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THE PROSPERITY GATEWAY:

Unveiling the Potential of Unified Payments Interface (UPI) in Inclusive Growth

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The report cannot be constructed as a Harvard or Stanford study.

TABLE OF CONTENT

EXECUTIVE SUMMARY

In the last 8 years, India transformed itself to shift to a new governance model centered around Digital Public Infrastructure to achieve its development goals and improve the ease of living of its citizens. India strategically employed Digital Public Infrastructure (DPI) to revolutionize governance, exemplifying a global standard. Aadhaar streamlined service delivery, ensuring efficient access to welfare schemes. The CoWin platform orchestrated the world's largest vaccination drive, showcasing DPI's efficacy in public health management. Unified Payments Interface (UPI) democratized digital transactions, fostering financial inclusion. These initiatives collectively highlight India's pioneering use of DPI, setting a global benchmark for effective governance through technological innovation. The center point of this revolution has been India's indigenous payment method, Unified Payments Interface (UPI), which acted as a catalyst to accentuate the process.

The growth of UPI in the country had a butterfly effect on various paradigms of development such as Financial Inclusion, Ease of Doing Business and Ease of Living of Indian citizens. This report attempts to trace this journey and elaborate on how this transformation took place through economic and social lenses. Moreover, India's initiative to undertake this journey and its eventual success, can serve as a model for other developing countries on how to leverage technological innovation and achieve their developmental goals.

The Indian economy has long been dependent on cash. It ranked second in the world in terms of cash withdrawals by volume, second only to China. High dependency on cash incurs additional costs to an economy in terms of printing and the logistics involved in moving the money around. Since cash is hard to track, it tends to circulate outside the formal financial system, thus dampening the intended impacts of monetary and fiscal policies. Identifying digitization as the future of our financial system, the government launched UPI in 2016 as a fast, secure, and convenient method for transacting digitally. An improvement over the existing digital payment methods at the time, UPI witnessed immense growth in the country.

Unified Payments Interface (UPI) recorded its highest-ever number of transactions at

12.02

Billion in December 2023

The total value of UPI transactions for May touched Rs.

18.2

TRILLION

according to National Payments Corporation of India's.

The simplicity, efficiency, and the trust enforced by the government in the payment platform, coupled with fruitful partnerships with private stakeholders, helped its proliferation in the country. The impact of UPI's widespread adoption in the country was far-reaching and manifold. A safe payment method like UPI increased the ease of doing business in the country.

With numerous UPI-facilitated e-commerce platforms coming to the fore, the buying and selling experience has improved tremendously at both the consumer and seller's end. Bringing people under the formal banking system, the MSME sector has seen increased formalization and transparency in its operations. Government initiatives and improved digitization led to an improvement in market access, financial operations, credit access and solidification of supply chain in the MSME sector. Increased digital transactions have improved record keeping and tracking of money, which deters corrupt practices enabled by a dependency on cash in the economy.

In terms of financial inclusion, UPI acted as a gateway for people to access other digital financial services. Riding on the trust enforced by the government, the vulnerable and marginalized sections of the society have registered an improved access towards formal financial services. This has been further promulgated by key government initiatives like Pradhan Mantri Jan-Dhan Yojana (PMJDY), which brought unbanked sections of the society under the ambit of formal banking sector. The impact of financial inclusion can be seen in India's path to achieving various Sustainable Development Goals, such as eradication of poverty, enhancing ease of living, improving education, and promoting equality among genders. Women have been one of the key beneficiaries of the digital boom taking place in the country. Nearly 56% of all bank accounts opened under PMJDY belong to women.

This is a key step towards providing them access to safe credit, improving their financial independence, and encouraging their entrepreneurial spirit. Numerous stories from all corners of the country exemplify the success of India's pursuit of development via digitization. UPI has acted as an enabler for these developments, as it helped in laying a robust foundation of our digital financial infrastructure, on which all these benefits are being nurtured.

UPI is a pivotal technological export from India and provides legitimacy to India's claim at becoming a global force. Furthermore, it has the potential to transform the global financial landscape. Due to its technologically sound infrastructure and widespread userbase, it has seen an increasing interest across the world. India responded to this by establishing a dedicated organization, NPCI International Payments Limited (NIPL) tasked with spreading UPI globally. So far, their efforts have led to its adoption by various European and Asian countries as an acceptable payment method. This action intends to benefit the Indian travelers in these countries, as they don't have to rely on domestic methods of payment in the country they are in.

Other than that, UPI has been identified as a key facility to ease the transfer of remittances in the country and bringing them under formal scrutiny. Additionally, a case has been made for UPI to establish itself as the dominant player in the cross-border payments system, taking the hegemony away from the western countries and planting it in the global south.

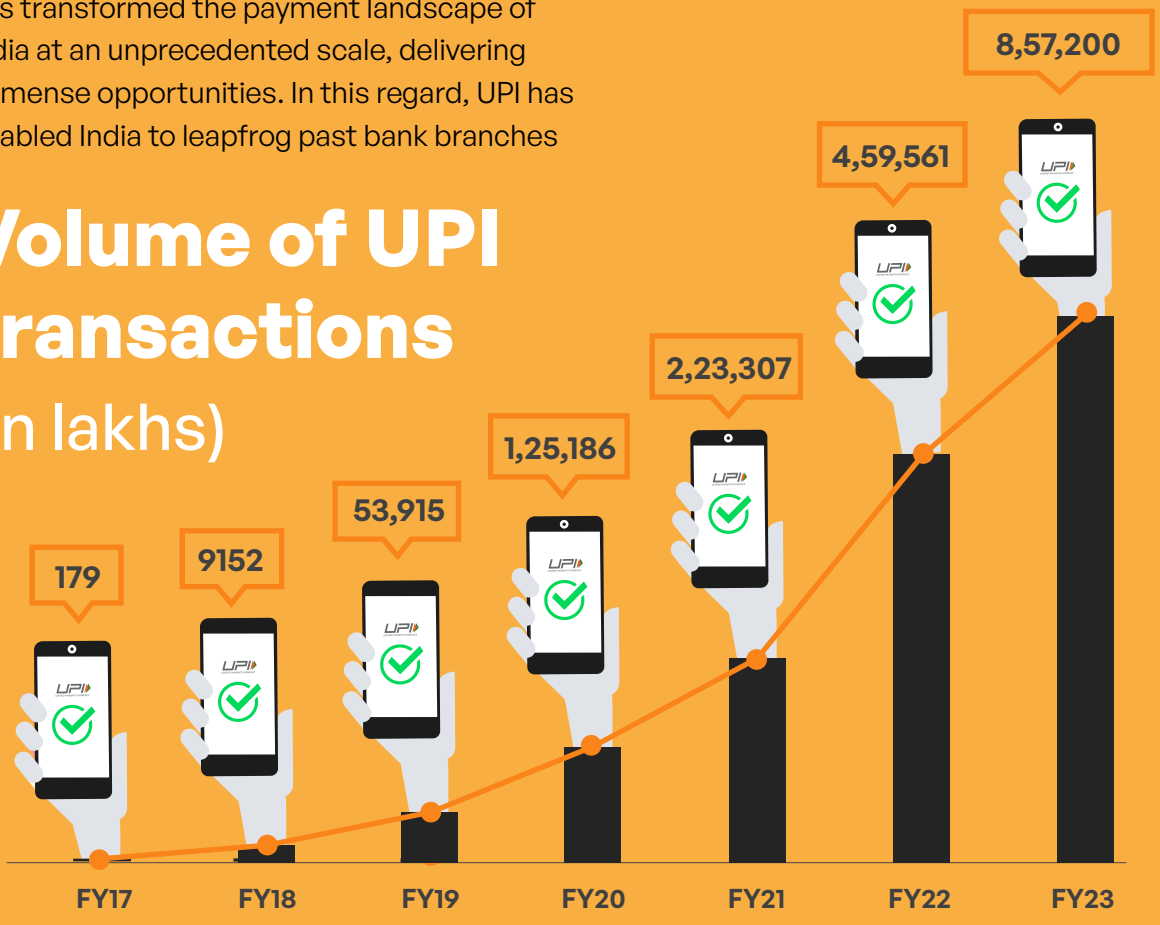
01 DIGITAL PAYMENT ECOSYSTEM IN INDIA : AN INTRODUCTION

Cash has been the predominant medium of exchange for all goods and services or trade in India. As per a study by the Reserve Bank of India in 2013, the annual growth rate of currency in circulation has risen from 12.6% in 2002 to 18.8% in 2010. However, with the advent of plastic money and the steady proliferation of digital banking services, newer forms of payment mechanisms entered the market.

These newer payment systems or mediums of exchange entailed debit cards, credit cards, and other internet banking services like National Electronic Fund Transfer (NEFT)/ Real Time Gross Settlement (RTGS). Later, they got complemented with improved and efficient digital mechanisms like IMPS which finally culminated with the launch of UPI.

Against this backdrop, it is observed that today's trade not only offers options in terms of products and services, but also in terms of digital payment methods like debit/credit card, NEFT/RTGS, internet banking, mobile banking, e-wallets, or the growing Unified Payment Interface (UPI). The emergence of Digital Financial Services (DFS) has transformed the payment landscape of India at an unprecedented scale, delivering immense opportunities. In this regard, UPI has enabled India to leapfrog past bank branches to mobile payment systems and is a big step towards digitalisation. Within a span of five years, the volume of UPI transactions sky-rocketed from 179 lakh in 2017 to 4,59,561 lakh in FY 22 (RBI Annual Report, 2021). Transactions using the UPI (Unified Payments Interface) network touched a record high in December 2023, both in terms of volume and value. The total value of UPI transactions reached ₹18.22-lakh crore, the accelerated adoption of technology in upgrading the payment infrastructure has helped India make rapid strides towards a cashless society and transcend geographical barriers for financial inclusion to the last mile.

Volume of UPI transactions (in lakhs)



Source : RBI Annual Reports

However, the journey does not begin or end with UPI. It is important to comprehend whether any intervention at the state or national level leads to improvement in economic and social outcomes. This question is crucial in the context of digital financial services (DFS) or payment mechanisms like UPI to determine whether DFS can be seen as a potent tool to enable economic and social progress. In the vein of scouting answers for the same, it becomes pivotal to map the trajectory of digital payments, especially UPI, and also look for international parallels of similar interventions and their impact on economic and social outcomes. Having laid the premise, it is also important to have a look at the mechanism(s) that existed prior to the intervention of UPI. The figure below gives the plot of the hypothesis the report explores.

Do digital payments enable economic and social progress?

How do they achieve this?

Are there similar interventions at the global level? What was their impact?

What were the mechanism(s) prior to digital payments (especially UPI)?

Before moving on to the questions pertaining to UPI, it would be prudent to first shed light on mechanism(s) that existed earlier. Prior to the introduction of UPI in India, people primarily relied on cash for sending and receiving payments, and paying their utility bills, among others. The dependence on cash is such that the currency in circulation (CIC) has been around 11% of GDP for about a decade now, barring the financial year 2016-17, where due to demonetization CIC dipped to 8.7% (RBI, 2020). Moreover, the cash withdrawals from ATMs (in terms of volume) have increased from about 700 crores to 986 crores from FY15 to FY19. This makes the country only second to China, where such withdrawals have been about 1400 crores. Other counterparts like U.S., U.K., South Africa, Spain, Mexico, Brazil, etc. have exhibited much lower numbers (RBI, 2020).

However, it is argued that excessive reliance on cash is a costly habit for any country. It involves exorbitant price of printing cash and other logistical issues like moving the money around. Hence the cost of printing and distribution makes a case for finding

and switching to cheaper alternatives. In addition to this, cash is delicate and vulnerable to damage and theft. Also, it is more difficult to track leakages and circulation of hard cash. It is also argued that the government's monetary policy hardly affects economic activity if money circulates outside the formal financial system (Nilekani & Shah, 2015). Therefore, the huge costs in terms of printing, distribution, and leakages make a case for alternative methods.

In the above context, digital payments serve as a potent solution which overcomes the aforementioned barriers in the most efficient manner. Digital payment solutions like net banking, mobile banking, e-wallets, and UPI are cheaper and offer higher convenience and record-keeping benefits.

UPI is sought to be the most efficient payment system that has emerged in recent times compared to its counterparts. It is a "unique payment system through which you can link your bank account to a mobile application and make transactions safely. From sending money to friends to paying merchants, from online shopping to paying utility bills, UPI makes transferring money easy, safe, and instant.[1]"

[1] upichalega.com

Being formally introduced in 2016, it came with the idea that anyone with a bank account in India can create their Virtual Payment Address (VPA or UPI ID) and start transacting using a mobile phone.

By protecting the bank account information, a VPA frees the sender and receiver from having to type bank details repetitively. The user can also send or receive money by scanning a quick response (Q.R.) code to pay an individual, merchant or service provider, which gets directly credited to their bank account. The most significant difference between UPI and other digital modes of payment, like IMPS, is its interoperability. Financial transactions require a multitude of messages to verify, authenticate, and provide information on bank balances.

UPI standardizes these messages across payment institutions, individuals, web, apps, and virtual I.D.s to allow for seamless transactions across various stakeholders (Cook & Raman, 2019).

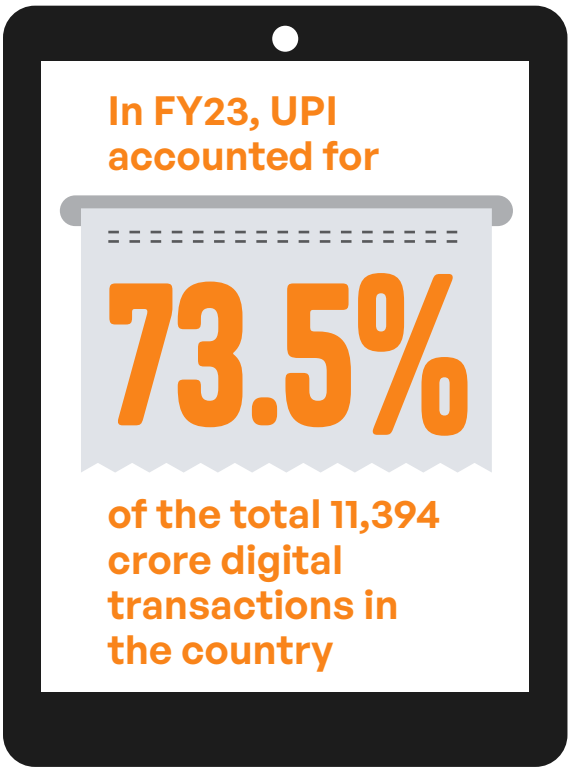
Other forms of digital payments include NEFT/RTGS, debit/credit cards, mobile banking, e-wallets, etc. Below are some commonly used payment methods to understand their usage and growth.

