond the core remittance function, the most likely use case for WhatsApp payments is for e-commerce; sideband or in-app payments for a purchase made through social media.

E-Commerce

Consumers

Although slow to take off in many developing countries, e-commerce has begun to play a significant part in people's daily lives. A lot of development came at the grass roots, when small businesses began to advertise their wares using Facebook, Instagram, and Snapchat, with some attracting a following of people interested in their products. When someone was interested in buying something, a dialogue would take place, a price agreed, and the goods dispatched, however, this approach was limited to relatively small areas due to the fulfilment challenge. So, goods would be delivered a few miles in large towns and cities using motorbikes, with payment being made through mobile money (M-Pesa et al) or through cash on delivery to the delivery rider.

The development of larger scale, more remote e-commerce – in particular in rural areas – has been hampered by the twin problems of finding an appropriate means of payment acceptance and fulfilment. Successful experiments include: Jumia in multiple countries across Africa; Amazon, Flipkart, Snapdeal, and PayTM in India; Souq (recently acquired by Amazon) across the Arab world; and GOJEK/GOLIFE in Indonesia. These services have designed their business models and operations to mitigate the trust issues prevalent in low-income markets.

Among other operators, Jumia, PayTM, and GOJEK/GOLIFE offer a variety of services and CoD payment options; in Kenya, Jumia accepts M-Pesa, though even there many customers prefer the CoD option. Kasha, an e-commerce platform for women's health, set up a call center in Rwanda to verify orders of all first-time customers after they found new customers would test CoD ordering without being prepared for the item to arrive. COPIA in Kenya has gone a step further and offers low-income customers access to their e-commerce platforms via local shopkeepers.

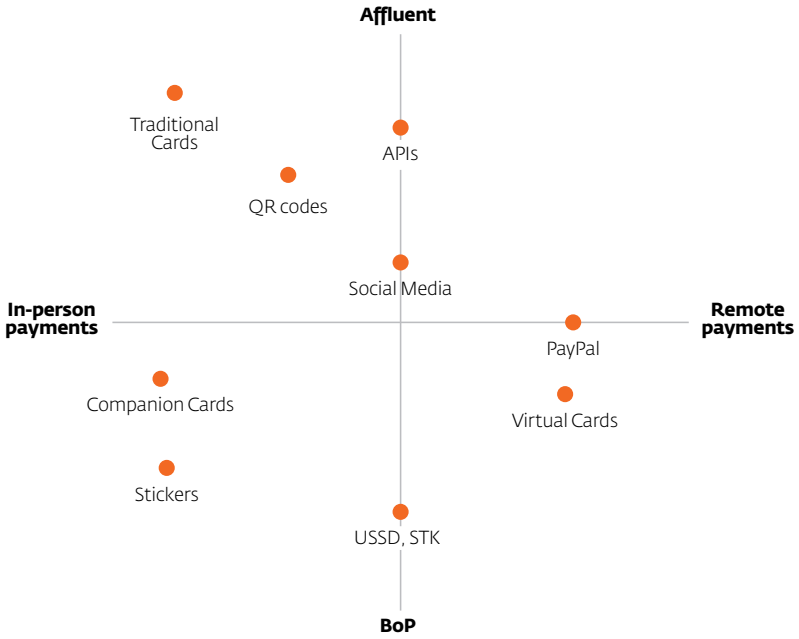
Customers can browse catalogs at their local shop and pay for the goods in a lump sum or in instalments. Despite some success, fulfilment remains a challenge and COPIA has been unable to expand in markets outside of Kenya. COPIA has also suffered the CoD trap, as customers unfamiliar with the system have been reported to order large goods such as refrigerators and express astonishment that they were delivered, since they had no intention of buying them, causing severe problems for the service.

For the more affluent customers, many of the mobile money and other services reviewed in this document also support virtual Visa or Mastercard cards for international and e-commerce purchases.

Customer Product Classifications

Figure 1 presents the classification of the various payment methods discussed in this chapter. As mentioned, not all payment options will always be appropriate for all customers. The various payment methods available today cater to different segments of the population and to different use cases. With that in mind, digital financial service providers have been challenged to work towards interoperable systems that can accept different types of payments for different use cases in a single coordinated system.

Figure 1: Classification of Payment Methods



BREAK OUT BOX 2
INNOVATION

Some of the most innovative payment initiatives in recent years have been based on the emergence of biometrics, where the customer becomes his or her own payment authenticator and does not need to present any kind of token. At the forefront of this trend has been AliPay, with their "Smile to Pay" service. This was launched in 2017, with an initial pilot at KFC in Hangzhou. This quickly expanded to tens of thousands of merchants across China, reflecting its attractiveness to merchants and its acceptance by customers. "Smile to Pay" uses technology called Face++ from a Chinese start-up called Megvii.

At the end of 2018, Alibaba launched a significant upgrade to "Smile to Pay" called "Dragonfly, a facial recognition payment service. Dragonfly is aimed at making "Smile to Pay" more accessible to smaller SME merchants. Rather than the large physical size and complex integration of the original service, Dragonfly is a plug and play device that is significantly smaller and able to process transactions much more quickly. Dragonfly uses a tablet-type device fitted with a high-quality 3D camera to carry out biometric identification and authentication of registered AliPay customers, allowing them to pay by simply looking at the camera.

"Smile to Pay" has been credited with significantly reducing customer queue times in shops, and offering merchants increased efficiency – one cashier can now handle up to three POS machines at once.

Amazon Go

Another technology-heavy development has been rolled out by Amazon at its physical Amazon Go stores. Instead of relying exclusively on biometrics, Amazon Go requires customers to download the Go app onto their smartphones, open it before entering the store, and scan a QR code at the entrance to identify themselves. From there, every move is tracked by an array of both visual and depth-sensing cameras, which feed systems that track your every move around the store. Every shelf has weight sensors, and differences in weight and the position information from cameras lets Amazon know precisely what is picked up from every shelf and who did it. On leaving, the shopping list is closed and the customer's chosen payment method is charged – though interestingly this is not instant, as technological limitations mean that it can take a while for the system to log all of a customer's purchases, and it may only happen sometime after they have left the store. And Amazon is not interested if it misses one or two items in your basket. The savings from an almost staff-less store are more than sufficient to cover this, and even conventional stores anticipate that some small proportion of stock will vanish. Such an approach may be appropriate for busy city center locations and the quick service retail (QSR) sector that was the original target of contactless card payments. It is difficult to see its application spreading further than this sector.

APIs

In the last few years there have been a range of initiatives around the development and deployment of Application Programming Interfaces (APIs)[14] by DFSPs. Some of the earliest APIs that emerged were developed by mobile money operators – for example, Safaricom made available an M-Pesa API that allows external organizations to access details of their accounts such as balances and transaction records, and to initiate both individual and bulk payments such as salary runs.

In fact, this neatly identifies the two classes of API: the account information API, and the transaction API. For Europe, the PSD2 Directive from the European Commission formalized this into two APIs for separate services: The Account Information Service Provider (AISP) and the Payment Initiation Service Provider (PISP). The development of APIs allows the emergence of new, dynamic service providers – usually fintechs – to develop innovative services that integrate with all of the DFSPs that a customer has a relationship with. For example, a large retailer could integrate mobile money push payments directly into their app, supporting both in-store and e-commerce payments.

14 An API is a tool that allows direct technical integration between two services, requiring no human interaction once the integration is operational. An example would be a smartphone app that requires access to the WiFi interface; this is achieved by means of an API exposed by the smartphone operating system Similarly, a fintech app that allows a user to manage all of their DFSP accounts in one place would most effectively achieve integration with the customer's account at each DFSP via an API.

Such an approach could reduce in-store delays at POS, while delivering the benefits of lower transaction costs and enhanced liquidity.

Similarly, a fintech could develop services for a city's authorities, such as parking payments through scanning of QR codes, with the payment itself being initiated from any financial institution the fintech can link to via a PISP API. This has already become a reality in multiple cities across the world.

These developments have seen APIs becoming a point of competition for banks; for example, a fintech that signs a deal with a city council to provide services is potentially collecting substantial amounts of money on that city's behalf. Developing a PISP API and integrating with the fintech potentially opens a route to banking that fintech, which would then require both PISP and AISP APIs, but which would allow the bank access to substantial deposits (the life blood of a conventional bank).

However, this is only a viable strategy if API access is secure; each DFSP must develop strong protocols for both onboarding of fintechs and API access, requiring robust cybersecurity and identity management capabilities. Further there is a need for the development of API standardization and interoperability, if only because fintechs are likely to be unwilling to integrate individually with all of a country's DFSPs.

Section 2:
THE MERCHANT PRODUCT

As with any two-sided market, demand needs to be stimulated from both sides of the market in order to gain traction. Both parties therefore need to see value in adopting the solution. The previous section provided details on developing a product from a consumer perspective. This section tries to answer the same question from the perspective of the merchant. There is, however, an additional element to factor in if the DFS provider intends to monetize the product from the merchant side, which is the case with the vast majority of successful merchant payment deployments. In that case, it is critical that the DFS provider design a product that brings significant value to the merchant to offset the cost of using it.

The obvious retort is that merchants incur material costs -- security, cash handling, reconciling, holding change, etc. – when they transact in cash and therefore a digital product provides enough value-add to encourage merchants to shift to digital payments. But, of course, we know that's not how works.

First, the cost of cash is unevenly borne by different participants in an economy. Next, by moving away from cash, merchants elucidate their sales records and revenue to tax authorities. For governments and others in the financial inclusion sector, the key strength of digital payments lies in its traceability. On the other hand, merchants may prefer cash precisely because it is more anonymous. Digital payments create an electronic trace which makes it easier for authorities to verify revenue. There is research to show that many small merchants shy away from digital payments over this concern[15]. Governments have explored various mechanisms to incentivize small firms to formalize including simplifying tax codes. Some innovative examples include Uruguay's experience with tax incentives for POS terminals or South Korea's tax breaks for electronic payments[16].

Except for very large merchants, the cost of accepting cash is generally not considered to be a factor. It is simply seen as a "part of doing business." Cash is also ubiquitously accepted, broadly understood, instant, and, crucially, it is anonymous.

In general, merchants do not have a problem handling cash. The implication being that "removing the cost of cash" cannot be at the heart of the value-proposition to merchants.

There are some circumstances where there are inherit benefits for a merchant to adopt merchant payment products without the need for outside incentive or stimulus from the DFS provider. For example, public buses, where cash payments are causing long queues for payment.

DFS providers can develop corporate products for suppliers and distributers to target the digitization of payments from their merchant customers. Merchants will be more likely to accept digital payments from customers if they themselves need e-money to pay their suppliers, utilities, landlord, etc. There is significant leakage in cash management of fast-moving consumer goods (FMCG) distribution networks and it is the best interest of the international corporates and their distributors to mandate digital payments for delivery of products. Once required to pay digitally, the merchants can be inherently incentivized to accept digital payments from customers to reduce inertia and cost of transactions. For more information regarding Supply Chain Payments, please refer to IFC's Supply Chain Handbook.

In the context of developing markets, many value chains are disaggregated, fractured or nascent. There are fewer opportunities to onboard merchants in bulk like there are in developed markets where chains of petrol stations, pharmacies or groceries may have hundreds of outlets. In developing markets, onboarding of merchants is often done one at time. In this context, the development of merchant payment products may be centered around the development of non-traditional value-added services. The remainder of this section is therefore dedicated to identifying additional value-added services (VAS) as well as acquisition and retention programs that can be introduced to create sufficient value in the eye of the merchant to convince them to try the DFS providers' product, and ultimately keep using it and potentially pay for it.

15 Ligon et al (2019) "What explains low adoption of digital payment technologies? Evidence from small-scale merchants in Jaipur, India" https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0219450

16 Mastercard (2017) "Building Electronic Payment Acceptance at the Base of the Pyramid to Advance Financial Inclusion" https://newsroom.mastercard.com/wp-content/uploads/2017/09/Mastercard_Financial-Inclusion_Merchant-Acceptance_FINAL.pdf

Core Merchant Product

It is important to not take a one-size-fits-all approach to merchant payments. However, there are a few core elements to the product from a merchant's perspective that need to be present before the DFS provider has a minimum-viable product (MVP).

Table 2: Core elements of a merchant product

Interface	Requires a physical POS device, NFC, or mobile interface that is intuitive to use, reliable, cost-effective, and has software that can be updated remotely. The choice of device needs to be carefully considered within the context of the environment it will be used in. In a more formalized environment, the merchant will likely have their own POS device that will ideally integrate into the DFS providers' platform to avoid the need for multiple devices. In a more informal environment, the device is more likely to be a smartphone or USSD-enabled basic phone. Regardless, factors such as battery life, connectivity, requirements for creating physical invoices, and screen visibility in variable light conditions need to be carefully considered. In all instances the cost of the device and who carries the capital and maintenance cost are extremely important considerations that will impact both uptake and the business case.
Transaction Processing	Software that can quickly, reliably and securely process payments and refunds at least as quickly as a cash payment.
Security	Both the hardware and software need to be secure and the merchant needs to be shielded from fraudulent chargebacks.
Reporting	Fundamentally merchants need to be alerted quickly and reliably when a transaction is completed. Who receives the message is an important consideration within the three merchant roles (owner, manager, teller) identified above? And it needs to be flexible and easy to change, but also secure. In a more formal environment, the message needs to be integrated into the till software. Additionally, the merchant, at a minimum, needs to be able to easily pull statements for accounting and reconciliation purposes.
Convertibility	Once the merchant has received an electronic payment, the merchant needs a variety of (preferably free) mechanisms to: 1. Use the electronic value for other purposes (for example, bill payments, supplier payments, salary payments, etc.) and/or; 2. Convert it to cash. This can either be via an agent (which is likely to be costly for the merchant) or via a sweep into their bank account (which may or may not come with charges). This implies technical integration into the banking system and the ability for a merchant to be able to connect their merchant bank account to their digital merchant account.
Marketing, acquiring, on-boarding and training	Merchants need to be made aware of the product, be convinced to accept the product, be on-boarded with an account, and trained to use it. The on-boarding process one again, also needs to take into consideration the various roles within the merchant ecosystem (owner, manager, teller) and their different needs.

Value-Added Services (VAS)

At the beginning of this section, we noted that reducing the material costs to the merchant associated with handling cash (security, cash handling, reconciling, holding, providing change, etc.) is generally insufficient to convince them to switch to digital payments. Therefore, the DFS provider will need to introduce additional benefits that come bundled with the merchant transaction solution in order to convince merchants to try the product.

The best approach to tackling this problem is identifying the biggest pain-points for merchants and then provide bundled solutions as value-added-services that most effectively address those problems.

The problems can be classified into three broad buckets described in Table 3.

Table 3: Pain-points for merchants

Operational Efficiency	Most micro-, small- and medium-sized businesses have analogue, disconnected business processes resulting in large operational inefficiencies.
Access to Growth Capital	The challenges of micro-, small- and medium-sized businesses accessing affordable, reliable growth capital is well documented, suffice to say this is a big problem for most merchants.
Marketing	Merchants have difficulty knowing, tracking and retaining their customers in a systematic way.

The next section proposes some VAS solutions that seek to address these problems.

Table 4: Working Capital Loans

Problem target	Access to Growth Capital			
Financial or Operational	Financial			
Applicability	Particularly useful for targeting micro-, small- and medium-size merchants who do not have reliable access to cost-effective financing.			
Archetype Applicability	**1. Large Retailer**	**2. Large Manufacturer**	**3. Small Retailer**	**4. Small Manufacturer**
	Likely to already have funding from the formal sector	Likely to already have funding from the formal sector	High, largely unmet need	High, largely unmet need
Hardware Requirements	No specific hardware requirements apart from a phone.			

For a variety of reasons, few merchants are reached by either the banking or micro-finance sectors. In instances where they are, security is a requirement and the underwriting process is usually slow and onerous due to the scarcity of data these institutions must score their

customers. As a result, these businesses either operate without the benefits of working capital loans or access credit via informal means, which are often unreliable and/or prohibitively expensive.

MNO's particularly are in a unique position of having relatively rich data sets in the form of mobile phone usage data as well as mobile money usage patterns. This data is invaluable as input into credit-scoring models. Similarly, mobile money providers have the distinct advantage of being able to disburse loans and receive repayments digitally, thus bypassing the significant distribution costs that more traditional lenders incur.

Although many are in an early stage, there are several successful examples of providers offering merchant working capital loans, such as Sokowatch and Kopo Kopo.

Current deployments follow three distinct, non-exclusive repayment models described in Table 5.

Table 5: Types of repayment models

Bullet payment	Principal repaid fully at a defined time. Ideally the merchant should be able to define when the bullet payment will be made based on business needs; within certain constraints. The pricing adjusts to reflect the time period chosen.
Amortizing payment	Principal is paid down piecemeal periodically in predetermined amounts and over a predetermined period. Again, ideally the merchant should be able to choose how much of the principal to repay each period and what the repayment periods are (monthly, weekly, daily etc) to match the merchant's business needs. And again, the pricing will adjust accordingly.
Dynamic repayment	Repayment is made via sweeping of a predetermined percentage of sales running over the merchant payment platform. In this instance the length of the loan is undefined. For performing merchants, this will incentivize them to encourage their customers to pay over the chosen platform for them to repay the loan more quickly so they can access it again. This method carries the obvious advantage to the merchant that the repayment of the loan becomes a variable, rather than a fixed outflow. It also means that they are less likely to feel the pain of the loan repayment as they are paying little and often, and it is bundled together with each sale.

