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# India Digital Financial Inclusion

## Journey Map Report

MARCH 2019

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# Acronyms

**AEPS**

Aadhaar-enabled Payment System

**API**

Application Programming Interface

**BBPS**

Bharat Bill Payment System

**BHIM**

Bharat Interface for Money

**BMGF**

Bill and Melinda Gates Foundation

**BPO**

Business Process Outsourcing

**CICO**

Cash-in Cash-out

**DBT**

Direct Benefit Transfer

**DFID**

Department for International Development

**DFS**

Digital Financial Services

**e-KYC**

electronic Know Your Customer

**FMCG**

Fast Moving Consumer Goods

**G2P**

Government-to-Person Payment

**GST**

Goods and Sales Tax

**IAMA**

Internet and Mobile Association of India

**IIM**

Indian Institute of Management

**J-A-M**

The trio of Pradhan Mantri Jan-Dhan Yojana (PMJDY) scheme, Aadhaar and Mobile

**MeitY**

Ministry of Electronics and Information Technology

**MFI**

Microfinance Institution

**MFIN**

Microfinance Institutions Network

**MGNREGS**

Mahatma Gandhi National Rural Employment Guarantee Scheme

**MNO**

Mobile Network Operator

**mSTAR**

Mobile Solutions Technical Assistance and Research Project

**NBFC**

Non-bank financing companies

**NGO**

Non-Governmental Organization

**NPCI**

National Payments Council of India

**P2P**

Person-to-person payment

**PB**

Payment Bank

**PMJDY**

Pradhan Mantri Jan-Dhan Yojana scheme

**POS:** Point of sale

**PPI**

Prepaid Payment Instruments

**RBI**

Reserve Bank of India

**RRB**

Regional Rural Bank

**SBI**

State Bank of India

**SFB**

Small Finance banks

**SHG**

Self-Help Group

**TRAI**

Telecom Regulatory Authority of India

**UCB**

Urban Cooperative Banks

**UIDAI**

The Unique Identification Authority of India

**UPI**

Unified Payment Interface

**USAID**

United States Agency for International  
Development

**VPA**

Virtual Payment Address



## Executive summary

Since 2014, India has embarked on one of the most ambitious financial inclusion initiatives ever seen anywhere in the world, bringing over 330 million people into the formal financial sector.<sup>1</sup> This report tells the story of this growth. It dissects the major trends and drivers behind them, identifies key actors and the roles that they have played, and presents a roadmap for how the next phase of digital financial inclusion in India can be made more effective and more inclusive. The report, commissioned by USAID through the Mobile Solutions Technical Assistance and Research (mSTAR) project, takes into account field research with users and providers of digital financial services, as well as interviews with senior experts in government, the development sector and the financial sector.

### INDIA'S DIGITAL FINANCIAL INCLUSION JOURNEY

The expansion in digital financial inclusion in India has been driven by significant innovation in both the public and private sectors. One of the key drivers has been government policy that explicitly prioritizes access to the banking system as a tool for poverty reduction and inclusive growth. Under the Government of India's Pradhan Mantri Jan-Dhan Yojana (PMJDY) scheme, bank accounts have been opened for the majority of Indian citizens and these accounts have become the default channel for delivery of government payments, such as through the Direct Benefit Transfer (DBT) system.

To achieve such rapid scale in account opening, the government has taken a big bet on technology. Growing internet coverage and smartphone penetration means that the future of banking is expected to be digital. By linking bank accounts to biometric identification (through the Aadhaar scheme) and to mobile numbers, the aim is to leapfrog more traditional models of financial access. Through licensing new tiers of financial institutions, government has pushed a differentiated banking model in which companies like Mobile Network Operators (MNOs) and fintechs can provide banking services under a Payment Bank license, and microfinance institutions (MFIs) are encouraged to leverage technology to align with the market and as an incentive for their growth into Small Finance Banks. The growth of digital payments received a particular one-off boost due to the government's sudden demonetization policy in November 2016.

While state-owned enterprises (such as State Bank of India, which opened a third of PMJDY accounts) continues to play a key role in the direct provision of banking services across India, the past four years have been characterized by a shift in the overall role of government in the financial inclusion agenda. In a technology-led model, the government has also prioritized the creation of enabling infrastructure, such as digital identification and payments technology, on which the private sector can build. The ultimate example

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<sup>1</sup> The proportion of the adult Indian population with an account at a financial institution increased from 52.8% to 79.8%, according to Global Findex <https://globalfindex.worldbank.org/> which corresponds to approximately 250 million, however, Government of India data shows approximately 330 million which is used throughout the report.

of this has been Unified Payment Interface (UPI), which has grown from nothing to overtake debit cards and pre-paid wallets as the primary form of digital payments. UPI was created and is managed by the National Payments Council of India (NPCI), an initiative of the Reserve Bank of India (RBI) and the banking sector.

Despite massive growth in account opening, there is evidence that India's digital finance push is having limited impact due to account dormancy and low levels of usage. 48% of people with an account at a financial institution made no deposits or withdrawals from that account over the past year.<sup>2</sup> Account dormancy is higher among populations with lower access to technology, such as poorer and rural populations. Major challenges remain around the viability of agent networks, financial literacy, the design of appropriate products for India's diverse population, and the stickiness of demand for cash as a means of payment and jewelry and livestock as savings tools.

## THE ROLE OF DIGITAL PAYMENTS IN EXPANDING FINANCIAL INCLUSION

In November 2014, USAID announced a significant commitment to support the Government of India's financial inclusion agenda in India. This commitment focused on expanding merchant acceptance of digital payments, a critical and underdeveloped piece of India's financial inclusion puzzle. Leveraging their expertise in [digital development and digital finance](#), USAID (in partnership with [FHI 360](#), [IFMR-LEAD](#) and [Intellectap](#)) commissioned a number of pilot activities across a range of urban and rural settings. This includes the CATALYST program examining various models for urban payments in Jaipur, and projects in Odisha, Maharashtra and Jharkhand looking at various rural and value chain-based approaches.

Based on data collected in these project locations, interviews with beneficiaries and a range of stakeholders around these projects as well as review of project documents and learning notes, there are a number of important findings that will help the digital finance space to grow in a more inclusive way. These include:

- 1. The human touch point remains critical** – even as technology enables rapid scaling of business models, the need for trust and understanding of how to use these services will continue to require interaction with a human being at the last mile
- 2. Digital finance is closely linked with aspiration** – in both urban and rural environments, the desire to try new digital products and continue to use them is closely linked with aspirational characteristics like wanting to grow a business or participate in the broader national digital economy.
- 3. Product design is important and underrated** – a number of models appear to have struggled because financial services do not meet the differentiated needs of Indian populations. Too often products have been designed for the needs of wealthier, urban, Hindi and English-speaking populations, effectively excluding large swathes of the market opportunity.
- 4. A lot of people still really like cash** – much of the movement towards digitization is based on an assumption that it provides an improvement on cash-based payments. This can overlook the complexities around why some people use cash and the difficulty of changing behavior.
- 5. More exploration is required around the linkages between digital payments and financial inclusion** – while great progress has been made the access to financial services, the relatively low levels of usage hints at a disconnect between what is assumed to be the impact of digital financial services and the reality on the ground.

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<sup>2</sup> Global Findex <https://globalfindex.worldbank.org/>



## RECOMMENDATIONS

The following table lays out a recommended roadmap for the government, the private sector and the development sector to develop an inclusive digital finance ecosystem over the short and longer term.

Table 1: Recommendations

	 <b>FOR GOVERNMENT</b>	 <b>FOR THE PRIVATE SECTOR</b>	 <b>FOR THE DEVELOPMENT SECTOR</b>
<b>Short term</b>	<ul style="list-style-type: none"> <li>- Clarify the position of Aadhaar in account opening<sup>3</sup></li> <li>- Build a stronger gender focus into next phase of financial inclusion programming</li> </ul>	<ul style="list-style-type: none"> <li>- Simplified apps, improved product design and focus on the customer experience</li> <li>- Increased innovation in savings and wealth management products, focus less on credit</li> <li>- Developing the youth market</li> </ul>	<ul style="list-style-type: none"> <li>- Building on international best practices for gender and DFS</li> <li>- Support for more inclusive business models</li> <li>- Support for local level innovation</li> </ul>
<b>Longer term</b>	<ul style="list-style-type: none"> <li>- Continue to develop shared infrastructure for innovation</li> <li>- Develop the regulatory framework for digital finance</li> <li>- Ensure that digital consumers are protected</li> </ul>	<ul style="list-style-type: none"> <li>- More local-level innovation and product development</li> </ul>	<ul style="list-style-type: none"> <li>- Long term risk capital for innovative approaches</li> <li>- Greater appreciation of the complexity of shifting from cash to digital</li> <li>- Building the evidence base for development impact of DFS</li> </ul>

<sup>3</sup> As of the date drafting of this report was completed, the GOI had passed a law in March 2019 that Aadhaar can be used voluntarily to open a bank account and get a new SIM card. This contradicts multiple regulations and an earlier Supreme court judgement that disallows the use and authentication of Aadhaar for account opening. UIDAI (the authority issuing Aadhaar) is not taking a stand. This has caused confusion by service providers and a reluctance to open accounts using Aadhaar. Further clarification is still required



# Introduction

Between 2014 and 2017, the proportion of the adult Indian population with an account at a financial institution increased from 52.8% to 79.8%<sup>4</sup>. Over the course of three years, this represents over three-hundred million people brought into the formal financial sector.

This period of growth was due in part to an extraordinary political push by the Modi government, elected to power in May 2014, to use financial inclusion (and in particular digitally-driven financial inclusion) as a key lever to promote economic and social development. The Pradhan Mantri Jan-Dhan Yojana (shortened to PMJDY), a drive to provide all Indians with a bank account, was the cornerstone of this policy agenda. At the same time, the financial inclusion push intersected with two other major policies of the Modi government: Digital India (driven by the rapid expansion in mobile phone and internet coverage) and Aadhaar (the provision of a unique digital ID for every citizen). The troika of PMJDY, Aadhaar and Mobile, summarizing the drive to digitally-led financial inclusion, was called the J-A-M trinity.

The government's initiatives in this space have been supported and accelerated by an active private sector ranging from large commercial banks to international technology companies and fintech startups, and by a development sector keen to support innovation to promote poverty reduction and inclusive growth in India.

The purpose of this study is to map out the story of India's growth in digital financial services between 2014 and 2018, identifying the key trends and drivers of growth with a particular focus on the digital payments sector as a tool for growing the level of financial inclusion.

Section 1 considers the macro picture, using available data to map out the trajectory of digital financial services in India since 2014 and explaining the key trends based on a thorough literature review and interviews with some of the major players in the market.

Section 2 focusses on the digital merchant payment space, analyzing the results of investments made by USAID in four projects – one in Jaipur, one in rural Odisha, one in rural Maharashtra and one in Jharkhand – that aimed to develop our understanding of the key challenges and opportunities of digital payments in promoting financial inclusion.

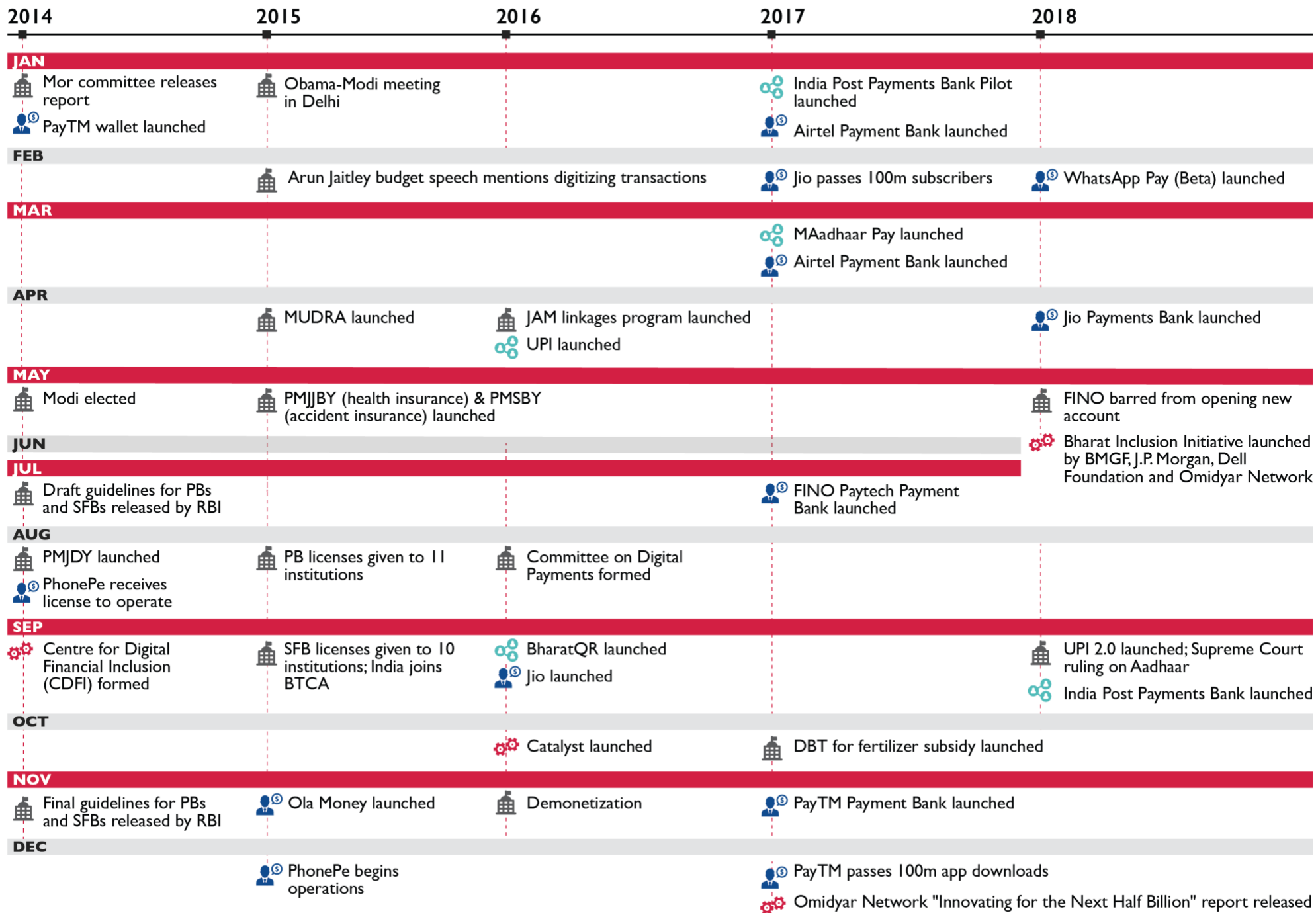
Based on the findings from Sections 1 and 2, Section 3 provides recommendations and a roadmap for the public sector, the private sector and the development sector to further promote an inclusive and sustainable digital financial system in India.

Figure 1 provides a summary of the key milestones in the growth of India's DFS sector since 2014. It highlights the major activities carried out by government, public sector organizations, the private sector and the development sector that underpin the increased uptake of digital financial services and that are studied in greater detail through this report.

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<sup>4</sup> Global Findex <https://globalfindex.worldbank.org/>

 **Figure 1. Key events in the India DFS ecosystem 2014-18**



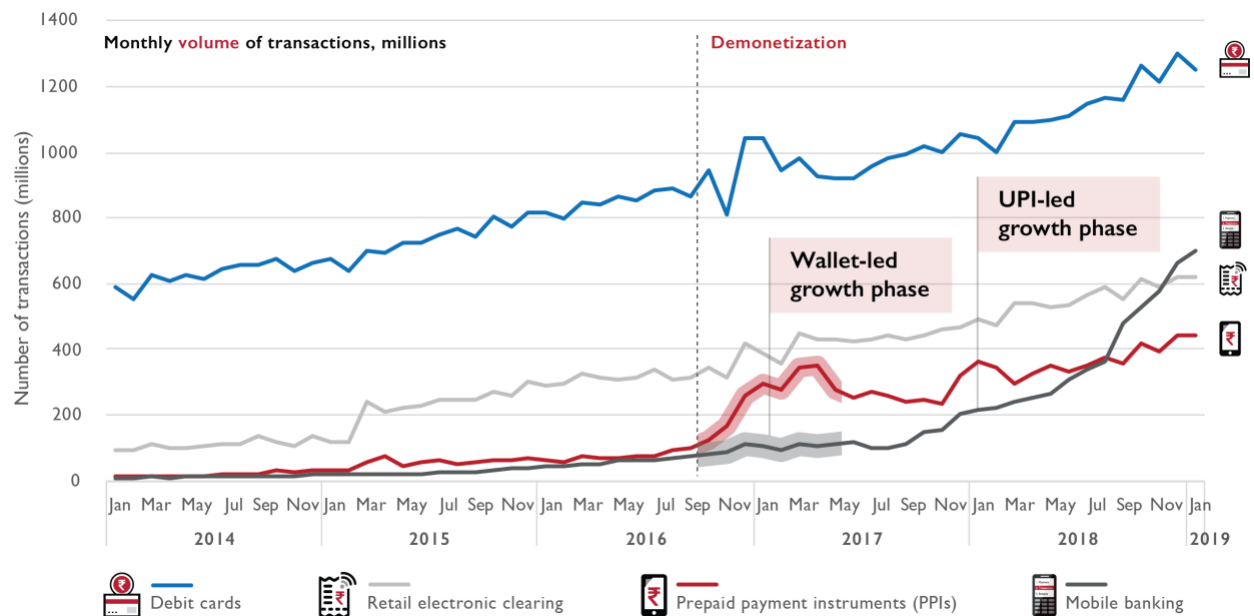
# SECTION I

## India's Digital Financial Services Journey

### 1.1 GROWTH IN DIGITAL FINANCIAL SERVICES (DFS) SINCE 2014

The evolution of DFS in India since 2014 can be broadly broken up into three phases of growth, as shown in Figure 2 below. The first phase, from early 2014 to around August 2016 was characterized by steady growth of around 2% per month in transaction volumes on the major digital platforms. Then, in the last few months of 2016, transactions through pre-paid instruments (PPIs – mostly digital wallets like Paytm and Mobikwik) began to grow rapidly – the volume of PPI transactions trebled between September 2016 and January 2017. This second phase was driven primarily by demonetization ([see section 1.2.7](#)). This growth tailed off however and the third phase was driven not by pre-paid instruments but by the introduction of Unified Payments Interface (UPI), NPCI's interoperable digital payments platform that grew from barely any transactions in mid-2017 to overtake PPIs and debit cards as the primary vehicle for digital transactions.