Table 1.1: Forms of Digital Payments and their Usage

		NEFT	RTGS	IMPS	CREDIT CARD	DEBIT CARD	UPI
FY17	Volume (lakh)	16,221	1,078	5,067	10,871	23,993	179
	Value (₹ crore)	1,20,04,000	9,81,90,400	4,11,600	3,28,400	3,29,900	6,900
FY18	Volume (lakh)	19,464	1,244	10,098	14,052	33,434	9,152
	Value (₹ crore)	1,72,22,900	11,67,12,500	8,92,500	4,59,000	4,60,100	1,09,800
FY19	Volume (lakh)	23,189	1,366	17,529	17,626	44,143	53,915
	Value (₹ crore)	2,27,93,608	13,56,88,187	15,90,257	6,03,413	5,93,475	8,76,971
FY20	Volume (lakh)	27,445	1,507	25,792	21,773	50,611	1,25,186
	Value (₹ crore)	2,29,45,580	13,11,56,475	23,37,541	7,30,895	7,03,920	21,31,730
FY21	Volume (lakh)	30,928	1,592	32,783	17,641	40,200	2,23,307
	Value (₹ crore)	2,51,30,910	10,55,99,849	29,41,500	6,30,414	6,62,667	41,03,658
FY22	Volume (lakh)	40,407	2,078	46,625	22,399	39,387	4,59,561
	Value (₹ crore)	2,87,25,000	12,86,58,000	41,71,000	9,72,000	7,30,000	84,16,000
FY23	Volume (lakh)	52,847	2,426	56,533	29,145	34,199	8,57,200
	Value (₹ crore)	3,37,20,000	14,99,46,000	55,85,000	14,32,000	7,20,000	1,39,15,000

Source: RBI Annual Reports

Digital payment methods have seen an increase in their usage and thus have grown over the years. RTGS being used for large payments naturally has bigger numbers in terms of value. However, what is interesting is to see is the growth of UPI. Increasingly growing and being almost at par with IMPS in FY20 (in terms of value), it stands at more than double the IMPS figure in the financial year ending 2022 (in terms of value). Moreover, no other payment method has seen a growth rate commensurate with UPI in terms of volume and value.



Having stated the acceptance of UPI, it is also essential to understand the challenges it comes with. One of the biggest hindrances in the proliferation of UPI or digital payments is that they are 'digital', and not every individual is comfortable moving from physical to digital transactions. This is true especially for the older generation who have developed a legacy relationship with banks and thus face difficulty adopting the new technology.

In the above context, a survey by RBI (2021) revealed that India is highly dependent on cash and people belonging to informal markets especially tend to resist a transition towards digital payments like UPI despite its merits. Also, people belonging to informal or rural markets tend to believe their closed ones more than any advertisement or promotional campaigns done by the government or banks because bank agents or 'mitras' are perceived with relatively low confidence (Ozili, 2018). Other factors that impede the growth of digital adoption methods include distance, telecom infrastructure, security, income, literacy, and awareness.

Due to these factors, the government of India has a massive task at hand; a move towards digital payments is not just simply a move towards a different mode of payment but rather a different lifestyle.

Also, as a nation on the move, the idea is not just to move towards digital payments but towards greater financial inclusion. In this vein, augmenting the access to formal financial structures becomes of crucial since it not only aids day-to-day living but facilitates the expansion of economic activities across the country whereas exclusion from the same can act as a roadblock in development. The size of India's informal economy is estimated to be 43.1% which represents approximately $4,287 billion at GDP PPP levels. In a country like India where roughly 92.4% of people work in the poorly regulated informal economy, contributions from this sector become pivotal, and unfortunately often get underestimated or ignored (Nilekani & Shah, 2015). For instance, for an individual, exclusion from formal banking limits the ability to save, invest or improve the quality of life. For an entrepreneur or business, it constrains the ability to expand and grow by limiting the credit access and investment. Under such circumstances where secure banking channels are limited, people rely on ad hoc alternatives like moneylenders who then charge exorbitant interest rates, ultimately stifling both economic and individual growth.

Digital financial inclusion thus becomes the way forward to bring the backward sections of the population into the fold of formal economic structures. In this regard, financial inclusion has been identified as an enabler for 7 Sustainable Development Goals (SDGs). G20 also launched its high-level principles for digital financial inclusion in 2016. "Digital financial inclusion" can thus be defined as digital access to and use of formal financial services by excluded and underserved populations. But the caveat here is that such services should be suited to customers' needs and must be delivered responsibly, at a cost both affordable to customers and sustainable for providers (Lyman, Timothy 2015). This is where UPI or digital payments becomes something to reflect upon since they become a catalyst by bringing ease, accessibility, affordability, and encouraging customers by obviating the need for manoeuvring around countless physical documents.

UPI
UNIFIED PAYMENTS INTERFACE

PATHWAY TO FINANCIAL REVOLUTION

Financial Inclusion

Economic progress

- Increasing Formalisation
- Preventing Leakages
- Creating conducive business ecosystem
- Augmenting digital financial services

Social progress

- Achieving Financial Inclusion to tackle poverty
- Bringing the unbacked under the ambit of formal financial system
- Introducing digital financial services to achieve digital financial inclusion

Global Adoption

- Adoption of UPI as a global payment method
- Work towards developing an alternative to SWIFT
- Promote UPI to governments for domestic adoption

When I used to say this, people used to really laugh at me, but that is the reality. If you look at the payment across UPI, 6 billion monthly transactions valued over 10 lakh crores, with close to 260 million users and a merchant base of 50 million users and already merchants in 10 countries accept UPI payments and over 30 countries have expressed interest in adopting UPI ”

Amitabh Kant, G20 Sherpa, India

In India, digital financial inclusion has been driven by a diverse set of factors ranging from policy ecosystem, technological inputs, growth of e-commerce platforms, etc. Today, it stands at a critical juncture with UPI's rapid rise and India is well on its track to becoming an inclusive and cashless economy. It has enabled people and merchants to transact locally in small amounts and better manage their characteristically uneven income and expenses. However, there is a notion that digital payments have taken a leap after the pandemic since the pandemic entailed contactless or remote payments due to COVID protocols. This notion is only partially true. Although digital payments have increased[2] , cash reliance hasn't declined either, whereby one sees that banknotes in circulation did increase during the pandemic both in terms of volume and value (Table 2). The year-on-year growth however suggests that the percentage growth has declined in FY22. More of this aspect will also be explored in later chapters, but the learning remains that it would be wrong to eliminate the role of cash.

Table 1.2: Banknotes in Circulation

F.Y.	Volume (in crore)	Value (₹ crore)	YoY Growth (%) - Volume	YoY Growth (%) - Value
2019	10,876	21,10,892		
2020	11,598	24,20,975	6.64	14.69
2021	12,437	28,26,863	7.23	16.77
2022	13,053	31,05,721	4.96	9.86
2023	13,627.332	33,47,967.24	4.4	7.8

Source: RBI Annual Reports

Against these developments, it becomes imperative to understand the dynamics of digital adoption in India and how it has evolved. It is not unknown that India has been predominantly a cash-driven economy with a sizeable informal base that still relies on cash payments. Nonetheless, given the vast potential of digital transactions, especially UPI, its attending benefits and rapid adoption, India has shown commendable efforts to expand its coverage. This has been aided by technological growth and reforms in telecommunications and smartphone penetration across the country. With almost 23 crore unbanked people in India (Findex, 2021) the scope of its expansion looks promising. The forthcoming chapters will shed light on the factors highlighted above, considering the milestones achieved in India's digital ecosystem and how UPI can be the prosperity gateway in the journey towards financial inclusion.

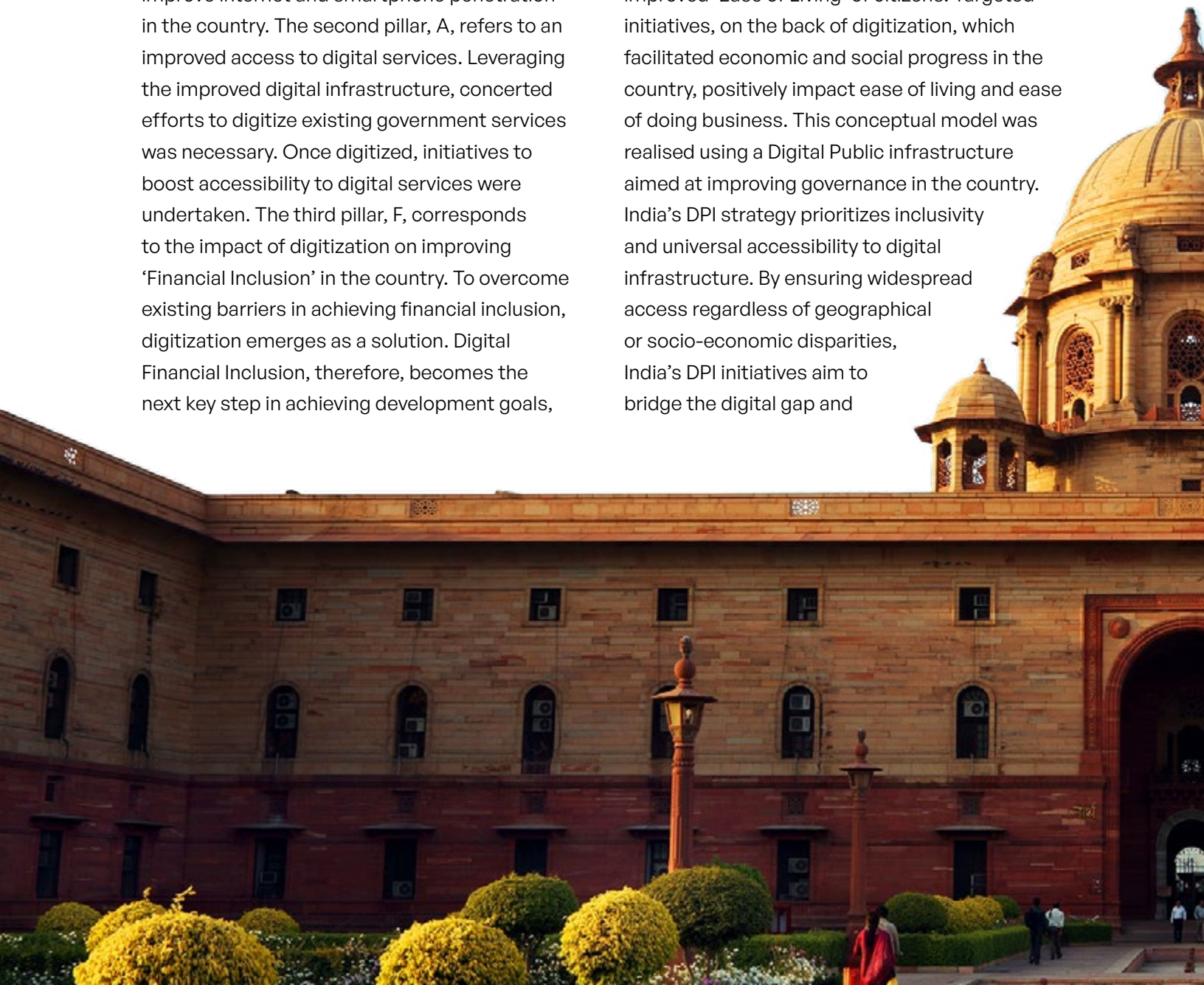
[2] Total digital payments have increased by 216% in terms of volume and 10% in terms of value for March 2022 as compared to March 2019 (RBI, 2022)

This report thus captures the key drivers of India's digital payments infrastructure and its role in spreading prosperity through mechanisms like UPI since it sees it as a potent tool in enabling economic and social progress. Moreover, the report calls for action at the global level in adopting similar payment systems to enable development.

‘SAFE’ Model of Governance

India shifted to a new governance model, backed by a robust Digital Public Infrastructure (DPI) to attain its development goals which is encapsulated by the following model – ‘SAFE’. The model elaborates the four pillars on which this governance model is built.

The first pillar, S, refers to the strengthening of digital infrastructure in a country. This required investment in the telecommunication sector to improve internet and smartphone penetration in the country. The second pillar, A, refers to an improved access to digital services. Leveraging the improved digital infrastructure, concerted efforts to digitize existing government services was necessary. Once digitized, initiatives to boost accessibility to digital services were undertaken. The third pillar, F, corresponds to the impact of digitization on improving ‘Financial Inclusion’ in the country. To overcome existing barriers in achieving financial inclusion, digitization emerges as a solution. Digital Financial Inclusion, therefore, becomes the next key step in achieving development goals, which requires investment in technology-based innovation. The fourth pillar, E, stands for the outcome of the aforementioned initiatives – improved ‘Ease of Living’ of citizens. Targeted initiatives, on the back of digitization, which facilitated economic and social progress in the country, positively impact ease of living and ease of doing business. This conceptual model was realised using a Digital Public infrastructure aimed at improving governance in the country. India’s DPI strategy prioritizes inclusivity and universal accessibility to digital infrastructure. By ensuring widespread access regardless of geographical or socio-economic disparities, India’s DPI initiatives aim to bridge the digital gap and