In all instances, the under-writing, scoring and disbursement of the loan needs to be as near to real-time as possible. This implies providing an in-app credit application and a digital scoring algorithm that can calculate an answer for the client, respond in the app, and disburse directly into their account. Similarly, it implies a dynamic pricing model that adjusts based on the merchant's loan requirements.

From a credit scoring perspective, the score should be based on the merchant's transaction history (biasing on merchant payments and supplier payments) in combination with historical loan repayment patterns. The scoring methodology should be as transparent as possible so that merchants can not only easily see what their score is, but also understand what they need to do to improve it. In so doing, merchants will encourage consumers to prioritize digital payments on the DFS providers' platforms over cash payments and encourage merchants to repay loans on time in exchange for getting access to more growth capital. Behavioral economics techniques and nudges can be particularly useful in terms of incentivizing the right behaviors.

From a security perspective, given the loans are short-term and as close to real-time as possible, the likelihood is that they will need to be unsecured. However, the lender should consider creating formal partnerships with the merchants' suppliers. The basis for the partnership

is that the lender boosts the buying power of the merchants, but the suppliers in turn agree not to supply the merchant should they go into arrears with the lender. This creates a strong incentive for the merchant to repay by aligning everybody's incentives.

What should be clear by now is that while a potentially very powerful promoter of the DFS providers' merchant payment product, credit is also a complex, specialized and risky undertaking. The provider therefore needs to carefully consider which aspects they want to do themselves and which they want to outsource. Aspects such as the following need to be carefully considered in terms of a build/buy/partner strategy:

- Technology development – who will build the product?
- Credit scoring – who will own the credit-scoring algorithm and keep it up to date and relevant?
- Funding - who funds the book?
- Credit risk – who takes the default risk?
- Delinquency management – who manages the process for handling delinquencies?

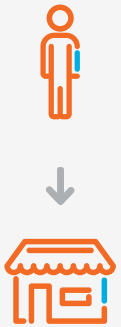
Table 6: Inventory Management and Digital Till

Problem target	Operational Efficiency			
Financial or Operational	Non-Financial			
Applicability	Particularly useful for targeting a well-defined value chain			
Archetype Applicability	**1. Large Retailer**	**2. Large Manufacturer**	**3. Small Retailer**	**4. Small Manufacturer**
	Likely already has an enterprise resource planning (ERP) system, but still useful in terms of API integration	Likely already has an ERP system, but still useful in terms of API integration	Likely to make infrequent orders from a few suppliers. But inventory management is usually manual and therefore would see a benefit.	Likely to make frequent, small orders from multiple suppliers and likely managed manually. Therefore, would see a big benefit
Hardware Requirements	Smartphone, tablet and/or computer.			

Most merchants, suppliers and manufacturers experience challenges with tracking and ordering their inventory. This is especially true in the fast-moving consumer goods sector where the velocity of stock turnover and range of products is particularly high. Therefore, providing a solution to merchants, suppliers and manufacturers in a value-chain that enables them to more efficiently manage this process will bring value to the entire ecosystem. The solution is particularly viable in well-defined value-chains where the players in the ecosystem are tightly integrated and easily identified. A good example of this is the beverage industry in many markets where there is a dominant manufacturer that distributes through a distribution hierarchy.

Table 7 illustrates a fictitious example of how the Inventory Management System (IMS) could work and how it can benefit different players in the ecosystem:

Table 7: Inventory Management System deployment example.

	1. Consumer purchases items from merchant and pays digitally via merchant payment. 2. Inventory Management System updates stock for that item and identifies that with the sale of the item, the store-defined minimum stock-holding threshold has been breached and alerts the merchant. It asks them if they want to order more and suggests how much they should order based on the merchant's historical trends and the sales of similar merchants in the area that the algorithm is able to aggregate. The merchant can see on the IMS that the supplier has inventory and the cost of the item because the supplier is also integrated into the IMS and has configured its pricing rules. The IMS therefore automatically calculates the value of the order. 3. The IMS informs the merchant that they have insufficient balance to make the order and therefore asks the merchant if they would like to take a working capital loan to facilitate the order. The IMS already knows that the merchant qualifies for a loan of that size via the integrated credit-scoring algorithm. The merchant defines how much to borrow, chooses a repayment type and is presented with the cost. 4. The merchant confirms the order and the payment is made as a supplier payment in the IMS into a digital escrow account, pending confirmation from the merchant that the goods are received in order. 5. The merchant's credit score updates to reflect the merchant payment received from the consumer and the additional order they have made via a supplier payment. The credit limit for the merchant therefore automatically increases and will be available to the merchant once the outstanding loan is settled.
	6. The supplier receives the order and is informed that the payment is in escrow and will be released upon confirmation from the merchant that they are satisfied with the goods. 7. The supplier confirms receipt of the order which alerts the merchant. 8. The Supplier loads the product and ships it. 9. Inventory on the supplier side is updated to reflect the sale. The merchant is alerted that the item is on its way. 10. Upon receiving the goods, the merchant inspects the goods and indicates satisfaction on the app, which releases the funds from the escrow account into the supplier's electronic account. The received inventory is updated on the merchant side such that the merchant's stock balance is correct.

11. In fulfilling the order from the merchant, an alert is triggered from the supplier indicating that inventory for the specific item has dropped below their pre-defined minimum threshold. They have set up an automatic rule in their IMS that when stock of that item falls below the threshold, it posts an automatic buy request to its manufacturers with quantities and required delivery dates.
12. The inventory management system is integrated into the manufacturers' ERP systems via their API's. The manufacturer's ERP systems therefore indicate whether they have enough stock to fulfil the order in the required time. Those that do, accept the buy request and provide a quote.
13. The supplier's IMS automatically chooses the lowest bid and makes an automatic payment into the digital escrow account, pending successful delivery of the items. Although the supplier could have made the payment with a credit facility, the supplier has defined rules that the credit facility is only used in instances when they have insufficient electronic balance, which would require further approval.
14. The winning manufacturer is informed by the supplier's IMS and they accept the order. The supplier is alerted that their order has been accepted.
15. The manufacturer loads the product and ships it. Inventory on the manufacturer side is updated to reflect the sale. The supplier is alerted that the item is on its way.
16. Upon receiving the goods, the supplier inspects the items and indicates satisfaction on the app, which releases the funds from the escrow account into the manufacturer's electronic account.
17. The manufacturer has set up an automatic sweep from their electronic account into their bank account to immediately reflect changes in the account balance.
18. The received inventory is updated on the supplier side to correctly reflect the new stock balance.

The implication of deploying a solution such as this into a value-chain is that it creates a strong barrier to entry for any competitors. The merchant payment itself is arguably a commodity on a standalone basis. But when it is embedded into an ecosystem like this, it becomes a sticky value-creator.

An important component of such a system is creating a digital till that the merchant can use to input sales into (refer to section below on digital tills) or integrate the merchant payment product into existing till software (refer to section below on API's). In the case of the former, it will need to be able to capture sales via other modalities too (cash, card, other merchant payment solution etc.) so that an accurate picture is kept for the overall business. However, integration with the DFS providers merchant payment product should be as seamless as possible, requiring little to no manual capture. By doing this, the merchant will likely encourage the providers' product over other modalities. Features of the product are described in Table 8.

Table 8: Product features of a merchant payment product

Quick and easy data capture	Must be quick to input the details of each sale. The digital till should be able to dynamically generate a *QR code* for each sale, which the consumer can scan to speed up the payment. For busy outlets, there needs to be an ability to bulk upload sales data periodically for example, end-of-day) where there is insufficient time to capture this data on a per-transaction basis.
Ability to input expenses	With the ability for the merchant to also input basic expenses, the tool will be able to produce basic P&L reports. Which is not something many small businesses are able to produce easily. This information can be a powerful additional source for credit-scoring
Associate a staff member to a sale	Where the merchant incentivizes staff through sales, a staff member can be associated with the sale. Reports can therefore be easily generated to assist the ower in calculating staff incentive commissions. In addition the teller processing the transaction can be associated with the transaction which will become important in the next section on incentivizing the staff who are directly interacting with the customer on the payment mechanism.

An ancillary benefit of deploying an inventory-management system and digital till into a value-chain is the opportunity to bring additional value to the ecosystem. By aggregating data across the value-chain the owner of the system will have unique insights into how the value chain functions, as illustrated in Table 9.

Table 9: Value-Chain Analytics

Value-Chain Analytics
Insights of particular interest to the manufacturer. In many instances manufacturers lose sight of their product once its sold to the distributor. Similarly, many of these insights would be highly valuable to the DFS provider.
• Understanding disproportionately important nodes in the ecosystem via techniques such as network analysis;
• Identifying bottlenecks and inneficiencies in the value chain;
• Understanding local and global supply and demand dynamics and the vagaries thereof;
• In the instance where the digitial till is utilized, the DFS provider will be able to understand different payment methods in the value chain with a view to targeting those payments that are not running on their platform.

Table 10: Merchant Analytics

Merchant Analytics
Insights that would help the merchant run the business more effectively:
• Providing detailed time-series product sales/P&L reports that allows the owner to understand historical profit margins, seasonality, trends, inventory etc.;
• Ordering suggestions to a merchant based on aggregated seasonality data. For example, "this weekend last year, you sold double the amount of product [x] you normally sell, so make sure you stock up. Would you like to make an order now?"
• Providing anonymized insights into how the merchant is performing with regards to sales of specific items relative to similar merchants. For example, "merchants like you are selling a lot more of product [x] than you are. Seems like you are missing out on an opportunity. How can you increase your sales of this product?"
• Providing data into daily/weekly/monthly reconciliations

Table 11: Client Relationship Management (CRM)

Problem target	Marketing			
Financial or Operational	Non-Financial			
Applicability	Particularly relevant to smaller retail merchants who generally lack the tools for effective CRM and marketing			
Archetype Applicability	**1. Large Retailer**	**2. Large Manufacturer**	**3. Small Retailer**	**4. Small Manufacturer**
	Likely have a CRM system already	Likely have an ERP system with embedded CRM already	CRM currently being done inefficiently or not at all. Will bring value	CRM currently being done inefficiently or not at all. Will bring value
Hardware Requirements	Smartphone, tablet and/or computer.			

Retail is a highly competitive space with many stores stocking the same products, making it hard for merchants to differentiate themselves in the eyes of their customers. One potential area that a merchant can stand out is by building stronger relationships with customers. However, apart from very small merchants who can manage relationships personally, very few merchants possess a systematic way to keep connecting and building relationships with customers. And where they do, their processes are usually analogue and therefore inefficient. That provides a good opportunity to develop a digital customer relationship management

tool for merchants as a value-added service to help drive merchant payments. Table 12 provides a non-exhaustive list of features the tool should have.

Table 12: Features of a digital CRM tool

Customer details	At its basic level, the CRM tool should be able to store the merchant's customer list and the customer's transaction history with the merchant. When the customer uses the provider's digital transaction products at the merchant, the information should automatically feed into the CRM without any need for manual capturing. That will encourage the merchant to push customers towards the DFS provider's products. However, there should also be an ability for the merchant to capture other types of transactions when their customers use other payment modalities so that the merchant can get a rounded picture of their customers.
Bulk SMS/Messaging	The CRM should provide an ability for merchants to easily send out bulk, curated messages to their customers.
Digital Vouchers	The CRM should provide an ability for the merchant to easily produce and redeem digital discount coupons that can be sent to customers as incentives.
Layaway and/or in-store credit manager	The CRM should provide an ability for merchants to manage credit they issue to their customers and/or layaway, so they can easily underwrite, issue, and administer their credit/layaway book.
Workflow Capability	The CRM should enable the merchant to set up defined workflows where specified actions are triggered when defined events occur. For example: • Automatic "thank-you" message to a customer post-spending more than [x] with the merchant; • Automatically send a discount coupon to a top customer if they haven't visited the merchant for a while; • Automatic messages to customers before holidays, birthdays or big events; • Automatic repayment messages to customers who have taken store credit.
Analytics	• Who are the merchant's top customers? • Trending customers; • Comparing the performance of this merchant to other similar merchants; • Credit/layaway analytics.

Table 13: Payment APIs

Problem target	Operational Efficiency			
Financial or Operational	Non-Financial			
Applicability	Particularly useful for targeting more established merchants, e-commerce merchants and enabling 3rd-party applications to use the payment rails			
Archetype Applicability	**1. Large Retailer**	**2. Large Manufacturer**	**3. Small Retailer**	**4. Small Manufacturer**
	Likely has a till system which can integrate into the API's	Likely has an ERP system which can integrate into the API's	Will enable e-commerce and integration into till software for physical merchants where applicable	Will enable e-commerce and integration into till software for physical merchants where applicable
Hardware Requirements	N/A			

Many DFS providers have already exposed or are in the process of exposing their digital payment rails as API's. There are many risks and opportunities with this approach that are beyond the scope of this handbook. However, within a merchant payment space, there are multiple ways in which providing an API will help the provider gain traction. A few examples are:

Table 14: Advantages of providing an API

Till integration	There are myriad different till software solutions in use within an economy. Some are general-use, and some are industry or vendor specific. Merchants who have invested in such software are unlikely to want to change to new till software. Therefore, it is crucial that the provider can integrate into the main existing till software.
3rd party applications	Providing an ability for third party applications to (securely) initiate merchant payments over the DFS providers' payment infrastructures opens opportunities for niche players to leverage the provider's infrastructure, rather than competing against the provider. This has the added advantage of increasing transactions over the DFS providers' platforms as well as reducing competitive opportunities.
E-Commerce	Receiving payment within an e-commerce environment remains a challenge in many markets. By exposing the merchants' payment APIs together with a simple on-boarding process, owners of e-commerce stores will be able to easily offer the providers' payment modalities as payment methods on their websites.

Table 15: Targeted Marketing Platform

Problem target	Marketing			
Financial or Operational	Non-Financial			
Applicability	Particularly useful for large retailers attempting to market to their large consumer base in a highly targeted way at scale, but equally useful for smaller retailers			
Archetype Applicability	**1. Large Retailer**	**2. Large Manufacturer**	**3. Small Retailer**	**4. Small Manufacturer**
	Marketing efforts currently are mostly expensive ATL campaigns with very little ability to create fine-tuned marketing campaigns that can measure efficacy	While these organizations tend to be less marketing-driven than retailers, there are still instances where they would find this useful	Generally, have insufficient budget for ATL and BTL campaigns and tend to be very generic and difficult to measure the efficacy thereof	While these organizations tend to be less marketing-driven than retailers, there are still instances where they would find this useful.
Hardware Requirements	Smartphone, tablet and/or computer.			

Without big budgets, very few businesses have a way to attract and acquire customers. And even those that do, the methods used tend to be blunt instruments. Businesses have few mechanisms to target the specific kinds of customers that are most likely to spend their money with them and they are seldom able to measure the efficacy of those campaigns. DFS providers generally, and specifically MNOs, store a large amount of customer data that could be used by merchants. KYC-type data in conjunction with a time-series of transactional and GSM data creates a rich tapestry from which to profile customers. In the same way as Google (through Google Ads) and Facebook (through Facebook Ads) providers can use their data to target customers on their platforms. In so doing, they can help merchants acquire more customers.

This service can be offered to (qualifying) merchants whereby they can set up campaigns targeting specific kinds of users on the providers' platforms. The platform will allow very granular targeting by the merchant on the types of customers they would like to target with a campaign. This becomes particularly powerful when combined with the location-data that MNO's have on their customers. By way of a simple example, a music venue could set up a voucher discount SMS campaign (with each voucher containing a unique number to track redemption) for an upcoming concert on the platform that only gets sent to people who fit the following criteria:

- are between the ages of 18 and 25;
- display patterns of having disposable income;
- have a history of spending money at entertainment venues;
- are within a 5 km radius of the venue within 3 hours of the concert starting.

As an acquisition tool, this has far more potential than what they would likely do currently; have somebody hand out generic flyers to passers-by and/or pay for generic ads on local radio. And crucially, they will be able to measure the efficacy of the campaign by tracking the unique vouchers redeemed.

Merchant Referral and Loyalty Programs

In the above section, we suggested potential VAS solutions that can be provided to merchants to encourage them to adopt a merchant payment product and encourage their customers to use it. In addition to VAS, providers should also consider introducing a merchant incentive scheme. The scheme will likely run in parallel with a consumer loyalty scheme with the providers ensuring that the programs are congruent.

When designing a merchant referral and loyalty program, there are some important principles to consider, as described in Table 16.

Table 16: Design principles for merchant referral and loyalty programs

Earning instrument	Use an expiring points-based system, where points map to tiers. Many loyalty schemes offer immediate financial incentives such as "cash-back" or discounts at the point of transaction. However, these are easily countered by competitors (for example, by offering a bigger discount) and are generally shown not to build loyalty. Expiring points-based schemes with defined redemption rules, on the other hand, tend to be more effective at building long-term loyalty by encouraging customers to increase their interaction with the DFS providers' platforms over time.
Earning mechanism	At a basic level, the response that the DFS provider wants from the merchants should be incentivized via points. However, there is a high risk of gaming an incentive scheme. That needs to be carefully considered. As a result, where possible, points should be earned based on behaviours that bring revenue to the provider to ensure that they are not negatively financially impacted by gaming behaviour. Where that is not possible, points should not be awarded only on a single axis such as transaction value or transaction volume. For example, by incentivizing only on volumes, gamers can process many very small transactions to gain points. Therefore points should be awarded on a combination of value and volume of transactions. Careful consideration needs to be given to the owner, manager and teller in the merchant ecosystem. The scheme needs to be designed in such a way that all should be able to earn points and redeem them for goods or services that are relevant to them. If possible, apart from opting into the scheme, the participant should not have to do anything extra to earn points. By naturally interacting with the platform, the participant should be able to earn. Adding steps to earn points is shown to degrade customer interaction with the scheme.