Figure 2: Growth in digital transactions 2014-18 (source: RBI data)



## 1.2 GOVERNMENT INITIATIVES SINCE 2014

### 1.2.1 Jan Dhan Yojana

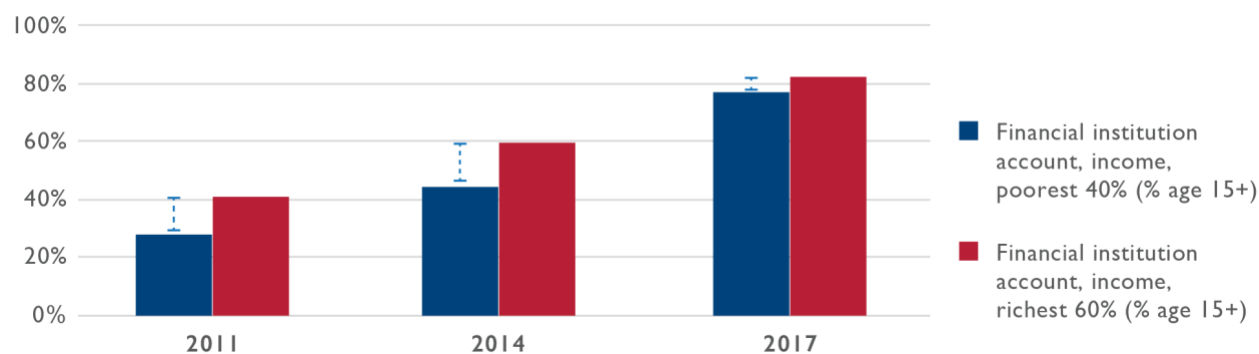
Pradhan Mantri Jan-Dhan Yojana (PMJDY) is the Modi government's flagship financial inclusion program. Launched in August 2014, it continued a tradition of bank-led financial inclusion programming in India (in contrast to MNO-led models such as in Kenya), aiming to leverage the vast network of (largely state-owned) banks to provide all adult Indians with a bank account.

According to the Government of India's own data<sup>5</sup>, as of November 2018, 330 million bank accounts had been opened under the PMJDY scheme. The scheme has largely been driven by the large public sector banks – only 10.4 million of the new accounts were opened by private sector banks with the remainder split between Regional Rural Banks (RRBs) and the Public Sector Banks. State Bank of India (SBI) alone accounted for over 100 million of these accounts.

The dominance of state banks in expanding the scheme links to the inclusivity of the PMJDY agenda. Data from Global Findex<sup>6</sup> demonstrates how since 2014, the access gap between rich and poor that had grown between 2011-14 has begun to close. In 2011, only 27% of the poorest of Indians had a bank account compared to 41% of the richest (a gap of 14%). In 2014, this gap had widened to 16% (43% compared to 59%). By 2017 however, the gap narrowed to just 5%.

Figure 3: Differences between rich and poor in financial access (source: Findex)

#### The gap in financial access between poorer and richer Indians narrowed between 2014-2017



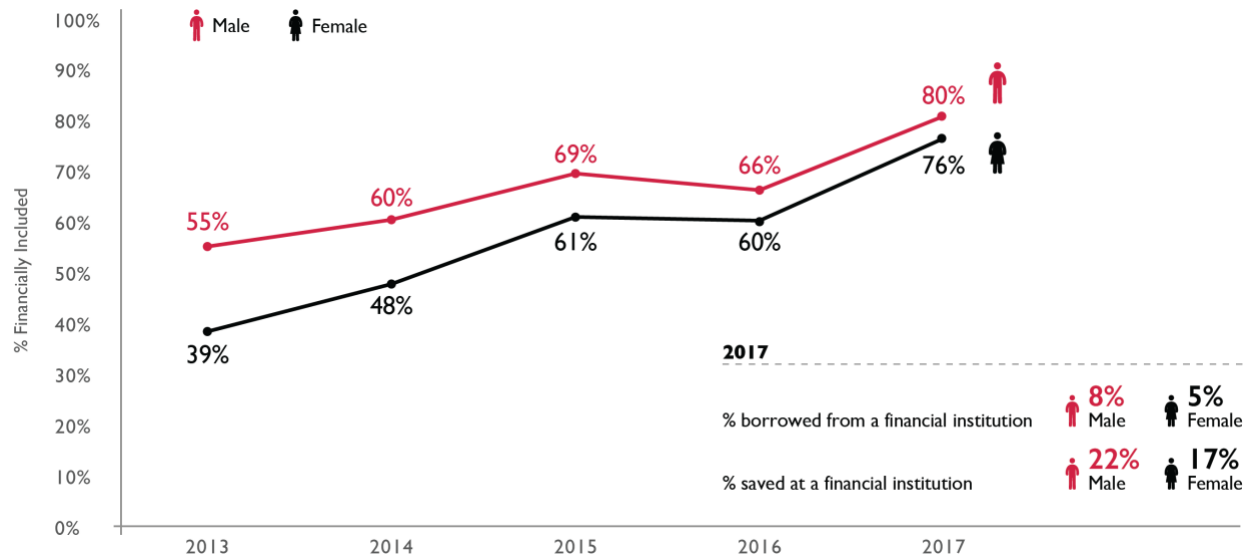
This can largely be explained by the fact that most of the account opening took place in rural areas – 197 million of the new accounts were in rural or semi-urban areas, and to an extent PMJDY also appears to have helped close the rural/urban divide in account access. According to data from Financial Inclusion Insights<sup>7</sup> in 2014, 59% of urban Indians had access to a bank account compared to 52% of rural Indians. By 2017 however this gap had disappeared – 79% of the rural population had a bank account compared to 76% of urban Indians.

<sup>5</sup> Data from <https://www.pmjdy.gov.in>

<sup>6</sup> <https://globalfindex.worldbank.org/>

<sup>7</sup> [http://finclusion.org/data\\_fiinder/](http://finclusion.org/data_fiinder/)

Figure 4: Gender disaggregation of financial access (source: Finclusion)



The gender gap in financial access has also closed in recent years. According to Global Findex data<sup>8</sup>, the gap between account access for men and for women closed from 20% (63% for men vs 43% for women) in 2014 to just 6% (83% vs 77%) in 2017. During the same time period, the proportion of women who had made or received digital payments in the past year doubled from 11% in 2014 to 22% in 2017. The closing of the gender gap is also seen in Finclusion data (see Figure 4).

While progress has clearly been made on gender in financial inclusion, it is less clear that India's youth are seeing the same benefits. The proportion of young adults (aged 15-24) who received a digital payment in 2017 was 12%, the same as it was in 2014. As of 2017, 67% of people aged 15-24 were financially included, compared to 80% of those aged 25-44 and 82% of those above 45.<sup>9</sup>

Despite an uneven distribution of benefits, and the observation that up to a third of PMJDY accounts appear to have been opened for customers who already had a bank account<sup>10</sup>, the scheme does seem to have effectively lifted the accessibility constraint for the bulk of the population who were financially excluded in 2014. If having an account is a pre-requisite for deeper and more meaningful engagement with financial services, then the government has largely succeeded in providing this base level of universal access. However, as discussed in Section 1.2.4, there have been some challenges with usage.

### 1.2.2 Direct Benefit Transfers (DBT) and Government-to-Person (G2P) payments

PMJDY has been closely linked with the growth of the government's Direct Benefit Transfer (DBT) mission, which now channels 433 schemes from across 56 ministries.<sup>11</sup> DBT is a government-led initiative comprising multiple schemes for which benefits are directly transferred to beneficiaries channeled primarily through state institutions. As DBT provided a primary use case for many end users, it has been able to grow synergistically with other government initiatives including insurance and pensions schemes,

<sup>8</sup> <https://globalfindex.worldbank.org/>

<sup>9</sup> [http://finclusion.org/data\\_fiinder/](http://finclusion.org/data_fiinder/)

<sup>10</sup> MicroSave PMJDY wave III Assessment [http://www.microsave.net/files/pdf/PMJDY\\_Wave\\_III\\_Assessment\\_MicroSave.pdf](http://www.microsave.net/files/pdf/PMJDY_Wave_III_Assessment_MicroSave.pdf)

<sup>11</sup> <https://dbtbarat.gov.in/scheme/schemelist>

fuel and fertilizer subsidies, MGNREGS (Mahatma Gandhi National Rural Employment Guarantee Scheme) and other benefits transfers supported on the PMJDY foundation.

For many of those who accessed financial services for the first time in the period between 2014-2018, receipt of DBT payments into a bank account was the first time in which they will have used a digital financial service. According to the government's own figures, more than 75 million PMJDY accounts are receiving DBT.<sup>12</sup> However, the challenge is to deliver more compelling use cases and move from the first stage – access – to the next stage of financial inclusion – active usage.

While DBT is one such use case, anecdotal evidence suggests that for a large proportion of recipients, usage of their new bank account is limited to one transaction per month – the withdrawal of their benefit payment from a bank account into cash. So, while the government may have made savings in the distribution of payments, and leakages may have reduced, the impact of financial inclusion may be limited.

### 1.2.3 RuPay

In order to facilitate usage of newly-opened PMJDY bank accounts, customers were issued with RuPay debit cards to allow for ATM withdrawals and POS (point of sale) payments. RuPay was previously launched by NPCI in 2012 as a domestic alternative to Visa and MasterCard as an open loop, interoperable, all-purpose payment system. Of the 330 million people with PMJDY scheme bank accounts, 79% have also been issued with a RuPay card<sup>13</sup>. This represents 260 million people provided – likely for the first time – access to a tool for accessing and spending their money without needing to handle cash.

However, there is limited evidence of RuPay successfully driving usage of PMJDY accounts. A study by MicroSave<sup>14</sup> found that 53% of customers had not received their RuPay card and that many RuPay cards were lying unused and unproductive at bank branches or Bank Mitra (banking agent) locations. This was mainly due to the difficulty of travelling to a branch to collect a card and staff capacity in rural branches. Where cards were received by customers, problems often ensued of not receiving PINs or insufficient knowledge of how to activate and use the cards. According to Global Findex data, although debit card ownership in India increased from 22% in 2014 to 33% in 2017, the proportion of people who had used a debit card to make a purchase in the past year increased only 1%, from 11% to 12%.

### 1.2.4 Account Dormancy

One widely-reported challenge of PMJDY has been the issue of account dormancy and zero-balance accounts. The government stopped reporting the official levels of zero-balance accounts at the end of 2016 (when the figure stood at 24.1%<sup>15</sup>) and anecdotal evidence<sup>16</sup> suggests that in some cases, officials were depositing one rupee in accounts to avoid them being classed as zero balance, implying that actual dormant accounts may be even higher. One study<sup>17</sup>, tracking deposits and withdrawals from banks accounts over six months from account opening found that 81% of customers did not make a deposit and only 7% made two or more deposit transactions. The proportion of users making more than one inward or outward remittance per month was less than 1%.

However, the authors found that usage grew with familiarity over time, a finding supported by a longer panel survey<sup>18</sup> that found that over time, PMJDY account holders were more likely to use their accounts and increase cash balances. Government DBT payments explained part but not all of this usage. The study

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<sup>12</sup> [https://www.pmjdy.gov.in/files/E-Documents/Continuation\\_of\\_PMJDY.pdf](https://www.pmjdy.gov.in/files/E-Documents/Continuation_of_PMJDY.pdf)

<sup>13</sup> <https://www.pmjdy.gov.in/>

<sup>14</sup> [http://www.microsave.net/files/pdf/PMJDY\\_Wave\\_III\\_Assessment\\_MicroSave.pdf](http://www.microsave.net/files/pdf/PMJDY_Wave_III_Assessment_MicroSave.pdf)

<sup>15</sup> <https://pmjdy.gov.in/trend-zero>

<sup>16</sup> For example: <https://indianexpress.com/article/business/banking-and-finance/how-banks-cut-their-zero-balance-jan-dhan-accounts-one-rupee-trick-3028190/>

<sup>17</sup> Agarwal, Sumit, Shashwat Alok, Pulak Ghosh, Soumyakanti Ghosh, Tomasz Piskorski, and Amit Seru, 2017, Banking the unbanked: What Do 255 Million New Bank Accounts Reveal About Financial Access?

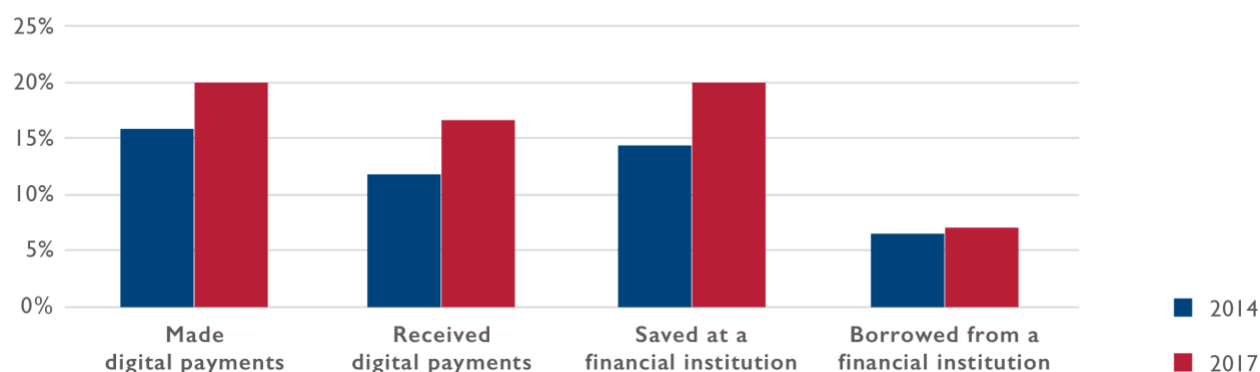
<sup>18</sup> Yakshup Chopra, Nagpurnanand Prabhala, and Prasanna Tantri, 2018, Bank Accounts For The Unbanked: Evidence from a Big Bang Experiment

found that the previously unbanked population learn by doing and increased usage of accounts for transactions, liquidity management, and increasingly, balance accumulation. As of end November 2018, the average balance in a PMJDY account was Rs.2,525 (US\$36 – as of December 2018, Rs.70 = US\$1).

Despite these findings, and the need to take a long view on the required behavioral change around account usage, it is clear that usage of financial services did not grow nearly as rapidly as access to financial services between 2014-17. According to Global Findex data, the proportion of the adult population who made a digital payment in 2017 was 20%, up from 16% in 2014. Borrowing from a financial institution increased from 6% to 7%.

Figure 5: Usage of Financial Services (source: Global Findex data)

#### Change in usage of financial services between 2014-2017



However, the proportion of those with an account at a financial institution who had made no deposits nor withdrawals in 2017 increased from 42% to 48%. This implies that, despite the progress made since 2014, half of those with access to a bank account are not using the account at all.

Industry experts provide a range of reasons for why so many accounts remain dormant. The weakness of last mile infrastructure appears to be one major reason. Cash-in-cash-out (CICO) agents are not sufficiently widespread or located where they would need to be to facilitate regular transactions. While many issues on the supply side have been overcome through the PMJDY initiative, less attention has been paid to the demand side, around financial literacy and building understanding and trust in the system. Behavioral change is complex and takes time. There is often a strong status quo bias towards cash hence a lack of interest in other financial mediums (and where people do have excess cash to save, it is common for it to be invested in jewelry or livestock, not put in a savings account). One further suggestion is that in some cases – particularly for the poorest populations – the value proposition of banking is absent as incomes may be too low or because the informal mechanisms they are used to remain preferable. There are many reasons that people do not use their bank accounts even if they are available and have access, including, but not limited to: their level of financial literacy; cultural reasons; not having enough money to save; or not having yet made a permanent behavior shift. However, the assumption that poor people want a bank account has not been empirically tested.

### 1.2.5 Aadhaar and the India Stack

As presented in the introduction, the second pillar of the government’s J-A-M trinity is Aadhaar, the national ID scheme that has provided the vast bulk of the Indian population with a unique biometric-linked 12-digit identification number that can be used as proof of identity. The growth of Aadhaar has been closely entwined with PMJDY, as Aadhaar number became the de facto identification for particularly rural Indians needing to open a bank account for the first time but without additional documentation required



for account opening. Between 2016-17 and 2017-18, the number of e-KYC verifications through Aadhaar increased from 48 million to 138 million.<sup>19</sup> As of August 2018, more than 83% operative PMJDY accounts (except states of Assam, Meghalaya and Jammu and Kashmir) are Aadhaar seeded<sup>20</sup> and while uncertainty remains after the Supreme Court ruled in September 2018 that Aadhaar may not be used by private sector entities for verification, there is little doubt that Aadhaar has played a significant role to date in allowing digitally-enabled financial services to rapidly achieve scale.

The dramatic reduction in cost of customer acquisition (anecdotally, from around Rs.100 per customer to less than Rs.10) brought about by Aadhaar has meant that there is a stronger business case for serving lower-income and remote customers and opened up potential for more commercial entities to enter these markets. Aadhaar is a foundational part of a broader government initiative to lay foundational infrastructure upon which the private sector to push forward on the digital financial inclusion mission. According to one development sector expert, we are coming to the end of a phase of government-led financial inclusion and moving into a phase of private sector-led financial inclusion in which government's role shifts from direct delivery to infrastructure provision.