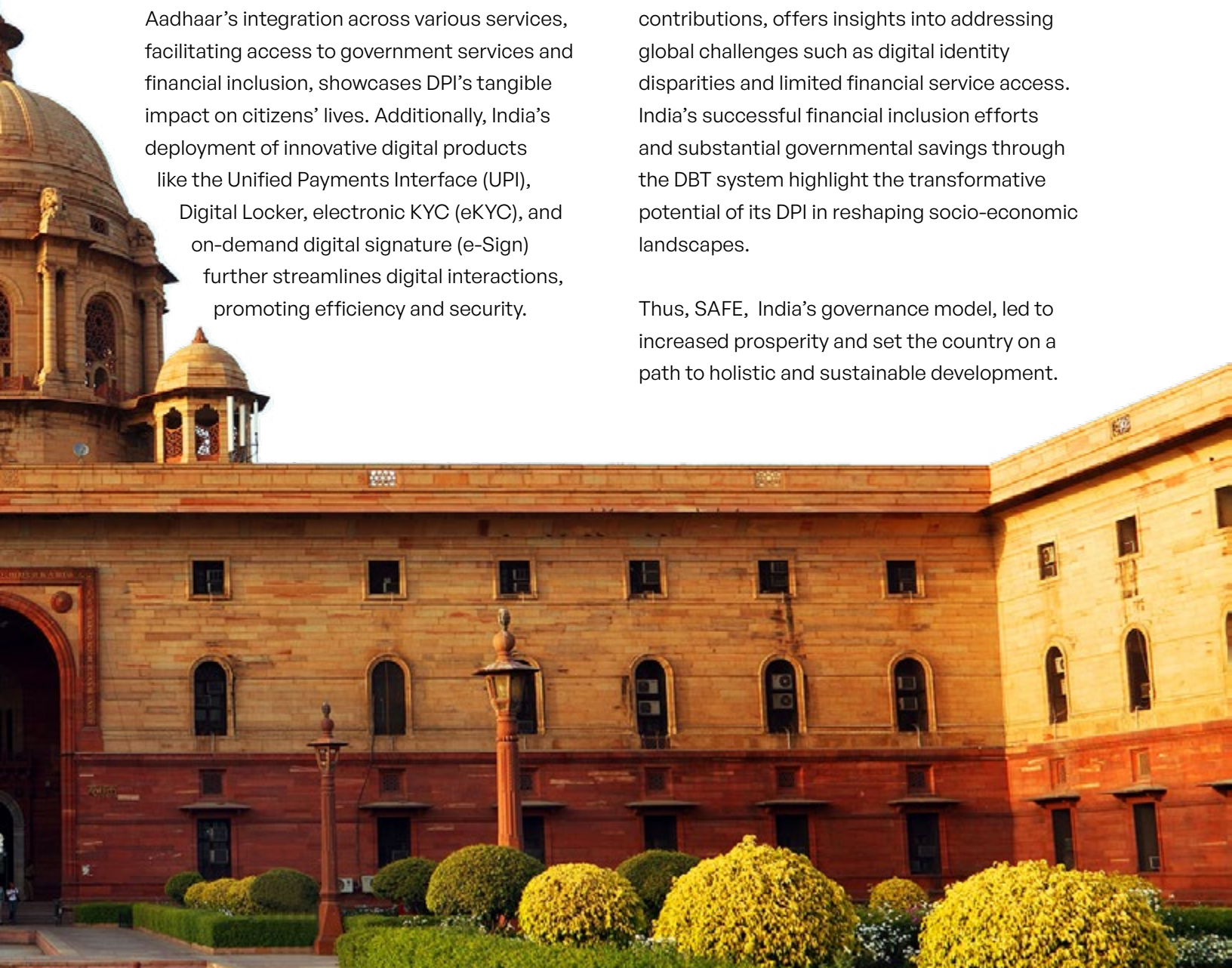


democratize technology for all segments of society. The foundation of India's DPI framework rests on principles of transparency, safety, and security. Based on open standards, interoperability, and collaboration, India's DPI architecture aims to empower consumers, encourage entrepreneurial activities, and foster a competitive marketplace conducive to economic inclusivity.

A key component of India's digital transformation is the Aadhaar system, illustrating the transformative capacity of DPI. Aadhaar's integration across various services, facilitating access to government services and financial inclusion, showcases DPI's tangible impact on citizens' lives. Additionally, India's deployment of innovative digital products like the Unified Payments Interface (UPI), Digital Locker, electronic KYC (eKYC), and on-demand digital signature (e-Sign) further streamlines digital interactions, promoting efficiency and security.

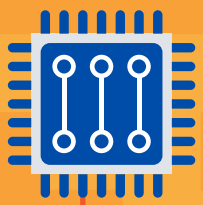
The international adoption of India's DPI initiatives, including the Modular Open Source Identity Platform (MOSIP) by various nations, highlights the scalability and adaptability of India's DPI model. Amidst challenges posed by the COVID-19 pandemic, India's swift response through technological innovations like the CoWin platform and the Aarogya Setu app within the National Health Stack demonstrated the resilience and robustness of India's DPI infrastructure in managing public health crises. India's balanced approach in DPI, integrating government initiatives and private sector contributions, offers insights into addressing global challenges such as digital identity disparities and limited financial service access. India's successful financial inclusion efforts and substantial governmental savings through the DBT system highlight the transformative potential of its DPI in reshaping socio-economic landscapes.

Thus, SAFE, India's governance model, led to increased prosperity and set the country on a path to holistic and sustainable development.



Payer chooses UPI as Payment Method, enters amount and UPI Pin.

Payer Payment Service Provider (PSP)



Response Passed to Mobile App

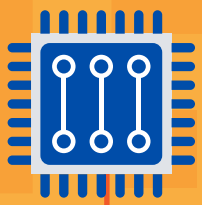
Request Forward

Request Initiated

Debits Account and response back to UPI App

REMITTER BANK

Payer Payment Service Provider (PSP)



Request Forward

Address Resolved

NPCI

भारतीय राष्ट्रीय भुगतान निगम

NATIONAL PAYMENTS CORPORATION OF INDIA

NPCI UPI SERVER

NPCI Passes request to bank to credit

BENEFICIARY BANK

02

UNIFIED PAYMENTS INTERFACE (UPI): ITS EVOLUTION OVER THE YEARS

Technology

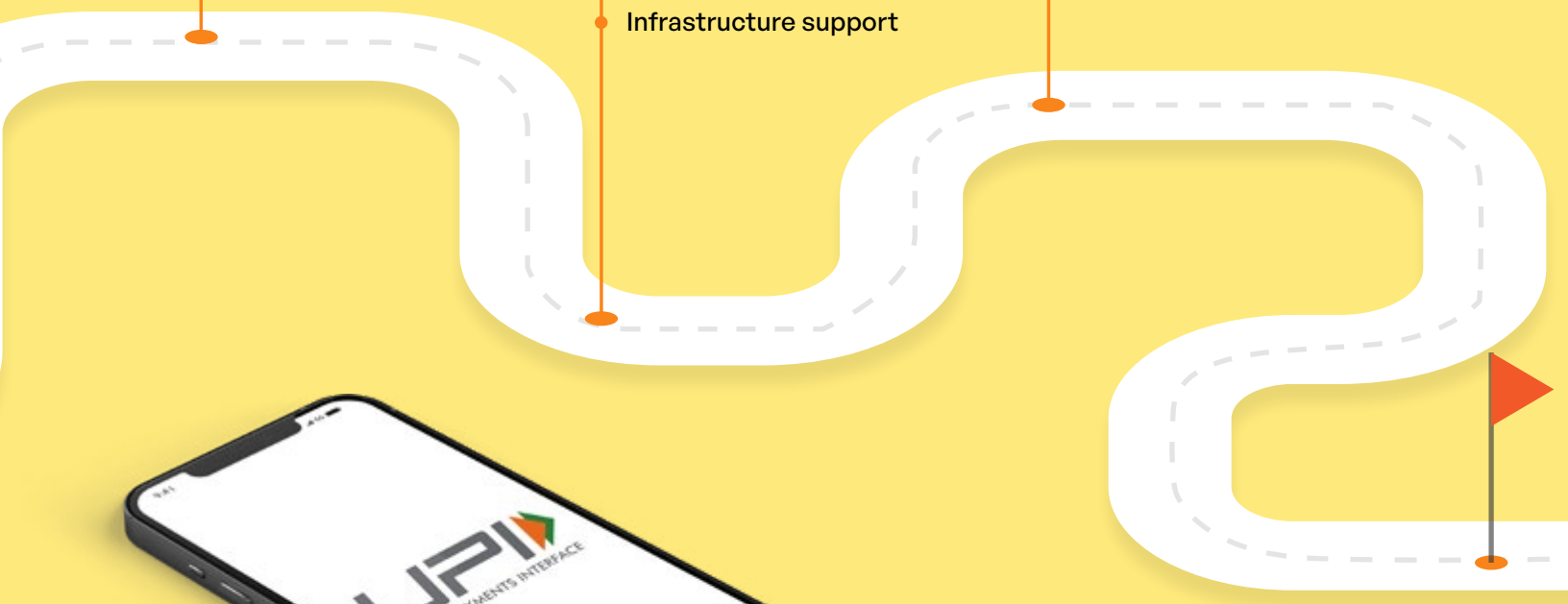
- Advancement in smart technology
- AI and Innovative practices

Policy

- Government policies and regulations for rapidly changing tech
- Facilitating equitable access through digital literacy
- Infrastructure support

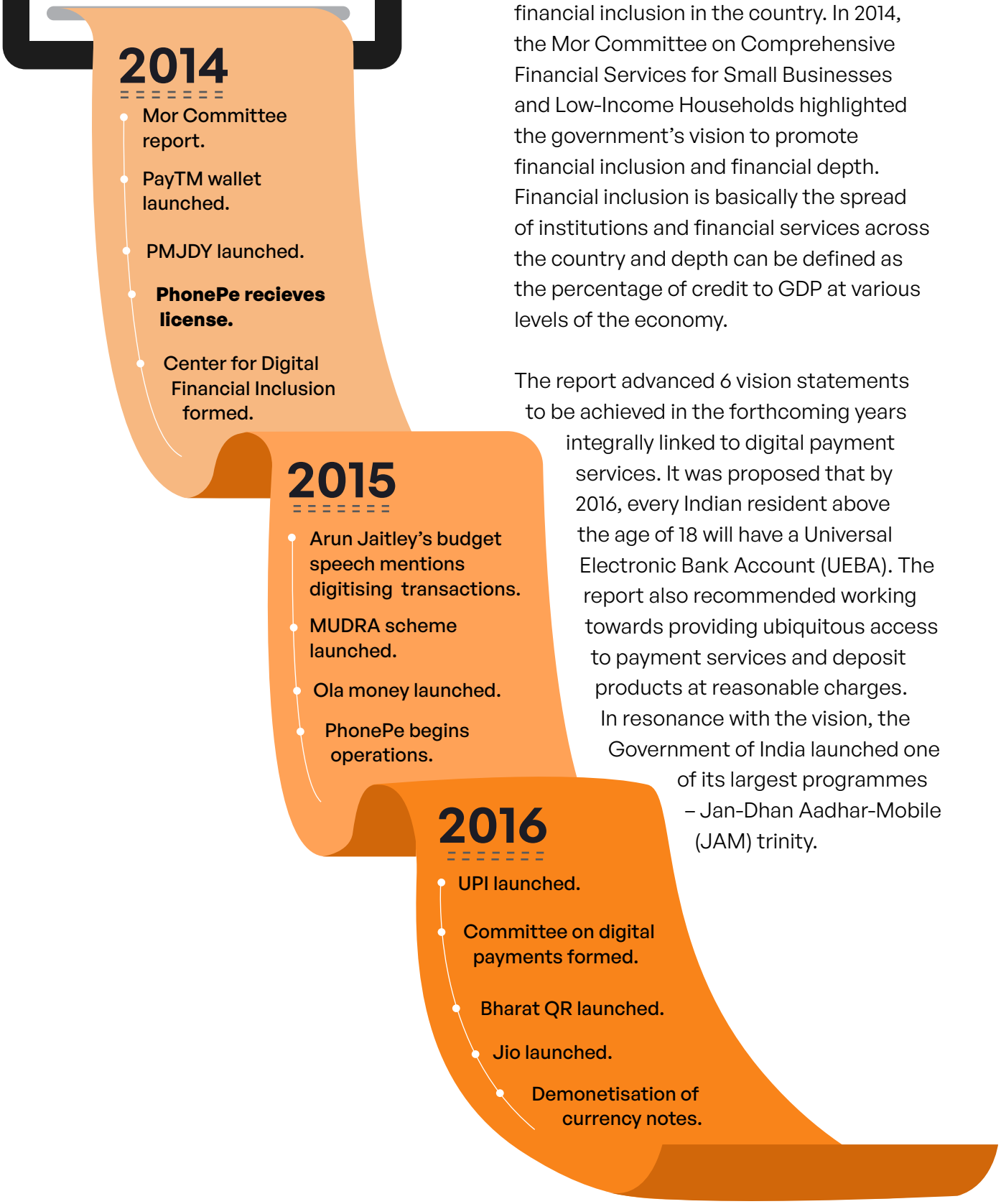
Consumer & Markets

- Responsive business practices
- Consumer demand that acts as an incentive for tech to continue innovation
- Governments to regulate and support platforms like UPI



2.1

Key Events in the evolution of India's Digital Financial Ecosystem



2.1.1

Phase 1 (2014-2016)

The first phase is a period of setting targets and laying the foundation to spur financial inclusion in the country. In 2014, the Mor Committee on Comprehensive Financial Services for Small Businesses and Low-Income Households highlighted the government's vision to promote financial inclusion and financial depth. Financial inclusion is basically the spread of institutions and financial services across the country and depth can be defined as the percentage of credit to GDP at various levels of the economy.

The report advanced 6 vision statements to be achieved in the forthcoming years integrally linked to digital payment services. It was proposed that by 2016, every Indian resident above the age of 18 will have a Universal Electronic Bank Account (UEBA). The report also recommended working towards providing ubiquitous access to payment services and deposit products at reasonable charges. In resonance with the vision, the Government of India launched one of its largest programmes – Jan-Dhan Aadhar-Mobile (JAM) trinity.

The objective behind implementing the JAM trinity was to promote large scale, technology enabled, direct benefit transfers to improve the economic lives especially in low-income households. It coalesced a multitude of subsidies into a single medium thereby reducing the overall transaction cost. This was accompanied by Pradhan Mantri Jan Dhan Yojana (PMJDY), another flagship scheme of the government to bring people under the ambit of formal financial institutions. By end of 2016, the government recorded more than 260 million bank accounts under the yojana[3]. The Global Financial Index released by the World Bank also captured how the access gap for formal banking and financial services between the rich and the poor began closing since 2014. Between 2014 and 2017, the gap narrowed from 16% to just 5%.

[3] https://pib.gov.in/newsite/PrintRelease.aspx?relid=156054

The index also captured the narrowing gender gap in financial inclusion.

Between 2014 and 2017, the proportion of women who made or received digital payments also doubled from

11%

22%.

The period was also marked by new entrants and policy innovations. Paytm wallet was launched and PhonePe received license to operate. Today, powered by UPI, both entities have become key players in providing DFS. With the prospect of reaching billions of new customers, today many new players are trying to gain space in the growing market. The budget speech in 2015 highlighted the importance of digital connectivity for rural growth. A funding of ₹100 crore was also sanctioned to expand the country's optical fibre network envisioned to enable rural connectivity.