Rewards	Rewards must be tangible and contextual. This requires segmentation of merchants as well as identification of the role the participant plays at the merchant (owner, manager, teller). Doing this will allow the provider to offer specific rewards that are most meaningful and impactful to the participants. The DFS providers' data structures, the merchant product and the merchant's interface therefore need to be designed in such a way that individuals' accounts can be easily associated (and disassociated) to both merchant accounts and roles. For example, to incentivize tellers, the teller's personal account needs to be associated to both the merchant account in the DFS providers system as well as associated to each transaction they process.
Visibility	It must be simple for the participant to see how many points they have (regardless of what kind of phone they have), how that translates into tiers, what the gap is to the next tier and how the tiers translate into rewards. Behavioural economics nudge techniques can be particularly effective at encouraging participants to interact with the scheme (for example, "if only five more of your customers pay with [merchant payment product name] to the value of [x] this week, you will move up a tier, which means you qualify for [rewards]." Or "to stay in your reward tier of [reward tier name] this month, your customers will need to pay you [requirement] with [merchant product name]."

In Table 17 is a non-exhaustive list of potential reward ideas and the applicability to each of the roles identified. In designing the tier-based system, the level of each reward will be variable to each tier.

Table 17: Potential merchant rewards

Reward		Owner	Manager	Teller
Fee reduction/capped fees	By reaching certain tiers, the merchant could qualify for a reduction in their fees or qualify for a capped fee structure whereby the maximum merchant fees for a payment or for a defined time period are capped.	●	—	—
Access (or upgrades) to VAS products	VAS solutions that the DFS provider decide to offer their merchants should be complementary to the incentive scheme. VAS solutions can be based on point tiers. For example, using the "Targeted Marketing Platform" mentioned above, a merchant could be offered a limited number of free advertisements on the platform based on the tier they are on. The same could be applied to the bulk SMS-solution. Or they can be upgraded from the basic version of a VAS solution to the more advanced version if they move up to a higher tier. Or the points tier could be an important input into the credit-scoring algorithm so a higher points tier maps to a higher credit limit.	●	—	—

Merchandise (for example, t-shirts, pens, caps, umbrellas, store branding etc)	The form this follows and its popularity with customers is self-explanatory and well understood, but it must be noted that of the suggestions being made, this is the most logistically onerous in terms of it requiring physical storage and delivery.	●	●	●
Discounted/Free GSM	This is particularly applicable to MNO's who can seamlessly offer data, calls and/or SMS's directly to the customer's account.	●	●	●

Although an incentive program is likely to integrate both referral and loyalty, it is important to differentiate between the outcomes sought in each.

Table 18: Referral Program

Referral Program – encourage new merchants and consumers to start using the product		**Store**	**Manager**	**Teller**
Merchant referral program	Points for referring other merchants. Particularly merchants from whom the merchant procures. This creates an effective mechanism for targeting a value chain. In so doing, the merchant can earn points from the referral as well as from payments they make to their suppliers (see loyalty program below).	●	●	●
Consumer referral program	Bonus points for encouraging first-time usage of the merchant payment product on the part of customers at their store. This will help to stimulate the demand-side of the market and encourage merchants to educate customers on the product and the benefits thereof.	●	—	●

Table 19: Loyalty Program

Loyalty Program – encourage existing merchants to encourage consumers to use the product		**Store**	**Manager**	**Teller**
Merchant payment product	Points for receiving merchant payments from customers. This will encourage merchants to request this payment mode from their customers in order to earn more points.	●	—	●
Other products	The DFS provider should encourage the merchant to use their electronic value on their platform as much as possible. This will discourage merchants from cashing out their electronic value; either at an agent or by sending it to their bank account. As a result, merchants should earn points for making supplier payments, paying staff salaries, bill payments etc on the Providers platform with the electronic value they receive in the form of merchant payments.	●	●	—

BREAK OUT BOX 3

PARTNERSHIP MODEL TO DRIVE MERCHANT ACCEPTANCE

The mobile-money based merchant payments ecosystem is in its nascent stages in even the most developed mobile-money markets. An interesting thought experiment therefore is investigating the evolution of the card payment ecosystem structure and the various roles different companies play as a potential harbinger of how the mobile money-based merchant payment ecosystems could evolve.

The first thing to consider is the structure of the ecosystem. In that regard, two models have emerged in the card space. Namely the "four-party model"[17] Visa and Mastercard have implemented versus the "three-party model"[18] deployed by companies such as Diners Club and Amex. This becomes especially interesting in light of the four-party model now being the dominant model in the cards space. A valuable question is to ask why that is? An argument could be made that the four-party model dominates in the card space because the banks fulfill the vital role of distribution. This allowed the likes of Visa and Mastercard in the four-party model to expand quicker than the three-party model that relied on a single point of distribution. When attempting to overlay the same logic on the mobile money industry, we have to recognize that the majority of wallet-providers have far superior distribution channels to what banks have.

Thus, the role of acquiring merchants is less of a constraint and because wallets are deployed digitally (as opposed to having to distribute a physical card), the physical barriers to the role of issuing are much lower in mobile money, which is potentially why the three-party model is currently dominating in the mobile money space. But the obvious question is, can a progressive participant catalyze the mobile money market by setting up a four-party model and, in turn, disrupt the incumbent three-party players? And if they were to, who would be the equivalent of the banks in the four-party model that provided the distribution to the interoperable scheme? Or is distribution a solved problem in mobile money, meaning the competitive differentiator will rather be in product features and incentives?

The way forward for now seems to be for merchant technology providers to add all payment wallets to the point of sale aggregating the connections to the wallet providers themselves and de facto fulfilling the important interoperability function. But the incentives aren't clear and point of sale devices only occur in a very small percentage of merchants in all but the most developed of payment markets. So, perhaps it is the smartphone manufacturers themselves who need to fill this gap.

17 The four parties being cardholder, merchant, issuer, and acquirer. In this environment, Issuers are usually the banks who hold the customer's account. Acquirers are usually banks who hold the merchant account

18 In the three-party model, the issuer and acquirer are one and the same entity. In the example of Diners Club, Diners Club is the issuer and acquirer.

At the risk of oversimplifying the card-based ecosystem (irrespective of whether it is a three-party model or a four-party model), there are six broad, non-exclusive functions that have evolved:

- Card Networks
- Issuers
- Acquirers
- Processors
- Gateways
- Independent Sales Organizations (ISOs)/Member Service Providers (MSPs)

It is interesting to note that in the card ecosystem no companies fulfill all these functions. They tend to play in only one or two. Is the mobile-money based merchant payment ecosystem going to evolve in the same way with niche players fulfilling specific functions? Or will the functions remain concentrated within larger, cross-functional DFS providers? To address that question, it is important to recognize that margins in the card-based payment space tend to be significantly higher than what we are seeing in the mobile-money-based merchant space. That has enabled this niche-based ecosystem to develop because there is enough margin to share among multiple parties. Is there enough margin to share within the mobile-money ecosystem?

Thus, within the merchant network acquisition space, a provider may choose to go alone through an in-house model where she or he performs all the functions along the merchant acceptor value chain. Alternately, he or she may choose to pursue partnerships to take up steps in the merchant acceptor value chain such as acquiring or merchant relationship management. A final model could be similar to card-based model where the merchant acquirer performs all the activities to enable merchant acceptance. The mobile money service issues the mobile wallet/card and authorizes transactions. This model promotes interoperability as multiple payment solutions are accepted at the merchant.

Table 20: Advantages and Disadvantages of USing a Third-Party Merchant Acquirer

Using a Third-Party Merchant Acquirer			
Advantages	• Each party focuses on their core competence • Revenues are dependent on volume of transactions; thus, the quality of merchants signed up is high • Using experienced partners	**Disadvantages**	• Lack of control and ownership of merchants • Revenue sharing with partner necessarily reduces revenue for each partner • Lack of alignment between partners

A valuable exercise for any DFS provider considering merchant payments is to analyze the various equivalent functions within the mobile-money space and decide which aspects they feel they have a long-term competitive advantage in and which aspects they are only doing because there are no other suitable providers. While the mobile-money based merchant payment ecosystem is not yet developed, undoubtedly, DFS providers building out merchant payment products will likely have to fulfill all (or most) of the roles within the ecosystem. But with a clear view of which parts of the ecosystem are core to their business in the long run, the DFS provider can focus attention on being "best in class" in those areas.

This will become their niche and one they should protect and nurture. For the rest of the functions in the ecosystem the DFS provider can consider creative ways of spinning that organizational unit out in time to be a standalone business that can service others in the ecosystem too, or encouraging other companies to come in and take over those aspects from them.

By way of example, there are several acquiring companies and ISOs/MSPs in the card space, who have the expertise to fulfill the vital functions of acquiring and servicing specific merchant needs. Both aspects of which are difficult to do at scale. Could companies like Yoco or iKhokha be enticed into also fulfilling the ISO/MSP function for the mobile-money merchant payment ecosystem? Especially if they can bring merchant credit expertise in the package.

Instead of building the payment and interoperable settlement infrastructure, could the DFS provider partner with the likes of Paystack or Flutterwave to handle this? Will this niche-approach enable the same stellar growth to occur in mobile-money based merchant payments in developing markets as we have seen with card-based payments in developed markets? Or are mobile payments sufficiently different that a consolidated approach will win the day?

Section 3:

THE MERCHANT PRODUCT LIFECYCLE

The merchant lifecycle uses a systemic, customer-centric approach to develop products. It will optimize research and design costs to create products that have the highest chances of success in the market. The merchant product lifecycle is an integrated approach that focuses on customers, merchants and the institution/provider to deliver a value proposition that benefits all parties involved. The approach begins with segmentation of customers and merchants, followed by mapping of the ecosystem of payments around these segments, and then product ideation, prototyping and testing.

Figure 2: Lifecycle approach

Segmentation

Segmentation is the process of classifying existing or prospective customers into categories based on similarities, either in their demographics, behavioral activities such as DFS usage, geographic location or other data that's available. Segmentation is used to categorize users into similar archetypes in order to infer insights from the user groups.

Insights include identifying user pain points, the different types of payments typically made by the user group, and the features and promotions that would resonate with each group. Segmentation insights are used for product development and for designing targeted marketing approaches both for end users and for merchant activation strategies. Effective use of segmentation is an important aspect of becoming a customer-centric institution.

An example of customer segmentation is illustrated in Figure 3.

Figure 3: Customer Segmentation

The following framework presented by the Consultative Group to Assist the Poor (CGAP) illustrates how different types of segmentation can be employed by a practitioner depending on their needs:[17]

Type of Segmentation	Example	Data Needs	Advantages	Disadvantages
Demographic	• Rural vs. Urban • Male vs. Female • Old vs. Young	Registration and Know Your Customer (KYC) information	• Simple • Data are easy to find	• Lack of uniformity within groups • Less insightful
Behavioral	• Never transacted vs. dormant vs. active users • Savers vs. withdrawers	• Transactional DB	• Data are easy to find • Easy to ascribe value to the customer	• Lack of insight into the customer's life, needs, aspirations • Less useful for marketing messages
Demographic and Behavioral	• Students • Migrant workers sending money home	• Registration and KYC information • Transactional DB • Primary Market Research	• Ascribes value to a customer and provides insights on their life and needs • Easier to develop marketing messages	• Data are relatively harder to find • Might have overlapping segments
Psychographic	• Women who want a safe place to save • Customers who believe access to mobile money implies higher status • Budget conscious	• Deep and rich historical transactional data • Primary research	• Strongly responsive to customer aspirations • Strong value proposition • Easier to develop marketing messages	• Difficult to find data • Might have overlapping segments • Could be very dynamic segment, i.e., wants could change

Key segment types that are relevant for merchant payments are the type of business (for example whether it's for goods or services, or by what the business sells); who it sells to; and the size of the business. In addition, segmentation should include a gender approach since the needs of female users and merchants can be vastly different than their male counterparts. Refer to the Data Analytics and Digital Financial Services Handbook, IFC, 2017, for full descriptions of segmentation and data approaches for DFS.

After the segments have been identified, a deeper analysis can investigate the existing challenges they experience when making payments that a merchant payments value proposition can address. The pain points are used for product development and marketing messages when moving to the product development and prototyping stages of implementation.

Ecosystem Approach

Without merchants, DFS ecosystems -- defined as networks of financial service providers that allow access to digital products through digital channels -- would be limited in their digital use case. Merchants are MSMEs that require products and services to grow as businesses to fully support the emerging digital financial sector ecosystem. This handbook recommends an eco-system approach for merchant acquisition. Reference is made to the payment eco-system of the customer. This eco-system includes all the payments and payment methodologies that the customer encounters on a day-to-day basis. Thus, an eco-system approach for merchant acquisition focuses on including as many payment access points with which the customer interacts on a daily basis.

For financial institutions, merchant acquisition strategies require an ecosystem approach that focuses on a large number of payment access points over a target area. The acceptance of merchant payments provides a use case for end-users or customers, however, having a single point of sale within a person's individual payment network is not enough of a use case to drive active usage. Customers require multiple points within their daily and weekly ecosystem where merchant payments are accepted. This approach to merchant acquisition is in direct contrast to traditional agent networks, widely used in Africa, and to some extent in Asia and Latin America to accept cash in and cash out transactions for banks and mobile money providers. The primary use case for agents has been either person-to-person (P2P) payments, or remittances, or to save and conduct loan repayments. In this case, customers only require access to one agent in their vicinity to provide a channel for accessing the product. However, in the case of merchant payments, customers require multiple access points where they can use their account or mobile wallet to pay for goods and services electronically to warrant storing their funds digitally. Building a use case for customers to use the merchant payment network implies that an individual customer needs multiple places to use their wallet. Thus, the provider will need to acquire many merchants in a specified geographic area within which the individual transacts. In other words, the more points where customers can pay electronically, the more likely they are to adopt the new methodology. Thus, there is a need to understand the ecosystem of payments that is made by one's target segment.

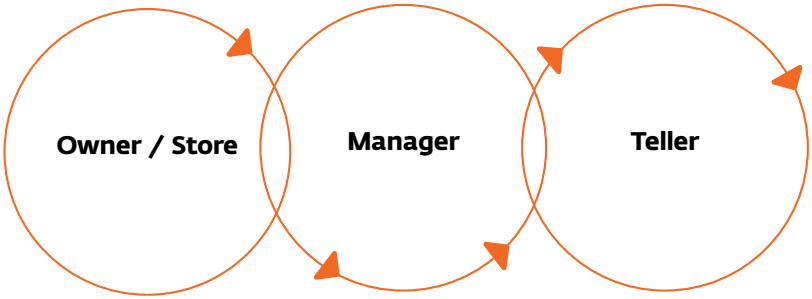
To build an ecosystem approach, mapping exercises are done to better understand where a target segment makes payments throughout the day. Qualitative, ethnographic and human centered design techniques are often used to map the payment ecosystems around a central focal point. In each case, data is collected from a sample of merchants of the same type. Data collection is focused on building a deep understanding of the types and segments of customers that frequent the merchant. Then, each customer archetype is used to map where the other merchant payment transactions are taking place so that they can be acquired as a holistic ecosystem to provide multiple access points that will build a foundation map of where additional merchants should be acquired.

As the network develops, predictive modeling can be used to provide a more quantitative approach to the mapping exercise that will inform the financial service provider of where new merchants should be acquired.

Before we do that however, we first need to determine what a "merchant" means in the context of merchant payments. For any given merchant, there are broadly three distinct, non-exclusive roles that are fulfilled: owner, manager, and teller. The owner refers to the individual who owns the store and who may or may not be physically present when the merchant payment transactions occur. The manager of the store manages the day-to-day activities in the store and the teller assists with the day to day operations and assists the customers to pay for goods digitally. These three roles may be performed by the same person or could be separate. When designing the core product and any VAS and/or incentive schemes, one needs to consider all three of these roles. For example, there is no point incentivizing only the owner, if the owner is seldom present in the store and therefore has little agency to encourage consumers to pay digitally. In this example, the teller and potentially the manager also need to be incentivized. Merchant VAS are covered in greater detail in Section 3 – The Merchant Product.

The ecosystem approach focuses on developing a strong use case for users to build longer term fund storage and to use funds directly from their accounts. Ecosystem approaches can be best illustrated using an example, found in Breakout Box 4.