The linkage of a person's mobile phone number with their Aadhaar number and their bank account completes the J-A-M trinity and provides the foundational digital infrastructure not just for identification and e-KYC but for a broader array of personalized digital services and use cases. The India Stack, an initiative of iSPIRT<sup>21</sup>, has brought these use cases together by providing application programming interface (APIs) that allow customers to store means of identity (e.g. Aadhaar) and consent (e.g. e-signature) in a digital locker, opening up the opportunity for financial service providers to deliver services digitally, remotely and at minimal cost riding on these established digital rails. This technology stack, which significantly reduces the costs of customer acquisition and servicing, forms the basis for a range of services launched by both public and private sectors.<sup>22</sup>

### **1.2.6 Unified Payments Interface (UPI)**

The Unified Payments Interface (UPI), launched by National Payments Council of India (NPCI) in April 2016, has been a major factor in the rapid growth of digital payments in India since 2014. The platform provides low-cost, large scale payments interoperability, allowing users to easily make payments directly from their bank accounts using only a Virtual Payment Address (VPA) linked to the recipient's bank account and phone number. Since UPI began to gain traction towards the end of 2017, it has experienced hockey stick growth – in the year from September 2017, average month-on-month growth in transaction volumes was 33%. In September 2018 UPI overtook debit cards and pre-paid instruments in terms of the monthly volume of transactions passing through the platform. Between January 2018 and January 2019, the volume of transactions increased by 450%.

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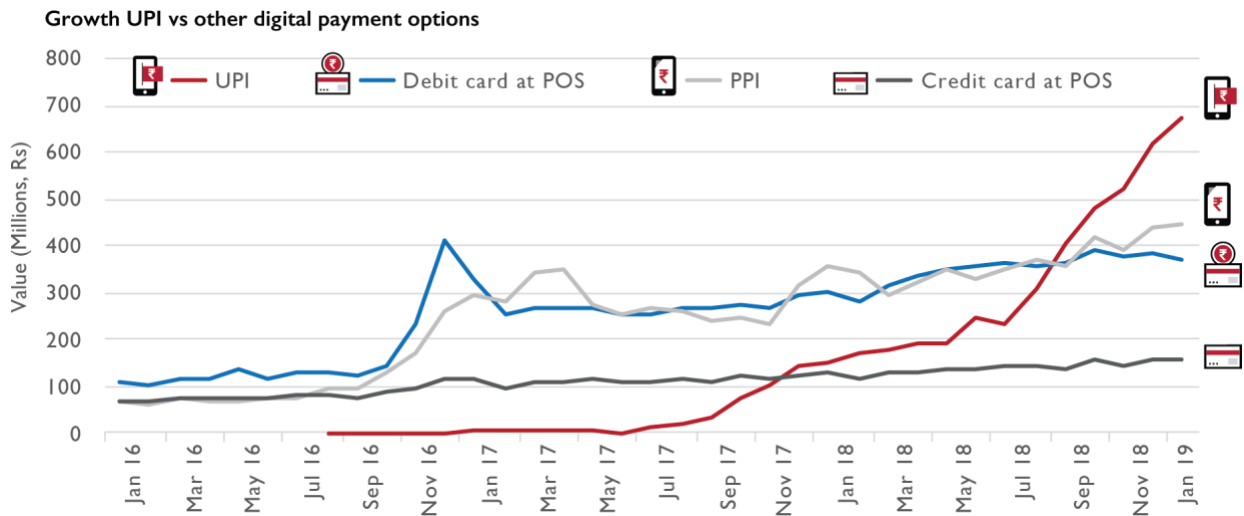
<sup>19</sup> IDinsight State of Aadhaar Report 2017-18

<sup>20</sup> [https://www.pmjdy.gov.in/files/E-Documents/Continuation\\_of\\_PMJDY.pdf](https://www.pmjdy.gov.in/files/E-Documents/Continuation_of_PMJDY.pdf)

<sup>21</sup> <https://ispirt.in/>

<sup>22</sup> Cost and time associated with customer acquisition could well increase again if the Supreme Court's ruling on Aadhaar is upheld

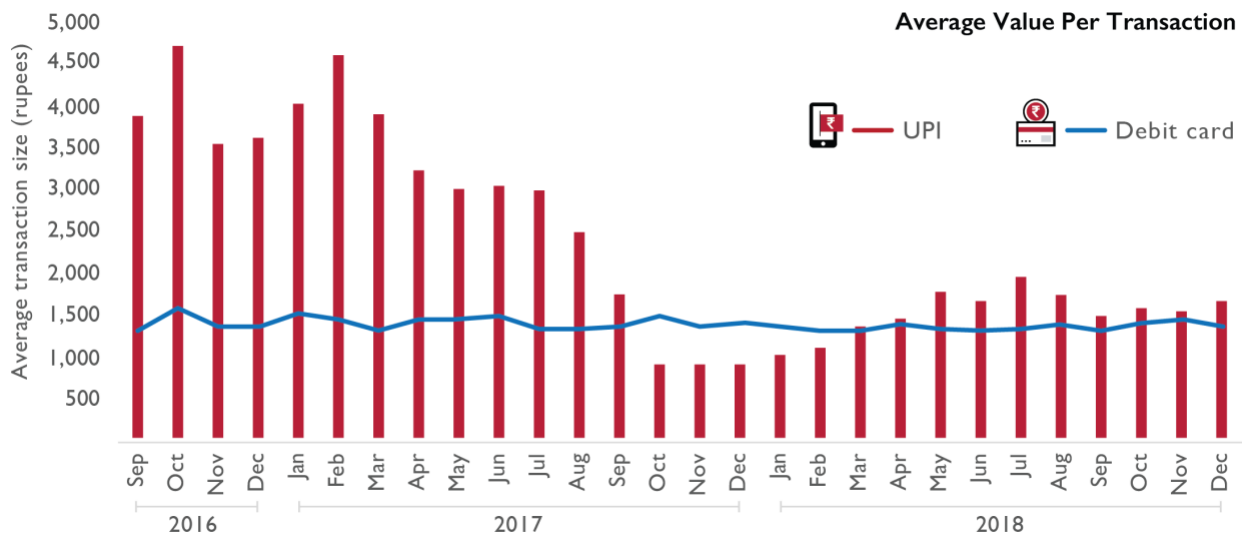
Figure 6: Growth in UPI vs other digital retail payments (source: RBI data)



The remarkable growth of UPI reflected in Figure 6 has been enabled in part by rapid growth in smartphone penetration, particularly among lower-income urban customers, and the reducing cost of data. Interestingly, though the service was available at the time of demonetization, its rapid growth period did not begin until almost a year later. It is also the case that in the early months of UPI, when transaction volumes were relatively low, the average transaction size was high – typically around Rs.4,000, compared to an average of around Rs.1,500 for debit cards.

As transaction volumes began to grow rapidly towards the end of 2017, it appears that people started to use UPI for much smaller transaction types, consistent with a movement away from higher value P2P payments towards lower value retail payments. Through 2018, the average UPI transaction size has plateaued at around Rs.1,500 a similar level to debit cards (see Figure 7 below), while the total value of all transactions has climbed significantly (see Figure 6 above). This may imply that UPI is becoming the preferred digital transaction method even for relatively small payments, as people substitute away from debit cards and other payment types.

Figure 7: Average transaction value of UPI vs debit cards (source: RBI, NCPI data and author calculations)

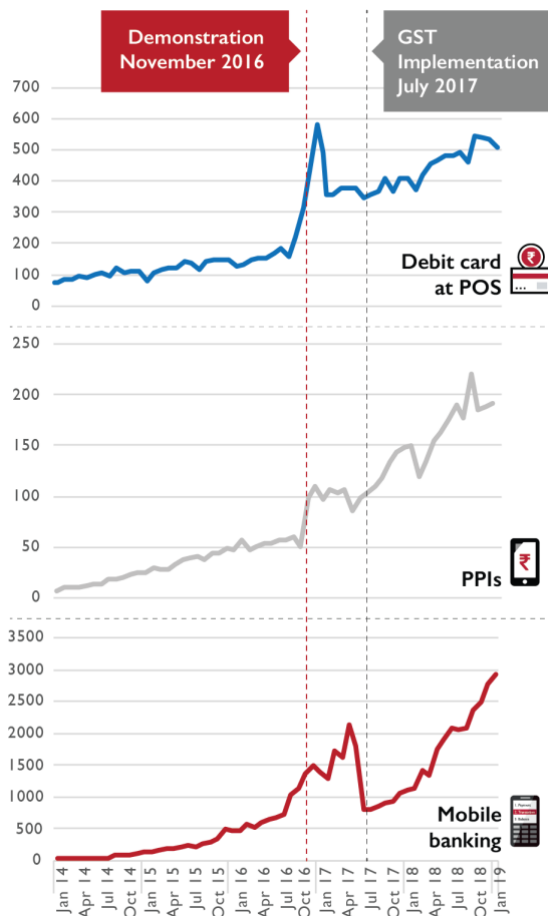


## 1.2.7 Demonetization and GST

Demonetization – the sudden cancelling of all Rs.500 and Rs.1,000 banknotes on November 8, 2016 – provided a shock to the Indian payments landscape. Though the objectives behind the sudden policy initiative are contested, it is likely that the promotion of digital money as a store of wealth, as opposed to hoarding cash, was a factor. The promotion of digital payments, as opposed to cash payments, may also have been a factor, though that is less clear.

Figure 8: Impact of demonetization on various digital payments (source: RBI data)

Monthly value of transactions (Billions, Rupees)



Whatever the motives, it is clear that demonetization led to a short-term spike in usage of digital payments instruments. The volume of debit card point of sale transactions in December 2016 was 164% higher than it was in October.<sup>23</sup> Pre-paid instruments, including mobile wallets like PayTM, saw transactions rise by 62% over the same time span.

The longer-term effect of demonetization appears however less marked. As cash returned to circulation in the early months of 2017, the incentives to use digital payment methods decreased and growth in most digital payment platforms returned to something like pre-demonetization growth trends. For the twelve months from March 2017 to March 2018, average monthly growth in volume of debit card transactions was 0.5%. And while the usage of pre-paid instruments did later begin to grow again at a faster rate, this acceleration did not come until the second half of 2017, well after demonetization. Total volume of PPI transactions fell through the first half of 2017 and did not reach the level of its January 2017 peak again until October 2017. This macro-level data is supported by a study by IFMR LEAD<sup>24</sup> which found that in the short term, “demonetization might have nudged people to tweak their financial behavior depending on the availability of cash” but “demonetization does not seem to have a long-term impact on savings and use of digital payments”.

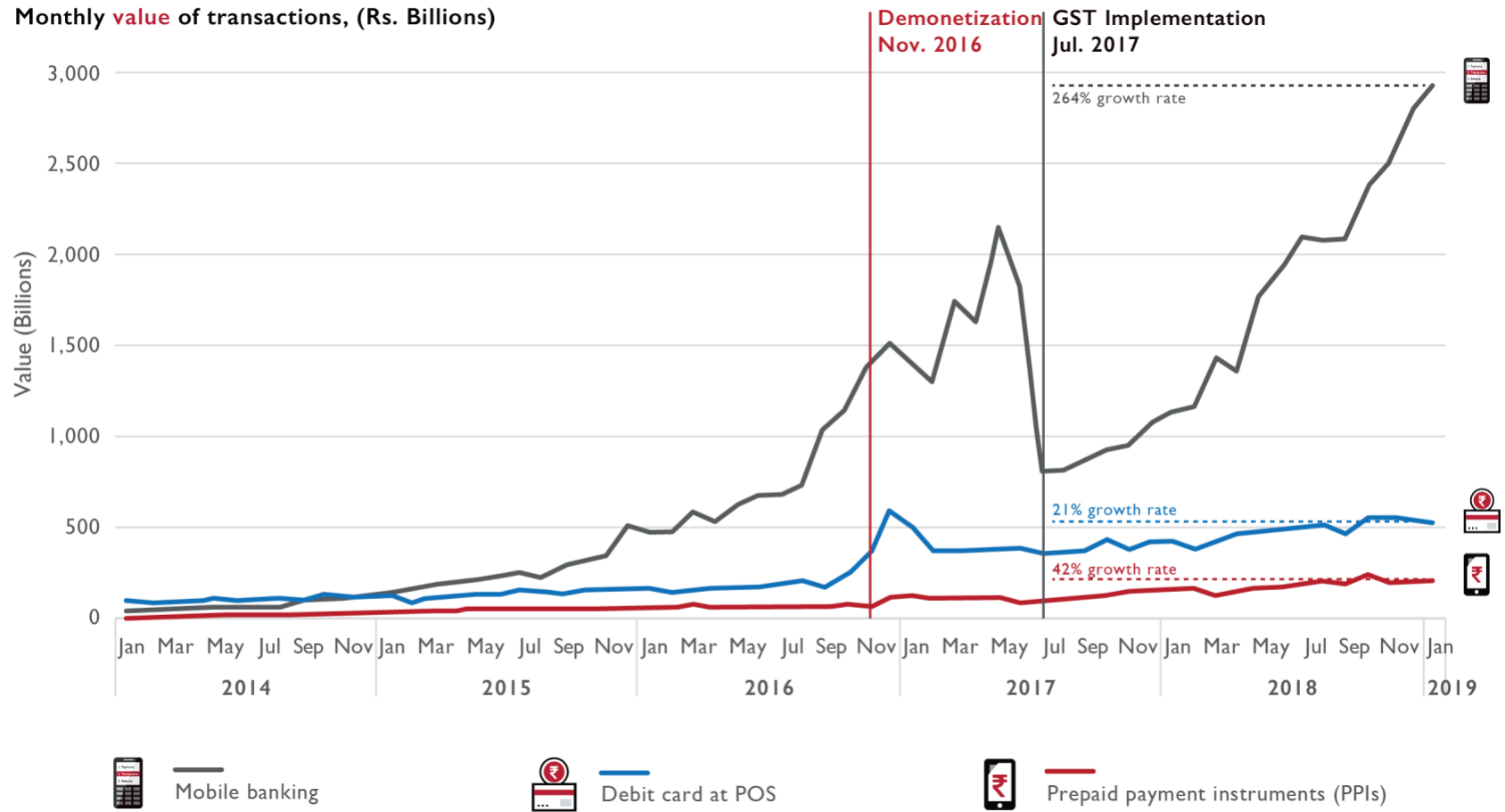
Demonetization may well have contributed as an immediate trigger to growth in digital payments by necessitating people to engage with digital payments for the first time, learning how they work and encouraging

trust in the system. However, the longer-term growth seen since the start of 2016 appears to be explained much more by the growth of UPI (see section 1.2.6) – which coincided with increased business formalization and digital acceptance since the launch of the Goods and Sales Tax (GST) – than by demonetization. In a sense, demonetization may have opened the door, but it was UPI that walked through it. There is not sufficient data to draw a causal linkage but based on the trend lines expressed in Figure 8, it is interpreted that GST was a more significant driver of long-term growth since it brought many more businesses into the formal digital economy when they were required to make Government payments and they saw the benefits of digital payment use for other transactions.

<sup>23</sup> Calculations based on RBI data

<sup>24</sup> IFMR LEAD April 2018 Understanding the Impact of Demonetization on Bank Account Holders from Low Income Households

Figure 9: Effects of demonetization and GST (source: RBI data)



## 1.2.8 Developments in the Policy and Regulatory Framework

### 1.2.8.1 Payments Regulation and the Changing Role of National Payments Council of India (NPCI)

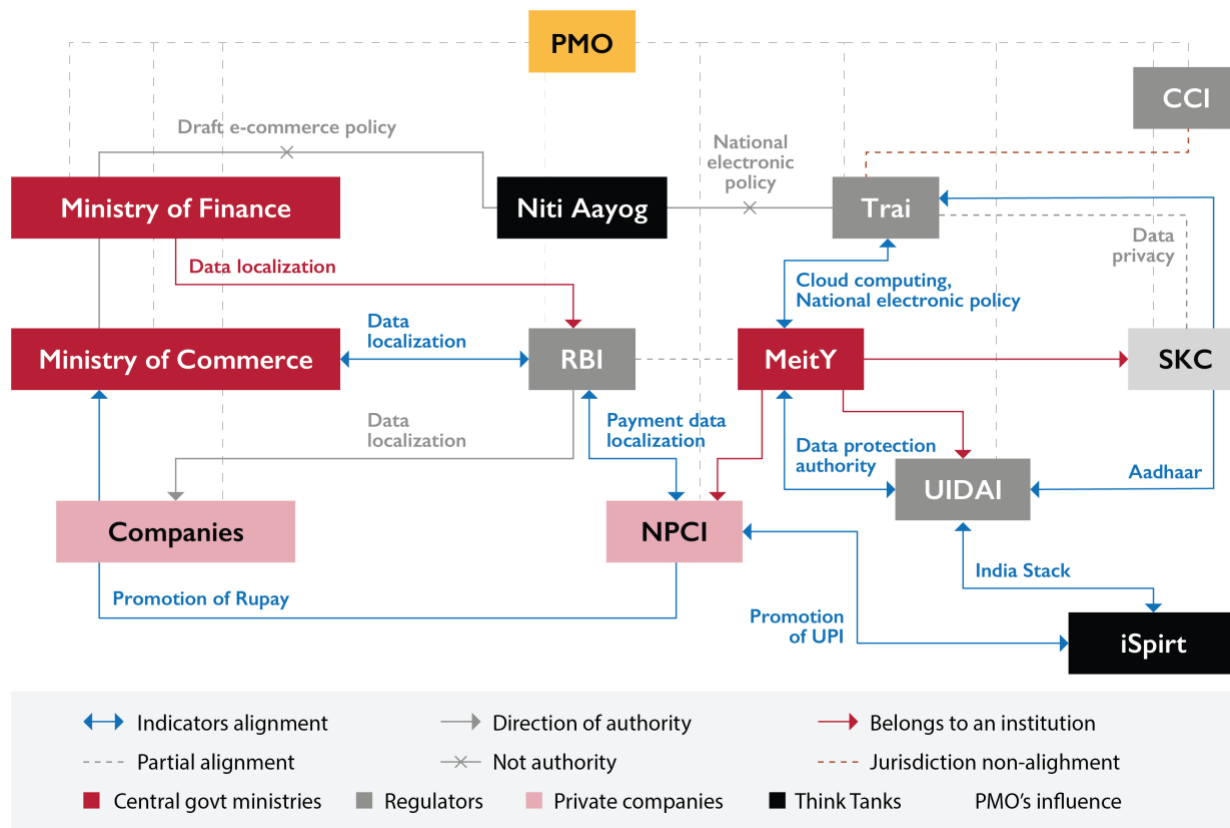
The regulation of payments and digital finance in India can be a complex web of institutions and rule-setting bodies. As mapped out in the diagram below, there are a number of government institutions with an interest in the digital payments space – these include:

- **RBI**, which is responsible for regulating payments and banks and for overall financial stability
- Ministry of Finance (in particular the Department of Financial Services), which has traditionally run the government’s financial inclusion programs and is responsible for PMJDY
- **NITI Aayog**, the government’s strategy think-tank which chaired a government committee on digital payments and published [a 2018 white paper](#)<sup>25</sup> on the subject
- TRAI, the communications regulator which advises on data, KYC and digital payment systems
- MeitY, the Ministry of Electronics and Information Technology which coordinates the government’s Digital India initiative

To add to this, Government of India is currently considering proposals to introduce a new payments regulator, independent of RBI.