In November 2016, as a result of the government's demonetisation policy, digital payments received a particular one-off boost. The volume of debit card point of sale transactions in December 2016 was 164% higher than it was in October. Pre-paid instruments, including mobile wallets like Paytm, saw transactions rise by 62% over the same time span (USAID, 2020). However, it was also noted that this sudden growth was indeed short term, as the volume of online transactions declined when the new cash notes came back into circulation by 2017. Nevertheless, this phase motivated people to engage more with digital services. Post demonetisation, the Central Government Committee on Digital payments put forth medium term recommendations to strengthen the digital

payment ecosystem. The report pointed out that India's dependence on cash imposes an estimated cost of approximately ₹21,000 crores on account of various aspects of currency operations including cost of printing new currency, costs of currency chest, costs of maintaining supply to ATM networks, and interests accrued (Finance Ministry, 2018).

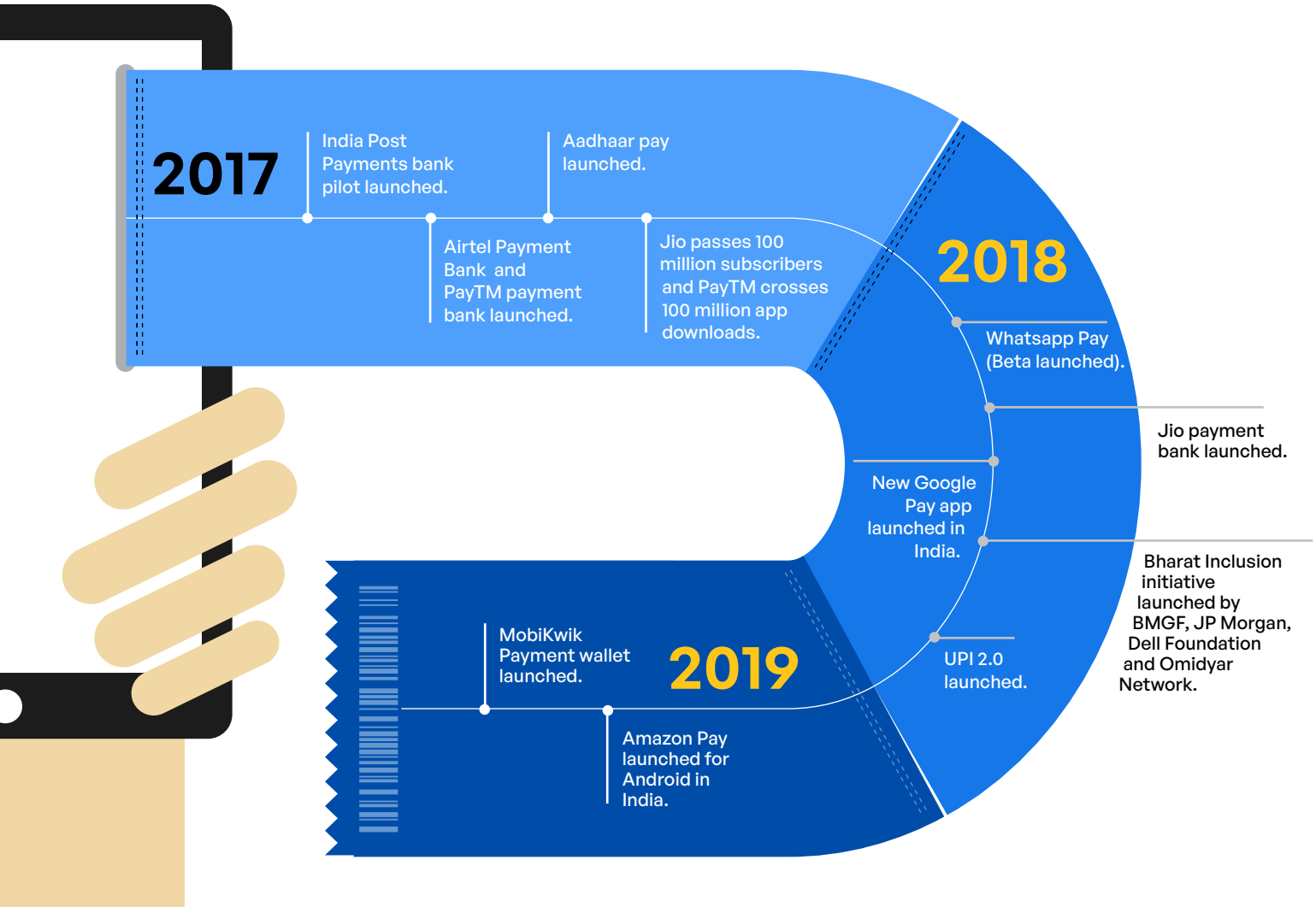
The launch of UPI played a catalyst role in the revolutionary change in Indian payment landscape. Since UPI began to gain traction towards the end of 2017, it experienced tremendous growth. Hosting a technologically advanced platform at a time when internet and smartphone technology was reaching new heights, it enabled unparalleled ease of transactions. UPI supported person to person (P2P) and person to merchant (P2M) payments which could be used on an app-based smartphone or a USSD based feature phone. It also enabled non-financial transactions such as enquiring balance.

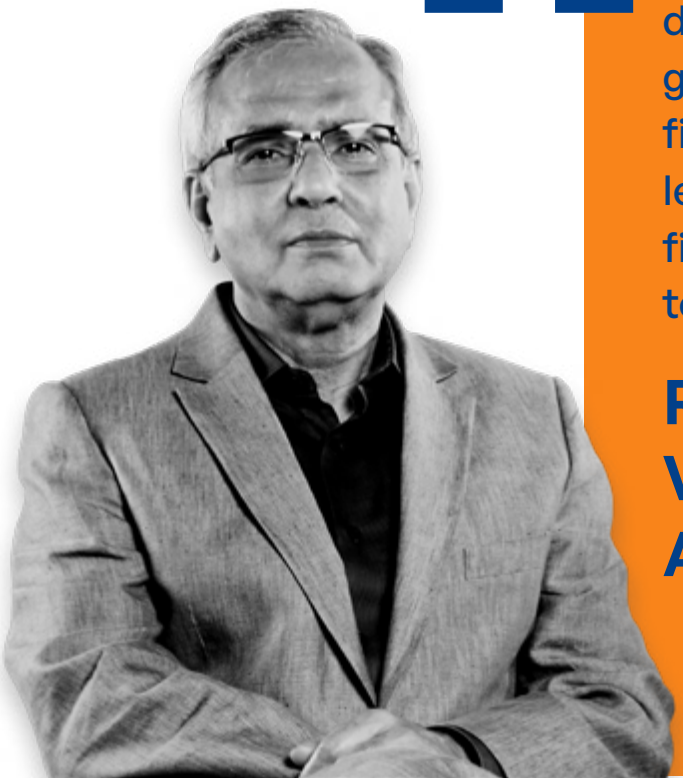
Along with UPI, Bharat QR, unveiled in 2016 by NCPI, Mastercard and VISA became the world's first interoperable Quick Response code acceptance solution to expedite India's transition to a cashless economy. Bharat QR was devised based on the direction set by the Reserve Bank of India (RBI) in September 2016 and its Payments Vision 2018 (June 2016), which outlined innovation, interoperability, and security as its three core components. It enabled customers to transact money available in their bank accounts without having to worry about the physical availability of an active credit/debit card. Merchants only needed to display the QR code at the store front or through the acquiring banks mobile bank's mobile application to receive payments.

2.1.2

Phase 2 – (2016-2018)
Expansion of Digital Money and Mobile Wallets

The second phase in India's digital journey was marked by a rapid growth and expansion of mobile money and wallets. Ranging from Google Pay, Amazon Pay to payment banks, this period was marked by innovative launches and growth of customer friendly digital services. Backed by technology, it enabled customers to open a digital savings account with no opening charges or minimum balance requirements. Paytm banks, for instance, operated with an annual interest rate of 2.5% and allowed for a deposit up to ₹2 lakhs. It provided both physical and virtual debit card to make online purchases across all merchants accepting VISA card. In other words, almost all banking services were provided by a non-bank entity with ease and simplicity. Moreover, these new entrants enabled people to send and receive money from a mobile wallet, linked to a bank account with no transaction cost.





India is witnessing increasing digitization with people getting greater and easier access to financial services. This has led to a shift in consumers' financial behaviour – from cash to e-wallets and UPI."

Rajiv Kumar – Former Vice Chairman, NITI Aayog

In August 2018, UPI 2.0 was launched enabling its users to link their overdraft accounts to UPI VPA. A new autopay feature was also added in this new version to support recurring payments. The surge in UPI transactions entailed consumers paying bills, recharging mobile phones, and buying various goods and services on e-commerce platforms. People gradually began using UPI for smaller retail payments than for higher value Person to Person payment. The real fillip to UPI and digital wallets began with the pandemic and its subsequent socio-economic impact. Since 2020, it is common to find push – cart and street vendors, rikshaw drivers and almost every retail shop having their own UPI scanner and QR codes. Digital modes of payment have now become the new normal. World Bank records that the pandemic led to an increased use of digital payments in low- and middle-income countries. In India, more than 80 million adults made their first digital merchant payment after the start of the pandemic (Findex, 2021). The shift away from cash and cards towards digital transfers can thus be attributed to the combination of push to digital payments and Covid-19-related developments. The latter included worldwide shift towards a work-from-home model, temporary shutdowns of shops, hotels and restaurants, merchants refusing cash payments, and distribution of Covid-19 benefit payments by governments via digital mediums.

Box 2.1: Industry and UPI

UPI's launch in India in 2016 was supported by the industry stakeholders – banks, online payments platforms, and developers. NPCI developed the BHIM app, a government-backed UPI platform. The growth of UPI in the country has led to the growth of multiple payment platforms. Similarly, Google created Tez, later renamed Google Pay, another dedicated UPI app. The open infrastructure of UPI led to multiple such apps, based on a common infrastructure, coming into the market. Most prominent among them were Walmart-owned PhonePe; Google Pay and Paytm. Their easy-to-use interface coupled with the convenient UPI architecture made them the go-to platforms for people to transact using UPI. Together, these platforms are responsible for processing 94% of payments in March 2023. According to data from the National Payments Corporation of India (NPCI)[4] , the top three apps accounted for nearly 96% of all UPI transactions by value. This translates to about 841.91 Cr transactions worth INR 13.44 Lakh Cr between the three apps.

Of the 21 billion-dollar start-ups, called Unicorns, in the Fintech space, 9 of them are related to UPI or have UPI as a payment method for a better experience. Companies include RazorPay, CRED, Pine, PhonePe, PineLabs, and PayTM among others. As people have grown accustomed to using UPI apps, these companies have started offering multiple financial services making them easier to access. PhonePe, for example, lets the user manage their bank accounts and have started selling insurance policies using UPI autopay. It further lets people link their existing debit and credit cards, and provides a seamless experience to users while paying and transferring funds. Similarly, leveraging UPI PayTM has become the official partner for IRCTC and has improved the payment experience for users using the platform to book train tickets. Services like mobile recharge and bill payments are available across all three platforms.

In May 2023, Razorpay, a prominent Full-Stack Payments and Banking Platform in India, has introduced 'Turbo UPI', a groundbreaking one-step UPI payment solution for the country. This innovation has been realized through collaboration with NPCI and Axis Bank. This enables customers of online merchants to execute UPI payments without the need for redirection to an external UPI app during the checkout process. On the merchant side, BharatPe, another payments-based start-up launched in 2018, provided

[4] Source: NPCI- UPI Ecosystem Statistics. Available at: npci.org.in/what-we-do/upi/upi-ecosystem-statistics#innerTabTwoJul23

merchants with QR codes that could accept UPI payments from all payment apps, free of cost. Earlier, although there were no costs attached to paying from UPI on the consumer's end, merchants had to pay a transaction fee of 1.5%. Thus, BharatPe removed this transaction cost and thus built a large consumer base in the country very rapidly. In exchange, it tracked their daily earnings and sales patterns and used this data to extend loans to them at a cheaper rate with faster processing.

Various start-ups in the country have used UPI as a foundation to build their business and owing to UPI's growth they have been successful. The government of India, with its decision to keep UPI open, has fostered healthy competition in the industry. Thus, various platforms have made people's lives easier by providing them with easier access to various financial services like insurance, payments, etc. Therefore, a healthy competition within the industry makes UPI a success and continued growth can further lead to development in the financial sector.

Source: NPCI, organiser.org

Therefore, it is learned that the evolution of digital payments – especially UPI – happened as a result of a systematic and active participation from various stakeholders at the industry, government, and community level. It can be observed that the evolution of UPI was not an overnight success, but rather took persistent efforts at multiple levels. This was also achieved by continuous innovation at various levels to not just make digital payments accessible but affordable. However, digital payments are not insulated from of resistance within the community and it would not be wrong to assert that there still is a long road ahead. Having gauged the evolution of UPI and its payment gateways, it makes a case to delve into the realities of how it influenced everyday life – something explored in the next chapter.

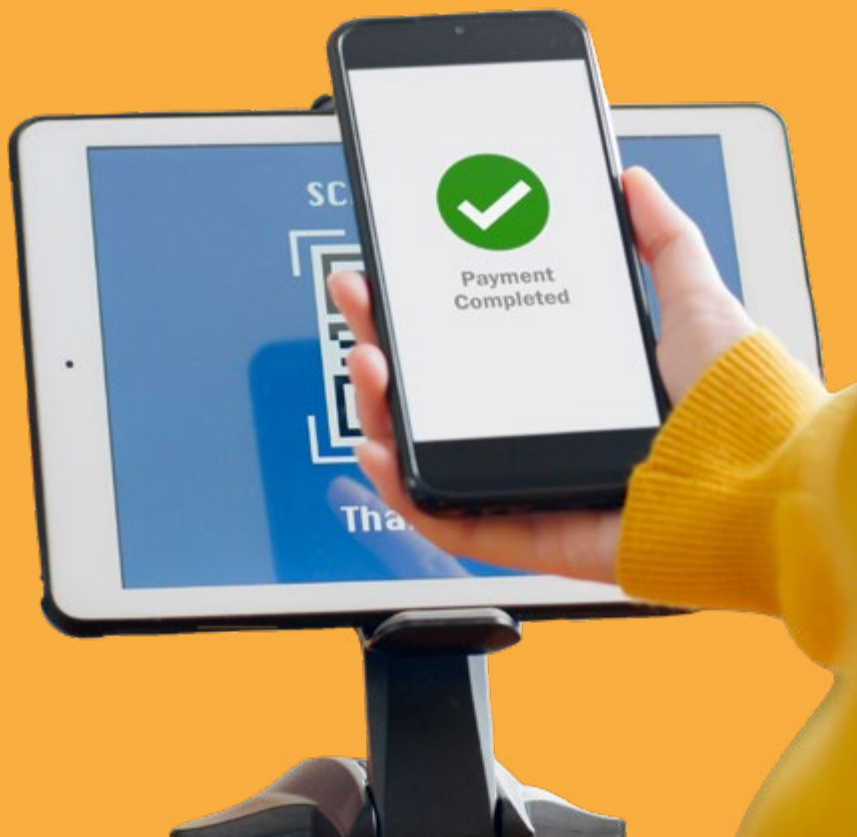
03 AUGMENTING DIGITAL ECONOMY

Digital technology holds the key to a holistic model of development and growth in the country. With its ability to cut across existing barriers and improve service-delivery to the last mile, it has the potential to transform a country's economy. In India, the growth of UPI as a mode of transaction led to a digital transformation of its economy.