Figure 4: Merchant Payment Actors

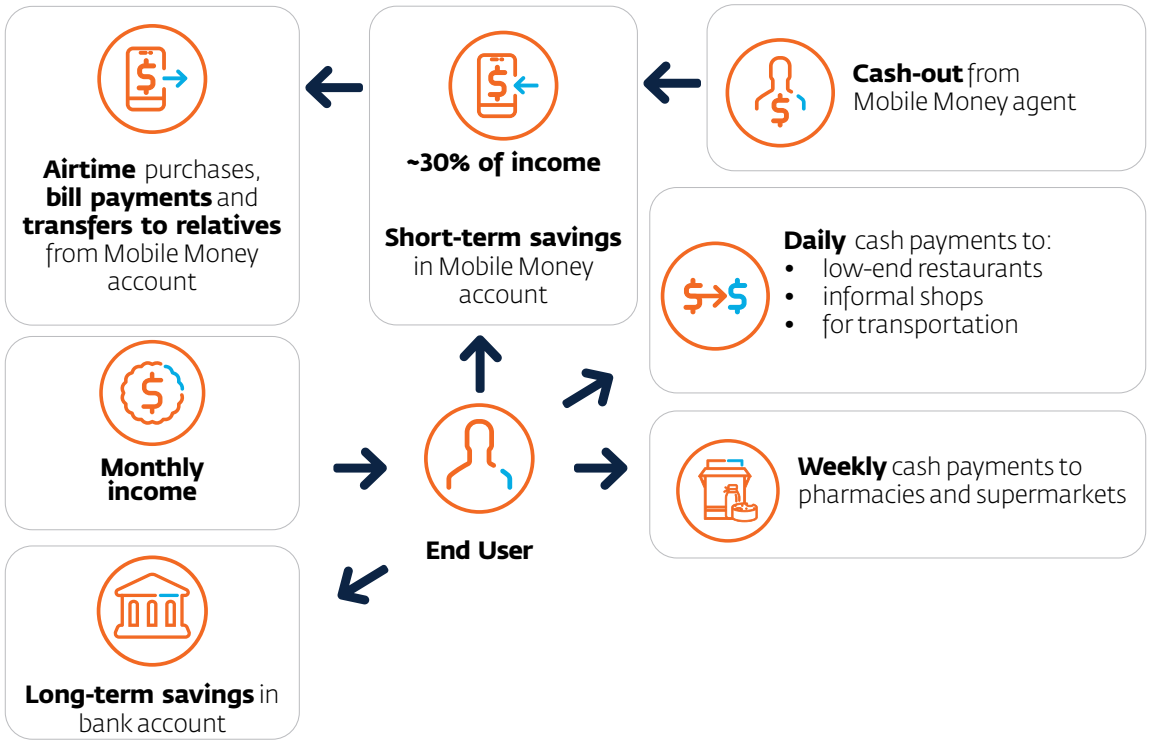


BREAK OUT BOX 4

MAPPING THE PETROL STATION PAYMENT ECOSYSTEM

After careful observation it was determined that there are major customers for petrol stations observed in a small sample: commuters and bus drivers. Commuters and bus drivers were then sampled separately to map their payment ecosystems.

Figure 5: Commuter Payment Ecosystem



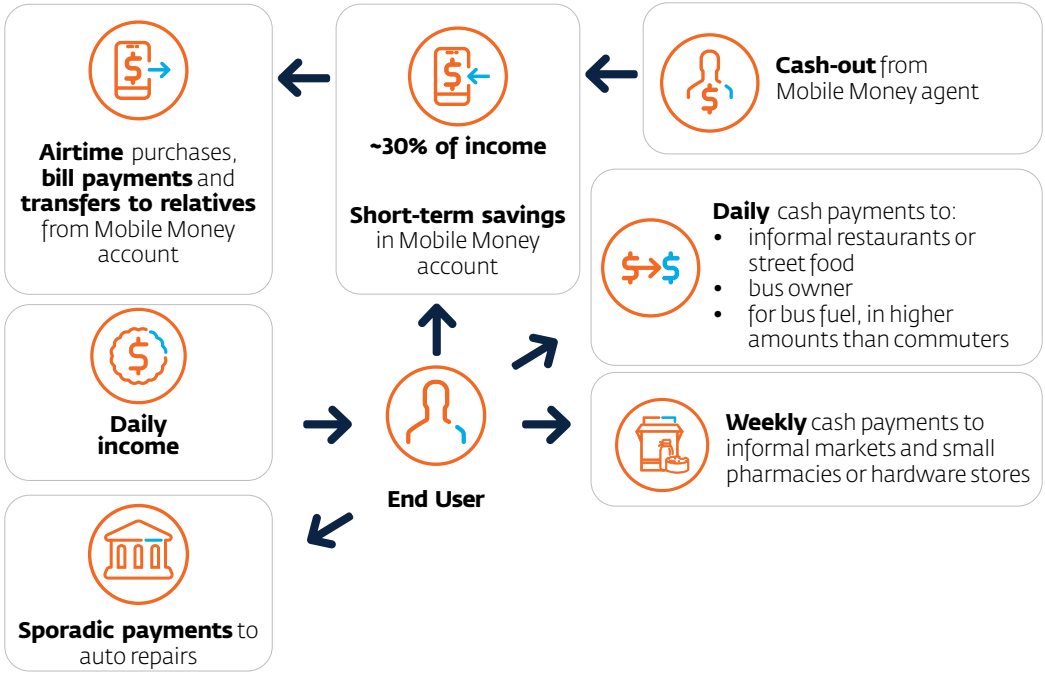
Source: Adapted from Dalburg

In the case of the commuters, users typically stopped multiple times per week to refill small amounts of fuel to their cars. Even though they received income monthly, they rarely filled their cars to full capacity.

Other daily purchases included lunch and food for themselves and their families. On a weekly basis, commuters typically visited larger merchants such as pharmacies and supermarkets. Commuters were also likely to be banked and to be making long-term savings in bank accounts and short-term savings in their mobile money wallets.

The other key customer segment were bus drivers that frequented the petrol stations daily to refill. They were typically hired by the bus owner and made daily payments to the owner for use of the bus. In addition to accepting payment for transport in cash, they also used cash to buy food and fuel. Other infrequent payments included informal markets, pharmacies and hardware stores.

Figure 6: Bus Driver Payment Ecosystem



Source: Adapted from Dalburg

The Unique Needs of Merchants

Following the segmentation approach of defining target merchants and users of merchant payment products, insights are derived on the unique needs of each market segment, and then used to ideate, select and design the most appropriate products to test in the market.

Each merchant segment has a unique set of characteristics, pain points in existing payment modalities, including cash, and unique needs to develop operational efficiency, improve sales, and attract new customers. The size of the business is a main differentiator between types of merchants and can be categorized into three main types: micro, small and medium, and large businesses.

Micro-businesses:

In the context of merchants, micro-businesses are goods and services retailers that serve the public and accept payments in exchange. They are typically characterized as being owned by sole proprietors and have no more than two employees. They typically operate in a completely cash economy, both paying their suppliers in cash and receiving payments from customers in cash. Many micro-businesses have challenges including managing liquidity needs such as working capital, and in some markets the availability of notes and coinage to disburse change to customers. The primary value proposition for micro businesses is to reduce the burden of cash management and to create a digital footprint of their sales that can be later used for credit scoring and working capital loans. Non-financial offers by financial institutions will also provide value such as loyalty programs and promotions.

Small and Medium Businesses:

Small and medium businesses, also known as SMEs, are typically retail and manufacturing companies and can have multiple locations, shared ownership, multiple tellers in each location, as well as management layers to support the business. They may be primary targets for merchant payments given the number and volume of potential digital payments. Their more complex business needs make SMEs primary targets for the value propositions merchant payments offer. Their pain points include managing cash, reducing employee theft and the need for working capital. There are additional business needs for SMEs such as supply chain management, inventory management, data tracking and business efficiency that can all be addressed using digital supply chain finance or the other value-added services covered in Section 3 – The Merchant Product.[19] Potential payment products include POS terminals as well as mobile, NFC and QR apps that link to accounting and inventory systems. In addition to physical merchant locations, e-commerce platforms can also be used to receive payments from resellers. The primary value proposition will be the reduced burden of cash management, as well as oversight of distribution points and opportunities to borrow using merchant overdraft facilities and supply chain finance platforms. Business tools such as inventory management, supply chain management and cash reconciliation tools would also add value to SMEs.

Large Businesses:

Large businesses, such as multinational retail outlets, national petrol chains, pharmacies and grocery chains require electronic payments to respond to customer demand, for cash reconciliation, to track sales and profitability, and to reduce employee theft and operational inefficiencies. Large retailers are usually one of the first segments to adopt merchant payments as they respond to customer demand from high income users that tend to be banked and use card and mobile banking products. Large businesses can offer merchant payments to customers not only to respond to demand, but to offer customer loyalty programs that could increase demand from the customer side and ease cash management, enhance security, reduce internal fraud, and provide additional revenue opportunities for the businesses. Potential merchant payment products include POS terminals for cards and mobile with interoperable payment acceptance.

19 For more information and analysis of how the digital revolution is transforming supply chain finance, refer to "Digital Opportunities in Supply Chain Finance" by IFC.

The Business Case

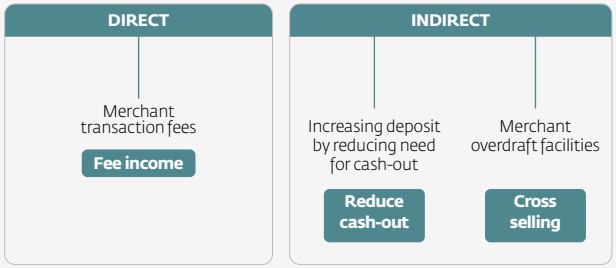
The business case for merchant payments is defined by direct and indirect revenue for the financial institution. Direct revenue is derived from transaction fees that result in new income for the institution. Indirect revenue comes from multiple sources including cross selling of new products such as merchant overdraft made possible by digitizing payments, working capital loans for merchants, and revenue from end users by retaining larger sums of short- and long-term deposits that reduce the need for institutional borrowing and therefore reduce the cost of funds.

Direct Revenue

Transaction fees are usually paid as a percent of the total transaction size with fees ranging from 0.25 percent to one percent. The question remains whether the fees are paid by the end user or by the merchant. Traditionally in the card and POS industry in developed markets, the merchants pay the fees, however in markets such as Africa where many merchants were first acquired as agents who are paid to do the transactions, there is a reluctance from the merchants to pay the fees. They will rather encourage the customer to cash out, so they earn a commission and then conduct a transaction in cash. There are mixed opinions from the industry on how to structure fees and each market may be different. In developing the commercials for merchant payments, it's advised to develop the business model as part of the segmentation, value proposition and product development phase, as deciding who pays the fees requires careful consideration of the extent of the pain points of the merchants and end-users since they will be impacted the most. In many cases, there may not be a clear case for either.

For an MNO, where indirect revenue of intermediation and cross selling may be limited, removing direct revenue may not be feasible, at least in the long run, but can be part of an overall shorter-term promotion budget.

Figure 7: The Direct and Indirect Revenue Opportunity



Indirect Revenue

Indirect revenue is derived from cross-selling and intermediation in the case of licensed deposit taking financial institutions. Merchant payments promote higher balances as they provide a use case for keeping funds in wallets and accounts to use for future payments. As a bank or licensed deposit taking financial institution, fund balances can be used for intermediation to provide loans. Revenue can be calculated as the interest revenue from lending net the cost of funds (interest paid on balances), the operating expense ratio or OER (operating costs of administering loans) and the loan loss provisioning expense or LLP (the expense associated with provisioning for non-repayment of loans). This can be a significant source of revenue depending on the balances that can be attracted as well as the loan interest rate. Similarly, even for unlicensed deposit taking institutions significant indirect revenue can be attributed to merchant payments if loans are provided both to the merchants and to the merchant payment users.

The cost of funds will typically be higher as commercial wholesale funds tend to carry a higher interest rate expense than interest paid on deposits, however the calculation works in the same manner.

In both cases, data from the merchant payments can be used to do data-driven credit scoring based on indicators such as balances,

number of payments, frequency and amount of payments. For merchants, there are additional data points that can be used to build a complete picture of both costs and revenue if using digital payment systems to pay suppliers.

Other non-direct revenue can be calculated if the FI is also using agents to offer cash-out services to their customers. These cash out transactions represent an expense for the FI as agents are paid commissions for cash out transactions, which are in effect bypassed when a customer uses a merchant payment instead of converting funds to cash.

Non-Financial Benefits

In addition to financial revenue for the business case, there are additional non-financial benefits to offering merchant payments to existing business and retail customers. Depending on the market context, there may be competitive pressure to offer the product to their customers. Merchant payments can offer increased value to both merchants that are part of the FIs business segment as well as their retail customers, thus reducing churn and growing their market share and customer base. To develop the business case, the potential revenue is just one aspect. To build the financial projection, a provider also needs to know the potential market size so the revenue per user can be multiplied by the number of users.

Section 4:

DEVELOPING A ROADMAP

On the journey towards merchant acceptance networks for digital payments, reliable publicly available road maps are few and far between. The experiences, information and insights generated to date are not well documented or widely disseminated. What can be gleaned is a fragmented picture of where to go and what it takes to get there. This chapter puts forward one version of a road map intended to help providers implement a go-to-market (G2M) strategy. It seeks to balance the need to understand how to systematically approach this journey with the importance of highlighting known problem areas and more complicated paths. These challenges and pitfalls may even emerge in areas that a provider might view as part of its core competency— customer acquisition and after-sales support, monitoring, and engagement. We, therefore, pay attention to potential "blind spots" that may exist depending on the type of provider. Our hope is that this will focus discussions and decision-making at key levels—leadership, management, or operations—to mitigate risks and challenges during implementation.

This chapter also assumes that several key decisions have been made regarding the overall market opportunity for digitizing merchant payments, which value propositions address market demand and existing merchant pain points, as well as what the necessary specifications—product, business, and technological— are that will support the development of a compelling digital payments offering for different types of merchants.

Go-to-Market Strategy

Based on experiences directly supporting deployments or observing providers across multiple African markets, especially sub-Saharan Africa, we advocate an ecosystem approach to building out a merchant acceptance network for digital payments. Specifically, this approach emphasizes network depth over breadth and the relevance of multiple actors, retail customers, and enterprise/corporate customers, not simply merchants. Depth implies that the network's physical footprint and geographic concentration follows a deliberate acquisition strategy based on criteria developed to identify merchants, customers and locations where the potential for recurring digital payments is strong. Depth also implies that recruitment, onboarding and training, as well as ongoing management efforts are designed to support a high level of operational capacity, service knowledge and quality of service among acquired merchants. The benefits of this approach, in our view, are: a) a more viable path to consistent transaction volumes; b) the ability to acquire and retain quality merchants that can also more effectively promote digital payments among customers, and; c) a wiser allocation of investment capital into developing technology with functionality and features that are well-tailored for target merchant segments.

A. How Types of Providers Impact Strategic Approach

Different providers exhibit characteristics that come with distinct advantages and risks, which must be properly understood when devising a G2M strategy. Table 21 below presents three types of providers and three categories to tease out salient similarities and differences. It also highlights implications for G2M strategy development, which are discussed in greater detail after the table.

Table 21: Digital Payments Provider Profiles

Provider Type	Operational Footprint	Digital Infrastructure/ Core Systems	Available Data Sets
Banking Institution	• Proprietary branches • Fixed agent outlets • Mobile van agents • Roaming agents	• Banking platform • Card-based payments platform • ATM processing platform	• Branch transactions • Account transactions (retail, corporate) • DFS account transactions (agent, customer, merchant) • POS terminal transactions • Card payment transactions • ATM transactions • GIS data (ATMs, POS)
G2M Implications	• Weigh the merits of a branding and marketing strategy that carves out a distinct identity or harmonize with an established brand and market presence as a financial services provider • Despite large volumes of structured, financial data, segmentation efforts may be complicated due to the lack of account ownership or service use by target merchants • Recruitment efforts can leverage existing operational footprint and potential "slack" in certain subsidiaries or business units • Existing activation, on-boarding and training capacity and processes may require modification to better align with needs, preferences, and abilities of target merchants • Assess current delivery channels for after-sales support—both remote (call center or website) and in-person (branch or agent)—to ensure they meet the access preferences and patterns of target merchants • Monitoring and supervisory mechanisms may require adaptation to generate adequate visibility into not only merchant performance but also frontline personnel performance		
Mobile Network Operator	• Proprietary Outlets • Distributors • Fixed agent outlets • Roaming agents	• Mobile network • Airtime Billing Data & Records System • Banking platform • DFS platform	• Call data records • DFS account transactions (agent, customer) • GIS data (e.g. from SIM card)
G2M Implications	• Weigh the merits of branding and marketing that carves out a distinct identity or harmonizes with an established brand and market presence as a mobile network operator • Segmentation efforts can leverage large volumes of unstructured, non-financial data as well as mobile money transaction data • Opportunities exist to leverage existing infrastructure, operational capacity, and geographic reach to drive recruitment; but there may be less operational slack and greater difficulty aligning responsibility and incentives, and absorbing costs in a commission-heavy model • Mobile money customer or agent activation, on-boarding and training experience may exist, but additional internal capacity may be required to sharpen frontline staff's ability to sell a digital payments value proposition • How best to leverage and adapt existing call center infrastructure and capacity to ensure a responsive and proactive after-sales support channel for acquired merchants		

Technology Company	• Fixed agent outlets • Roaming agents	• Banking platform • Payments platform • DFS platform • MIS platform	• Agent account transactions • POS terminal transactions • Client account transactions • GIS data (from SIM card)
G2M Implications	• Market position as a new entrant with an untested service will require branding, marketing, and promotion that establishes both who the provider is and what the service offers • Segmentation efforts will have little historical data to draw from but tools and systems for data analytics • Lack of existing infrastructure and operational footprint may limit direct recruitment efforts in favor of external partners • Conversely, lower cost structure and freedom to build from scratch may offer greater opportunities for speed, flexibility, and partnership development • Activation, on-boarding and training efforts will be "fit for purpose" from inception and require less re-tooling of existing systems, staff, or processes • After-sales support, monitoring and supervision can leverage digital systems that are similarly well-tailored to capture relevant data and information on merchant and staff performance		

Banks will want to carefully consider whether a new digital payment offering should fall under the broader branding and marketing umbrella of the bank group, or should stand alone, depending on perceptions of target merchant segments and their current use of other bank products and services. Some merchants may desire a closer or new relationship to a bank-led digital payments product; whereas others may reject the offering out of hand due to an existing bias. A bank-led offering also has more potential sales and distribution channels to leverage. But this may require new types of coordination across business units and departments, such as bank branches, money transfer outlets, fixed agent locations, etc. The bank will need to allocate adequate time to develop staff awareness and reach internal alignment around cost-sharing and revenue-sharing as well as customer acquisition, customer support, and overall service risk management and supervision. Banks can also draw on a considerable amount of structured, financial data. However, these data sets may be fragmented—residing within specific business units—and not standardized. Micro and small-sized merchants, in particular, may not be represented within these data sets. Banks will want to conduct a careful review of its available data to validate their utility and determine whether it has the requisite staffing, skills, and systems to effectively mine and analyze them.