The following diagram maps out some of the key players and relationships that exists between institutions in the digital payments ecosystem.

Figure 10: The policy ecosystem and the role of NPCI (source: The Ken)



<sup>25</sup> [http://niti.gov.in/writereaddata/files/document\\_publication/DigitalPaymentBook.pdf](http://niti.gov.in/writereaddata/files/document_publication/DigitalPaymentBook.pdf)

At the center of this digital payments ecosystem is the National Payments Corporation of India (NPCI), a unique institution owned by and representing the banking sector (primarily the public sector banks) and backed by RBI. NPCI plays a peripatetic role, at times acting as an industry body, a market player (it owns RuPay and UPI), a payment infrastructure platform (responsible for the National Financial Switch) and a quasi-regulator. NPCI is also the guardian of most of the new payment innovations introduced to facilitate different modes of digital payment. In addition to UPI and RuPay, NPCI has introduced, among others:

- **IMPS** (launched 2010) for immediate bank-to-bank transfers (but without the app-based interface of UPI);
- **BHIM**, which was launched late-2016 as a simplified app for UPI transactions;
- **Aadhaar-enabled Payment System (AEPS)**, launched early-2017 for digital PoS transactions;
- **\*99#**, also launched late-2016 to allow digital banking transactions via USSD on basic mobile phones; and
- **Bharat Bill Payment System (BBPS)**, launched in 2016 to facilitate digital payments for utilities and P2G payments

With these products and others, NPCI has sought to position itself as a primary operator for a range of potential use cases for digital payments, in doing so anchoring itself as the central focus point of India's digital payments ecosystem.

### 1.2.9 Licensing of new tiers of banking institutions

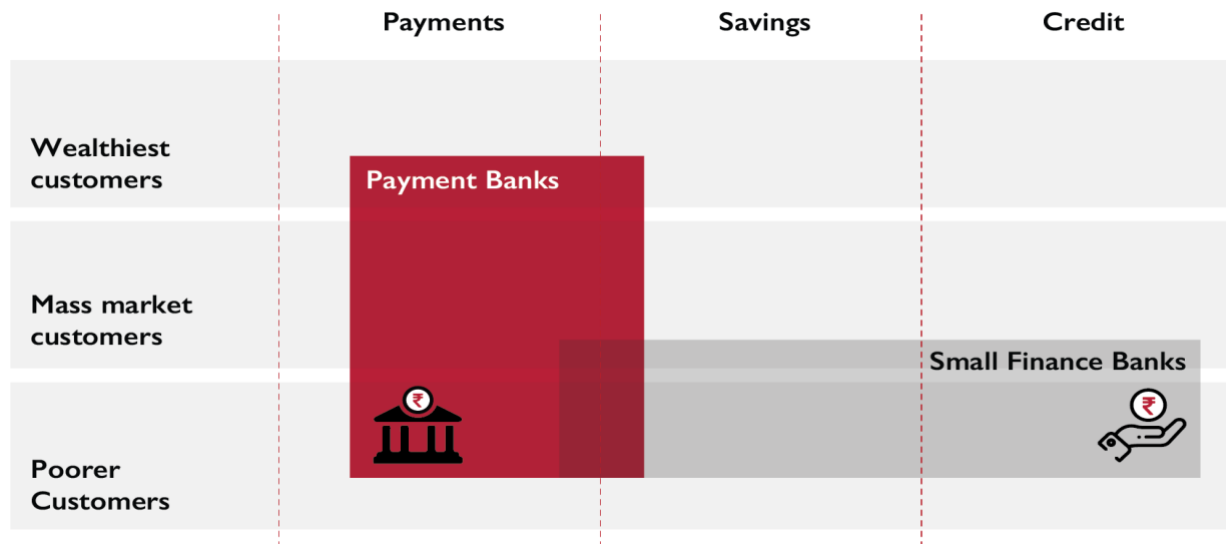
The 2014-18 era of financial inclusion in India has also been characterized by the introduction of a new structure of differentiated banking, aimed at leveraging technology to deliver improved financial services to excluded populations – particularly small businesses and low-income households. As shown in Figure 11 below, as per the RBI's 2014 Draft Guidelines for Licensing of Payments Banks and Small Banks<sup>26</sup>, the two main areas of policy innovation were to open up a new tier of banks servicing the payment vertical, and another horizontally aligned to provide full banking services to lower income customers and small businesses.

The new policy agenda in support of differentiated banking has changed the competitive structure of India's banking and financial services markets. The delivery of financial services to poorer and excluded communities, which was traditionally associated with the large state banks, was now to be part of the mandate of a new breed of institution. Rather than large banks providing full-service offerings, these new structures were designed to offer more tailored solutions to specific market segments. Ideas and business models from outside of traditional banking, such as those from fintechs and MNOs, were encouraged in to promote competition and innovation.

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<sup>26</sup> [https://www.rbi.org.in/scripts/BS\\_PressReleaseDisplay.aspx?prid=31646](https://www.rbi.org.in/scripts/BS_PressReleaseDisplay.aspx?prid=31646)

Figure 11: Intended market segments of Payment Banks and Small Finance Banks



## 1.3 INDUSTRY INITIATIVES

### 1.3.1 Payments Banks

The launch of Payments Banks, one of the standout recommendations of the 2014 Mor Committee report<sup>27</sup>, has been a major pillar of the Modi government’s financial inclusion programming. The aim was to bring non-traditional players – telecoms companies, fintechs, industrialists and the postal service – into the formal banking sector to leverage their existing networks to further digital financial inclusion through payments and small savings. Services were to be targeted at under-served groups such as low-income households, migrant workers and micro and small businesses. Payment Banks can facilitate digital payments and savings up to Rs. 1 lakh (roughly \$1,400) but cannot lend.

Of the eleven licenses that were issued for payments banks three were surrendered due to difficulties in building an effective business model, and a number of challenges have hampered those that have launched. These challenges include the struggle to find sufficient revenues to drive profitability in the absence of any mandate to provide credit. In addition, Airtel Payments Bank, Paytm Payments Bank and Fino Payments Bank were temporarily forced by RBI to stop enrolling new customers due to issues around data privacy and misuse of KYC verification of clients.

Building on its advantage of having an existing widespread payments network, Paytm has emerged as the leader in the nascent payments bank market. In September 2018, Paytm Payments Bank processed more than a quarter of all mobile banking transactions in the country. This represents 124 million mobile banking transactions in a month, 47% more than SBI, the next largest bank by mobile banking transaction volumes (the next largest payments bank by transaction volumes, Aditya Birla Idea Payments Bank, accounted for 0.35% of total transactions).

<sup>27</sup> Committee on Comprehensive Financial Services for Small Businesses and Low Income Households

Payments Banks also appear to be servicing a different kind of a need in the market compared to older banks, as the average transaction size for payment banks was Rs.754 (~\$10.70), compared to over Rs.4,000 (~\$57.36) for the banking sector as a whole.<sup>28</sup>

Aside from the success of Paytm, there remains optimism that one or more other payments banks could develop a model that works to significantly impact financial inclusion. In particular, the launch of India Post Payments Bank in September 2018 opens up the possibility for the postal network's 155,000 post offices branches<sup>29</sup> to be leveraged as financial access points, particularly for more rural customers.

### 1.3.2 Microfinance and Small Finance Banks

The idea of licensing a new tier of Small Finance Banks was explicitly about leveraging digital technology to reduce the cost and increase the outreach of banking services for lower income customers – indeed the guidelines for licensing of SFBs<sup>30</sup> stated that: *the objectives of setting up of small finance banks will be for furthering financial inclusion by (i) provision of savings vehicles primarily to unserved and underserved sections of the population, and (ii) supply of credit to small business units; small and marginal farmers; micro and small industries; and other unorganized sector entities, through high technology-low cost operations.*

This new tier of bank provided a path for successful non-bank financing companies (NBFCs), mostly MFIs, to grow into the banking regulatory framework and expand into new markets. Licenses were provided to ten institutions, geographically spread across the country. In addition to these original ten SFBs, as of September 2018 RBI began to allow voluntary transition of Urban Cooperative Banks (UCBs) into SFBs. SFBs are mandated to provide 75% of loans below Rs.25,00,000 (~\$35,000).

SFBs have yet to make a significant dent in the provision of financial services to excluded groups and it may be too early to assess the success of the policy initiative. The total number of loan accounts as of June 2018 was 17.6 million, up from 17.3 million a year earlier and 15.8 million in 2016.<sup>31</sup> As most microfinance loan repayments are made in cash, the sector took a major hit at demonetization. According to the Microfinance Institutions Network (MFIN), a self-regulatory organization of the NBFC-MFIs, the MFI industry which has a total loan portfolio of just over Rs 1 lakh crore (~\$14.5billion USD), may have to write-off seven per cent of outstanding loans, or Rs 7,000 crore (~\$1billion USD), because of delinquencies due to demonetization.<sup>32</sup>

While SFBs have slowly grown their loan books, it has been hard to build the liabilities side of their balance sheets and despite now having banking licenses, the vast majority of lending remains funded by wholesale borrowing. Deposit mobilization has struggled to grow as SFBs encounter common challenges, including that some people do not have spare funds to save, and that those who do have been accustomed to saving at the large state-backed banking institutions.

Part of the slow growth of SFBs can be explained by the ongoing transformations that they are undertaking as they transition from traditional microfinance models to a broader selection of banking services to meet the needs of specific market segments. Customers familiar with microfinance approaches are unaccustomed to more formalized banking products and it takes time to change behaviors. Investment in technology is fundamental to the transformation of SFBs. Over the longer term this investment is likely to improve internal processes, risk management, operational efficiency and origination for individual lending. Through the lending process, going digital can enable the tracking of digital footprints to improve

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<sup>28</sup> Based on NPCI data

<sup>29</sup> <https://www.ipbonline.com/>

<sup>30</sup> Guidelines for Licensing of Small Finance Banks in the Private Sector [http://rbi.org.in/scripts/bs\\_viewcontent.aspx?id=2901](http://rbi.org.in/scripts/bs_viewcontent.aspx?id=2901)

<sup>31</sup> Data from MFIN's Micrometer reports

<sup>32</sup> <https://www.businesstoday.in/current/economy-politics/demonetisation-mfi-industry-note-ban-anniversary-industry-micro-finance-institutions/story/263524.html>



customer targeting, reduce cost of customer acquisition, improve opportunities for upsell and increased collection efficiency. However, the reality faced by SFBs is that the status quo is characterized by face to face interaction, repayments made in cash (even though loans are paid out digitally, most get cashed out immediately), poor connectivity and hence a long road towards digital transformation<sup>33</sup>.

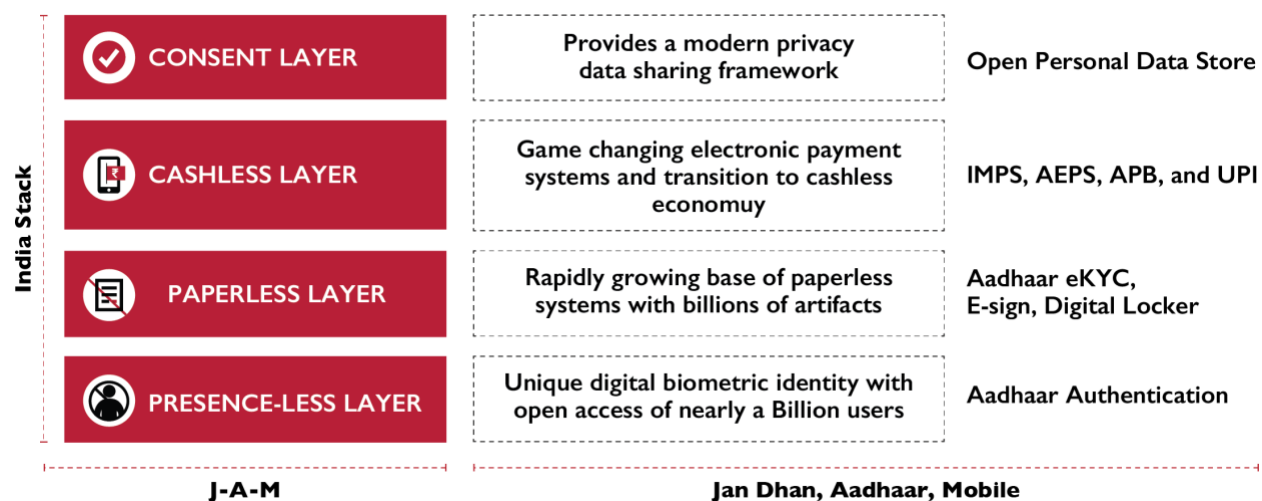
### 1.3.3 Fintech

Fintech companies have been at the forefront of the growth in digital payments in India. These include payment companies that facilitate P2P and retail payments through mobile wallets or UPI, such as Paytm, PhonePe, PayU, MobiKwik and FreeCharge, as well as technology companies like Pine Labs and Mswipe who provide hardware and POS devices for digital payments.

Pre-paid wallets provided by many of these payment fintechs were some of the major beneficiaries of demonetization. Scarcity of cash meant digital was often the only option, for even small financial transactions. For customers who had access to a digital service but never previously used it, this was a significant push factor to trigger usage. Between October 2016 and January 2017, the volume of transactions through pre-paid instruments (PPIs) more than doubled (from 127m to 296m).<sup>34</sup> Growth has since tailed off, in part cannibalized by the growth in UPI transactions as discussed in [section 1.2.7](#).

The foundational digital infrastructure laid by Aadhaar and the India Stack has created the business case for many of these growing fintechs. New smartphone users and people exploring digital payments for the first time can be signed up at minimal costs based on their digital identities. For a number of fintechs, access to the India Stack is fundamental to their business models. Fintechs have also been able to grow in a relatively benign regulatory environment, as RBI has taken a wait-and-see approach to fintech regulation<sup>35</sup> - something that may not be the case in the next five years, particularly if a mooted payments regulator is instituted.

Figure 12: The four layers of the India Stack (source: <https://indiastack.org/presentations>)



<sup>33</sup> Based on conversations at Suryoday SFB and anecdotal evidence

<sup>34</sup> RBI data

<sup>35</sup> Nathan Associates, Fintech in India (2017)

Usage and customer loyalty have been driven by extensive cashbacks and discounting. A number of the larger fintech companies, with deep pockets thanks to large VC investments, have been able to subsidize customer transactions through discounts and cashback offers that encourage people to use their services. Cashback offers are commonly passed around WhatsApp groups and other social media, leveraging network effects. There is some concern however that such offers must be time-bound, as fintechs cannot run loss-leading transactions forever.

As customers increase their usage of digital services, their digital footprints grow and fintechs are better able to understand and predict customer behaviors and risks using these new streams of data. Bringing together digital financial transaction data for individuals and small businesses with alternative digital data streams, such as value chain data, social network activity and non-financial transaction data, in order to profile customers and predict their ability to repay on small ticket loans, has formed the business model for a range of new alternative lenders, such as Capital Float and CreditMantri, who now make up a significant portion of India's fintech sector.

The growth of India's payments fintechs has been linked inextricably with the emergence of e-commerce in the country. PhonePe was acquired by Flipkart in April 2016 and FreeCharge was bought by Snapdeal in April 2015 (and later sold to Axis Bank). Alibaba, one of China's largest e-commerce platforms, has held a significant stake in Paytm since 2015, to add to its previous investment in Snapdeal. Paytm since added an e-commerce platform to its payments app. Meanwhile, Amazon, which has grown to be the second largest e-commerce company in India, has launched its own digital payments service<sup>36</sup> and, by offering customers the chance to pre-load cash to their Amazon accounts as well as monthly instalments on Amazon purchases, is also offering quasi-banking services.

There is intense competition in the Indian fintech space, however, the competition tends to be focused on customers who are urban, literate and relatively wealthy. Many of these emerging fintech business models require access to a smartphone and an internet connection, as well as ability to transact in English or Hindi. To date, few fintechs have focused on low-income populations and fewer still specifically on *financial inclusion* – bringing services to people previously under-served by the financial system.

### **1.3.4 Expansion of Smartphones and Internet**

The rapid growth of digital financial inclusion in India has been enabled by the rate at which smartphones and low-cost internet have penetrated populations who were previously excluded from the digital economy. Behind the former has been the gradually reducing cost of hardware, such that smartphones can now be bought for under Rs.3,000 (approx. \$40) and feature phones for under Rs.1,000 (~\$14.30).