The impact of this transformation was felt across various sectors such as industry, commerce, and governance. A fast, safe and reliable method of payment, like UPI, catalyzed the growth of e-commerce in the country. Further, it provided a platform using which the MSME sector forayed into digital services. Increased digitisation in trade and commerce helped in improving the efficiency of these sectors, and made them more resilient in the face of shocks such as the COVID-19 pandemic. The shift to e-governance, where services by the government could be availed by the citizens in a more accessible manner, took place because of the proliferation of digital technology. Improved efficiency, transparency and a citizen-centric approach to governance are some of the key changes brought about by this digital transformation. In this light, the chapter delves into exploring these changes and elaborates on how UPI, and other digital services, had an impact on improving the ease of living of citizens.

From Cash to Digital Payments

Almost a decade back, citizens across the country could be seen exchanging banknotes in every nook and corner as the primary medium of exchange to facilitate buying and selling goods and services in the economy. Even today, as was highlighted in chapter 1, cash plays a significant role in everyday life of the citizens. However, with advances in digital banking services, millions of people in the formal and informal economy can now be seen using smartphones for carrying out transactions. Today, money can be transferred across the board with just a few screen taps. By leveraging high teledensity, payment systems have enabled mobile phones to be used as a primary payment device for facilitating payments. In this regard, the role of



UPI has been pivotal. UPI has garnered millions of users in a short span of time and has shown tremendous growth both in terms of volume and value.

The platform has not only redefined the process of transacting but also has redefined the relationship between the citizens and the banking sector. Not only has it made financial inclusion a reality, but it has also made the banking sector more accountable and secure for the citizens. The availability of UPI on handy devices has brought with it the convenience of digital payments, making it an integral part of day-to-day transactions. Be it remittances, online shopping, or paying for utilities, the ease of making payments through a mobile app has been one of the most significant outcomes of the shift to digital payments, leading to improved customer experience and increased reliance on digital platforms.

Digital Payments: Augmenting E-Commerce and Expanding Scope for MSMEs

Against the above backdrop, the growth of e-commerce should also be well recognised. By leveraging the proliferation of internet and mobile penetration in the country, E-commerce has revolutionised the buying and selling experience in the country. The explosive growth in the last few years has already catapulted the biggest firms out of the billion-dollar territory. (Mahipal & Shankaraiah, 2018).

India's e-commerce market is projected to grow from $83 billion in 2022 to $150 billion in 2026.[5]

It is not just the sellers who have leveraged the internet and mobile penetration. More convenience, lesser time, and a wider array of options 'on-the-go' has also led to a faster transition towards e-commerce in India from the consumer's perspective.

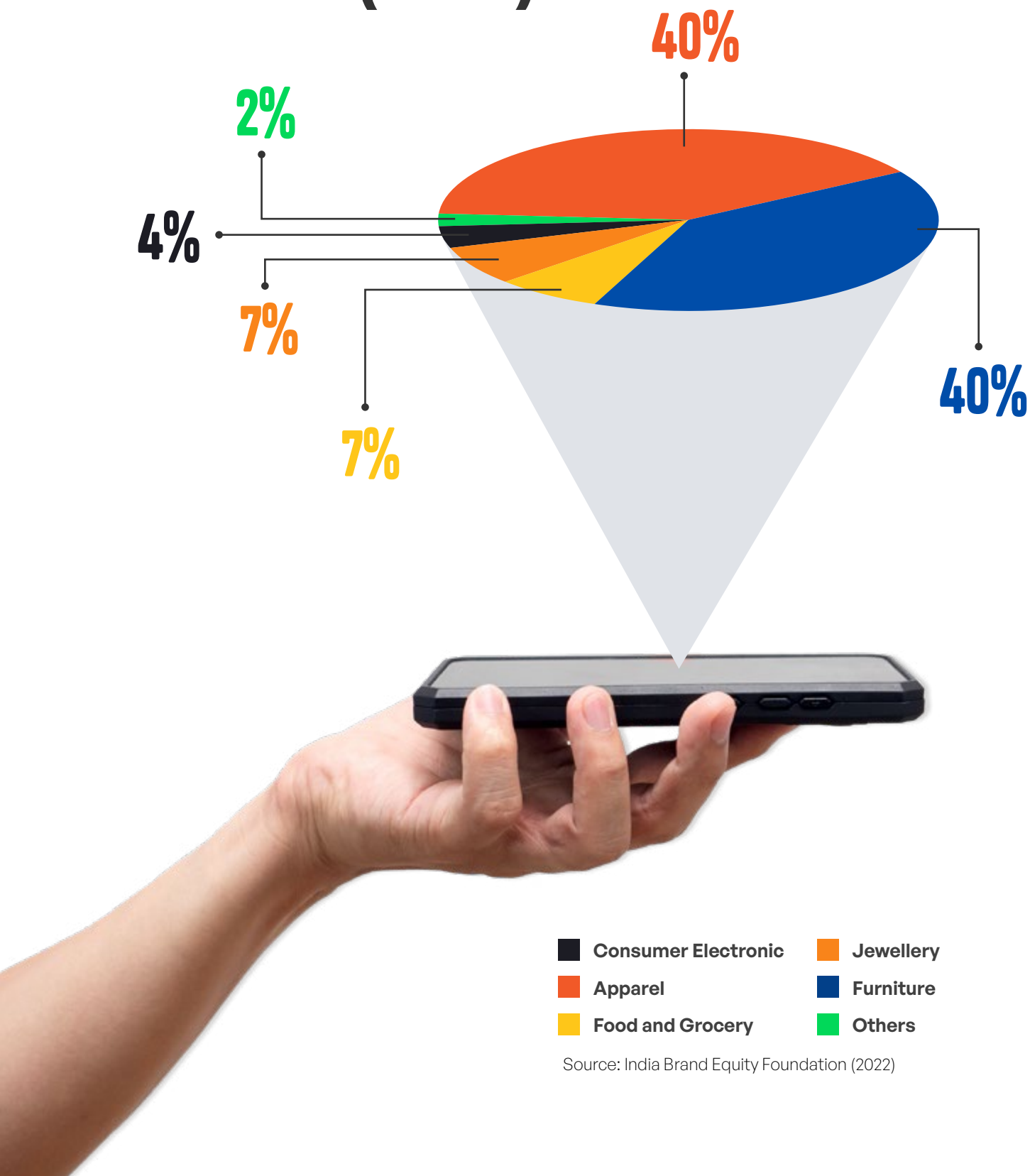
[5] Available at
The Global Payments Report 2023. 8th Edition

In this vein, digital money has played a key role. To give some figures, digital wallets comprised 50% of e-commerce transaction value in India for 2021, with the world average being 48.6%. According to FIS 2023 Global Payments Report Digital wallets are projected to grow at 15% 2022-26. Digital wallets are the leading e-commerce payment method in Asia-Pacific markets covered in the report 2023: China, India, Indonesia, the Philippines and Vietnam. Also, e-commerce is expected to account for 12% of global consumer spend, with 59% of that e-commerce spending expected to be transacted via mobile devices (GPR, 2022). The numbers show that with growing e-commerce coupled with increased use of smartphone, digital payments are well poised to rise.

It is sometimes perceived that e-commerce is a representation of big MNC's and brands where small producers and sellers don't get the required space due to high competition and predatory pricing. To this end, the Indian e-commerce industry has seen consolidation in recent years, witnessing many mergers and acquisitions (UNIDO, 2017).

However, small producers and MSMEs have a crucial role to play. Although MSMEs in India may or may not have an online presence, 43% participate in online sales in India (UNIDO, 2017). The department-related parliamentary standing committee on industry (Rajya Sabha, 2021, 308) recognised that MSMEs have the potential to occupy a significant space in the e-commerce segment. The figure below gives the market segmentation of the e-commerce industry. As observable, more than three-fourths of the market is dominated by just consumer electronics and apparels, while others occupy a meagre share.

E-Commerce Segment of India (2020)



Source: India Brand Equity Foundation (2022)

Given that MSMEs in India deal in a wide variety of goods and services, it can be put forth that they have a space to break into. In this regard, digital payments have a key role to play.

- With traditional payment methods, businesses often need to manually enter financial data into their accounting systems, which can be prone to errors. Digital payments, on the other hand, can be automatically recorded and tracked, which helps to reduce the risk of errors and make it easier for businesses to stay organised (Andrew, 2021).

- With traditional methods, businesses often have to wait for checks to clear or for cash to be physically transferred. Digital payments, on the other hand, can be processed almost instantly, allowing businesses to receive and make payments more quickly. This can help to improve cash flow and reduce delays in the supply chain.

- Lastly, traditional payment methods, such as checks or cash, are prone to errors and can be easily forged or stolen. Digital payments, on the other hand, use secure and encrypted systems that protect against these risks (Singh, 2019). This helps businesses to reduce their operational costs and ensure the safety of their transactions.

Therefore, the online presence of MSMEs not only enables them to get to more customers but also allows them to get into the ambit of formal systems by creating their digital footprint. This digital footprint creates a history for them that stakeholders like financial intermediaries can then use to disburse credit to them, for

instance. This credit, in turn, can be in digital format, obviating the need to produce many documents (Gupta & Agarwal, 2022; Buteau, 2021). In recent times, such credit disbursement has increased. For example, the number of loans through digital channels as a percentage of the total number of loans for Scheduled Commercial Banks (SCBs) has increased from 1.43% in FY 2017 to 6.04% till CY 2020[6], whereas for Non-Banking Financial Company(s) (NBFCs) it has increased from 0.68% in FY 2017 to 53.05% till CY 2020. Other advantages of online presence may pertain to greater scope of marketing – something which has limited scope in offline channels.

Thus, in order to increase the online presence or digital footprint of MSMEs, certain measures have been taken by the government to promote digitalisation of MSMEs. These include the Udyam portal, MSME Champions Portal, Government e-Marketplace (GeM), Trade Receivables Discounting System (TReDS), among others.[7]

Box 3.1: Digital Transformation of MSMEs

In today's era, where businesses and people have shifted to online buying and selling, it becomes crucial for the MSMEs to move towards the digital space. Whereas it would be relatively convenient for medium-sized MSMEs to move towards the digital space, smaller and micro enterprises would find it relatively inconvenient. However, the current digital revolution that is taking place in the country makes the case for the shift much easier.

A survey done by Goyal et al., (2022) on more than 1500 MSMEs across 10 states and 6 sectors found that online sales of MSMEs have risen from 12% in 2018-19 to 27% in 2020-21. Moreover, micro enterprises or family run firms – something conspicuous in the Indian case – also witnessed a rise in sales through online channels from about 2.5% to about 11% (Bussolo & Sharma, 2022). Also as opposed to MSMEs that operated only via offline channel, those MSMEs that had an online presence found themselves in a better position to deal with a shock like COVID pandemic (Goyal et al., 2022).

A study (Meher et al., 2020) on

[6] https://pqals.nic.in/annex/1710/AU1949.pdf
[7] https://pib.gov.in/PressReleasePage.aspx?PRID=1881702

MSMEs based out of Katihar district in Bihar showed that MSMEs found it convenient to use digital payments since it became much easier for them to get payments from customers (with improved security relative to cash). This applied to the procurement side wherein supplier of raw materials found in much cheaper to deal in digital payments over cash payments ultimately increasing their profitability. Other studies at the global level also show an improvement in overall functioning of MSMEs after they shift to digital modes (Raharja et al., 2020).

However, MSMEs in India and elsewhere face the challenges in adopting digital mediums. These entail low scalability, lack of knowledge, digital jargon, dominance of big players, among others. It is to overcome these barriers that Government of India has taken various initiatives for the promotion of digitalisation of MSMEs. Some if these include Udyam Portal, MSME Champions Portal, Digital lending by SIDBI (PRAYAAS), Udyam Mitra Portal, and the newly launched ONDC Portal, among others.

With these initiatives, although the country is at the right track for 'digitalisation', but there still a lot that needs to be traversed given that MSMEs have only recently started moving towards 'digital'. As per Udyam Portal, as of August 2023 Total Udyam Registrations are1,84,57,609, out of which 1,83,91,843 are classified, 1,77,74,159 Micro, 5,64,592 Small and 53,092 are Medium enterprises.

However, rising internet penetration, increased data consumption, growing e-commerce, and rise in digital payments, along with rising consumer demands, the digital transformation of MSMEs is expected to happen at a fast pace.

For instance, the Digital Saksham Initiative aims to educate and train MSME owners and entrepreneurs, enabling them to integrate into the digital economy. The initiative envisages enabling credit access, expanding market access, diversifying the customer base, digitising financial operations, and solidifying the supply chain.[8] [9] Moreover, the recent Open Network for Digital Commerce (ONDC) initiative is aimed at moving the monopolised e-commerce business from big giants like Walmart and Amazon to small retailers, producers, and MSMEs. It is a network that lets sellers voluntarily display their products and services across all participating apps and platforms[10]. So long as the platforms are connected to this open network, buyers and sellers can transact irrespective of the applications they use, moving from a platform-based to a network-based approach, exactly like UPI.[11]

However, just establishing an online presence is not sufficient as digitalisation not just pertains to the mere online presence of businesses but the continued and growing participation of such businesses. It makes little sense for businesses to move online just for sale if elements pertaining to licences, clearances, certifications, procurement, etc., are done manually. There needs to be some initiative in this regard to make it encompassing. This is where the role of e-governance comes in, which we now turn to.