MNOs will need to decide whether and how best to leverage their sales and distribution channels that are already oriented towards acquiring this type of target customer base for mobile airtime data, and perhaps mobile money. And while there are a number of similarities to building out a network of mobile money agents, the value proposition surrounding digital payments acceptance is different for merchants than for mobile money agents, namely the lack of an additional revenue stream from processing cash-outs. As a result, MNOs may need to modify or develop new marketing and recruitment tactics. MNOs also typically possess customer support service channels that offer in person or remote interaction (via call center, web application, or mobile application). Like mobile money agents, merchant activity patterns, needs, and potential concerns are distinct from those of mobile subscribers or mobile money customers. As a result, MNOs will need to assess whether modifications are required to determine when, where and how customer support is provided to merchants. Like banks, mobile network operators can access and generate considerable amounts of potentially relevant data, mostly in the form of unstructured, non-financial data related to airtime or data consumption patterns but may include DFS transaction data too. MNOs also have the added advantage that much of their data is geo-located. This combination can yield potentially powerful tools for merchant segmentation and data visualization. However, MNOs will need to validate that they have the necessary staffing, skills and systems in place to develop and deploy these tools.

Technology companies are unlike banks or MNOs that must evaluate approaches to branding and marketing as well as sales and distribution from an incumbent position in the market. Instead, they occupy the position of a new entrant that is unknown, offering a service that is untested. This type of provider may need to employ a more focused approach in terms of where to launch their offering, which sectors offer the greatest potential, and what the target profile should be for their first wave of merchant acquisitions. Although they may not have an existing operational footprint, technology companies can consider deployment and expansion strategies that are operationally nimble, less costly to establish and maintain, and less complex to manage as the footprint is being built from the ground up. In terms of segmentation and recruitment, these providers will likely have less historical data to draw from to inform their analysis, but they will also be able to design digital tools and systems that are "fit for purpose." As merchants are acquired, technology companies can generate and analyze more of the right kind of data and information to inform adjustments to recruitment, training, or after-sales support that is based on a solid understanding of their behavior, needs, and preferences.

Commercial Model and Growth Plan

Depending on the specific market dynamics and offerings, providers can consider commercial models that include one or more direct and indirect revenue streams. Table 22 summarizes these revenue stream possibilities based on three scenarios. In the first scenario, a "payments only" commercial model generates direct revenues tied to account servicing and transaction fees, with some flexibility in whether those fees are assessed as a flat or variable percentage tied to sales volume or individual transactions over a specified period. Additional indirect revenues are also earned through distributing digital content to a provider's merchant network for third party marketing, promotional, or loyalty/discount schemes or monetizing data sets for use by third parties. In the second scenario where a provider offers "digital payments and financial services," direct revenues will include payment services and transaction fees and interest (e.g. from credit or lending products) as well as indirect revenues earned from the same activities as in the first scenario. The third scenario introduces an additional direct revenue category—fees associated with account membership and usage of a data/info services offering.

Table 22: Commercial Model Scenarios

Model	Direct Revenue			Indirect Revenue
	Payments	Financial Services	Data/Info Services	Marketing/Loyalty/ Discount
Scenario #1: Payments Only	• Account service fee (flat) • Per transaction (flat or %) • Volume-based (flat or %)			• Digital content distribution • Data monetization
Scenario #2: Payments + FS	• Account service fee (flat) • Per transaction (flat or %) • Volume-based (flat or %)	• Deposit interest • Loan interest • Credit interest		
Scenario #3: Payments + FS + Data Services	• Account service fee (flat) • Per transaction (flat or %) • Volume-based (flat or %)	• Deposit interest • Loan interest • Credit interest	• Account fees (tied to status) • Usage fees (tied to activity pattern)	

Where payments are the sole focus of the commercial model, providers can adopt a more one-dimensional approach to merchant network development: recruit and retain merchants with strong potential to drive recurring payment transactions and stimulate customer adoption. This makes the link between overall growth targets, department or staff KPIs, and incentives very clear for key personnel involved. It also simplifies to a degree the merchant relationship management approach and sharpens the kind of after-sales support services required to deepen merchant activity and loyalty.

Where the commercial model includes revenues earned from additional financial services or data/information services, providers will want to work backward from a desired end state that considers payment activity as well as the adoption and usage of other products and services. These future state scenarios should inform the selection criteria that drive recruitment efforts and the KPIs that evaluate activation and training personnel. They are also relevant to discussions around strategy and tactics for after-sales support, incentives, and management as these should be designed to gradually deepen and broaden merchant usage as their activity patterns mature and their needs evolve.

Market Sizing and Setting Realistic Growth Targets

While micro-, small-, and medium-sized enterprises typically comprise the largest classes (by number) of enterprises in many maturing economies, a sizeable percentage operate in a semiformal or informal capacity. This degree of informality coupled with a lack of reliable, standardized, and regularly reported data on these segments leads to rather soft market size estimates related to numbers of customers. Developing market size estimates for both the absolute number of merchants and the total value of retail payments will need to be an iterative process. As providers cannot rely heavily on secondary source material, they will likely need to commission primary market research, either internally or externally depending on staffing and capabilities.

One potential starting point to arrive at a reasonable estimate for the total addressable market by payments value would be to conduct secondary and primary research of specific sectors to generate estimates regarding the total value of retail payments within each. These can then be aggregated into a total figure for the market. National associations may have data on values and volumes of goods or items sold. Table 23 presents a list of sectors worth considering as part of this bottom-up approach to calculating this figure.

Table 23: Potential Sectors for Payments Sizing Analysis

Sectors
Food/beverage fast moving consumer goods (FMCG) (example, perishable, semi-perishable, other grocery items)
Non-Food/beverage FMCGs (example: home goods, non-perishables)
Restaurant/Bar/Café
Hospitality
Pharmacy/Health

But it is worth noting that much of this information will be coming from individual members that are formally registered entities operating in a given sector. For the purposes of estimating the total addressable market by number of merchants, providers will want to assume that a more accurate estimate would be much higher and perhaps by a considerable multiple if microenterprises are a primary target.

Providers will also want to recognize the importance of setting realistic targets for merchant acquisition and transaction activity rather than assigning uniform figures or percentages to all regions or districts. Merchant location and type should both play a role in tailoring targets. For instance, the number of major urban centers in a given district will significantly increase the density of target merchants as well as potential transaction volumes and values.

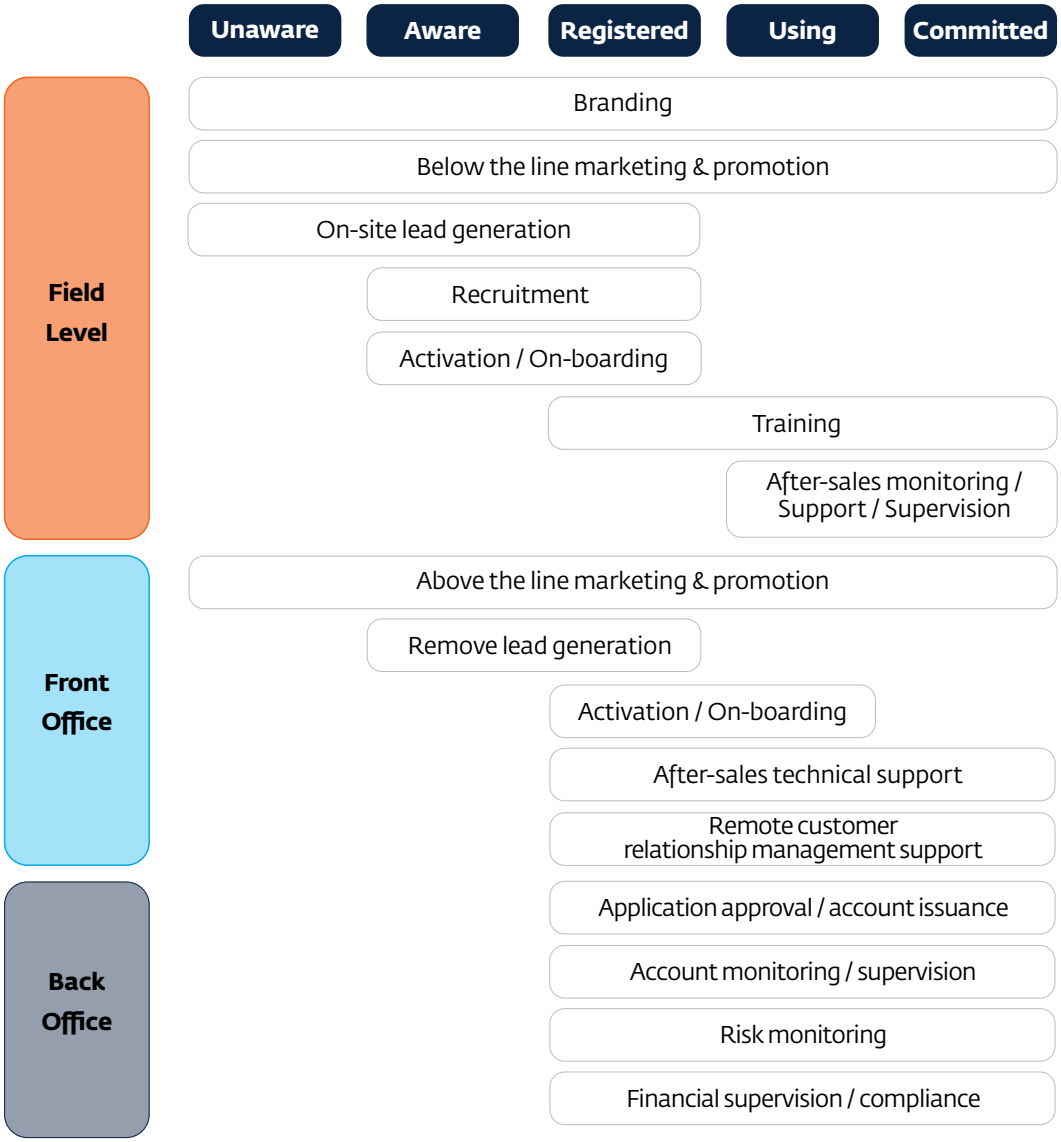
Transaction activity rates in urban centers are likely to be less volatile as local economic activity is less tied to seasonal production cycles. Additionally, depending on the estimated distribution of micro, small, and medium enterprises, recruitment cycles will likely vary. Even though micro-enterprises are more numerous, they may require more time to recruit due to less formal operating structures, which means decision-makers are as consistently on-site or as easily accessed in-person or by phone as larger, more organized enterprises.

Further, the sectors in which these merchants operate also drive variation in transaction volumes and values, with some sectors exhibiting consistent, high volume, lower value patterns (such as fast moving consumer goods or fuel) and other sectors exhibiting more volatile but higher value transactions (such as hardware/ construction and agriculture). The structure and characteristics of the supply chains that provide merchants with inventory should also be considered when developing targets. While the IFC is publishing a separate handbook on the topic of supply chain payments, it is important to highlight the intersection between supply chain digitization and merchant payments digitization. If a provider is also pursuing a supply chain payments digitization strategy, it should consider to what extent target merchant segments are concentrated in priority sectors. The implication being that there should be both awareness and coordination within the provider, and especially at the field and front office level to explore opportunities to reinforce awareness, marketing, or recruitment efforts. Or at least be aware of potentially overlapping activities to minimize confusion in the market.

B.Merchant Acceptance Network Development: Key Activities, Actors, Roles and Responsibilities

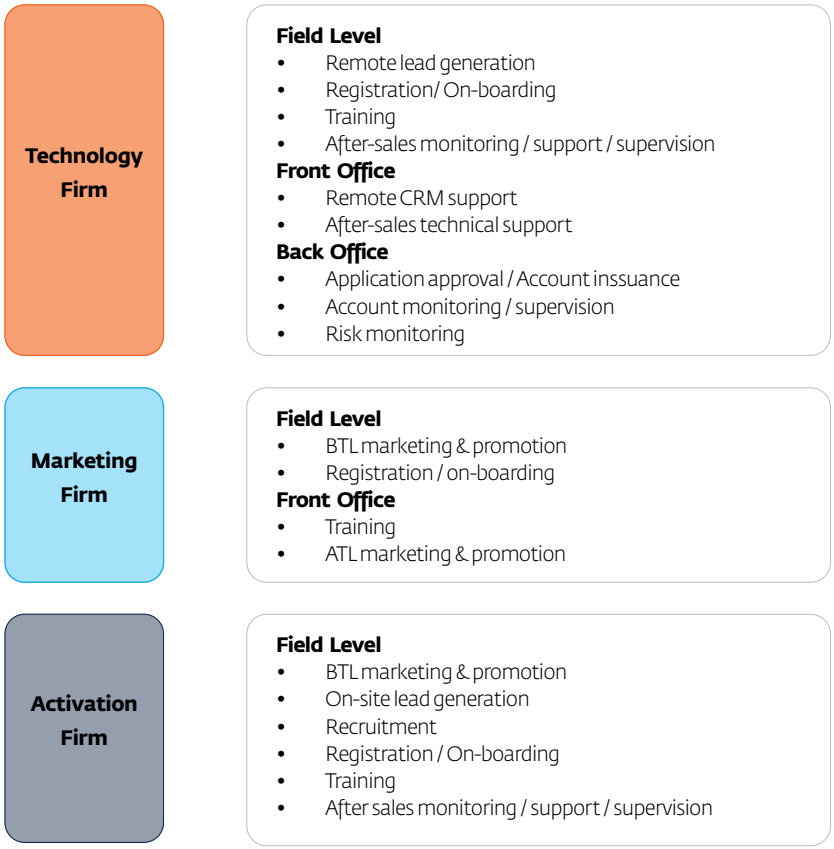
Building out a merchant digital payments acceptance network requires the implementation and coordination of multiple activity streams. These streams are relevant at different stages of the merchant acceptance journey and require the involvement of multiple staff located at different levels of an organization. Figure 9 arrays the various activity streams that will need to be funded and managed across the merchant acceptance journey, which begins with merchants progressing from an "unaware" to "aware" stage and ending with their arrival at a "committed" stage.

Figure 8: Key Activities for Developing a Merchant Digital Payments Acceptance Network



Branding, marketing, and promotion activities have relevance at every stage of the acceptance journey. Other activities, such as activation, account issuance, and on-boarding are concentrated in one or two stages. In terms of responsibilities for executing or managing these activities according to level, field level staff carry the broadest range of responsibilities, which span each stage in the acceptance journey and are primarily merchant facing. Front office staff assume a broad range of responsibilities as well, but customer interaction is a blend of in-person and remote (for example via call center). Back office staff are largely responsible for non-merchant facing activities and enter the acceptance journey after merchant registration and activation. In some instances, a provider will elect to manage all of these activities in-house. Or, a provider may choose to enlist external partners to support with certain activities or support at a certain level. If providers determine external partnerships are necessary, they should have a clear understanding of where and how these partners fit into the overall merchant acceptance network management picture. Figure 8 depicts at what stage in the merchant acceptance journey and at what level these external partners may be relevant.

Figure 9: Mapping External Partner Relevance by Level and Activity



Three types of partners are considered here: technology firms, marketing firms, and activation firms. Technology firms offer access to hardware and software that providers may need to better collect, aggregate, store, analyze, and display information. Marketing firms help providers amplify and broaden initial merchant outreach and engagement activities as well as serve as an additional feedback loop to help evaluate offering performance and market perceptions of the service. Activation firms support providers with merchant recruitment, onboarding and sometimes training depending on the staffing and skill sets of the firm. Figure 9 presents an indicative distribution of activities by external partner and organizes them by level.

Figure 10: Relevance of External Partners in Developing a Merchant Acceptance Network

External partner relevance is often concentrated at the field level. Technology firms are relevant at all three levels and can support a wide range of activities from lead generation to account issuance to risk monitoring. Marketing firms are relevant at the field and front office levels and, while many firms are highly specialized, some now offer additional services through their frontline staff such as training and after-sales monitoring. Activation firms are exclusively relevant at the field level but can support a number of merchant-facing activities.

C. Interacting with Legacy Digital Payments Systems and Other Financial Infrastructure

Providers seeking to launch merchant acceptance networks for digital payments in sub-Saharan Africa may encounter existing digital infrastructure initially developed for credit card-based payments processing or ATM transactions. Within the last decade, these "payment switches" have largely integrated with "national switches" developed by governments to accelerate real time gross settlement (RTGS) transactions among domestic financial institutions and other financial operations, such as debit card-based transaction processing at POS terminals and ATMs. There is also a rising trend among governments to make national financial infrastructure more inclusive, interoperable, and open. Non-banking institutions with a license to offer financial or payments services, such as mobile network operators or technology companies, can directly connect to these national switches. And with open API architecture becoming more prevalent in the design of newer digital platforms, interoperability is becoming more efficient and cost-effective. As these trends advance, access to financial infrastructure is flattening. New non-bank digital payments providers may not need to rely on intermediaries at all or to the same degree as before. In this new environment, providers are facing a different set of strategic questions about who to integrate with and how. When weighing the merits of integrating with one or more platforms, providers will want to consider not only the technical requirements but also the operational and commercial requirements. In some cases, the technical integration is the least challenging aspect and instead, risks or barriers emerge at the operational or commercial level.