Growth in internet availability has been driven by intense competition in the mobile data market, with the entry of Jio (a disruptive new 4G network launched in 2016 by Reliance) into an already competitive environment the trigger for price wars and market consolidation. As of end 2017, India had 446m internet users, 95% of whom accessed the internet through mobile.<sup>37</sup> Jio accounted for over 35% of these users. Access to low-cost 4G internet will continue to expand digital frontiers to new generations of mobile-first internet users. Over 130m rural Indians now use the internet, or 15 internet subscriptions per 100 rural people. The growth in digital inclusion can be seen in Figure 13. With data costs now as low as Rs.10/GB (roughly \$0.15), poorer and less urban populations are able to access the digital economy and with the linkages between mobile, Aadhaar and banking services, using digital financial services has become a compelling use case of this technological advance. Indeed, as of June 2018, Paytm claimed that its services were being used in over 300,000 villages.<sup>38</sup>

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<sup>36</sup> <https://www.amazonpay.in/>

<sup>37</sup> Telecoms Regulatory Authority of India (TRAI) Annual Report 2018

<sup>38</sup> <https://blog.paytm.com/merchants-in-villages-are-transforming-indias-digital-payments-landscape-b054dbedd294>

### 1.3.5 International technology companies

In addition to Amazon, a number of large international technology companies have placed large bets on the growth of digital payments in India. This is in part a response to the way that the internet is manifesting itself for the new generation of Indians coming online for the first time. For them, access to the internet is overwhelmingly mobile (rather than computer-based). In terms of access points, for a majority of first-time internet users, Facebook is the first port of call for news and WhatsApp for messaging. This could have potentially huge implications for digital finance growth.

Many of these large platforms have already moved into the digital payments space, building on top of UPI. Facebook and Google have already launched payment products in India (WhatsApp Pay and Google Pay, previously called Tez) and through its investment in Paytm, Alibaba is also active. The nature of network effects, as well as the existing comfort with these platforms puts these companies in a strong position to grow their payments business exponentially.

## 1.4 DEVELOPMENT SECTOR INITIATIVES

### 1.4.1 Supporting Innovation

The financial inclusion space in India has long been supported by the development sector, particularly bilateral donors like Department for International Development (DFID) and multilaterals like the World Bank Group. These donors supported the growth of microfinance as a poverty reduction tool and the emergence of institutions like Access Assist to support greater access to financial services for the poor. USAID's investments in Cashless CATALYST and related activities in rural areas continue a long tradition of bilateral support for innovation in financial inclusion in India.

The past decade however has been characterized by a slow retraction of traditional grant funding models (e.g. DFID ended grant funding to India in 2015)<sup>39</sup> and the emergence of philanthropists in the place of publicly funded donors, and investment capital in place of grants.

Much of this investment has been channeled towards various notions of *innovation* in support of India's digitization and financial inclusion. BMGF's India strategy<sup>40</sup> has a strong focus on innovation and it has become common for investments from philanthropists (e.g. Omidyar Network) and NGOs (e.g. Accion) to be channeled into startups and established companies using digital technologies to overcome some of the challenges that have held back financial inclusion in India.

Accion's investments in India typify this trend.<sup>41</sup> As well as supporting the digital development of more traditional MFIs like Ujjivan and Swadhaar FinServe, Accion has also invested in fintechs like Aye Finance and CreditMantri, both leveraging technology and alternative data to improve access to credit, as well as bringing investees like Pula into the Indian market. Similarly, Omidyar Network has invested impact funds across the digital development and financial inclusion ecosystems, including investments in eleven financial inclusion startups<sup>42</sup> and support for the Bharat Inclusion Initiative.<sup>43</sup>

In order to test a variety of innovations that could leverage technology and network effects to drive digital payments uptake, CATALYST supported five fintechs to develop and test their technology platforms and business models in Jaipur.

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<sup>39</sup> [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/389044/India.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/389044/India.pdf)






<sup>40</sup> <https://www.gatesfoundation.org/Where-We-Work/India-Office/About-the-India-Office>

<sup>41</sup> <https://www.accion.org/accion-in-india-advancing-financial-inclusion-in-one-of-the-worlds-fastest-developing-economies>

<sup>42</sup> <https://www.omidyar.com/investees?initiative=Financial+Inclusion&region=asia&search=#filter>

<sup>43</sup> <https://www.omidyar.com/investees/bharat-inclusion-initiative>

Figure 13: CATALYST and Fintech for the Last Mile

STARTUP NAME	PAYMENTS TYPE	FINANCIAL SERVICE TYPE	TARGET SEGMENT	BRIEF DESCRIPTION OF STARTUP
 Bix42 Collection Simplified	UPI, PPI, net banking	Mobile Payments, invoicing and payments	Individual Service Providers (ISPs)	Bix42 provides a micro-Enterprise Resource Planning (ERP) to digitize the customer lifecycle, billing and payments for small B2C merchants
 Fingpay	AEPS, Aadhaar Pay, UPI, Payment Protection Insurance (PPI)	Payments, biometric payments, multiple solutions	MFIs, gas agencies, government Common Service Centers (CSCs)	Fingpay is a payment and collection solution that enables merchants to accept digital payments from customers who do not have either a card, wallet or mobile phone
 kaleidofin	eNach	Wealth management, robo-advisor investment tech	Low-income households and home-based entrepreneurs	Kaleidofin is a platform that provides tailored financial services to the mass market including populations that are un/under-banked and have significant variability in their income
 PAYBEE	UPI	Mobile payments, invoicing and payments	Pharma Retailers	PayBee's solution automates and digitizes B2B collections in the distributor-retailer value chain
 PayNearby	AEPS, UPI, PPI, net	Payments, money transfer, carrier billing, multiple solutions	Micro-retailers	PayNearby enables existing corner shops to become a digital financial services hub thereby creating the world's largest hyperlocal fintech network

### 1.4.2 Supporting Infrastructure for the last mile

The Bill and Melinda Gates Foundation (BMGF) has been a major supporter of the government's attempts to bring together the dual agendas of financial inclusion and digital development. BMGF support has mainly taken the form of technical assistance to the central government and state-level governments to develop public-sector digital payment platforms like the Direct Benefit Transfer (DBT) platform.<sup>44</sup> BMGF has also worked with government on improving the data landscape for financial inclusion, and on improving product design for NPCI-backed financial services like BHIM.

BMGF has also worked on developing agent networks and opportunities for cashing in and out (CICO), in particular through the Agent Network Accelerator project<sup>45</sup> implemented by MicroSave which tracks and measures agent network structure, agent viability, quality of provider support and compliance and risk management over time.

### 1.4.3 Making DFS more inclusive

A general goal of development initiatives in the DFS space has been to support models that leverage digital to support financial inclusion for groups who are underserved by traditional players. For Omidyar Network, this is the "next half-billion" – the 500 million Indians who will come online through their mobile phones in the next five years<sup>46</sup> and who will likely have needs distinct from those who could currently be described as middle class. Omidyar's strategy for supporting the next half billion is explicitly digital-first, building on the rails of Aadhaar, the India Stack and growing smartphone penetration.

The underserved groups included in the next half billion include young urban BPO (business process outsourcing) workers, kirana store owners in tier 2 cities, urban auto rickshaw drivers and college students in small towns. The Bharat Inclusion Initiative at the Centre of Incubation Innovation and Entrepreneurship, IIM (Indian Institute of Management) Ahmedabad, funded by BMGF, J.P. Morgan, Michael

<sup>44</sup> <https://www.gatesfoundation.org/Where-We-Work/India-Office/>

<sup>45</sup> [http://www.microsave.net/files/pdf/Agent\\_Network\\_Accelerator\\_Research\\_Country\\_Report\\_India.pdf](http://www.microsave.net/files/pdf/Agent_Network_Accelerator_Research_Country_Report_India.pdf)

<sup>46</sup> [https://www.omidyar.com/sites/default/files/file\\_archive/Next%20Half%20Billion/Innovating%20for%20Next%20Half%20Billion.pdf](https://www.omidyar.com/sites/default/files/file_archive/Next%20Half%20Billion/Innovating%20for%20Next%20Half%20Billion.pdf)

and Susan Dell Foundation and Omidyar Network with support from MicroSave, is an initiative to support startups to use technology to deliver improved services to low- and middle-income customers (defined as earning <\$5/day).

Other development sector actors are targeting programming at even lower-income customers, such as smallholder farmers, the rural poor and poor urban populations in the informal economy. BMGF has a gender lens through all of its financial inclusion programming and increasing the financial inclusion of women continues to be a theme of its development sector work.



## SECTION 2

# Understanding Digital Payments

### 2.1 DIGITAL PAYMENTS AND FINANCIAL INCLUSION

Despite the achievements described in Section 1, it is clear that usage of digital financial services is not expanding at the same rate as bank accounts are opening or smartphones are penetrating new populations. In order to better understand these trends in the high-level data, it is valuable to dig into micro-level evidence of how and why people are using (and not using) digital finance products.

One of the key use cases of digital finance is digital payments. Thanks to the success of Paytm and others, digital payments have been major news in India since 2014 and are likely to play an important role in bringing the next generation of digital finance customers on board. To better understand the role of digital payments in digital financial inclusion, USAID supported the “Beyond Cash” study<sup>47</sup> in 2015, which posited that “promoting digital payments is critical to achieving meaningful financial inclusion”.

To further understand what drives usage of digital financial services, USAID, in partnership with FHI 360, IFMR-LEAD and Intellectap, has been carrying out a range of initiatives since then aimed at further understanding the digital payments space and how it links to a broader financial inclusion agenda.

The purpose of this section is to provide a better understanding of the context, financial behaviors and key drivers for adoption of digital payments by both consumers and small merchants, in urban and rural contexts. It also summarizes some of the key opportunities and challenges in propagating digital payments. This analysis is based on USAID’s learning from its support of digital payments in India over the last four years.

### 2.2 URBAN PAYMENTS IN JAIPUR

#### 2.2.1 The Use Cases for Urban Digital Payments and CATALYST’s Ecosystem Approach

In much of urban India, underlying infrastructure required for digital payments has improved and expanded significantly. Investments by the government and the private sector mean that much of the urban populace has access to a payment instrument (such as a smartphone or a debit card) and a channel (internet connection or access to the banking network) to effectively utilize digital payments.

Despite this and even with the extra push provided by demonetization, we still see widespread usage of cash payments and while the number of payments made digitally is growing, it is a long way off being the primary mode of payment in most transactions. To encourage people to break out of a cash ecosystem, they will need to be provided with opportunities to transact in a digital ecosystem – this means that the

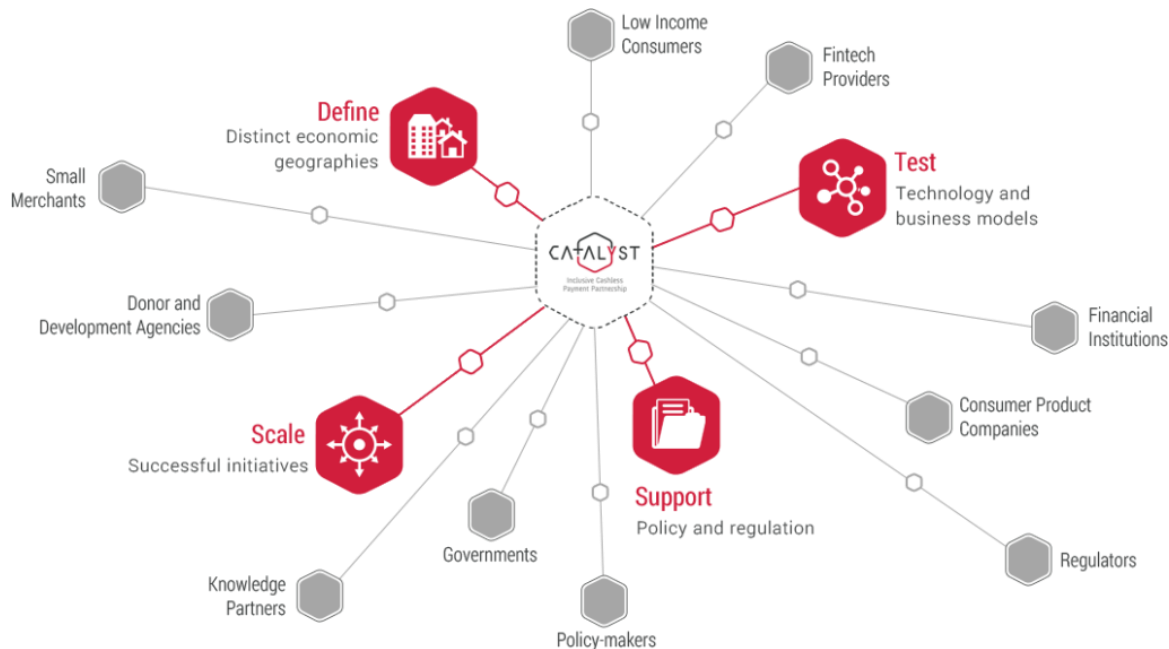
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<sup>47</sup> <http://www.digitaldevelopment.org/beyond-cash>

various aspects of financial transactions, from the underlying technology to the laws that govern them, need to be structured around a digital framework rather than an analog one.

With this in mind, the Cashless CATALYST program, funded by USAID and implemented by FHI 360 and IFMR-LEAD, used an ecosystem approach to understand and support growth in digital payment adoption. This meant mapping out the digital payments ecosystem and supporting innovative approaches to support digitization of payments in one specific market: Jaipur. The approach taken by CATALYST is shown in Figure 14 below.

Figure 14: Cashless CATALYST’s ecosystem approach



Merchant payments are one critical aspect of this ecosystem. In a retail sector as differentiated and unstructured as India’s, most people have numerous and frequent interactions with a range of merchants. These usually involve financial transactions that would traditionally have been made in cash, but which were identified as having high potential for digitization.

As part of the CATALYST program, five business models were incubated that could provide last-mile digital payment solutions to lower-income customers. The program also worked to digitize the pharmaceutical and dairy supply chains, facilitating and supporting e-Mitras<sup>48</sup>, customer handholding and onboarding on digital platforms using the elements of the J-A-M trinity. To help small and informal merchants navigate the complex landscape of digital payment solutions, CATALYST organized and provided handholding support to onboard them on to digital platforms. The program also studied the behaviors of customers and merchants and studied various other channels through which digital payments could be encouraged.


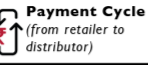


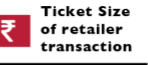

CATALYST worked extensively with 7,500 individuals and 1,000 merchants in Jaipur over a period of 20 months, converting them to users of digital payments. During this period CATALYST worked on awareness creation, training, coordinating with banks and financial institutions to open accounts, expansion of POS device coverage, on-boarding, and trouble-shooting throughout their transition from cash to digital

<sup>48</sup> E-Mitra is an ambitious E-governance initiative of Government of Rajasthan (GoR) to citizens in availing various services of the Government and Private Sectors under a single roof at their door steps using an e- platform

payments. In particular, the program worked on payment digitization in lower-income neighborhoods such as Bhatta Basti, a poor area in the north of the city with a large number of informal enterprises such as bangle-manufacturers. CATALYST focused on sharing learnings from these experiences with the broader community to enable other actors to learn about what works best when serving these market segments.

CATALYST conducted a set of pilots in Jaipur, Rajasthan seeking to explore the potential of digitizing key parts of the supply chain. As a part of these efforts, CATALYST focused on three key retail categories: dairy, pharma and FMCG. Each of these supply chains have unique characteristics and accompanying challenges with respect to the potential to digitize them. CATALYST’s interventions were focused on the retailer/distributor transactions wherein the working capital stress was the most acute and hence the opportunity to mitigate it through a digital solution seemed the most plausible. Summarized below are some differentiating parameters between the three supply chain categories, which also highlights that the opportunity to digitize is not equally plausible across the three:<sup>49</sup>

Figure 15: Differentiating parameters between three supply chains

	 Number of Distributors per Retailer	 Payment Cycle (from retailer to distributor)	 Average Distributor Margin	 Network Structure	 Ticket Size of retailer transaction	 Principal Decision Maker in Value Chain
FMCG	50	Weekly	3-10%	Independent Decision	Rs 1,000 – 3,000	Brand (balance of power with the principal, and any decision on digitizing payments involves the principal)
Pharma	100+	Weekly	12-25%	Independent Decision	Rs 600 – 1,000	Distributor (balance of power with the distributor, and any decision on digitizing payments can be taken by the retailer subject to competitive pressures)
Dairy	5-10	Daily	0.5-1%	Federated Network	Rs 15,000	Dairy Board/Distributor (balance of power with the cooperative, and any decision on digitizing payment can be actioned by distributors)
<b>Digitization Potential</b>	Fewer the distributors, more is the ability to influence retailers to pay digitally	Higher the frequency the more tedious to digitize as retailers need to make more bank trips to convert cash from their customers to digital money	The higher the margin, the greater affordability and willingness to pay for the convenience to digital transactions	The more control an institutional authority at the top has on the retail network, the greater their ability to influence and bring about a network-wide change	The higher the ticket size the greater the propensity of transactions to be open to digital payments given inconvenience of handling cash	If the principal decision maker is on board, then the digitization efforts will likely face less frictions from actors downstream

## 2.2.2 Urban merchants

### 2.2.2.1 Drivers of Adoption for Urban Merchants

In order to move away from the status quo, it is important for merchants to see that digital payments can give them something back, to overcome the financial and non-financial costs (see Annex A) of investing in a new technology. Based on our interviews with vendors at their workplaces, who had participated in aspects of the CATALYST program, the potential improvements of digital over cash fell into three buckets: time savings, increased security, and growth opportunities.

► **Time Savings.** For adopters of digital payments, time savings appear to be a major factor behind their decision making. Keeping records in ledger books is time-consuming, as is filling out paper-based bills and receipts. Meeting suppliers face to face in order to hand over cash takes time that could be saved by paying digitally. Travelling to a bank periodically to deposit cash receipts also takes time, particularly when banks are located far from the business and are only open during business hours, requiring that the business owner may need to close their own business and miss out on revenues in order to visit the bank. This is

<sup>49</sup> <https://cashlesscatalyst.org/wp-content/uploads/2019/01/supply-chain.pdf>



particularly true of small sole proprietor managed businesses which are not digitized and face significant potential revenue decreases from closing the shop to travel to the bank.