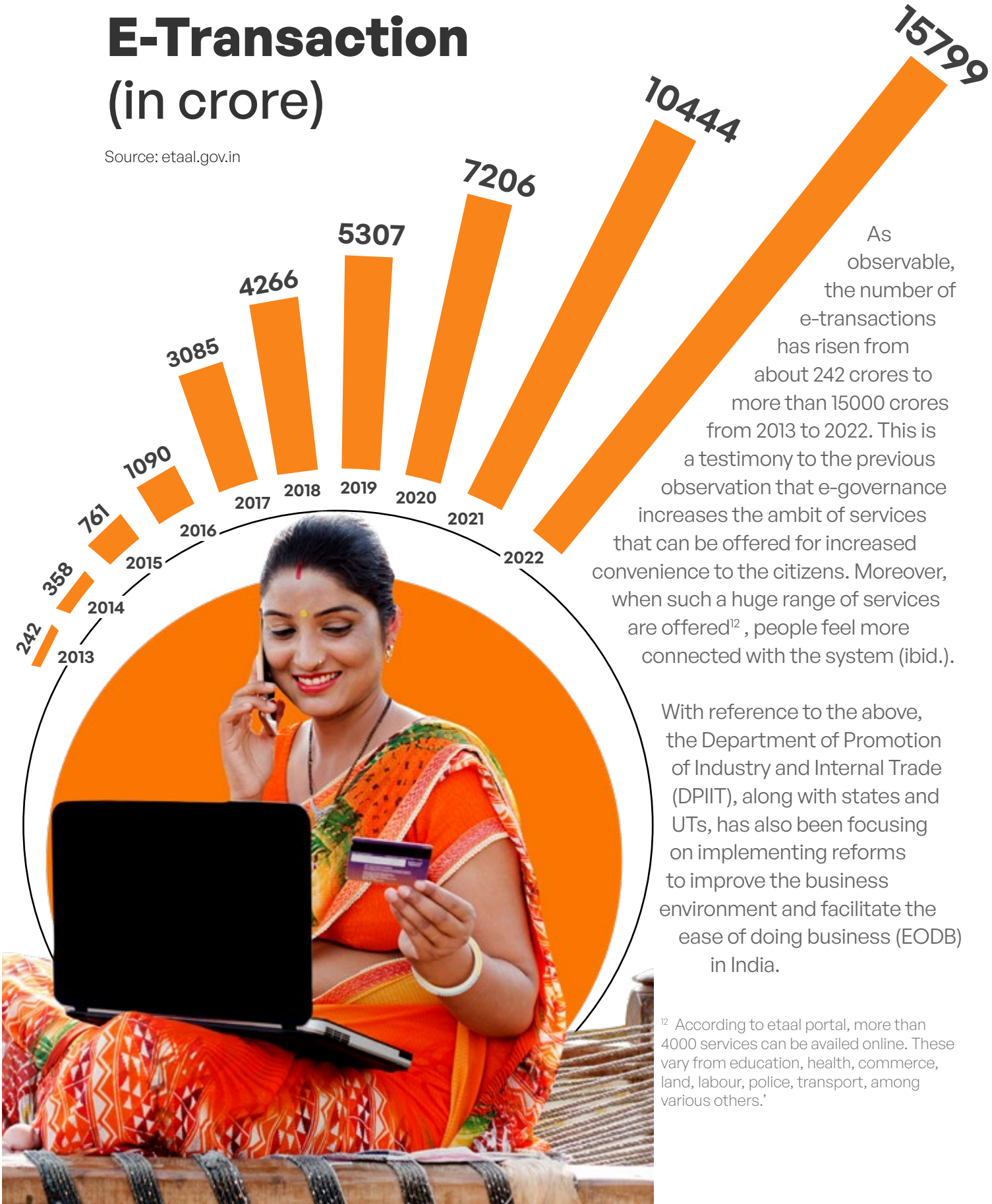
The Role of E-Governance

E-governance should not be understood as just computerization of government departments in order to make the government services available in a digital format in comparison to physical but as initiatives that encapsulate the finer points of governance, such as citizen centricity, service orientation, transparency, accountability, traceability, among other paradigms. E-governance is important not just from the point of view of reducing costs or revenue leakage, but also in terms of its ability to increase the ambit of services being offered since making them available to citizens doesn't depend on establishing a physical infrastructure for them (Kumar, et al, 2018). Against the above backdrop, the following figure gives the number of e-transactions in the country for the past few years.

[8] https://pib.gov.in/PressReleasePage.aspx?PRID=1759684
[9] https://www.zeebiz.com/small-business/news-msmes-alert-digital-saksham-initiative-launched-how-it-will-benefit-small-businesses-explains-nitin-gadkari-143450
[10] https://www.business-standard.com/about/what-is-ondc#collapse
[11] https://pib.gov.in/PressReleasePage.aspx?PRID=1814143

E-Transaction (in crore)

Source: etaal.gov.in



As observable, the number of e-transactions has risen from about 242 crores to more than 15000 crores from 2013 to 2022. This is a testimony to the previous observation that e-governance increases the ambit of services that can be offered for increased convenience to the citizens. Moreover, when such a huge range of services are offered[12] , people feel more connected with the system (ibid.).

With reference to the above, the Department of Promotion of Industry and Internal Trade (DPIIT), along with states and UTs, has also been focusing on implementing reforms to improve the business environment and facilitate the ease of doing business (EODB) in India.

[12] According to etaal portal, more than 4000 services can be availed online. These vary from education, health, commerce, land, labour, police, transport, among various others.'

Starting in 2014, successive State Reforms Action Plans (SRAP) have been released by the DPIIT. The Action Plan aims to lay out the series of reforms targeted at increasing transparency and improving the efficiency and effectiveness of regulatory framework and services for businesses in India.

These reforms are categorised in domains varying from agriculture, forest, health, education, tourism, and labour, among others. For instance, the online single window system attempts to mandate features like submission of applications through online portals, payment of fees through digital modes, tracking applications through SMS and email alerts, downloading digital copies of certificates, and third-party verifications.[13] [14] Different states have their own implementation mechanism for this. For instance, Kerala has been providing a single window clearance facility for all approvals through 'K-Swift', which is a common platform for all approvals under the different departments of the state government. This online system provides a single window clearance for all approvals required for setting up an industry.[15] It also has a provision for online payment of fees and submission of documents. Presently, the services of 14 Departments/Agencies are being made available in KSWIFT, wherein all the applications can be submitted through a unified common application form. Other states, such as Punjab[16] , Tamil Nadu[17], Karnataka[18], Maharashtra[19], among various others are also using such a system to facilitate the online clearance of applications. Such initiatives to digitalise the business ecosystem are pivotal for improving the ease of doing business, facilitating business, and moving towards the broader realm of digitalisation.

As part of the Digital India Programme, the Ministry is actively executing the e-Panchayat Mission Mode Project (MMP) to bring about a transformation in the operations of Panchayati Raj Institutions (PRIs). The primary goal is to enhance transparency, accountability, and efficiency. Building upon past successes, the Ministry introduced eGramSwaraj on April 24, 2020. This comprehensive application is geared towards PRIs and operates under the e-Panchayat MMP framework (PIB, 2022). eGramSwaraj serves as a unified digital platform encompassing all facets of Panchayat operations, including planning, budgeting, accounting, monitoring, asset management, and online payments.

[13] https://dpiit.gov.in/sites/default/files/Implementation_Guide_2019_dated_04022019.pdf
[14] https://eodb.dpiit.gov.in/PublicDoc/Download/30337
[15] https://kswift.kerala.gov.in/index/
[16] https://pbindustries.gov.in/static/
[17] https://tnswp.com/DIGIGOV/swp-tnswp.jsp
[18] https://ebiz.karnataka.gov.in/ebiz
[19] https://maitri.mahaonline.gov.in/Home/Home

In alignment with the Digital India vision, the BharatNet project is being systematically rolled out by the Department of Telecommunications. This initiative aims to establish broadband connectivity in all Gram Panchayats across the country, thereby contributing to the realization of a digitally connected India.

In passing, it can be ascertained that the expected rise of e-commerce and digital payment solutions is expected to bode well for smaller retail players and MSMEs. With increase private participation and growing competition, it would also become necessary for MSMEs to find innovative solutions in order to enhance their customer reach. Digital markets like ONDC, GeM, backed by increasing internet penetration, rising digital transactions, among other supportive factors as those mentioned above would make it easier for the MSMEs to increase their digital footprint. Finally, a word on trust warrants attention. The diffusion of digital services like UPI is mainly driven by trust and satisfaction the customer derives from using the service. When users can trust the network and the services, there is no limit to the number of customers that can join the platform (Punjani, 2022). The essence of customer consent and consent-based data privacy is fundamental to building a safe and secure digital financial services ecosystem. The payment ecosystem must be protected, stable, and trustworthy to ensure the free flow of money in the digital economy (Saha & Kiran, 2022). Therefore, it is critical that this trust be sustained and augmented in a way that will bring in new users who are still sceptical of such payment mechanisms. More on this follows in the next chapter, but the key learning remains that payment mechanisms – coupled with online trading mechanisms – have indeed ensured the free flow of money, goods, and services. And continuous government support would ensure that in the vein of moving towards a digital economy, no one is left behind.

04

THE CONTRIBUTION OF DIGITAL ECOSYSTEM IN REDUCING THE CORRUPT FISCAL PRACTICES IN THE COUNTRY

4.1
The Need to go Digital

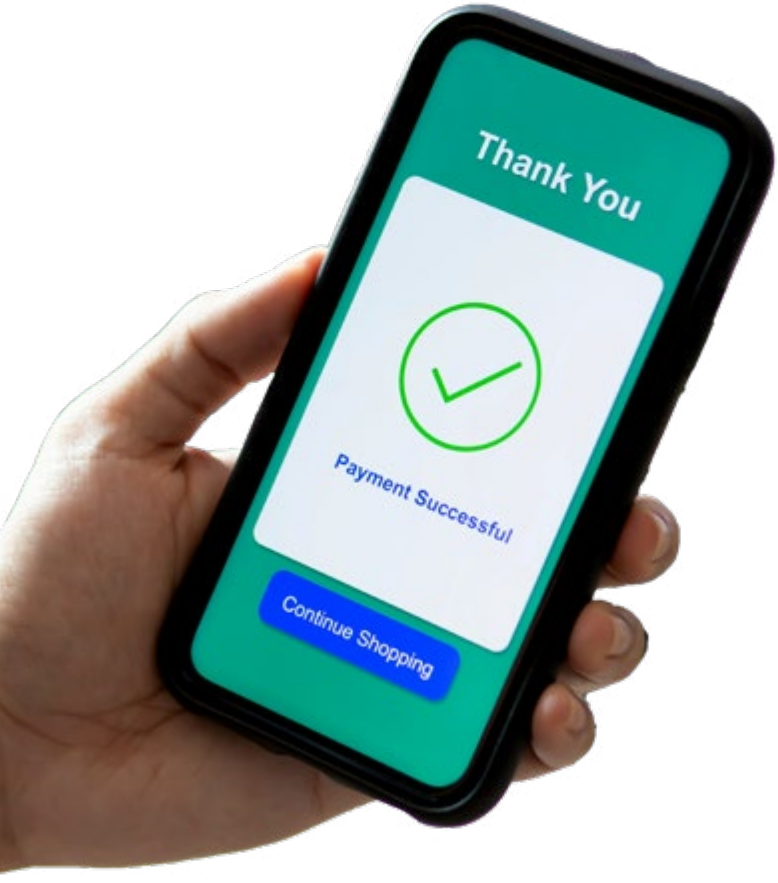
Having delved into the evolution and proliferation of digital payments, it would be prudent to get a grasp of why digital payments actually got the space it has now in terms of payment systems, i.e., why the need for digital payments arose and what were the practices that were being followed before the advent of digital payments. In a country like India which faces a cost of about 1.7% of its GDP (VISA, 2016) as 'cost of cash'[20], apart from the humungous tax loses (Mazzotta, et al., 2019) that are brought about with informal economy, it becomes crucial to comprehend how digital payments actually serves as a viable solution in reducing such costs and how they prevent corrupt fiscal practices that comes with the usage of cash. This chapter would also try to map the contemporary scenario in the sense that how far have digital payments moved in the direction in reducing the costs associated with cash and curbing the scope of corruption that nurtures within the payment ecosystem.

We saw in previous chapters that money holds a crucial space in terms of payment modes and is still considered one of the most frequently used payment mode by various parties. It would be crucial to understand that apart from it being readily available and enabling quick settlement of transactions, does it help to monetize any additional gains? Evidence suggests that businesses and individuals make transactions worth billions every day using physical cash which are often insecure, difficult to trace, and inefficient (Singh & Bhattacharya, 2017). These attributes of cash payments stimulate illegal activities and foster the growth of shadow economies where extra gains are earned in terms of favour, discriminate pricing, or simply tax evasion. Literature suggests that firms in emerging market economies favour more liquid financial policy with regards to cash holdings (Thakur & Kannadhasan, 2018). By dealing in with more cash, firms can benefit from the corrupt environment by trading cash. Thus, it has been observed that cash promotes to seek that extra gain thereby promoting shadow economy given such payments are not traceable and opens scope for unscrupulous activities.

The above evidence, however, sheds light on the private sector or private gains that companies or individuals get involved in. It would therefore be imperative to scrutinize whether such shadow economy or illegal transactions also exist in the public sector. The short answer to it is yes. Evidence suggests that in many countries it is customary to pay cash bribes before receiving entitlements such as an admission spot in public schools, hospital treatments, or critical documents like driving licenses,

[20] These costs are combination of internal and external costs. Internal cost represents the opportunity cost of the time, effort, and resources spent, and the cost of operating and maintaining cash infrastructure (for organisations). External cost is payments to other participants for services rendered such as cash withdrawals, moving, and managing cash.

passports, among others (Ghosh, 2017). Moreover, it is observed that when the state controls the supply of goods and services, it opens avenues for corruption to seep in. Going to multiple counters, filing various forms, adhering to a particular timeline, standing in long queues are some of the various procedural formats that people have to bear with in order to avail a particular product or service. The relatively well-off individuals that have the financial space to pay for skipping the procedural formats don't hesitate to give sops to those officials in turn. In other words, more the number of intermediaries in distributing government products and services, more the scope for corrupt practices to grow (Susan & Ackerman, 1996).



It can be argued that such services can be privatized, but that's not considered to be a feasible option due to high operational costs and lack of incentives. Moreover, private provision of goods and services comes with its own lacuna (Banerjee, et al., 2004) be it in terms of pricing or lack of quality control standards, to mention a few. Also, there is a large body of literature that accentuates the need for a PPP model as opposed to a wholly government or private owned entity (Besley & Ghatak, 2006). Going into how to strike a balance between public and private entities is something not the purpose of this report, but the broader argument remains that accessing goods and services like education, healthcare, social scheme entitlements, among others are prone to corrupt practices in terms of their provision or inclusivity.