Below, we list a number of questions organized into three categories that providers may want to review when making their own decision:

Technical:

What are the initial integration requirements and any follow-on requirements to ensure system maintenance or updates can be managed smoothly?

- Can integration be done directly or are certain members (e.g. non-bank entities) still required to connect through a designated bank intermediary?

Commercial:

- What are the rights, duties, and obligations of platform membership?
- What are the conditions and process for terminating membership?
- Are they uniform for all members? If not, why and how do they vary?
- What are the upfront costs of platform membership?
- What are the recurring costs associated with membership?

Operational:

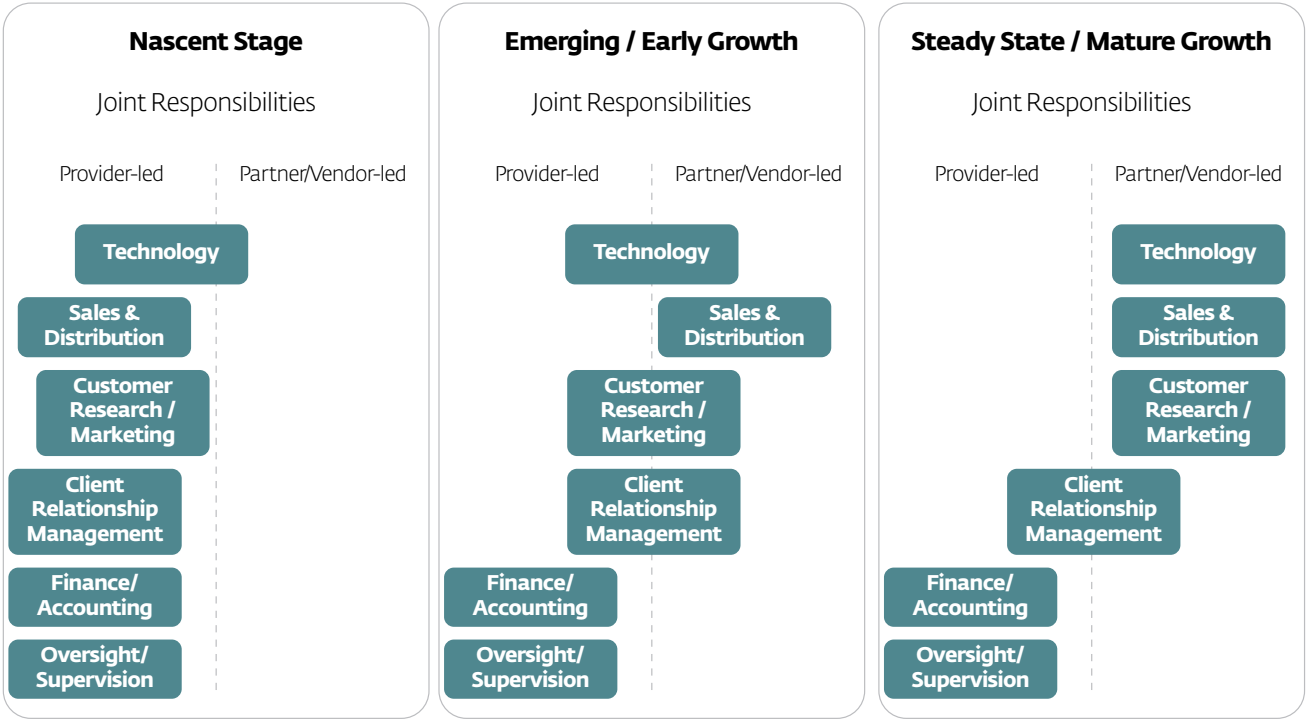
- How are the business rules governing the initiation, processing, settlement and reconciliation of transactions processed?
- Do certain members enjoy priority treatment at any stage of the transaction?
- Are all members able to access the same support/redress mechanism in the same manner?

D. Planning for Change as the Sector Matures

Part of a provider's thinking around a G2M strategy should include how to anticipate, respond and manage change as the digital payments sector in a given market matures. Certain operational and financial risks can be re-distributed away from the provider

as the digital payments sector matures. Additionally, providers may want to evolve how they manage their offering in the event new opportunities develop but they lack the resources or skills to effectively capture them. Figure 10 depicts the trajectory for a digital payments sector in three stages: nascent, emerging/early, steady state/mature. It arrays several key components of a service offering and assigns the responsibility for managing each component along a spectrum that moves from provider-led to joint responsibility to partner/vendor-led.

Figure 11: Potential Shifts in Responsibility as a Digital Payments Sector Matures



There are many factors that may alter, to some extent, components of a digital payments service offering. As the figure above suggests, the most noticeable shifts away from provider-led management to either joint responsibility or partner/vendor-led management may come with technology, sales and distribution, and customer research/marketing. Providers may also want to consider a gradual shift in client relationship management as the sector matures. The likelihood that these components will be managed less directly by the service provider over time is attributable in large part to either cost or operational efficiency gains achieved through shared or outsourced management led by a partner or vendor that specializes in delivering products or support services for a single component.

However, there are potential risks associated with a shift away from provider-led management of certain components of a digital payment offering. As the technology component becomes less directly managed, for example, the provider may risk ceding control over software development and hardware choices that will impede its ability to adapt to changing market conditions. The provider would then want to ensure core systems are designed to be modular, agile and relatively open. This will allow it to incorporate new trends in software application development and interface with a wide range of external vendor platforms to avoid dependency on a single vendor or system.

As management of the sales and distribution component shifts, risks to the providers include allowing an intermediary to dominate client-facing interactions and develop stronger direct relationships. There is also the risk that providers could lose visibility into frontline operations, which weakens quality assurance and quality control efforts aimed at strengthening recruitment performance. In response, a provider can devise reporting protocols to support a more detailed assessment of partner/vendor staff performance as well as initiate additional remote customer touch points, such as outbound calls from call center staff, to establish a more direct relationship and direct feedback loop.

Selecting the Right Technology for Target Merchant Segments

Providers face a wide range of choices when it comes to what technology solutions (both software and hardware) to deploy when building a merchant acceptance network for digital payments. When defining the relevant requirements, a provider will need to look internally and externally as these choices touch a diverse group of users and will be relevant to executing and managing a wide range of operations and activities. Both the needs of the merchants and the needs of the customers should drive the decision making of technology choices.

Provider or Partner Facing Considerations

Multiple types of provider personnel — leadership, management and staff — will require system access. The system will need to support multiple account types with different permissions corresponding to different levels of decision-making authority. Internal users are also operating from different locations — in the field, at the front office or at the back office — and have a range of operational responsibilities that the technology solution will need to support. These responsibilities may include: collecting information (for example in the field, via call center, or at a physical point of service); viewing or querying information tied to different system users (provider personnel, external agents, or acquired merchants) or activities (recruitment, activation, training, and payments); running analyses and reports tied to multiple users or types of transaction activity (payments approved, delayed, or declined), as well as sharing information for further review or approval.

Merchant Facing Considerations

Technology procurement decisions must be rooted in an understanding of different target merchant segments and factors such as connectivity, cost, digital/mobile awareness, literacy and usage that define the archetypes. Delivering payment processing services to smaller scale merchants often means operating in areas where basic infrastructure is lacking or unreliable. Finding the right technology solution "fit" requires creativity and

commitment. Several recently published IFC handbooks should be consulted for additional detail and guidance around topics such as data management, risk management, and technology. Rather than retrace those steps, this subsection surfaces issues and topics specific to various classes of under-served merchants. Technology strategy needs to blend features and functionality that are "high-tech" with respect to backend operations and "low-tech" with respect to front-end operations that involve merchants and their customers.

On the backend, to ensure timely and smooth payments processing at scale (in terms of volumes, values, and geographic location), the select technology solution must be able to integrate with other provider systems or national switches. It needs to have adequate processing capacity and reliable uptime rates and adhere to industry standards for data protection and security. The technology solution also needs to efficiently address issue management or dispute resolution such as delays, errors, cancellations, and reversals, and provide trusted account users with the necessary permissions to view, write to, or export data from the system.

On the front-end, to effectively acquire, engage, and serve merchants, the technology solution has to support different ways for merchants to interface with their accounts, authenticate their identities and authorize specific operations.

From a merchant-facing perspective, any technology solution that powers a digital payment offering must be configured to deliver the following functional elements:

- Account Registration
- Account Activation
- Account Access
- Account Operations
- General Customer Service
- Dispute Resolution/Redress
- Device/System Maintenance

When defining and building towards a core set of technology requirements, digital payments providers must account for different capabilities, needs and activity patterns across a range of merchant types. The merchant-user experience must account for a more challenging environment where service disruption or interruption is more likely, and where loss of service access can lead to negative perceptions and weakened trust. Additionally, overall exposure and usage of technology may be low or restricted and human error potentially higher — especially in peri-urban or rural areas and among micro-enterprises or small-sized enterprises. Table 24 proposes a scheme to support discussion and documentation of technology requirements based on distinct merchant segments.

Table 24: Technology Considerations by Target Merchant Segment

Consideration	Micro-Enterprise	Small-to-Medium Enterprises	Medium Enterprises
Mobile Network Connectivity	• Unstable signal • 2G coverage, limited 3G	• Relatively stable signal • Often within 3G	• Mostly stable signal • Consistent 3G or better
Data Bundle Requirements & Affordability	• Pre-paid SIM dominant • Sensitive to data bundle spend • Low ability to pay more	• Pre-paid SIM common • Attentive to data bundle spend • Moderate ability to afford high data costs	• Pre- or post-paid SIM common • Attentive to data spend • Can likely finance increase data costs
Power Supply	• Limited to no grid access	• Moderate grid access, generator supplement	• Strong grid access, additional back-ups
Merchant-facing hardware	• Heavy basic/feature phone use • No POS or tablet exposure	• Mostly basic/feature phone use • Limited POS or tablet exposure	• Basic/feature/smartphone use • Exposure to POS or tables
Merchant-facing software	• Limited mobile app exposure	• Some smartphone access and mobile app exposure	• Smartphone access, decent mobile app exposure

Given the degree of variation likely to be observed across target merchant segments, providers will want to adequately address the following:

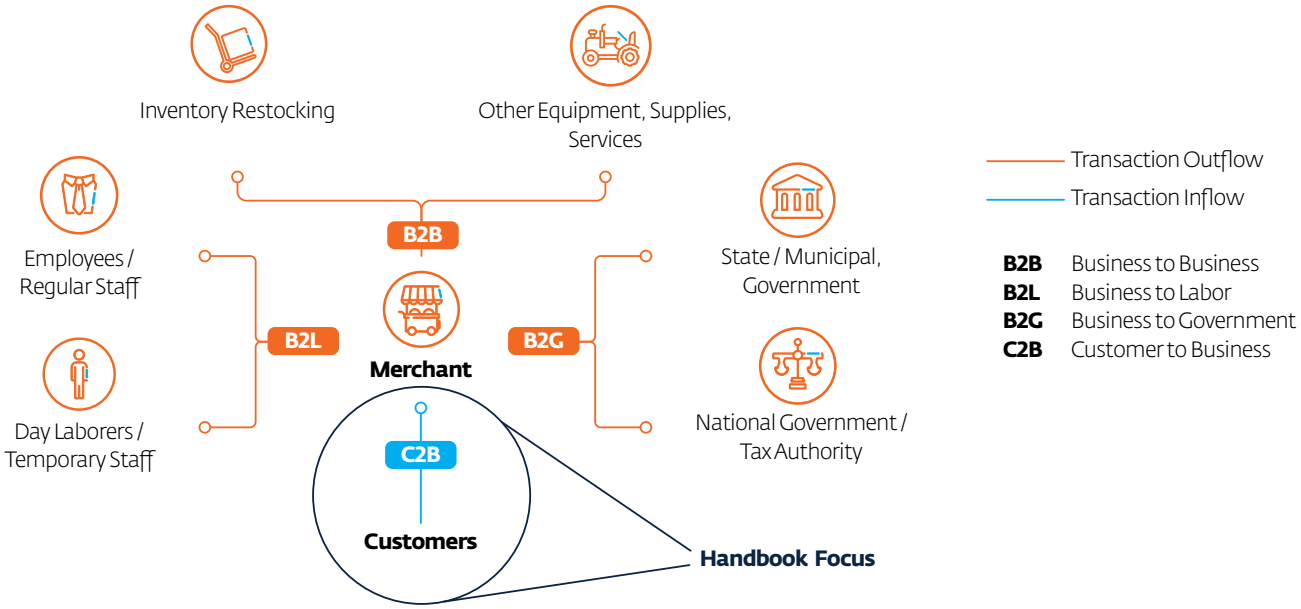
- Mobile Network Connectivity: The need for offline/online functionality given the location and activity patterns of different merchants.
- Power Supply: The ability of merchants to afford and operationally manage basic power needs to ensure reliable service access.
- Merchant-facing Hardware and Software: The person who owns the business and signs the account registration application may NOT be the person who processes the payments and interacts with the system. It will often be someone who is less financially and technologically literate than the owner or site manager. Therefore, design activities around the payments interface and experience should assume a less savvy or informed user to minimize operational confusion or apprehension.
- Data Processing Costs: If device or service usage triggers a spike in mobile data charges, many smaller scale merchants will look for ways to limit usage (for example putting the device "under the desk" or claiming technical difficulties). Providers will want to evaluate the data usage requirements at the point-of-sale and post-sale, and determine whether the associated costs will make the offering prohibitive for smaller merchants.

Awareness/Education

The target merchants profiled in this handbook have not historically been priority acquisition targets for legacy payments providers. As a result, awareness and education levels will likely vary considerably depending on the segment—micro-, small, or medium. Some small- and medium-sized merchants may be partially aware of digital payments (either card or mobile) due to their location, clientele, or personal use of mobile money. Others, micro-enterprises in particular, may be completely unaware. Some target merchants may have been acquired but then stopped accepting due to a poor experience. These experiences can often leave a lasting, negative perception and feelings of being isolated or abandoned by earlier providers, which merchants may carry into future interactions with new providers.

Providers, therefore, should assume at the outset that their target customer base may possess either a neutral or negative impression of their offering. Providers will need to develop awareness and education strategies that engage target merchant segments at multiple levels. This handbook recommends focusing on three: conceptual, service relationship, and operational. At a conceptual level, most merchants manage a wide range of payments transactions, both outgoing and incoming, as part of their regular operations. These payments typically involve customers, staff, and suppliers, as well as local, state, or national authorities. Merchants are, therefore, not likely to consider the merits of digital payments for retail sales transactions in a vacuum. Figure 11 represents an illustrative transaction web linking a merchant to these other market actors.

Figure 12: Retail Customer Payments as Part of a Larger Merchant Transaction Web



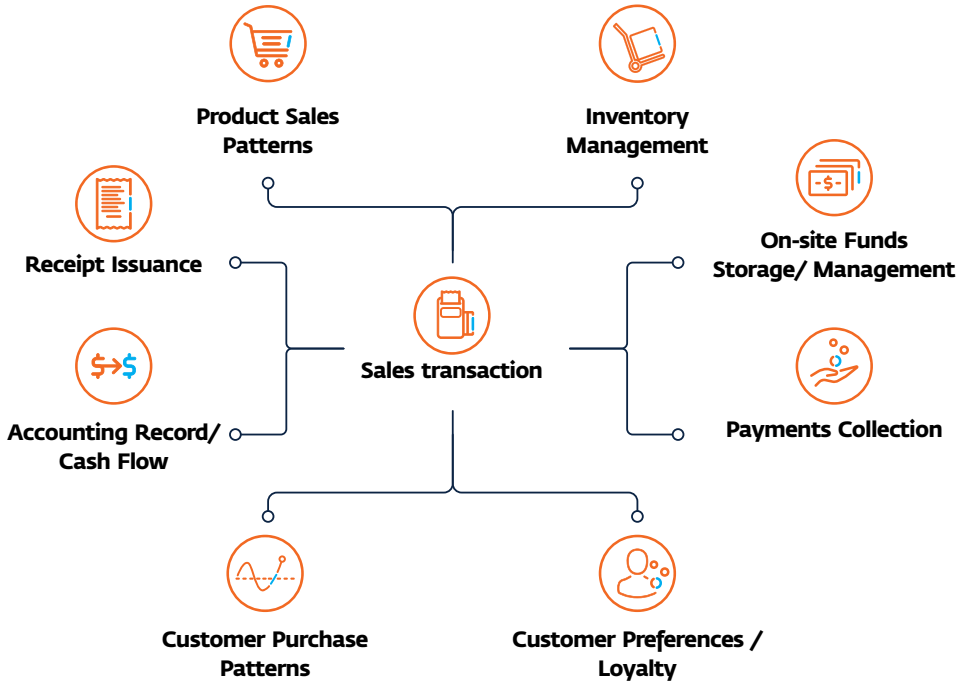
Providers will want to consider how to craft messaging about their offering and its value proposition so that a merchant can appreciate how it would fit into their broader payments needs and practices and what kinds of benefits it would bring.

At a service relationship level, smaller scale merchants are often accustomed to face-to-face relationships and gradually establishing trust over time. Providers will want to make these merchants aware of what kind of support they can expect, from whom, when, and how it will be provided.

Merchants may want to know whether to expect in-person visits, whether there is a call center and if they will have priority access or wait in a general queue, whether they can travel to a service location to raise an issue, complaint, etc. rather than wait for a visit.

At an operational level, merchants will likely want as much clarity around how digital payments acceptance will impact their daily operations. Providers must also work to craft messaging and engagement activities that will build merchant awareness as this level. As Figure 12 illustrates, sales transactions are linked to several aspects of enterprise management, planning, and activity.