▶ **Reconciliation of cash also takes time.** Cumulatively, small business owners can spend a significant portion of their day counting cash, counting out change, sorting cash, and then more time later reconciling against payments in order to account for sales and purchases.

▶ **Security threat of holding on to cash.** Merchants also identified the security issues of holding on to cash as a reason to adopt digital payments. For merchants such as the milk-vendors who were interviewed, cashflows can spike at certain times of the day or week – milk vendors for example make a sizeable proportion of sales early in the morning. This may mean holding on to this cash through the day until they are able to visit a bank to make a deposit, with a risk of money being lost or stolen.<sup>50</sup> This risk can be even higher for a business that makes its money in the evening after banks close, as money must be stored securely overnight. For some merchants, the appeal of digital payments (particularly those that go straight into a bank account, like UPI) was that the money went directly into the bank account and hence there was no risk to their personal security.

▶ **An opportunity for business growth.** Some merchants also identified digital payments as an opportunity to grow their enterprises. In part this may refer to meeting the changing needs of a changing population – a number of merchants identified younger customers as those more likely to make small digital payments. In a CATALYST pilot with [Nupay](#) in six major market areas across Jaipur, the primary reason for merchants to adopt PoS devices was that it would allow them to service a broader customer segment.

Other merchants however also understood one of the secondary effects of digital payments – that the resulting digital trail of transactions could help a bank better understand their cashflows and growth potential, and potentially make a loan based on that cashflow data. In this way, for growth-oriented enterprises, digital payments can provide an on-ramp to opportunities for investment in their business. CATALYST found that there was evidence that the opportunity for credit could be used as a hook<sup>51</sup>, but that uptake may be low unless merchants are provided with sufficient information on a clear pathway for how digital transaction can help them access a loan.

### 2.2.2.2 Urban Merchants with Higher Probability of Adoption

The interviews demonstrated plenty of heterogeneity in types of business owner, and it was clear that willingness to adopt digital payments varied with different personal and entrepreneurial characteristics of merchants. Certain characteristics tended to correlate with propensity to adopt digital payments. These include:

▶ **Higher levels of education and/or smartphone ownership.** More educated merchants – some with university degrees – appeared to have a stronger grasp of the potential benefits of digital payments. Digital literacy was an important factor in adoption of digital payments, and this seemed to come about through regular usage of a smartphone, for both personal and professional reasons.

▶ **Vendors of relatively large and/or irregular items.** Certain types of purchases lend themselves to digital payments, based on the size and the regularity of purchase. In particular, merchants of relatively large ticket items that are bought irregularly are likely to be good candidates for early adoption due to the security issues around handling large amounts of cash. This includes consumer electronics, like mobile phones, and things like train tickets. Businesses with a large number of customers but a small number of suppliers (like






<sup>50</sup> <https://cashlesscatalyst.org/digitizing-dairy-b2b-supply-chain/>

<sup>51</sup> <https://cashlesscatalyst.org/digital-lending-small-merchants-missing-road-last-mile/>

petrol stations) are also likely early adopters as digital allows them to more easily and safely accumulate lump sums.

► **Merchants who can bulk sales over time.** While merchants selling items of low value and high regularity (such as pouches of milk) have a lower probability of adoption of digital payments, there may still be ways that they could be nudged towards adoption. The interviews with milk vendors discovered that many run accounts for customers, who would pre-pay at the start of a month (or occasionally post-pay at the end) so converting a high frequency low value item into a high value low frequency payment. Merchants more willing to transact in bulk like this may prove to have higher willingness for adopting digital payments in the future.

### Muhammad Juber Qureshi: Milk vendor, Jaipur

	<b>Challenges</b>	Cost of counting, reconciling and depositing cash received from customers
	<b>DFS solution</b>	A smartphone-based app that allows Juber to instantly transfer money to distributor's account
	<b>Impact</b>	<ul style="list-style-type: none"> <li>- Reduced transaction costs</li> <li>- Digitized invoices can help build a transaction history to support future applications for credit</li> </ul>



## 2.2.3 Urban Customers

### 2.2.3.1 Characteristics of urban customers more likely to adopt digital payments

► **Young and educated.** Customers that were more willing to adopt digital payments skewed young (in contrast to the macro-level evidence from Global Findex<sup>52</sup>, which found that 14% of 15-24-year-olds had made digital payments in the past year, compared to 22% of those aged 25+). In particular, a number of merchants in Jaipur mentioned that students were more likely to want to pay digitally, implying that it is the intersectionality of age and education that really drives usage. This is expanded upon in CATALYST's report [Digitizing low-income customers in an urban slum](#).<sup>53</sup> Global Findex data also finds that 30% of people with secondary education or more have made a digital payment in the past year, compared to 11% with primary education or less.

► **Connected.** Network effects were also seen to be important in driving consumer uptake. The network effects may be direct (a friend sends you money digitally) or indirect (you see a friend use digital payments and are incentivized to use them yourself). Digital networks appear to play an increasing role, as WhatsApp groups and Facebook networks are used actively to share information. Evidence from poorer communities in Jaipur demonstrated that, particularly amongst women who may not have the opportunity to convene publicly, a WhatsApp group in which they could share information about how to use digital services and how to avail cashbacks was a key driver of digital adoption (see Figure 16 below).

► **People with distinct financial goals to save for.** Given the linkages between digital payments and savings through the payments bank model, as well as innovative companies like Kaleidofin offering accessible digital savings opportunities, the opportunity to accumulate savings by using digital financial services appears to incentive certain customers to adopt. In particular, customers with distinct financial goals to save for appear to be more likely to go digital. These goals may include regular frequent payments like school fees, annual cash requirements like festivals or one-off occasions like weddings.

<sup>52</sup> Global Findex <https://globalfindex.worldbank.org/>

<sup>53</sup> <https://cashlesscatalyst.org/wp-content/uploads/2019/01/BB-Tech-Report.pdf>

### 2.2.3.2 Urban Customers with Higher Probability of Adoption

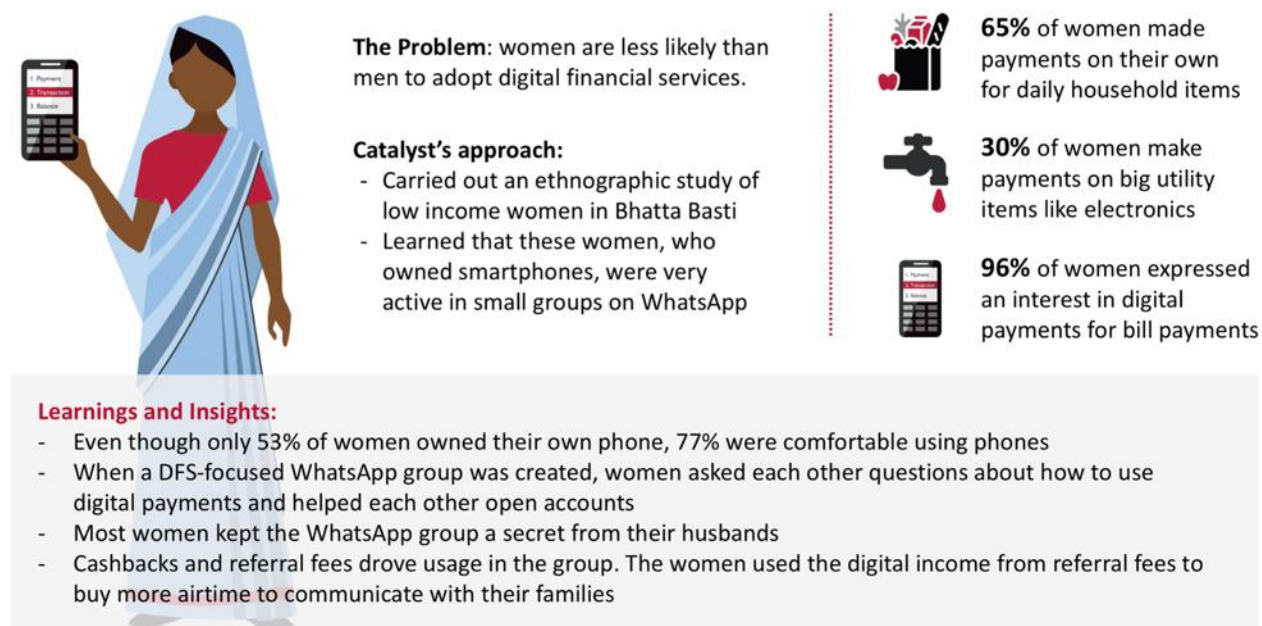
► **Young educated men.** Younger men in our sample, particularly students and educated younger men, appeared to be the earliest adopters of smartphones, most willing to experiment with new services and most aspirational to participate in the digital economy. They are also most likely to migrate for employment opportunities and so would have the use case for digital remittances, as well as other forms of digital transaction.

We also found that young men often play a leverage role in assisting others in their family or network to understand and use digital payments. Older generations, who may be less digitally literate but keen to use digital payments, can use younger generations – typically young men from our observations – as a support to learn how to use the services.

► **Young women seeking more financial independence.** Access to a mobile phone and linked financial services appears to give certain groups of young women a new form of agency. Where public spaces are traditionally male-dominated, women have lacked the opportunities to manage their own financial lives. However, CATALYST saw in Bhatta Basti- a poor neighborhood of Jaipur - how the opening up of social networks and WhatsApp groups of peers appears to provide a new channel to share information, learn about services and begin to use entry level digital financial services such as mobile phone top-ups, payments within social networks and micro-savings. The digital network has in effect become a *safe space* for women to learn and experiment with new services.

Figure 16: Women and WhatsApp in Bhatta Basti, Jaipur

## Women and WhatsApp in Bhatta Basti, Jaipur



► **Existing closed groups, such as Self-Help Groups (SHGs).** Digital payments can benefit from network effects, and one way to propagate is to piggyback on existing social networks. These include SHGs, chit funds (a popular form of rotating savings and credit association), family groups and digital networks like WhatsApp groups that are likely to have already self-selected for homogeneity. The peer group effects of these networks can be strong, and for every member that can be incentivized to use digital payments as opposed to cash for repayments, it increases the probability that others will follow.

## 2.2.4 Challenges for Urban Adoption

Based on the interviews with users, merchants and others working in the urban digital payments ecosystem, we have identified four key barriers to further adoption that provide context to the private sector, government and development sector in attempting to deepen the penetration of digital payments in urban markets. Provided below is a summary of the findings, for a more comprehensive list of barriers identified through research and interviews, please refer to [Annex A](#) that provides a list of additional barriers to adoption and in improving financial access to the last mile:

▶ **Trust.** Due to the legacy of state-owned banks in India, it is harder for newer and privately-run institutions to build a level of trust that will allow customers to store their money in a digital account. We heard from multiple sources that unless you are a state-owned bank, and ideally State Bank of India, customers won't deposit money with you. CATALYST found that association with Government of India was a positive motivating factor in adopting BHIM.<sup>54</sup>

Trust in the institution is one thing, but providers also need to provide trust in the product. The customer experience needs to be flawless to encourage people to use the service again and tell others about it. Trust however is difficult to build and easy to break – once people have one bad experience, it can color their perception of a service and disincentivize them to use it again. We heard plenty of anecdotal evidence from customers that they tried a digital service but stopped using it because of a failed transaction, while we also spoke to others who had been put off by hearing second hand stories of fraud in digital payments.

▶ **Literacy and understanding.** Digital finance providers moving into lower income markets will continue to face challenges around literacy (financial, digital and general) and the ability to comprehend the concepts and practical implications of using digital finance products. This comprehension is however critical from the perspective of consumer protection. Our interviews and plenty of additional anecdotal evidence indicated that digital finance products are often perceived as overly complex, including unnecessary features and distracting the user from the core function of the product (such as making a payment).

▶ **Overcoming status quo bias.** CATALYST found that even when merchants do adopt digital payment platforms, cash transactions still make up the vast majority of their transactions. Merchants regularly state that customers prefer cash and suppliers also had to be paid in cash, so it makes sense to stay in a cash system. A further CATALYST study found that 55% of non-adopters of digital payments cited lack of customer demand as one of the primary reasons for non-adoption. Cash remains sticky in the merchant ecosystem.

▶ **Fear of being brought into the tax net.** There is a perception among some merchants that moving out of the cash economy into the digitized financial sector means that people and small businesses who currently exist outside of the taxation system will be forced to pay taxes. We heard from vendors in Jaipur who had signed up for digital payments that some of their peers feared that people would have to start paying taxes if payments went through a digital platform.

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<sup>54</sup> <https://cashlesscatalyst.org/merchant-perspectives-bhim-experience/>

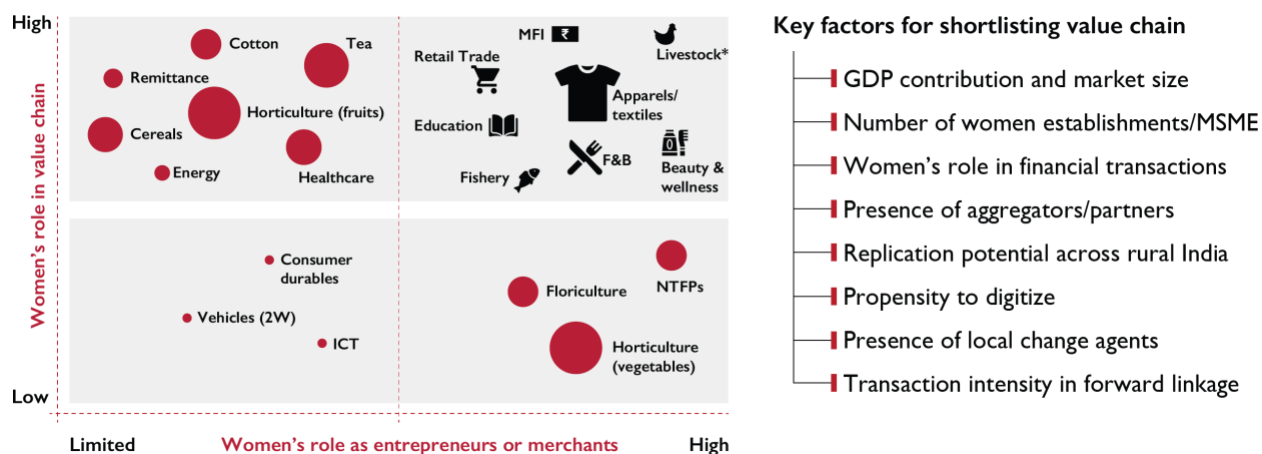
## 2.3 RURAL PAYMENTS IN ODISHA, MAHARASHTRA AND JHARKHAND

### 2.3.1 The use cases for rural digital payments and taking a value chain approach

Digital ecosystems in rural India are very different than those in urban environments; levels of infrastructure development, connectivity, literacy and opportunities for income-generation lag behind urban areas. The use cases for digital payments are also very different, in local economies that are characterized by heavy reliance on cash for any financial transactions that occur.

USAID was interested in how specific use cases could be developed and investigated in a rural context, and working through FHI 360 and Intellecap, designed three pilots in different parts of rural India – one in Odisha, one in Maharashtra and one in Jharkhand. Rather than take an ecosystem approach, as had worked in urban Jaipur, it was decided up front that in an environment where money and information tends to flow linearly through a value chain rather than in many directions in a digital ecosystem, an appropriate way to approach digitization of payments would be to target stakeholders in a specific value chain. In particular, value chains were chosen that could have positive gender impacts, where women play prominent roles both as entrepreneurs and as farmers. Based on the analysis in Figure 17, three value chains were selected – dairy in Odisha (eastern India), Food & Beverages in Maharashtra (western India), and poultry in Jharkhand (east-central India).

Figure 17: Selection of value chains with positive impact on gender

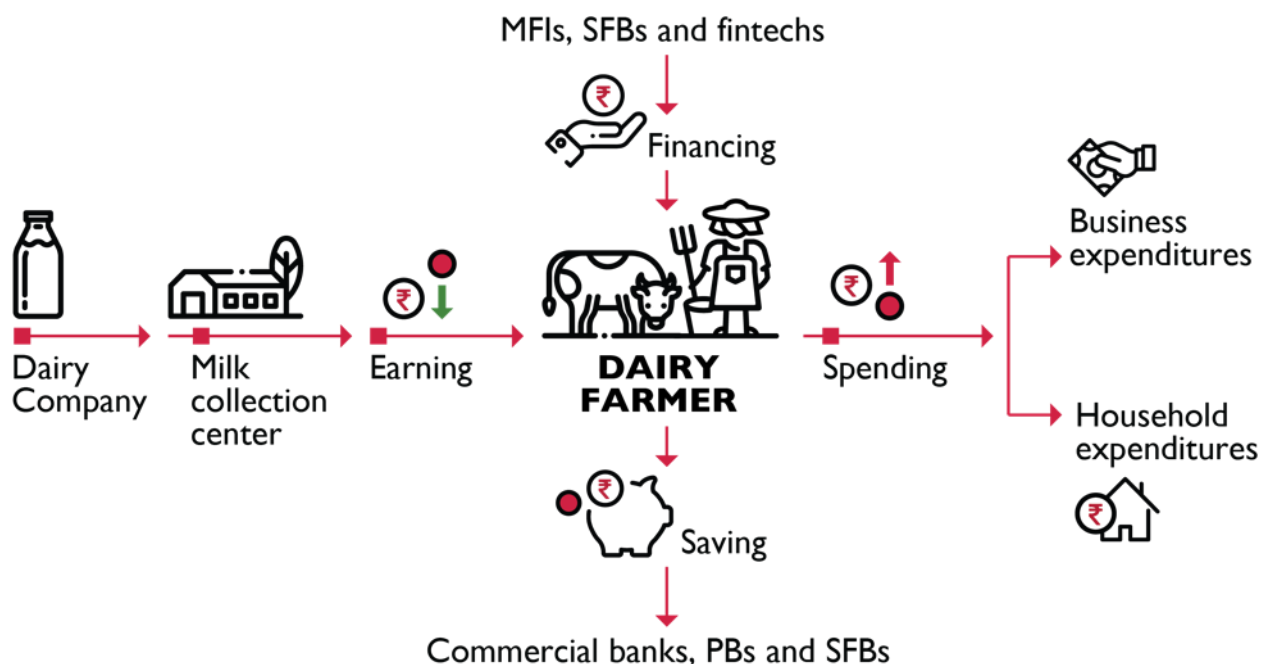


\*Livestock sector includes all animal production i.e. dairy, poultry

This approach recognized rural customer as a key player in a value chain – they receive payments from buyers – whether direct customers or aggregators – and spend money to suppliers and for household needs. Many of these transactions are with local merchants. They also interact with the financial sector, borrowing from local MFIs and making deposits at a range of institutions. The potential for digitization of payments was analyzed from three perspectives – that of the farmer operating in an agricultural value chain, of a rural merchant and of a rural consumer.