Also, the lack of traceability and regulation of cash payments promote corrupt practices which further perpetuates the corrupt cycle. Thus, a move towards a cashless or digital domain is understood to reduce if not altogether eliminate the scope of such practices. For instance, evidence from India shows that making social security pension payments via digital mode resulted in a 1.8 percentage point lower incidence of bribe demands for obtaining the payment as compared to cash payments which was also accompanied by a reduction in ghost

recipients (Muralidharan, et al., 2014). Further evidence suggests mobile payments to be a more viable option and an integration of the same into public programs are salubrious in delivering the entitlements to poor and vulnerable groups (Ghosh, 2017). Transitioning from cash to digital financial services also show evidence towards greater efficiency, more savings and even sending remittances digitally due to convenience (Breza, et al., 2020).

Another study finds that training migrant workers to use mobile money resulted in 26% increase in remittances to rural households, which in turn lead to a 7.5% increase in the household consumption (Lee, et al., 2021).

Shifting to digital payments also has positive externalities in the form of cost savings for provider/recipient. For example, recipients of cash payments for government wages or transfers (especially in rural areas) often have to travel considerable distance to avail the benefit that have been accrued to them under social security schemes, sometimes, to designated locations such as a local government/authority office or bank branch, which may be located afar. This results in significant costs in terms communication, time, opportunity cost in terms of wages forgone, which sometimes gets coupled with bribing the official, the combination of all of which mostly becomes greater than the benefit accrued to them (Klapper & Singer, 2017). This becomes a major deterrent for the targeted beneficiaries as it makes it less feasible for them to avail the benefits.

On the other hand, digital payments like mobile money offer an opportunity to control corrupt behaviours and activities (Setor, et. al, 2021). Moreover, recipients have digital records of the amount of payments they are to receive, and also reduces the ombudsman services that reduces the incentive to avail such payments. Additionally, since digital payments are password protected in the form of finger print, QR code, PIN, etc. (something not present in cash payments), it reduces the scope of duping the people on a regular basis. Lastly, it is observed that overall digitalization of government services can benefit the stakeholders since digitalization makes services more convenient and easier to control (BMGF, 2021). For example, India used its digital ID system to reduce costs and risks of financial account opening, which, combined with a shift to digital payments in social protection programs, contributed to increasing financial inclusion from 35% in 2011 to 80% in 2017 (World Bank, 2022).

Moreover, in a country like India where about 9% of the registered beneficiaries of social protection programs were found to be ghosts (BMGF, 2021), a move towards digitalization is sought to bring more efficiency. In this vein, direct benefits transfer, which enabled digital transfer of funds across multiple

> We see digital payments as a public good. People should be able to access these facilities freely, so that the digitisation of the Indian economy becomes attractive to them. We intend to achieve a higher level of transparency through digitisation"
>
> **– Nirmala Sitharaman, Minister of Finance and Corporate Affairs, India**

schemes through digital means and addressed leakages in the systems by leveraging Aadhaar, have resulted in cumulative savings of about ₹2230 billion to the exchequer up to March 2021. [21]

Other evidence also suggests more inclusivity and savings in transiting towards digital payment mechanisms. For example, the social amelioration program of Philippines – a social assistance program meant to support families during the COVID-19 pandemic and lockdown – showed that almost all those beneficiaries (Pantawid) that were sought to digitally receive payments received such benefits, while only 20% of non-Pantawid beneficiaries (who were supposed to receive such payment manually) received such benefits, suggesting that digital channels were far more effective in reaching the intended beneficiaries (Cho, et al., 2021). Likewise, evidence from Sierra Leone suggests that digital payments (in response to the Ebola crisis) delivered a total cost saving of $10.7 million (from December 2014 to January 2016) in terms of achieving greater efficiency and prevented multiple or fraud payments (Bangura, 2016).

Thus, a move towards digitalization has tended towards bringing in more efficiency in multiple forms like reduced corruption, greater reach, reduced costs, among others. However, digitalization or digital payment mechanisms comes with its own pitfalls in terms of frauds that people have complained about time and again. We briefly touch upon such pitfalls below.

4.2

Frauds Associated with Digital Payments

Although digital payments come with convenience and prevents leakages, it is not completely protected either. Instances of online fraudulent activities where customers are duped are not unknown. While fraudsters have developed new techniques to dupe people, it can be argued that the ecosystem of online payments system is such that people get largely duped due to their lack of awareness and proper checks at their end. For example, someone can easily get duped if the he/she doesn't do sanity checks. For instance, the fraudster can send a 'pay' request instead of a 'receive' request to the concerned person who can in turn promptly authorise it without realising that the amount would be debited and not credited to his/her account. Such examples largely reflect lack of consumer consciousness and not some security compromise at the interface level. However, consumers can still be duped even after doing all sanity checks due to sophisticated hacking or spywares

[21] https://dbtbharat.gov.in/estimatedgain

that are capable of breaching personal information. According to recent data,[22] [23] the average number of cases of financial frauds have risen from about 1500 per day to about 2000 per day from 2021 to 2022 with about half of them involving UPI. In FY2023, the total number of fraud cases in the banking system were 13,530. Of this almost 49 per cent or 6,659 cases were in the digital payment – card/ internet – category.

"UPI targets 1 billion transactions daily in next 5 years with AI to play a big role in detection of fraud and assessing risks"

– Nirmala Sitharaman, Minister of Finance and Corporate Affairs, India

In August 2023, Shaktikanta Das, the Governor of the Reserve Bank of India (RBI), announced that the central bank intends to introduce the incorporation of conversational payments using artificial intelligence (AI) on the Unified Payments Interface (UPI). This innovation will empower users to engage in payment transactions through interactions with AI-driven systems.

In light of this, proper safety and reporting mechanism should be there in place for a smoother experience for customers. In this regard, RBI has come up with extensive guidelines[24] and safety protocols[25] at the customer, interface, and firm level.[26] These become crucial in the context of growing digital landscape wherein most of the things are shifting online from trade to tourism, among others. For example, India's e-commerce sector is already sized at $46 billion in 2020 and is expected to grow to $111 billion by 2025 (World Bank, 2022). Given such increase in online activity, it becomes critical to ensure a safer, smoother, and amiable experience in terms of digital payments so that payment hassles don't become an impediment in the growth of digital economy. In this regard, companies, payment gateways, and aggregators have become more vigilant and have developed robust measures to track and trace payment with multiple security checks at various points (OTP, fingerprint, PIN, etc.) reducing the overall scope of fraudulent activities. But the learning remains that such scams largely happen due to lack of awareness

[22] Govt received over 61k complaints of digital payment fraud in 1 month. Hindustan times. Jun 14, 2022

[23] Rise of the growing threat of cyber frauds due to digital payments . TOI .Jul 19, 2022

[24] https://www.rbi.org.in/Scripts/NotificationUser.aspx?Id=11566&Mode=0

[25] https://rbidocs.rbi.org.in/rdocs/content/pdfs/BEAWARE07032022.pdf

[26] https://rbi.org.in/Scripts/NotificationUser.aspx?Id=11822&Mode=0

on the consumer side and insufficient security wall on the interface side. As user interfaces are becoming tighter in their security protocols and enhancing their safety walls, efforts in tandem with consumers to be more vigilant while accepting payment requests also play a substantial role. In this regard, as mentioned above, the authorities like RBI, NPCI, among others consistently run consumer awareness campaigns (via messages, advertisements, emails, etc.) and thus have the potential to reduce the scope of such fraudulent activities.

In passing, it can be safely argued that a move towards digitalization not only prevents corruption or leakages, but also helps in achieving other goals such as greater efficiency, reduced costs, or more inclusivity to mention a few. How digital payments lead to improved economic and social progress is something that the next chapter would discuss at length, but the learning remains that a move towards digital payments or digital processes have not just shown improved outcomes in India but globally. However, apart from above, a key lesson also embedded in some of the aforementioned examples is that a country needs to have that financial and social infrastructure in order for the digital payments to fully realise their benefits. If all the stakeholders (the general public, intended beneficiaries, digital service provider, government, among others) are more aware of the digital infrastructure and its consequent benefits they would be more inclined to favour such payments or mechanisms and thus gradually reduce their reliance on cash – something that is less efficient and more conducive to nurture corruption. This would require a digitally savvy workforce (World Bank, 2022) to build robust digital infrastructure and the technical know-how required for its expansion. In this regard, investments in digital skills becomes pivotal so as to nurture and cater the industry demand and for a reduction in fraudulent activities which are quintessentially found to be a result of asymmetric information.

05

FINANCIAL INCLUSION AND DIGITAL PAYMENTS: MAKING A PATHWAY FOR ECONOMIC PROGRESS

One question that policymakers often grapple with is whether a particular good, service or intervention would be able to bring about change in society. In other words, whether the desired policy intervention can bring about change regarding outcomes. These outcomes can vary from social to economic to behavioural, among others. This is where financial inclusion is no different in terms of policy landscape wherein the question(s) pertain to whether such inclusion would improve outcomes like more bank accounts, greater access to credit, improved consumption, greater savings, and more investment, among others.

Finding answers to these questions not only helps in building a greater understanding of financial inclusion but also help to map the future course of action in order to reap maximum benefits. In terms of financial inclusion, these questions become imperative to explore since it is presumed that financial inclusion or greater access to formal financial services have the ability to improve both the economic and social outcomes of a region. Against this backdrop, this chapter tries to delve into the nuances of economic progress, exploring the answers to some of the questions above. The chapter explores the relationship between digitalisation and formalisation, mentioning some of the initiatives taken to augment economic progress.

5.1

Financial Inclusion and Economic Progress

In the context of developing countries, especially in India, what is observed is that people resort to informal methods of handling money, i.e., cash. This imply that cash is still one of the most prevalent ways of dealing with consumption, savings, or credit. This becomes more evident in the lowest rung of society – the poor and the marginalised, who are exposed to informal methods of handling money (ADB, 2022). Coupled with other barriers such as gaps in access to education and employment across gender, age, and social groups, a significant informal sector, and disparity across regions makes it difficult to include everyone in the fold of the financial system. Thus, it is essential to dive deep to understand the nuances of financial inclusion and how it has improved outcomes in the global and Indian context.

5.1.1

Digitalisation and Formalisation – A Bidirectional Force

It is generally unequivocally accepted that a move towards digitalisation is more efficient in improving outcomes wherein more people are brought under the ambit of formalisation. For example, Khera et al. (2017) suggest that increased digital financial inclusion leads to increased economic growth. Similarly, evidence from Mozambique suggests that the introduction of mobile money (mKesh) led to an improvement in trust in financial institutions and also led to an improvement in remittances (Batista & Vicente, 2017). Loukoianova et al. (2018) find that a 1% increase in their financial inclusion index is associated with a 0.14% cumulative increase in per capita income growth over five years for low-income developing countries. Evidence from Kenya also suggests that access to mobile money improved consumption and economic condition, especially for the vulnerable group (Suri & Jack, 2016). Jack & Suri (2014) also find that consumption of households in Kenya that uses mobile money is unaffected by shocks, while households who do not use mobile money saw a decline in consumption. Not only does digital money helps in improving economic outcomes, but it also offers convenience and affordability to users and enables low-income individuals or small and micro firms to access financial services easily (Rasheed, et al., 2019), thereby increasing the reach of such services.

Formalisation and digitalisation are also empirically observed to be bidirectional, wherein it is observed that opening a bank account also encourages more savings which in turn helps get more investment in small businesses (Breza, et al., 2017; Klapper et al., 2019). For example, a study conducted by Breza, et al. (2017) on garment factory workers found that workers receiving electronic wage payments to a bank account accumulate formal savings in their account rather than withdraw money to save at home. Also, those who received digital payments were less prone to income shocks related to health or consumption and felt greater control over their income

than cash payments. This also might be because cash payments are tangible, whereas digital payments are intangible in the sense that digital payment helps maintain privacy or anonymity in terms of the amount received or remaining balance which is only known to the recipient. This becomes important where it is observed that higher financial inclusion in payments is associated with a reduction in inequality, especially when financial inclusion encompasses women (Sahay & Čihák, 2020).

However, one potential corollary with digitalisation and formalisation comes in the form whether such formalisation is induced or perforce. It is argued that shifting from cash to digital financial services is only attractive if options for making electronic transactions are widely available and cheaper than the alternatives. In poorer economies, people often set up their own businesses or make a living by selling labour on a daily basis. Given their informal and precarious nature, coming into the formal ambit of digital services or formalisation, in general, might be a long haul. It is observed more than often that these people cannot afford to pay taxes or premiums for any social security benefits that could sustain their future. In other words, the cost of formalisation is higher than the benefits they intend to receive (Klapper, et al., 2019). This is even true for MSMEs that operate at the margins of survival and do not find it encouraging enough to come under the process of formalisation. At present, about 74% of all MSMEs globally are informally employing about 1.8 billion people.[27]

It is observed that organisations are more likely to adhere to formal rules if those rules are aligned with their interests. Big corporates or enterprises are likely to devise informal rules or violate formal ones in the absence of the latter or if such rules are not feasible. Also, such enterprises do not hesitate to free-ride if the scope of such free-riding is possible (Roy & Khan, 2021). Moreover, in developing countries, the opportunities for exploiting digital data raise additional challenges because the influential are capable of inculcating illicit practices that are less visible and therefore become more difficult to regulate or palliate (Ramanathan,

[27] Ibid

2016). Digital technologies can therefore exacerbate pre-existing asymmetries of power and information.

The formalisation argument is also based on how to reduce the informal economy. In other words, the formal economy will automatically increase if the informal economies move towards formalisation. However, it is observed that the informal economy tends to shrink slowly over time, suggesting that formalisation might be something that happens in tandem with development instead of serving as a precondition for development (La Porta & Shleifer, 2014). Therefore, structural policies designed to promote formality should be introduced with caution. Their inherent motive should be to encourage formalisation rather than discourage informalisation. This also holds for India since the need to raise productivity across a broad spectrum of firms and activities to achieve formalisation and inclusion is well recognized as opposed to imposing it (Roy & Khan, 2021). Also, it is observed that 'micro-merchants' in India have been left out of the cashless revolution, especially in smaller cities (RBI, 2020).

Thus, it is suggested that formalisation should happen naturally/gradually rather than in a perforce or hastened way. This becomes pivotal in the Indian context, which witnesses vast diversity in terms of people, enterprises, and regions. Also, given that India has such a mammoth size of the MSMEs and millions of associated livelihoods, it becomes of critical importance to develop such a policy that brings about the perceived benefits of formalisation failing which can result in unnecessary hardship or market exit for a large number of firms and people, ultimately leading to exclusion rather than inclusion. This exclusion would then not just get restricted from formal ambit of governance but also in finance, i.e., these firms or people would also get financially excluded which can endanger economic growth and exacerbate poverty levels in the country (Vasile, et al., 2021).