Figure 13: Linkages between Sales Transactions and Other Enterprise Activity



When sales transactions are digitized, they create alternative ways for merchants to capture, store, and review information as well as receive, store and manage funds. Sales transactions form the basis for identifying product turnover patterns, which may also impact inventory management decisions. Sales transactions impact on-site cash handling practices and needs. They also allow for demand trend analysis and inform potential strategies for customer loyalty programs. Sales transactions are also linked to financial and accounting management, with particular relevance for merchants that extend informal lines of credit to trusted customers and may also be linked to an existing receipting process or create an opportunity to provide one as an additional benefit to customers.

I. Identification, Recruitment and Activation

This section looks at ways to approach identifying, recruiting and activating target merchant segments. It considers different types of data, especially geo-located data that could be leveraged to strengthen lead generation. It also identifies methods or techniques a provider may already have or want to develop to support each of these activities.

Identification

Providers will want to leverage any existing data at their disposal to support segmentation analysis prior to launching recruitment activities. Providers should not underestimate the time or importance of doing a thorough data mining exercise, which will depend on how much data is available, how it is structured and how easily it can be queried or analyzed. During this exercise, a provider may learn that its database lacks certain capabilities to capture, view or analyze data in a way that will strengthen future data analysis. It would be advisable to undertake the necessary backend system development or customization to ensure that relevant departments and personnel are able to generate, store, access and share the kind of account or transaction information necessary to properly evaluate merchant performance.

To the extent these data are geo-located, this will strengthen the provider's ability to identify physical concentrations of target merchants, which will aid with setting more appropriate recruitment and activation targets. It will also serve to better organize the planning and movement of recruitment teams in the field, allowing them to spend less time searching for prospects and more time engaging them. Geo-located data can also help service providers establish where and to what degree their existing operational footprint overlaps with concentrations of prospective merchants. This will also have a bearing on recruitment and activation targets. It may also inform decision making in regard to service expansion speed and direction, and whether additional investments in infrastructure, etc. are warranted.

With an understanding of which merchants to target, where they might be located, and which areas offer the best opportunities for acquisition based on an existing or planned operational footprint, the provider will move to lead generation, recruitment and activation. Providers will certainly attempt to maintain low lead generation costs by exploring more remote engagement options such as a call center, digital platform presence, SMS bulk messaging, and more traditional above-the-line (ATL) media channels such as radio, print, TV, billboards. These options do offer considerable reach at a justifiable price, but it is important to consider to what degree a provider can measure conversion of these expenses into quality leads. In the case of SMS bulk messaging, for example, many subscribers are inundated with promotional content on a daily, almost an hourly, basis. As a result, while bulk SMS messaging may reach 100,000s of target merchants, the message may never be opened, let alone read or acted upon. If a provider chooses SMS bulk messaging as a priority option, it may want to spend additional time assessing when—which days of the week, what time of day—to push this content and how the content can be developed to differentiate from other promotional messaging. This could include adding a callback/IVR option that minimizes what a merchant is being asked to do before he or she is connected to the provider's system or frontline personnel.

The locations and operating patterns of these target merchant segments, as well as the mobile/digital technology ownership, literacy, or usage of relevant decision-makers, may restrict their exposure to ATL campaigns and other mobile/digital platforms. Providers will want to blend ATL campaign activities with below-the-line (BTL) activities. As providers develop the schedules and sequencing for their above-the-line campaign

cycles, they will want to consider how best to align the timing of radio and TV adverts, SMS bulk messaging, and BTL activities such as educational road shows or venue-specific sensitization events. Whereas some BTL activities are heavily focused around account registration, BTL activities aimed at these target merchant segments will want to have a strong awareness and educational component to them. In particular, providers will want to design BTL activities that have an experiential element to them—allowing the merchant to observe or trial the service, for example. Field staff who are charged with implementing these activities will also want to be trained that—even if the person who approaches them is not the owner or a key decision-maker—that person may be influential in the daily running of the business and can play an indirect role in recruitment through advocating for digital payments with their manager or the owner.

Recruitment and activation

Providers should expect differences in the recruitment cycle of target merchants. The amount of time required, or the number of touch points will vary based on the type of merchant and the location. They should also prepare themselves for an environment in which frontline staff are effectively doing an "all-in-one" activity that combines lead generation, recruitment, and activation. This is especially true in a market where the provider has regulatory or legal approval to move rapidly to issue accounts, there are no approval intermediaries, and the digital platform, and tools exist to support this kind of activity in the field.

As with identification, there are remote engagement options—notably through a call center—to aid with recruitment activities (for example application opening, processing, or completion). That said, providers will need to fund and manage a sales and distribution channel that has an adequate degree of high-touch interactions with merchants at key points during recruitment and activation. They will also need to train frontline management and staff around effective recruitment technique. For example, recruitment teams will waste considerable time if they approach any merchant location in their designated areas. These teams should know what the target profile is and how to filter top priorities from lesser priorities. Recruitment teams may canvass a large number of priority merchants in a day but if they approach them at the wrong time of day, during a peak period of customer activity for example, it may result in a lost opportunity. Field managers and staff will want to acquaint themselves with the activity patterns of target merchants to determine when the optimal times are to speak directly with someone. Recruitment teams that approach a merchant location during a period where there is more down time may still miss an opportunity if they have not been properly trained and managed to know who to engage. Providers will want to train frontline staff to expect different types of people—casual laborer, more permanent employee, manager, owner—and engage them accordingly so that the right information is provided and, ideally, collected to support follow-on activities.

The three tables below illustrate a merchant recruitment process organized into three on-site visits. It is meant to underscore how this process may require interaction with different merchant representatives, how provider personnel will want to tailor their purpose and objectives based on who they interact with and where that merchant is in the overall recruitment cycle.

Table 25: Merchant recruitment process

Merchant Visit #1	
Purpose	• Open application (if possible)
Potential Merchant Representatives	• Staff or decision-maker
Objectives	• Deliver short service demonstration (using a visual aid or perhaps video content) • Open merchant profile and notate "basic" (i.e. tax or business registration, cash handling practices) • Drop flyer with KYC documentation requirements, other info (i.e. pricing, call center short code) • Collect contact details • Identify preferred outreach method and timing

Merchant Visit #2	
Purpose	• Advance open application • Close application (if possible) • Activate account (if possible)
Potential Merchant Representatives	• Decision-maker, ideally someone with application signatory approval
Objectives	• Deliver short service demonstration (using a visual aid or perhaps video content) to reps not in attendance previously • Input additional application information • Confirm application is complete and account is active (if possible) • Provide details re: onboarding and training • Hand-out T-shirts, other giveaways

Merchant Visit #3	
Purpose	• Close application • Activate account (if possible)
Potential Merchant Representatives	• Decision-maker, ideally someone with application signatory approval
Objectives	• Provide another service demo if needed • Input remaining application information • Confirm application is complete and account is active (if possible) • Provide details re: onboarding and training

Frontline staff will likely need to interact with more than one representative from a target merchant. These representatives may not coordinate closely or regularly share information. Providers should recognize that recruitment teams may find themselves in situations where the staff, manager, or owner raises questions or concerns. This could lead to a tense situation, through no fault of the frontline staff. Providers will want to consider whether they have taken the steps to minimize confusion or suspicion by equipping these teams with materials or tools to encourage a safe and frictionless encounter. These could include:

- Issuing logo-branded t-shirts to all frontline staff
- Issuing photo ID badges with a durable case
- Printing and laminating or packaging a formal letter of introduction to present upon request
- Produce small flipchart presentations to visually support the verbal pitch
- Print informational flyers with details, especially regarding required KYC documentation
- Issue promotional inventory for on-site distribution

Onboarding and Training

The target merchant segments identified in this handbook exhibit differences in structure, staffing, and operational patterns that should inform how a provider moves forward with onboarding and training activities. Specifically, providers will want to tailor these activities based on answers to the following key questions:

- Who needs to participate?
- Where will the activity take place?
- When should it take place?
- How will any supporting content be delivered?

Ideally, the on-boarding phase results in merchant leadership having a clear sense of the implications of joining a digital payments acceptance network. They will also likely want to hear what the provider's vision and plans are to stimulate digital payments activity at their businesses. Field management and staff should be prepared to discuss a range of topics related to: perceptions and past experiences with other digital payments services; what kind of training will be offered and how it will be structured; and what kind of after-sale support is envisioned and how the relationship will be managed going forward.

Providers may be able to aggregate representatives from the same merchant segment to complete the onboarding process. It may be strongest among medium or small enterprises, as owners and managers often have more formal schedules and greater flexibility or willingness to attend such gatherings. Owners of micro- or small enterprises may be too difficult to coordinate logistically as their schedules are often much less formal and less predictable. For these types of merchants, field management and staff could consider developing a movement schedule for onboarding activities according to geographic concentration and proximity of activated merchants.

Whether the initial onboarding session takes place in a group or one-on-one, the provider will need to develop an onboarding presentation with supporting materials. It will be important to tailor this content to specific audiences that frontline management and staff will likely encounter. As mentioned earlier, a provider should expect to engage a range of merchant representatives. For micro- and small-to-medium enterprises, the organizational structure may be small or flat enough that only one session will be required. The relevant actors that should inform the presentation and material development are organized by target merchant segment in the bullets below. In the case of a medium enterprise, especially one where the leadership or management oversees several locations, onboarding may need to be broken out into two sessions to better tailor content for leadership versus management.

Micro-enterprises: Relevant actors include the owner and a trusted hired staff (usually a family member).

- Small-to-Medium Enterprises: Relevant actors include the owner, on-site management that may oversee accounting, financials, and inventory, and trusted hired staff, who may be family or wage-based employee.
- Medium Enterprises: Relevant actors include corporate leadership, regional management, and possible store management.

With the onboarding process completed, training schedules will need to be established. The number and type of trainings will again vary depending on the type of merchants acquired and the organizational structure. Providers will want to consider the venue, timing, and duration of these activities as they prepare for these trainings. The three tables below summarize these elements and allow for a comparison to support providers in their projections around resource allocation (staff, transport, fuel, materials), scheduling and logistics, as well as setting, managing, and evaluating performance targets.

Table 26: Onboarding for different types of merchants

Micro-Enterprise	
Relevant actors	• Owner • On-site staff responsible for processing payments
Venue	• On-site or very close to shop
Number of participants	• 1-2
Timing	• Flexible, will need to be a function of participant availability and customer foot traffic
Duration	• 60-90 minutes, including time for discussion/Q&A
Small-to-Medium-Enterprise	
Relevant actors	• On-site management • On-site staff responsible for processing payments
Venue	• On-site or close-by, possible that staff at more than one location will require training
Number of participants	• 4+
Timing	• Flexible, will need to be a function of participant availability and customer foot traffic
Duration	• 90-120 minutes, including time for discussion/Q&A
Medium Enterprise	
Relevant actors	• On-site management • On-site staff responsible for processing payments
Venue	• On-site or another location owned by the enterprise, staff at multiple locations may require training
Number of participants	• 10+
Timing	• Structured, function of staff schedules and venue availability
Duration	• 120-150 minutes, including time for discussion/Q&A

Post-activation Support, Incentives and Supervision

To drive digital payments volumes, and value across a merchant acceptance network, providers will want to focus on the quality rather than the quantity of its acquired merchants. Well-chosen, well-trained, and well-managed merchants will be much better positioned to drive digitization among their customers. They are also a potentially rich and direct sources of market feedback as these target merchant segments are often closely attuned to consumption patterns and preferences of their customers. This kind of intelligence can help providers assess the impact or efficacy of marketing and promotional campaigns or surface new concepts for how to better stimulate digital payments at the retail customer level.

This approach may appear more costly, as it implies a higher touch-point strategy that involves more proactive in-person or remote engagement. It may also not fall within the traditional approach of certain providers that are more accustomed to setting aggressive, nationwide growth targets to drive the adoption of mass market-oriented products. However, the tradeoffs for providers may prove even more costly. When one factors in a) wasted costs associated with a rapidly scaling yet poorly selected merchant network; b) running costs associated with attempting to stimulate activity among merchants with low digital payments acceptance potential; and c) costs associated with de-activating and de-commissioning consistently poor performing merchants, the cumulative sum of those costs may easily match or exceed a more quality-centric, higher-touch relationship approach to merchant identification, recruitment, onboarding, and training.

This section identifies four commonly cited reasons why the merchant segments targeted in this handbook decide to drop a digital payments service. We then link these reasons to key components of the service offering and put forward considerations for providers to help minimize or avoid these challenges.

Reason #1: Account liquidation costs, delays, or challenges

For smaller scale merchants that are unbanked, having to pay fees to access shop revenue is quite foreign and a considerable deterrent as the risks and inherent costs of their established cash-based method are largely invisible to them or simply a part of doing business. For smaller scale merchants that are formally banked, they are extremely cost conscious when it comes to moving funds from their digital payments account to a designated bank account. Whether they are unbanked or banked, if merchants experience delays or challenges in liquidating or transferring digital funds, this is a compounding deterrent to the issue of cost.

Table 27: Account liquidation costs, delays, or challenges

Reason for Dropped Service	Relevant Personnel	Relevant Support Channels	Role of Technology
Account Liquidation	• Product Development • IT Department • Finance Department • Sales & Distribution · Customer Support	• Call center • On-site field visit • Service location	• Payments platform • Merchant account database • CRM (for call center and field level personnel)
Provider Considerations	• Gauge willingness and ability to absorb liquidity fee pre-launch • Monitor merchant reactions to fee post-launch • System checks to ensure reliable platform interconnection • Review escalation policy and procedures within departments (i.e. IT, Customer Support) to ensure prioritization • Ensure distribution channels are sensitized about fee transparency and know to respond rapidly when this issue is raised		

If account liquidation fees are core to the providers' revenue model, specific departments or units will be limited in their ability to address merchant complaints regarding cost. However, any technical or operational difficulties associated with liquidation transactions should be closely monitored. The provider will want to have policies and processes in place to track and respond to these complaints and take a very proactive approach to engaging merchants, including at the outset during onboarding and training. Call center and frontline staff should be trained on these points and response times to these types of complaints should be prioritized.

Reason #2: Impatience with recurring technical challenges

For less mobile or digitally savvy merchants, they are likely less accustomed to relying on technology systems or services to operate their businesses. For mobile or digitally savvy merchants, they may already have an awareness of how these services can function or an ability to quickly compare service offerings. In both cases, these merchants have very little reason to stay with a provider that experiences technical difficulties, even if there are aspects of the offering they may value.

Table 28: Impatience with recurring technical challenges

Reason for Dropped Service	Relevant Personnel	Relevant Support Channels	Role of Technology
Technical Challenges	• Product Development • IT Department • Sales & Distribution • Customer Support	• Call center • On-site field visit • Digital platform	• CRM (for call center and field level personnel)
Provider Considerations	• Review check list for QAT and UAT activities to identify potential hardware or software bugs early • Ensure educational or training content developed (analog or digital) provides adequate "how to" details to aid merchants with troubleshooting • Review escalation policy and procedures within departments (i.e. IT, Customer Support) to ensure issues are addressed efficiently • Ensure distribution channels are sensitized about common technical challenges and know how to respond when these issues are raised		

Providers will want to ensure that software and hardware elements undergo a thorough testing that simulates transaction scenarios involving different types of merchants and locations. This would largely occur during pre-launch QAT and UAT activities but could be re-tested on a recurring basis if necessary. If providers chose to offer merchants a digital device other than a smartphone, they will want to assess their on-site device maintenance, support, and replacement policies. They may also want to consider developing FAQ content for distribution to merchants (for example via flyer, website, WhatsApp video clip) and ensure that there is adequate inter-departmental coordination so that customer support and sales, and distribution personnel are aware of what major technical issues merchants are facing.

Reason #3: Lack of provider responsiveness to requests/issues/complaints

Smaller scale merchants, regardless of formal financial status or mobile/digital capacity, may often feel as though they are taking a leap of faith when agreeing to accept digital payments. They may also be prepared to work through a few issues at the beginning of their acceptance journey. However, if they are told that a provider will make itself available somehow—via in-person visits, call center, website, or service location—there is an expectation that providers will find a way to be responsive. When providers fail to make these support channels easily accessible, user-friendly, or helpful, these merchants have very few reasons to remain in the network.

Table 29: Lack of provider responsiveness to requests/issues/complaints

Reason for Dropped Service	Relevant Personnel	Relevant Support Channels	Role of Technology
Provider Responsiveness	• Product Development • IT Department • Sales & Distribution • Customer Support	• Call center • On-site field visit • Service location • Digital platform	• CRM (for call center and field level personnel) • MIS (for internal performance monitoring)
Provider Considerations	• Personnel capacity building to emphasize the importance of a) sensitizing merchants on how to access support and b) providing this support in a timely, effective manner • Ensure proper tools and processes are in place to capture, organize, and distribute information from or to merchants • Develop adequate capacity to measure after-sales service at different staffing levels, with an emphasis on timeliness and issue resolution • Ensure adequate feedback channels between relevant departments and units so that customer-facing personnel are informed as to the types of challenges merchants are facing		

Providers will want to validate that relevant management and staff have received adequate training and have access to the necessary tools and systems to receive, register, and respond to the requests. Management personnel in specific departments, such as sales and distribution, and customer support, will want to consider developing indicators that track and measure personnel performance with respect merchant issue processing and dispute resolution. They may also want to consider developing tailored FAQ content or troubleshooting "how tos" for use during initial merchant onboarding and training sessions or refresher trainings so that merchants better understand when issues need to be raised with a provider.