This section summarizes key findings from these pilots around how digitization of payments in rural areas may be accelerated.

Figure 18: The value chain approach for dairy



## 2.3.2 Adoption of DFS in rural value chains

### 2.3.2.1 Drivers of adoption in rural value chains

► **Hand-holding.** In the study of women entrepreneurs working in the F&B value chain in Maharashtra, it was found that more ongoing training would be required to get women to continue to use DFS. Even though awareness of digital payments products was high (88% of women were aware of different channels for digital payments), this was insufficient to result in sustained usage of a DFS platform or channel for making transactions. The majority of the women indicated they needed more hand-holding, training and assisted merchant support to adopt DFS payments.

► **Transparency and financial management.** Of the three quarters of women in the Maharashtra sample who received digital payments into their bank accounts, transparency and financial management were cited as significant drivers of usage. In particular, keeping money digitally acted as a self-discipline mechanism against impulsive spending. The speed of transactions into and out of accounts and the receipt of acknowledgement messages to help manage their account balances were also seen as advantages of digital transactions.

### 2.3.2.2 Characteristics of farmers and value chains with higher probability of adoption

► **Aspirational farmers.** In the pilot with dairy farmers in Odisha, nearly 80% of the women respondents reported an increase in dairy income post digitization of their payments, indicating a measurable and tangible benefit for the target farmer groups. A majority of the increase in dairy income is related to improved processes that have reduced manual interventions and calculations for dairy income and key feed/fodder expenses that were achieved during the digitization of the value chain. Farmers most likely to see increases income were those who had earlier demonstrated higher propensity for technology

adoption and to grow their operations. By contrast, farmers identified as subsistence farmers saw little or no improvement in incomes post-digitization.

▶ **Seeking financial empowerment.** The study of dairy farmers in Odisha found that over a third of participants felt that the payment of funds directly into their personal accounts improved their role in financial decision-making and provided a sense of financial empowerment. Interestingly, the increase in empowerment was highest for those farmers identified as subsistence farmers (owning one cow), and lowest for those identified as “enterprisers” who owned four or more cows. Together with the point above, the implication of this is that for “emerging enterpriser” farmers, the incentives for using DFS are more to do with income generation and growing a business, whereas for subsistence farmers it is about the perception of having more control and empowerment over finances within the household, whether or not their income is increasing.

### 2.3.3 Rural merchant adoption

#### 2.3.3.1 Drivers of adoption for rural merchants

▶ **Convenience and safety.** As in urban environments, convenience was commonly referred to by merchant adopters as a reason to use digital payments. In some ways, rural merchants have more to gain than their urban counterparts from participating in a local digital ecosystem because their costs of holding cash (including travel time to and from a bank, and hence lost income) are higher. The convenience of being able to receive money digitally and pass this on seamlessly to suppliers, without concerns about security, can be a major driver of digital uptake.

▶ **See long term value.** We saw that a number of potential merchants were put off by the time and effort of learning a new skill. Those who did adopt digital payments said that they were willing to put up with the hassle of changing behavior in the short term because they felt it was worthwhile over the longer term. Connected to this, merchants who adopted digital payments tended to see the potential for competitive advantage and income augmentation.

#### 2.3.3.2 Characteristics of rural merchants with higher probability of adoption

▶ **Close links to an organized value chain.** Certain rural value chains are more likely to foster adoption of digital services than others. Typically, these will be the ones that are more structured, with larger formal players towards the top of the value chain and with regular payments flowing to farmers. Dairy is a good candidate for these reasons, whereas maize, which is more likely to be grown and marketed informally, as a staple commodity, would provide greater challenges.

▶ **Entrepreneurial and outward-facing.** The rural people who did choose to adopt digital payments appeared to be more entrepreneurial and more likely to see digital payments as a means to open up new business opportunities. These adopters also demonstrated aspiration to participate in “Digital India”, aligning digital payments with greater participation in the broader digital ecosystem.

▶ **Able to transact in English or Hindi.** Merchants were more likely to adopt digital payments if they were comfortable speaking and working in English or Hindi. Many digital services are only available in those two languages and so a merchant in Odisha who only speaks Odia would be excluded. In some cases, merchants demonstrated ability to learn the number sequences required to make a transaction through a mobile phone, but any deeper engagement requires good language skills. Adoption is therefore heavily skewed towards those with these language abilities.

▶ **Merchants who view themselves as community figures.** In village environments, there tend to be a small number of villagers who have a role at the center of the community and hold some influence and social capital. Based on Intellectap pilots and Goal 2 interviews in Odisha and Maharashtra, merchants can often play this role, as trusted sources of goods and information. This community role can be

leveraged, by hand-holding customers through the learning experiences around digital payments and hence slowly building trust in the system.

► **Experienced already using checks.** The ability to conceptualize and understand the modalities of digital payments appeared to be stronger for those merchants who had previously used checks or other non-cash transaction. Though not exactly a digital product, checks or bankers drafts follow some of the same principles and for merchants with experience, the transition to digital payments is smaller.

### 2.3.4 Rural customer adoption

#### 2.3.4.1 Characteristics of rural customers more likely to adopt digital payments

► **Exposure through travel and physical engagement.** The more a rural person travels outside of their block or tehsil and interacts with people in more urban environments, the more likely they appear to be to adopt digital payments. This may be driven simply by greater exposure to digital ecosystems (more use cases, seeing people using digital payments, and seeing more advertising) or there could also be selection bias that more aspirational people, who would already be more likely to adopt, are also the ones travelling to urban environments.

► **Exposure through advertising.** Advertising through television, radio and at cricket matches was also mentioned on occasion as a reason for uptake. In particular, advertising for Paytm was mentioned and digital payments appeared to be synonymous with Paytm in some cases.

► **Aspirations.** The aspirational association with “Digital India” (or “Digital Bharat”) was a driver of adoption, particularly for younger men. Here, digital payments appear to be a proxy for a forward-looking, technologically optimistic vision of India that resonates with certain aspirational people even in rural villages with poor digital connectivity. Adoption of digital payments is not driven by any particular use cases, but rather for a broader connection with the digital economy.

► **Significant hand-holding.** Given the challenges around digital literacy, financial literacy and general literacy, potential customers in rural areas who wanted to test and potentially use digital payment often benefited from significant handholding. This usually came from an agent of the financial institution, an agent of a company in the value chain, or from family or friends. In Jharkhand, providing advisory services such as hand-made diagrams, live demos and refresher training increased the proportion women poultry farmers comfortable using mobile phones for banking transactions from 46% to 78%.

#### 2.3.4.2 Rural customers with higher probability of adoption

► **Groups of women.** It is common for rural women in India to already be organized into some kind of informal structure, whether it be a microfinance group, self-help group (SHG), chit fund (a form of rotating savings and credit association) or other similar structure. These groups have two attributes that could increase their probability of adoption. Firstly, they are used to using basic financial services (and so have a level of financial literacy) and may seek more advanced services that link to the Jan Dhan Yojana accounts that most will now have access to. And secondly, these groups have an amount of social capital built up within them, such that members can help each other learn, share experiences and grow digital usage together.

► **People looking for opportunities to save and borrow.** For certain types of customers in rural areas, using digital payments may provide a first opportunity to engage with a digital ecosystem that could open up new possibilities to save and borrow. Even though the general trend is to withdraw money from a bank account into cash as soon as a digital payment is received, some customers were seen to leave small balances after some time, in part to test the system and build trust, and then to begin to accumulate savings apart from traditional methods of cash, livestock and jewelry. Use cases do appear to exist, particularly for potentially more aspirational customers like small business owners, farmers looking to



invest in improved inputs, and regular earners (like dairy farmers) looking to slowly accumulate savings. These opportunities may however take time to emerge and develop.

### 2.3.4.3 Challenges for Rural Adoption

If digital finance providers are to expand their offerings into rural areas at scale, a lot of things will need to happen. Currently the ecosystems for growth are extremely thin. A number of challenges hold back significant rural adoption of digital financial services, including these three major ones:

▶ **Digital infrastructure.** In many rural areas, people do not yet have access to the infrastructure that would be required to build trust and regular usage of digital services. Smartphone penetration is growing but digital payments apps are often a niche product competing for limited phone space with regular usage apps like WhatsApp and Facebook. Where a family does have access to a smartphone, usage is often controlled by the male head of the household. Lack of reliable electricity means that keeping the phone charged can be a further challenge. And despite efforts such as the Bharat Broadband Network, which plans to expand fiber optic connectivity to all of the nearly 625,000 villages in India, and parallel efforts by the private sector, many rural areas lack the connectivity to run the often data-heavy apps offered by digital finance providers. According to the Telecoms Regulatory Authority of India (TRAI), in rural India there are only 15 internet users per 100 people, compared to 71 in urban areas.<sup>55</sup>

▶ **Lack of use cases.** Despite some initial penetration of digital finance in rural areas, for example by digitizing some value chain transactions, rural economies remain largely cash-based. In some poorer rural communities, any kinds of financial activities are scarce and subsistence livelihoods have little to gain from digital payments. Where people do earn any kind of surplus, the use cases for storing and spending this digitally are limited. Money may need to be kept liquid for emergencies or unplanned expenditures and not locked up in a digital account that requires an internet connection to withdraw from. The poorer people are, the more sensitive they are to data costs and while internet in India is cheap, it is not free. To increase the relative value of digital currency, there needs to be multiple worthwhile use cases, and these are not yet there in most rural environments.

▶ **Local languages.** According to the most recent census of in 2011<sup>56</sup>, India has 22 major languages as well as 270 identifiable mother tongues. But most digital finance products are available in English and sometimes Hindi. Paytm is now available in 11 languages and others are following, but even these will not ensure usability for large numbers of rural populations. And this doesn't account for the 26%<sup>57</sup> of Indians who remain illiterate. The challenge for providers as they attempt to move into these segmented lower-income markets is to build low-margin large-scale business models that can still respond to specific communication preferences and requirements of local populations.

## 2.4 FIVE LEARNINGS ABOUT DIGITAL PAYMENTS

Across USAID's work with digital payments in India, urban and rural, a few major themes have come through. Some relate to the personal experience of making payments and some to how digital payments can link to other aspects of financial and non-financial lives. This is not an exhaustive list, but it is five things that all players looking to grow a digital payments ecosystem should keep in mind.

### The human touch point remains critical

Adoption of digital methods of transaction, particularly for those lacking education or confidence, can be daunting. In order to build and maintain trust in a digital system, a human touch point is often a necessary condition – even if it is costly. For example, CATALYST found in Jaipur that in order to hand-hold 101

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<sup>55</sup> Telecoms Regulatory Authority of India (TRAI) Annual Report 2018

<sup>56</sup> [http://www.censusindia.gov.in/2011/Census/Language\\_MTs.html](http://www.censusindia.gov.in/2011/Census/Language_MTs.html)

<sup>57</sup> Literacy rate is 74% according to 2011 census

account holders to on-board to digital payments, it took five field staff approximately 30 working days. Having somebody guide you through the process can help to understand the intricacies of a new behavior, explain jargon and demonstrate new processes. The most effective human touch points appear to be people who are already established as pillars of trust in a community, or those associated with a trusted institution like agents of a state-owned bank.

### **Digital finance is closely linked with aspiration**

Analysis of data gathered during the pilots shows that the decision to use a digital payments service was linked to their desire to participate in “Digital Bharat”. For some respondents – mostly young people and particularly young rural men – the value of digital payments goes beyond the simple convenience of it but speaks to something about their aspiration to identify with a new India.

### **Product design is important and underrated**

Many potential users appear to be turned off from using digital banking platforms by the complexity of the apps. Apps for lower income consumers appear to be the same or slightly tweaked versions of those that work in wealthier markets – data-heavy, complicated to use, lacking multiple language functionality and often intimidating to a new user. Despite plenty of good evidence about how the user experience can be improved (e.g. CGAP’s research on improving financial service apps in India<sup>58</sup>) and some notable exceptions (e.g. BHIM) the general level of user interfaces remains inappropriate for the lower income customer. Maximizing the use of pictures in messaging and menus, and voice-based approaches (see My Oral Village’s principles of Oral Information Management)<sup>59</sup> will be important if digital finance products are to scale into lower income markets.

### **A lot of people still really like cash**

There is a lot of inertia around switching to digital payment options. It can be viewed as difficult, costly or just not worth it. However, we also saw that for some people and some transactions, there is positive utility associated with cash. It can symbolize security, trust, liquidity and simplicity and even in the grey economy people may have legitimate reasons to prefer operating in cash. This is important to consider in developing a digital future.

### **Linkages between digital payments and financial inclusion cannot be assumed**

Much of this research has been based on a hypothesis that stimulating digital payments could catalyze growth in one critical area of the DFS ecosystem and hence support financial inclusion for poor and under-served populations. It is not clear from the analysis that digital payments link particularly strongly to financial inclusion, let alone poverty reduction. Digitizing merchant payments was found to be of secondary importance in the context of financial inclusion. Further programming would benefit from stronger examination of the linkages between digital payments and development.

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<sup>58</sup> <https://www.cgap.org/research/slide-deck/financial-services-apps-india>

<sup>59</sup> <https://myoralvillage.org/principles-of-oim-design/uncategorized/myoralvillage/#more-2062>



## SECTION 3

# Recommendations

This section summarizes key takeaways from our macro- and micro-level research and provides recommendations for how government, the private sector and the development sector could respond over the next five years to drive innovation and growth in digital financial inclusion across rural and urban India.

### 3.1 FOR GOVERNMENT OF INDIA

#### Short Term

##### *Clarify the position of Aadhaar in account opening*

Ever since the Supreme Court ruled in September 2018 that Aadhaar could not be mandatorily linked to bank accounts, there has been uncertainty in the sector as to what is – and what is not – going to be allowed for account opening in the future. This posed questions about the stability of other elements of the India Stack, of which Aadhaar provides a cornerstone. The business models that rely on Aadhaar for customer acquisition would have benefitted from a quick resolution to end the uncertainty. As of the date of this report, the GOI had passed a law in March 2019 that Aadhaar can be used voluntarily to open a bank account and get a new SIM card. This contradicts multiple regulations and an earlier Supreme court judgement that disallows the use and authentication of Aadhaar for account opening. UIDAI (the authority issuing Aadhaar) is not taking a stand. This has caused confusion by service providers and a reluctance to open accounts using Aadhaar. Further clarification is still required by the GOI on this issue.

##### *Build a stronger gender focus into next phase of financial inclusion programming*

As the government moves into a new phase of PMJDY, it is important that the GOI's flagship financial inclusion program takes a more pro-active approach to bringing women meaningfully into the financial system. While there has been great success in closing the gender gap in terms of account accessibility, it is not clear that the financial system is meeting many of the needs of women and girls. Models based on bank accounts (which require physical travel) and smart phones (which are disproportionately owned or controlled by men) can bias inclusion away from women, even when they do have notional access to a bank account. Government can be more pro-active on gender by supporting digitization of women-centric institutions like SHGs, develop more community-based finance models and leverage the DBT system to channel money into female-owned accounts.

## Medium Term

### *Continue to develop shared infrastructure for innovation*

The 2014-18 era of financial inclusion in India has been led by the public sector, through initiatives like PMJDY. If the next phase is to be led by the private sector, the role of the government is to focus on provision of public goods like infrastructure and interoperability. The India Stack has demonstrated the potential for public infrastructure in supporting private sector-led innovation and should be continually developed to meet the needs of an evolving market.

### Develop the regulatory framework for digital finance

India's financial system is going through a period of non-linear change, with new models of differentiated banking and technology making some traditional banking practices obsolete. RBI has already come up with guidelines on regulating P2P financial transactions and some aspects of fintech, and new innovations around things like blockchain and artificial intelligence mean that the regulatory framework needs to move as quickly – or ideally even quicker – than the market. As debate continues around a potential independent regulator for payments, independent of RBI, it is important over the medium term that government continues to develop a regulatory structure that supports and responds to changes in the digital landscape.

### *Ensure that digital consumers are protected*

As the business model for financial institutions in a digital world becomes more about how effectively data can be captured, utilized and monetized, it is important that government maintains a regulatory environment that places the consumer, their rights and their individual agency, at its core. Growth of digital finance will generate increasing quantities of data, users will create digital footprints without knowing it and while these data trails provide opportunities for things like alternative credit scoring, they also pose huge risks.

The development of new models for delivering digital credit poses a particular risk. Poorly directed credit poses a risk at both the individual level and the systemic level (2008 provides good evidence for this, with the microfinance crisis in Andhra Pradesh and the global financial crisis). Rapid growth in small loans enabled by the digital revolution without adequate risk management could pose a similar challenge. A cautionary tale is Kenya, where a rapid increase in access to digital payments followed by a raft of fintechs offering small-ticket loans has led to large scale defaults and blacklisting of a significant number of borrowers – particularly young, urban men.<sup>60</sup>

Government needs to ensure that consumer protection frameworks are appropriate and future-proof for new models of digital finance.

## **3.2** FOR THE PRIVATE SECTOR

### Short Term

#### *Simplified apps, improved product design and focus on the customer experience*

Digital payment products in India are often over-complex and ill-suited to the needs of mass market customers. Designers of digital finance products can learn from products that have successfully penetrated low-income markets – communications tools like WhatsApp, and streaming tools like YouTube – which offer extremely simple user experiences. UPI and BHIM have set the standard for a streamlined user experience for digital payments, with minimal click-throughs required and no distractions. The challenge for competitors and new providers is to continue to simplify and innovate around product design and user interfaces to make people digital payments easier and more comfortable.

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<sup>60</sup> <https://www.cgap.org/research/publication/digital-credit-revolution-insights-borrowers-kenya-and-tanzania>

### *Increased innovation in savings and wealth management products, focus less on credit*

Most of the innovation and investment in digital finance in India has come in the payments and credit spaces. 74% of investments in Indian fintech are in payments and credit companies<sup>61</sup> with significantly less going to products like insurance and savings which may help customers with risk management and consumption smoothing. Though this situation is improving, with companies like Kaleidofin<sup>62</sup> demonstrating the potential for business models based on mobilizing small savings, most companies appear happy to concentrate on making money through lending or transaction fees and neglect the liabilities side of the balance sheet. These models are generally supported more by impact capital than commercial VCs, but more proofs of concept could see this change over time. This could be a significant opportunity for institutions from large banks to new startups that can build savings and wealth management products which respond to the specific needs of different market segments and manage to build trust in their product.

### *Developing the youth market*

There is a paradox in the way that young people access and use digital financial services. The macro data show that young people both less likely to have an account with a financial institution and also less likely to use the account that they have. However, qualitative research and anecdotal evidence suggest that young people are more digitally savvy, more likely to experiment with new apps and able to understand digital concepts. A study by the Internet and Mobile Association of India (IAMAI)<sup>63</sup> on mobile internet usage found that 46 per cent of urban users and 57 per cent of rural users were below the age of 25. Lack of usage of digital finance products may therefore be a function of the wrong product (young people may be less interested in bank-led models) or lack of opportunity (young people don't have the money to spend or save).

Either way, we can see that the situation is changing and for young people in India today, financial services will be conceptually very different to how they were for their parents. For those that already use their services, this knowledge can be useful to help older family members understand and use digital products. For those that are yet to come on board, more use cases need to be developed that respond to the needs of young people.

## **Medium Term**

### *More local-level innovation and product development*

In a country as large and diverse as India, challenges and opportunities for digital financial services also vary significantly between locations. Variations in agricultural conditions, different local value chains and demographic and sociological variations can all mean that products built elsewhere are not suitable for local populations. There are opportunities for scale that don't mean serving the whole country – for example Rajasthan and Andhra Pradesh both have more people than Kenya.

However, the concentration of funding in Mumbai, Bangalore and Delhi NCR means that there is a strong gravitational pull to these areas, where localized solutions can be lost. This leads to a lack of innovation at local level, but outstanding large opportunities for private sector players able to build products for these segments.

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<sup>61</sup> MicroSave, Fintech Study to Model a Financial Inclusion Lab

<sup>62</sup> <https://kaleidofin.com/>

<sup>63</sup> Mobile Association of India (IAMAI) and KANTAR-IMRB, "Mobile Internet in India 2017"

### 3.3 FOR THE DEVELOPMENT SECTOR

#### Short term

##### *Building on international best practices for gender and DFS*

Although gains have been made in closing the gender gap, significant disparities exist between how men and women access and use digital financial services in India. International best practices on gender and financial inclusion go beyond mainstreaming gender to more pro-active approaches, based on detailed understanding of the needs of different types of female customers, their societal roles, their behaviors and their aspirations. In particular, programming needs to respond to the intersectionality of digital financial inclusion with women's economic empowerment and labor market outcomes, with intra-household processes and bargaining and with informal structures like SHGs and the social capital that already exists in such institutions.<sup>64</sup> To date, digital financial inclusion has made achievements despite a lack of gender focus and this could be accelerated with a more integrated approach. A number of resources exist that can help in this regard, such as USAID's Gender and ICT Survey Toolkit<sup>65</sup>, DFID/GIZ's Promoting Women's Financial Inclusion toolkit<sup>66</sup>, USAID's report on The Role of Trust in digital finance for women<sup>67</sup> and mSTAR's Guide to Increasing Women's Financial Inclusion through DFS in Bangladesh.<sup>68</sup> A full systems-based gender diagnostic could support the efforts of the public and private sectors going forward.

##### *Support for more inclusive business models*

As the digital finance sector grows, there is an inherent pressure for companies to seek more profitable customers, likely to be higher earners, salaried and urban. Even companies who set out to build more inclusive business models can be pulled towards the higher end of the market as they struggle to monetize relationships with lower income customers. One of roles of the development sector is to make it easier for the more socially oriented business models to grow and thrive. So, for example, support can be provided for digital finance models which specifically target women, or the rural poor, so that these models are able to concentrate on achieving impact on their target markets without distraction.

This support may manifest in a number of ways. The simplest is via grant funding, to subsidize operations and put less pressure on the bottom line. Another could be innovation competitions, which reward new approaches for serving poorer customers with funding to build and grow more inclusive products. A third could be risk-sharing mechanisms such as first-loss guarantees, that incentivize lenders to enter markets perceived to be higher risk. The development sector can also help to build the business case for inclusive digital finance, by publishing data and information or funding pilots (as with the CATALYST program) to demonstrate proof of concept.

##### *Support for local level innovation*

More support for local level innovation can also encourage entrepreneurs and institution outside of metro cities to build products and services that respond to more regional or localized issues. The development sector can play an active role in supporting this, for example through investments that provide funding, market linkages, incubation or mentorship in local ecosystems, or innovation grants that target institutions working in specific geographies.

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<sup>64</sup> International Center for Research on Women (ICRW) - Gender and digital financial inclusion: What do we know and what do we need to know?

<sup>65</sup> <https://www.usaid.gov/documents/15396/gender-and-ict-toolkit>

<sup>66</sup> [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/213907/promoting-womens-financial-inclusion-toolkit.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/213907/promoting-womens-financial-inclusion-toolkit.pdf)

<sup>67</sup> [https://www.usaid.gov/sites/default/files/documents/15396/The\\_Role\\_of\\_Trust.pdf](https://www.usaid.gov/sites/default/files/documents/15396/The_Role_of_Trust.pdf)

<sup>68</sup> <https://www.marketlinks.org/library/guide-increasing-women%E2%80%99s-financial-inclusion-bangladesh-through-digital-financial-services>

## Medium Term

### *Long term risk capital for innovative approaches*

A key market failure in the growth of inclusive business models is the lack of patient capital. While venture capital money may be available to help payments platforms scale, and grants may be available for purely social investments, there is a financing gap in the middle that could help inclusive businesses grow. Long term investment is needed to underpin the time it can take to research, understand, conceptualize, experiment, design, develop and iterate products that work for lower income segments. Investment in innovation for lower income segments also requires greater risk appetite, as there is often a trade-off between potential impact and probability of success. Because of the non-commercial nature of development funds, they are well suited to providing this longer-term capital for innovation. While development organizations may be poorly placed themselves to invest in such innovations, development capital can be channeled to impact funds and investors channeling money to impact oriented businesses for innovation and growth. This long-term capital could take the form of convertible grants or performance-linked debt.



## Long term

### *Greater appreciation of the complexity of shifting from cash to digital*

If digital payments are going to supplant cash as a method of transaction, it is not enough that they are slightly better (in terms of ease, security or any other factor) – they need to be a lot better. This is in part due to the centripetal force pulling people back into a cash ecosystem – even when one or two major payments can be made digitally, the majority of transactions will remain cash-based. To overcome that inertia, the use case for digital has to be extremely compelling. In many cases, it is not.

The assumption that digital transactions are an improvement on cash is a complicated one and may not always hold. The payments economy is complex, as are the motivations and incentives behind financial transactions. For example, using a basic framework<sup>69</sup> for understanding the relative advantages and disadvantages of cash vs. digital, it is not hard to make a general case that the downsides of digital payments outweigh those of cash from the perspective of a conventional low-income consumer making a typical low value transaction.

Figure 19: Advantages of Digital vs. Cash

ADVANTAGE TYPE	 DIGITAL PAYMENT	 CASH
<b>Speed</b>	Often delayed by poor internet. Time to scan/enter number, wait for confirmation	Usually instant, only delay might be waiting for correct change
<b>Security</b>	Risk of money going to wrong merchant. Also danger of scams	Risk of robbery/pickpocketing when carrying cash
<b>Cost</b>	Cost paid by merchant to payment processor, passed on to consumer	Usually free, possibly withdrawal fee from ATM/agent
<b>Convenience</b>	Needs internet, literacy, possibly remembering a PIN	Storing large amounts of cash can be inconvenient

<sup>69</sup> Framework adapted from McCaffrey, Mike and Schiff, Annabel, *Finclusion to Fintech: Fintech Product Development for Low-Income Markets* (August 1, 2017)

Rather than pushing the notion that digital payments are everywhere and always an improvement on cash payments, a better approach may be to concentrate on the specific use cases in which it been established there are clear advantages on both sides of the market AND a strong case for how digitizing those transactions can meaningfully improve the lives of the poor. Where strong evidence does not yet exist, the approach needs to be a humble one, starting small and testing various approaches to build the evidence base rather than large implementations based on untested assumptions.

#### *Building the evidence base for development impact of DFS*

Digital finance remains a relatively young industry. In only a decade, since the early success of M-Pesa in Kenya, it has gone from a niche service to a fundamental pillar in a range of development programs. However, we still do not know much about how digital financial services link to poverty reduction, and even less about any causation. The best evidence yet, from a long-term study of M-Pesa users in Kenya<sup>70</sup>, found that M-Pesa could be credited with bringing 2% of Kenyan households out of poverty. Along with anecdotal evidence from elsewhere, this is not enough to build an industry on. Furthermore, the effect found in Kenya was driven by the fact that inward remittances through mobile money allowed more women to invest in their own businesses and move away from agriculture for income. That is a specific channel of the digital finance ecosystem, and impact pathways from other channels (e.g. digital credit, or merchant payments) are far less established.

Given that the evidence base is so unclear, development sector players (including bilaterals, multilaterals, DFIs and philanthropists) working in the DFS space should ensure over the longer term that their investments both are based on solid evidence of how DFS links to poverty reduction, and also develop the evidence base for how these linkages might manifest (such as through the research component of the mSTAR program). Building the evidence base will require new forms of coordination between the development sector (which is primarily interested in impact) and commercial players (who are profit maximizing). Because of the rapidly changing DFS space in India, it is an exciting time and place to build this evidence base, and findings from India can diffuse to other markets.

There are a number of questions that could be explored that can build our understanding of the impact of financial services on the lives of poorer customers. Questions like: what are the products that actually link into people's livelihood strategies and help build resilience against poverty? How do payments open up pathways to deeper financial inclusion, such as savings products? How can we develop more responsible models of digital credit with better pricing of risk? How can G2P transfers be better leveraged as entry points to the financial sector? All of these have interesting hypotheses and theories of change that could be tested, and the development sector can support institutions to research these critical questions.

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<sup>70</sup> Tavneet Suri and Billy Jack, The long-run poverty and gender impacts of mobile money





# ANNEX A

## Barriers to Adoption

The challenges and barriers that the CATALYST program experienced from the implementation of incubator program, validates the four challenges mentioned in section 2.2.4. As per the [technical report on Incubator Program<sup>71</sup>](#), following are the challenges and barriers in improving financial access to the last mile:

### ► Infrastructure and application design

- I. Authentication on UPI mandates that the user share debit card details to onboard any UPI payments app. Since most small and mini retailers operate as sole proprietors, they generally do not request for a debit card on their business account. It therefore causes a misalignment for any instant payment solution designed to service the B2B payments space.
- II. Robust back-end architecture is crucial for an effective and streamlined customer experience on the app. Timeouts during transactions and pending status on transactions impact trust for the last mile user in adopting digital payments solutions.
- III. Frequent network/switch downtime becomes a significant bottleneck for fintech players, especially for those working for financial inclusion. Difficulties in processing transactions or network downtime thus lead to loss of business at points of transaction, affecting credibility of the solution at large.
- IV. Technology standards set by custodians such as the National Payments Corporation of India (NPCI) are rapidly evolving with new releases. The transition of platforms complying with these changing standards thus becomes a time- and resource-consuming affair. Due to the phase-wise rollout, some banks have now transitioned to the new protocol whereas others are still active on older peer-to-peer (P2P) protocol, creating multiple delays and transaction timeouts

### ► Lack of human capital

- I. Hiring and retaining a technical team for a startup based out of a tier-2 city is significantly more challenging as compared to in metros such as Mumbai and Delhi NCR. Talent migrates to the metros and is hesitant to shift to tier-2 cities such as Jaipur due to lack of opportunities and an active startup community in these towns.
- II. Finding and establishing a proper oversight for monitoring the sales team was a major challenge for the incubatees. Since a majority of the incubatees operates through channel partnerships, they rely heavily on local representation from these channels for hiring the right set of field team members. While having no direct field operations staff keeps costs low, it also limits their oversight and access to clientele to some degree, serving as a major challenge in receiving feedback.

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<sup>71</sup> <https://cashlesscatalyst.org/wp-content/uploads/2018/12/Technical-Report.pdf>

### ► Behavioral inertia

- I. Retailers perceive no significant business value in accepting digital payments. Since there is no cost to withdrawal of cash and convenient availability of ATMs in the markets, it is easier for the customer to just keep paying the bills in cash which disincentivizes switching to digital payments for both parties. Merchants do not calculate the time and transportation costs of operating in cash and visiting banks neither do they consider security-related issues since this has become routine and they do not see the immediate effects.
- II. There is a strong preference for cash transactions in Jaipur. Most traders do not immediately recognize the value in transacting digitally and thus Jaipur continues to be a cashsticky market. This feature manifests itself as a challenge in terms of very low conversion rates and smaller number of leads due to the retailers' unwillingness to move to a digital platform.
- III. Most lead generation and community mobilization by local entities in a low-income cluster address an audience that mostly consists of women. Insights from lead generation exercises point to the fact that a significant proportion of these women are not the sole decision makers of the household. In several cases, women show interest in enrolling but the decision maker of the family (male) denies permission.

### ► Industry readiness and motivation to support

- I. Most members of the low-income community rely on public sector banks since most of the government benefits are transferred through these zero balance bank accounts. The empanelment is only for e-Nach mandate; however, they can be used for any other digital payment/ solutions. So it is a challenge for some products. This creates a bottleneck for fintechs to acquire customers from these communities to work towards financial inclusion.
- II. Banks in tier-2 cities such as Jaipur lack orientation and readiness to support fintech startups based in these cities. A simple process such as setting up a nodal account for transaction settlements can take from three to seven months due to ambiguity about bank policy and procedures at these local branches as can be seen in the case with Bix42.

### ► Need for financial literacy and orientation

- I. Acquiring merchants is cheaper and has a shorter gestation period but it is hard to create awareness amongst end users. Thus, merchants require proper orientation to understand the features of any financial solution to be able to nudge their customers.
- II. Since a majority of the fintech products are marketed as an alternative to traditional banks or banking services, individuals tend to perceive them as a bank and query about the presence of its physical branches. This poses a challenge of perception for the incubates.
- III. Although DMT and AEPS are popular digital means in the low-income community for remittance and money withdrawal, AEPS usage is significantly lower than that of DMT. Field visits within the city suggest geographical inequality in information dissemination to the agent as well as to the final customer regarding the operability and availability of AEPS, respectively. The absence of this information acts as a hurdle in improving AEPS transaction volumes.
- IV. For incubatees working as retail fintech solution providers, customers rely on the retailer to process the transaction. So, there is the possibility that the wrong amount would be charged to the customer's bank account. Some issues related to fraud and chargebacks arise as there is no physical receipt provided. At the same time, there is no way of telling whether the retailer is at fault or the customer is leveling wrong allegations.

### ► Regulatory challenges and friction in compliance

- I. Recent regulatory changes in the storage of Aadhaar information were another setback for the incubatees working on India Stack due to the delays associated with digitally transacting. This increased transaction time has made the entire process less convenient for customers as they now

need to provide their Aadhaar number every time they make a purchase, while earlier they only needed it for their first transaction.

- II. Goods and Service Tax (GST) compliance: PayNearby's pricing model on DMT works without a Tax Deduction at Source for markups beyond the existing rate. This has led to agents and distributors being wary of using DMT on the PayNearby's platform. The GST compliance issue will be resolved by requesting clarifications from the RBI and relevant ministries. If it is resolved, there may be an overhaul of the pricing model pan India.

In a survey on "[Mapping the Merchant's Mind](#)" conducted by CATALYST, although the overall objective of the survey was to better understand the payment behavior by fixed store merchants in Jaipur, the result reinforces the high prevalence of cash. The survey revealed that over two-fifths of the merchants surveyed had tried some form of digital payments. However, only a third reported sustained use, a fraction of the overall volumes. The most popular payment service was closed-loop wallets, chosen by nearly three-fourths of those surveyed. A little less than a third used cards, and about 25 percent used internet banking. Only 2 percent of merchants utilized all three types of payment services. Checks dominated for larger transactions, while cash was used for small ticket sizes. Only 8 percent of overall customer transactions by value were executed digitally, while an even smaller 4 percent of the supplier payment values were paid digitally. 27 Merchants stated a low customer demand as the biggest reason for not using digital payment solutions, followed by a lack of awareness and the fear of being cheated in that order.<sup>72</sup>

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<sup>72</sup> <https://cashlesscatalyst.org/wp-content/uploads/2018/07/Price-Report-Short-20-June-edited-min.pdf>



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