Reason #4: Lack of promised branding/marketing materials

Frontline staff may indicate or promise that branding and marketing materials are part of the activation process and fail to deliver these materials. When this occurs, and if it becomes a pattern in an area due to a handful of poorly trained, managed, or supplied frontline staff, it can result in a swift, negative response. While it may seem superficial or small to a provider at the regional or head office level, smaller scale merchants may interpret this oversight as an inability of the provider to deliver on its word or as a lack of commitment to stimulate digital payments for them.

Table 30: Lack of promised branding/marketing materials

Reason for Dropped Service	Relevant Personnel	Relevant Support Channels	Role of Technology
Branding /Marketing Material	• Sales & Distribution • Customer Support	• Call center • On-site field visit	• CRM (for call center and field level personnel) • MIS (for internal performance monitoring)
Provider Considerations	• Require reporting from frontline staff • Develop a process for tracking delivery and placement of materials • Tie frontline staff performance to a specific indicator or set of indicators		

Providers will want to consider building a category of attributes for each acquired merchant that relates to the types of materials delivered and their placement. These attributes would be entered and stored digitally to allow relevant management personnel to verify that these activities took place and were done properly. Providers may also want to consider linking performance on this activity to overall KPIs for frontline staff.

Conclusion and Lessons Learned

It is estimated that micro-, small- and medium-sized retailers made and accepted around $34 trillion worth of payments in 2015. More than half of these payments or $19 trillion was paid in cash or check.[20] Since the number of merchant digital transactions so far remains small, it is important to work toward increasing transaction value. Digital payments are the bridge towards full financial inclusion; they reduce leakage and can increase an entrepreneur's profitability by making financial transactions with customers, suppliers and the government, more convenient, safer and cheaper.[21] The merchants that support the DFS providers are the first line of customer care for end users, while also being customers themselves to the financial institutions. Supporting merchant ecosystems to grow and become more active has a multiplying effect in expanding financial inclusion and supporting MSME job growth.

DFS success relies on far-reaching networks of merchants that provide the opportunity to pay directly with digital payments, bypassing the need to carry cash. Without merchants, DFS ecosystems, defined as networks of financial service providers that allow access to digital products through digital channels, would be limited in their digital use case. Merchants are MSMEs that require products and services to grow as businesses to fully support the emerging digital financial sector ecosystem. This handbook provided an overview for building and maintaining successful merchant networks for mobile money service providers. In markets that have successful DFS deployments, the digitization of merchant payments has provided one of the most compelling use cases that has sustained long-term mobile wallet growth and usage. The successful digitization of merchant payments requires buy-in from both merchants and customers.

This handbook provided an overview for building and maintaining successful merchant networks for mobile money service providers. Notably, it is an endeavor which requires commitment and significant investment in resources. First, the merchant network needs to create real value for both merchants and customers which goes beyond the simple removal of cash from the transaction. Some of the value-added services that are of value to merchants include working capital loans, customer management programs, and inventory management. We also discuss the different payment products which have been successfully adopted by customers. The most successful merchant networks adopt an ecosystem-based approach where digital payments are embedded into their financial lives and are only one part of a full suite of digital financial services that customers access regularly.

Building an Eco-System Approach

A successful merchant payments network will require an eco-system approach wherein the financial institution ensures that there are a large number of payments points in their target market. In order to see high levels of activity on this network, the institution will need to create numerous payment points where customers are able pay electronically. This is significantly different from the approach for traditional agent networks where one agent in one's vicinity generally suffices as an access point for financial services such as remittances or deposits or P2P transfers. Whereas for merchant payments, customers need to be able to pay electronically in multiple locations and need to be able to see the value of storing money electronically for payment purposes.

20 Saxena, A. (2016) Innovation in Electronic payment adoption: The case of small retailers, IFC
21 https://wol.iza.org/articles/how-digital-payments-can-benefit-entrepreneurs/long

Customizing Customer Payment Methodology and Merchant Product

As this handbook has emphasized throughout, merchant payments require a strong value proposition for both customers and merchants in order to be successful. For the customer product, understanding the customer, their existing payment behavior, and existing access to technology will need to play a big role in the type of product that the financial institution offers. The universe of payment methodologies has expanded over time to include USSD/ app-based mobile money payments, QR code payments, card-based approaches and even payments integrated through one's social media. The choice of payment methodology will be determined by the target customer. Ideally, industry should move towards an environment where all existing payment methodologies are interoperable so that there are not small groups of people tied to separate payment methodologies.

Similarly, while merchants will have a core merchant product, the product will need to provide a robust value proposition to encourage its use. Typically, FIs provide merchant networks with value added services to bolster the attractiveness of the product. This handbook has classified merchant pain points into three broad buckets: operational efficiency, access to capital and marketing. Using this typology makes it easier to match each VAS with a category of merchant (small, medium, large) who would find it useful. Thus, for example, a large retailer is unlikely to be interested in access to capital whereas small retailers, who may not have formal financial histories, might be more likely to use merchant products when coupled with access to capital. Thus, an FI can decide how to structure its value proposition based on the kinds of merchants in its network.

Significant investment of resources and marketing required

Notably, significant investments in terms of human and financial resources are required to build effective merchant networks. GSMA reports that most mobile money providers noted that building a merchant network was just as onerous as building an agent network.[22] Additionally, merchant networks need to be significantly larger than agent networks. Looking at more advanced markets, the US, for example, has 17 times as many point-of-sale acceptance locations as it does ATMs, according to the IMF Financial Access Survey. Given the number of times the average person pays for something in any given day, mobile money providers need to commit to building large networks of merchant acceptors.

To prompt a shift in customer payment and merchant payment acceptance habits requires substantial behavioral changes. All stakeholders first need to understand and appreciate why a new way to accept payments is better than the current way. Then, providers should allocate, time, money and resources to explaining how to adopt this new way of making and accepting payment. This behavior change will not come as the result of recruitment or training activities alone but rather requires continued provider investment at each interim step between unawareness and habitual or active use.

Mobile money partnerships may consider leveraging partnerships to organize merchant acquisition through third parties. Merchant networks will typically be much larger and more ubiquitous than agent networks and given the scale, it may make sense to work with third party acquirers. Multiple approaches exist and mobile money providers should carefully consider local market conditions and their own core competencies before developing a roadmap. Regardless of the model, awareness building and educating customers and merchants is crucial for the success of a network. Mobile money providers need to invest time and money marketing the advantages of merchant payment acceptance.

Introducing merchant payments allows mobile financial services providers to expand the digital ecosystem of products and services available to customers. This gives customers more options and thus more reasons to adopt and stay active with mobile money. At the same time, it gives DFS providers one more touchpoint with customers and merchants to improve their mutual engagement. This engagement is crucial in terms of the data production which can drive the development of other products such as credit for both customers and merchants.

22 GSMA (2014). Setting up shop: Strategies for building effective merchant payment networks; Findings based on the State of the Industry Report

GLOSSARY

Interchange fee	A fee paid between banks for the acceptance of transactions.
Internet banking	An electronic payment system that enables customers to conduct financial transactions on a secure website operated by a financial service provider.
Interoperability	With respect to mobile money and other digital financial services, "interoperability" generally refers to platforms that permit the transfer of funds from mobile accounts of one service provider to mobile accounts of another service provider.
Inventory management	The process of ordering, storing and using a company's inventory.
iOS	The operating system used with devices manufactured by Apple.
Issuer institution	The institution that holds the customer's account and provides authorization for a transaction, based on available balance and whether the card has been reported stolen .
Key Performance Indicator (KPI)	A KPI is a measurable value that demonstrates how effectively a company is achieving key business objectives. Organizations use KPIs at multiple levels to evaluate their success at reaching targets. High-level KPIs may focus on the overall performance of the enterprise, while low-level KPIs may focus on processes in departments such as sales, marketing or a call center.
Know Your Customer (KYC)	Rules related to AML/CFT that compel providers to carry out procedures to identify a customer and that assess the value of the information for detecting, monitoring, and reporting suspicious activities.
Layaway	A system of paying a deposit to secure a good for later purchase.
Loyalty program	A marketing strategy that provides incentives to repeat customers to motivate them to continue to actively use the service.
Market segmentation	The process of defining and subdividing a large homogeneous market into clearly identifiable segments by similar needs, wants or demand characteristics.
Market sizing	The process of estimating the potential of a market
Merchant	A person or business that provides goods or services to a customer in exchange for payment.
Merchant acceptor network	A group of interconnected merchants that accepts the same payment modality.
Merchant activation	The process of creating a new merchant account on a provider's platform.
Merchant payment	A payment made from a mobile money account via a mobile money platform to a retail or online merchant in exchange for goods or services.

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Merchant overdraft facility	An agreement between a merchant and a bank that allows the merchant to withdraw more money than what they have in their account up to a certain threshold. This over-draft is then charged interest until repayment.
Merchant till	A merchant's cash register or money management system.
Minimum viable product (MVP)	A product that is developed with the most basic features needed to deploy it to the field for testing.
Mobile banking	The use of a mobile phone to access conventional banking services. This covers both transactional and non-transactional services, such as viewing financial information and executing financial transactions. Sometimes called 'm-banking.
Mobile Network Operator (MNO)	A company that has a government-issued license to provide telecommunications services through mobile devices.
Mobile Phone Type - Basic phone	The most basic type of mobile handset available on the market. This phone has no data or GPRS capabilities and for DFS is only compatible with USSD and STK applications.
Mobile Phone Type - Feature Phone	A feature phone is a type of mobile phone that has more features than a standard mobile phone but is not equivalent to a smartphone. Feature phones can provide some of the advanced features found on a smartphone such as a portable media player, digital camera, personal organizer, and Internet access, but do not usually support add-on applications.
Mobile Phone Type - Smartphone	A mobile phone that has the processing capacity to perform many of the functions of a computer, typically having a relatively large screen and an operating system capable of running a complex set of applications, with internet access. In addition to digital voice service, modern smartphones provide text messaging, e-mail, web browsing, still and video cameras, MP3 players, and video playback with embedded data transfer, GPS capabilities.
Mobile Phone Type - Standard Phone	A basic mobile phone that can make and receive calls, send text messages, and access the USSD channel, but has very limited additional functionality.
National payment switch	It is a system that interfaces with all payment providers in a given country including POS system, automated teller machines (ATMs), mobile payment systems, Internet- based commerce portals, and integrates all these electronic transactions and then ensures that the transactions are funneled to one or more payment processors for authorization and settlement.
Near Field Communication (NFC)	A method of contactless payment (without a PIN), which uses short-range radio signals to exchange information between a card, sticker or mobile device and a terminal.
Non-banking institutions	A financial institution that offers various banking services but does not have a full banking license and often cannot accept deposits.
Nudges	Small actions to influence the behavior of an individual.

GLOSSARY

One Time Passwords (OTP)	A security protocol that works on the basis of one factor of authentication being generated only when needed, namely at log in or transaction posting, and acts as a single use password or PIN.
Open loop payments	A payment solution that allows customers to pay at several locations from one centralized e-wallet.
Operational slack	When personnel are not conducting the targeted number of transactions or service operations in a given period, usually measured on a daily or weekly basis.
Onboarding activities	Activities that take place on-site to take the merchant through any administrative or operational details not previously discussed during the recruitment process.
Payment modality	A mechanism for making a payment.
Payment network	A system that brings together all parties and processes to authorize and process payments.
Payment processor	A company used by a merchant to handle the processing of payments from different payment modalities.
Payment scheme	The rules and technical standards for the execution of payments using the underlying payment systems.
Payment scheme operator	The body responsible for the payment scheme branding at acceptance points, defining the scheme rules and providing a mechanism for handling disputes and exceptions.
Person to Person (P2P) payments	A transfer of funds from one individual's account to another individual's account.
Point of Sale (POS)	Electronic device used to process payments at the point at which a customer makes a payment to the merchant in exchange for goods and services. The POS device is a hardware (fixed or mobile) device that runs software to facilitate the transaction. Originally these were customized devices or personal computers, but increasingly include mobile phones, smartphones and tablets.
Predictive Modeling	Predictive modeling is a process that uses data mining and probability to forecast outcomes. Each model is made up of a number of predictors, which are variables that are likely to influence future results. Once data has been collected for relevant predictors, a statistical model is formulated.
Prototype	An initial version of a product.
Push payment	A payment that is initiated by a customer to give money to a merchant.
Pull payment	A payment that is initiated by the merchant to take money from the customer.
QR Code	A machine-readable code consisting of an array of black and white squares, typically used for storing URLs or other information for reading by the camera on a smartphone.

GLOSSARY

Retail payment	A payment made to a merchant.
Settlement	When a payment is received for an outstanding amount.
Short messaging service (SMS)	A 'store and forward' communication channel that involves the use of the telecom network and short message peer to peer (SMPP) protocol to send a limited amount of text between phones or between phones and servers.
Small and medium enterprise (SMEs)	They are non-subsidiary, independent firms that employ less than a given number of employees. This number varies across countries. The IFC definition of SME can be found here: https://www.ifc.org/wps/wcm/connect/industry_ext_content/ifc_external_corporate_site/financial+institutions/priorities/ifcs+definitions+of+targeted+sectors
Social chat applications	An application that is used for online communication.
Static QR code	A QR code that does not allow the changing of the destination address to which the QR code directs to when scanned.
Supplier Payment	A payment made to a wholesale supplier of goods from a retail merchant.
Supply chain management	The supervision of the flow of goods and services from raw materials into final products. It includes the streamlining of a business's activities to maximize customer's value and to gain a competitive advantage in the market place.
User Acceptance Testing (UAT)	The testing process that occurs at the end of a software development process whereby users test the software to make sure it can handle the required tasks in real-world scenarios, according to specifications.
Underwriting	The process through which an individual or institution takes on financial risk for a fee.
Unsecured loan	A loan that is issued and supported only by the borrower's creditworthiness, rather than by any type of collateral.
Unstructured Supplementary Service Data (USSD)	A protocol used by GSM mobile devices to communicate with the service provider's computers/network. This channel is supported by all GSM handsets, enabling an interactive session consisting of a two-way exchange of messages based on a defined application menu.
Value-added services (VAS)	All services beyond standard payment services; usually made available at little or no cost to promote the primary business.
Value proposition	An innovation, service or feature intended to make a company or product attractive to customers.
Virtual cards	A digital version of a debit or credit card that is used to make online purchases.
Wallet providers	A company that offers an electronic wallet to customers to make payments.
Working capital loans	A loan to support everyday operational expenses of a business.

AUTHOR BIOS

Lesley Denyes is a Program Manager and a DFS Specialist with IFC Advisory Services in Middle East and Africa. She has worked in the sector for the last 18 years, specifically in the areas of business modeling, financial analysis, strategic planning, product development, and channel management for DFS across Asia and Africa. Before joining IFC, she worked as an independent consultant for UNCDF's Mobile Money for the Poor program, Oxford Policy Management, and Grameen Foundation, among others. As a Program Director for Mercy Corps, in 2014, her program won the GSMA award for the Best Use of Mobile in a Development Context. Lesley has worked with commercial banks, mobile network operators, payment service providers, research institutes, technology developers, and NGOs to reach low income households through technology-led financial services. Lesley has a BSc in Quantitative Economics from Dalhousie University, Canada, and an MBA from Edinburgh Business School, UK.

Minakshi Ramji leads projects on DFS and financial inclusion within IFC's Financial Institutions Group in Sub-Saharan Africa. She has worked for over 10 years in the sector across South Asia, Middle East, and Africa, specializing in market research, product development, consumer insights, and strategy. Prior to this, she was a consultant at MicroSave, a financial inclusion consulting firm based in India, where she was a Senior Analyst in their Digital Financial Services practice. She also worked at the Centre for Microfinance at IFMR Trust in India, focused on policy related to access to finance issues in India. She holds a master's degree in Economic Development from the London School of Economics and a BA in Mathematics from Bryn Mawr College in the United States.

Nicholas Lesher has worked for nearly a decade in digital financial services – including branchless banking, mobile money and e-vouchers. His work centers on market research to support requirements definition for DFS providers to improve existing offerings or more effectively target new consumer segments; agent network strategy, build-out and management; DFS pilot project implementation and evaluations for private, public, and NGO sector clients; as well as general program monitoring and evaluation involving the integration of digital technology to provide financial services to unbanked or underbanked populations. He has worked with a range of clients, including IFC, World Bank, UN and USAID, mobile telecommunications companies, financial institutions, digital payments companies, and international NGOs such as Mercy Corps, Catholic Relief Services, CARE, and PACT. He has worked on DFS-related projects in markets throughout the Caribbean, Asia, and Africa – notably Morocco, Jordan, Senegal, DR Congo, Tanzania, Malawi, Uganda, and Kenya.

Paul Makin has a background in retail payments and digital identity that began with the development of new payment products for the international payment schemes and their implementation with member banks around the world. In 2004, he moved into the arena of alternative digital financial services with the concept development and service design for M-Pesa in Kenya, and since then he has had strategic, advisory, and operational roles in DFS across Sub-Saharan Africa and South Asia. He has worked with a comprehensive range of stakeholders in the delivery and operation of DFS in countries as diverse as Kenya, Rwanda, Tanzania, Nepal, India, Bangladesh, Nigeria, Zambia, Myanmar, South Africa and Liberia.

Keith Davies has been both an executive practitioner and advisor in financial services for over fifteen years. The last nine of which have specifically been in digital financial services in Sub-Saharan Africa. His areas of expertise include strategy, data analytics, technology, business development, product development, and channel development. He has worked with banks, MFIs, MNOs, fintechs, and NGOs across a variety of markets including South Africa, Zambia, Malawi, Mozambique, DR Congo, Uganda, Tanzania, Kenya, and Tunisia. Keith has an MBA from the University of Oxford.

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