5.1.2

Initiatives Taken and the Road Ahead

Having suggested that digitalisation and formalisation are bidirectional – and the latter should be mapped out in a nuanced and sophisticated manner such that it induces, rather than imposes the same – it indeed cannot be refuted that a move towards 'digital' improves outcomes. In this vein, it becomes crucial to

understand what has stopped businesses or people from moving towards 'digital' and what efforts have been made at the bureaucratic level to ensure the transition.

We have seen above that a move towards digital payments or digital financial inclusion improves outcomes, but an intriguing question is the observation that given that people are generally receptive to digital payments, what prevents them from accessing the same? The reasons pertain to habit, lack of knowledge, and identity, among others. We also highlighted in the previous chapter how leakages within the system prevent access.

In this regard, in terms of national ID card, for instance, the government of India launched the Aadhar which provided digital identity to more than 133 crores of people till April 2022.[28] This has helped bridge the digital divide by enabling e-KYC services, providing banking at the doorstep, and facilitating money transfers using DBTs. The launch of Aadhar was leveraged by India Stack – India's open digital infrastructure platform – which laid the foundation for increasing access to digital financial services. Box 5.1 shows how it panned out.

[28] https://www.pib.gov.in/PressReleasePage.aspx?PRID=1830149

Box 5.1: India Stack

India stack has been the backbone in bringing about revolution in the payments industry. Before the evolution of India Stack, there were multitude of intermediaries who were required to co-ordinate to complete a transaction. These included customer, merchant, receiver's bank, sender's bank, payment gateways, etc. What India Stack did, is that it developed an infrastructure that enabled the stakeholders to operate with each other. This design was created with the main objective of expanding the perimeter of interoperability, simplifying the transfer of funds (Xiao, et al., 2022). What enabled such an architecture were the existence of APIs able to provide instantaneous authentication and authorization of both the payment service provider (banks or nonbanks) and the identity holder (Swallow, et al., 2021).

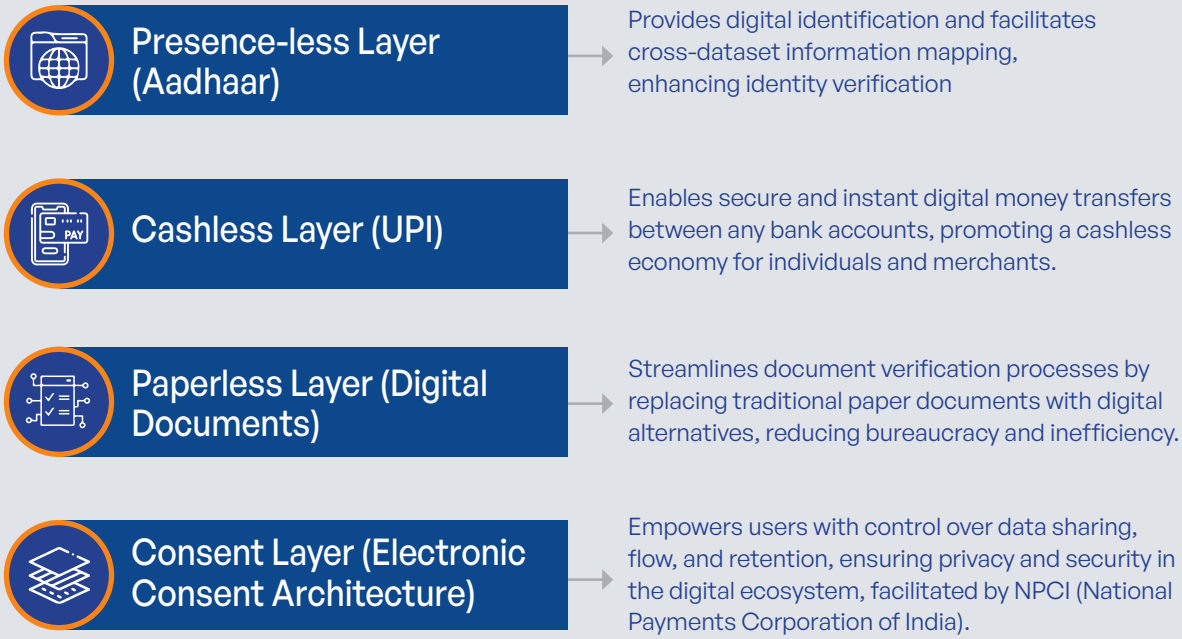
A 'stack', therefore, comprises of all the technologies required to operate an application: computer languages, architecture, libraries or lexicons, servers, user interfaces and experiences, and software – the apps themselves – and tools used by developers, such as APIs, which connect databases and software. India's government has led the creation of a tech stack for the entire country, from identity to payments to other services.

The Stack contains four layers of digital infrastructure that have been introduced gradually over the last decade. The first is the 'presence less layer', featuring the Aadhaar digital ID system that allows for identity verification and for the mapping of information across datasets. The second is the 'cashless layer', built on the UPIs interoperable payments system. UPI allows people to transfer money from any bank account to any other bank account (individuals or merchants) digitally, securely, and instantly. The third is the 'paperless layer', which allows for the verification of digital documents that replaces the traditional paper. The fourth is the 'consent layer' – electronic consent architecture enables user-controlled data sharing, data flow, and data retention (NPCI). What makes India stack unique is its interoperability. Its open-end infrastructure allows banks and Fintechs to set up payments' banks. This not only ensures a free market to everyone but also ensure competition ultimately resulting in better services for the people.

These four layers aligns with the PMs Vision of 'Sabka Saath, Sabka Vikas,

Sabka Vishwas, Sabka Prayaas' wherein the first layer backed with Aadhar ensures that no one is left behind, enabling Sabka Saath. The second layer increases the ambit of financial inclusion within the system aligning with Sabka Vikas. The third layer is that manner aligns with Sabka Vishwas ensuring that digital verification is as good as physical verification. Lastly, with community participation in terms of giving consent to share data, more avenues can be explored in terms of credit and micro management of funds, aligning with Sabka Prayaas.

Lastly, while the technologies themselves are commendable, their real power has been what applications they enable. For example, the Internet may have been born of a specific need, but its success is because of its design. It was a mass scale, open, and interoperable protocol. India Stack is a parallel to this and its reach in that manner is unimaginable (Raghavan, et al., 2019).



Some other efforts include schemes like the Pradhan Mantri Jan Dhan Yojana (PMJDY), which opened no-frills bank accounts for the underprivileged in the country, bringing the unbanked people – who were formerly excluded from the formal financial sector – into its fold (Malladi, et al., 2021). Since its inception in 2014, more than 46 crore bank accounts have been opened, with more than 80% being operative/active.[29] Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA) is another scheme to make six crore people in rural areas digitally literate. The scheme entails training people to operate and access digital devices and services like internet browsing, using tablets, making digital payments, availing government schemes, etc. The programme is set up by providing training through designated training or common service centres. The latest information shows that over 3.89 crore persons have been trained and certified under the scheme.[30] This has been complemented by RBI's efforts to help rural people to learn and undertake digital payments. The apex body has instructed the SCBs to organise camps and spread awareness through their 'Financial Literacy Centres' about the same. [31]

Apart from the above, the RBI initiated Payments Infrastructure Development Fund (PIDF) scheme in 2021. The scheme subsidises the deployment of Points of Sale (PoS) infrastructure (physical and digital modes) in tier-3 to tier-6 centres and north-eastern states of the country. As per the latest data available, more than 1.14 crore digital devices (UPI, Bharat QR codes, etc.) have been deployed under the scheme by the end of April 2022.[32]

[29] Retrieved from Pradhan Mantri Jan Dhan Yojana (PMJDY) - National Mission for Financial Inclusion, completes eight years of successful implementation. PIB. 28 AUG 2022

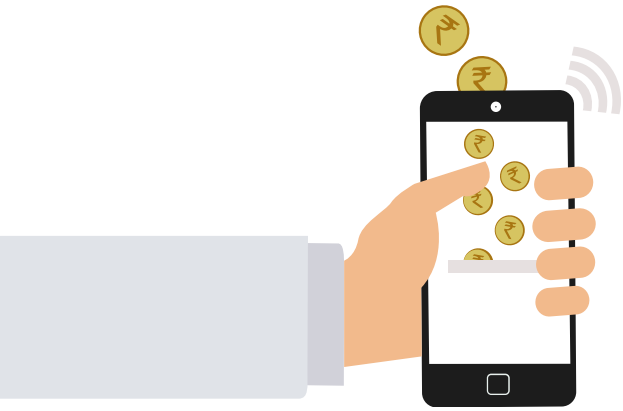
[30] Digital Literacy in Rural areas . PIB . 20 JUL 2022

[31] http://164.100.24.220/loksabhaquestions/annex/179/AU523.pdf

[32] Payments Infrastructure Development Fund (PIDF) – Status Update. RBI. Jun 09, 2022

In the context of MSMEs, it is crucial to understand that MSME is not just restricted to making digital payments for their day-to-day operations. Instead, their cash flow requirements should also be met in such a manner to ensure their variable cost requirement. Digital Public Infrastructure , in that sense, becomes pivotal since it has the capability to not only serve these MSMEs in terms of capital requirement via loans but also in other paradigms relating to availing subsidies, waivers, and licences, among others thereby bringing them under the purview of formalisation. Formalisation, therefore, is moving towards digital payments and inclusion, which can improve economic outcomes in terms of consumption, savings, investment, credit growth, etc. Examples from China, UK, Philippines, among others, serve as some of the successful interventions in digital finance that helped their MSME sector (IFC, 2018).

In the above context, banks have step up affordable and hassle-free contactless digital credit facility under the umbrella of SIDBI. As per the information on the website loans of more than 71,000 crore loans have been disbursed since its inception. However, the learning remains that without the infrastructure and the prevalence of cash in India, digital payments will nearly always be converted to cash, curtailing the larger and long-term benefits of shifting to digital payments and limiting the perceived benefits of financial inclusion. By contrast, having these systems in place ensures that the payments infrastructure is functioning effectively. The transition is easier, faster, and smoother if payers, recipients, and acceptance networks are already familiar with digital payments (Bangura, 2016).



Source: Global Financial Inclusion Database 2021, World Bank. For metadata, visit https://databank.worldbank.org/source/global-financial-inclusion#

In the above context, the table below gives some figures on digital penetration, use, and adoption across some selected countries.

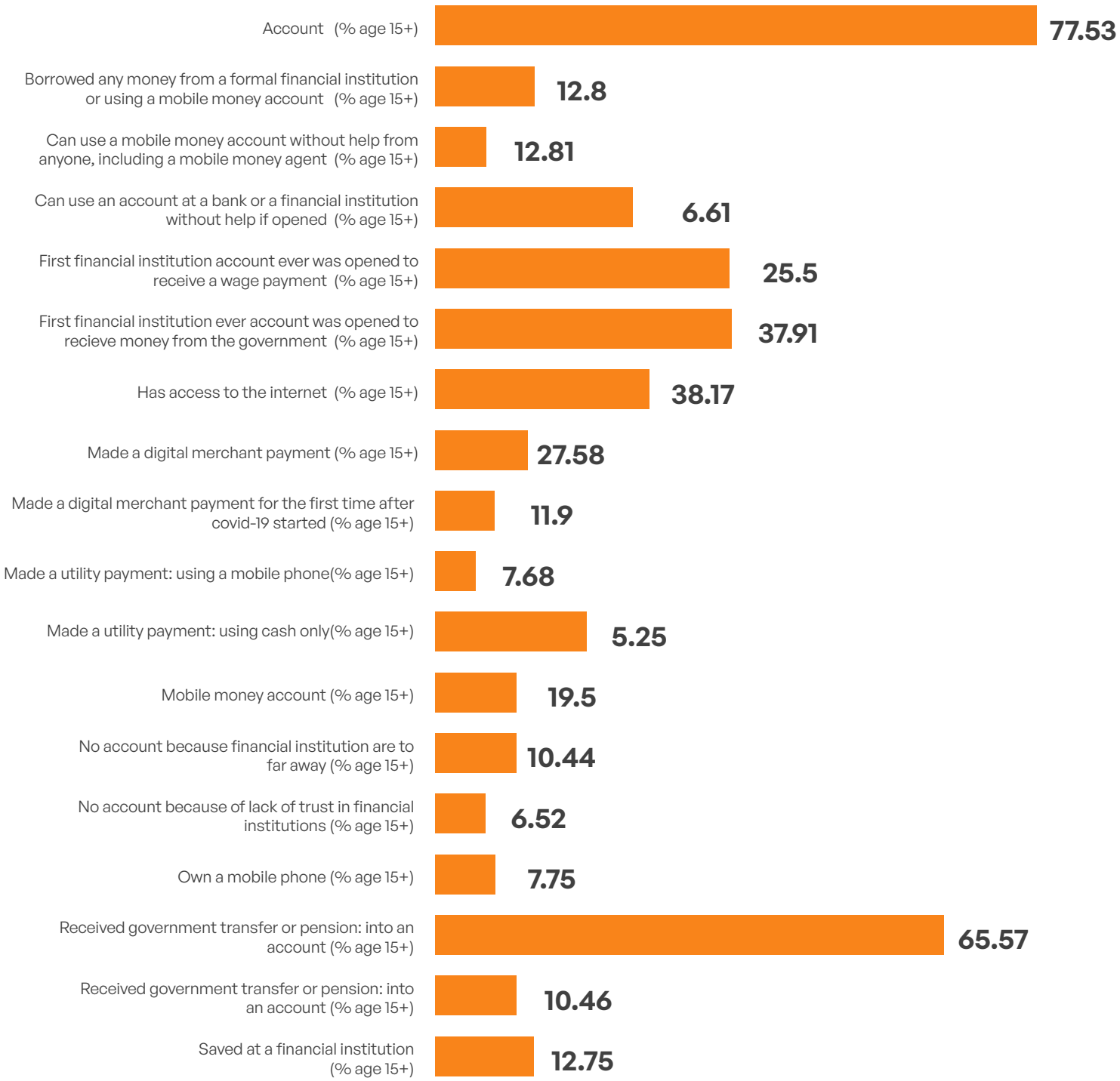
Table 5.1 Digital Penetration in Countries

Indicator	Argentina	Bangladesh	Brazil	China	**India**	Pakistan	Russia Federation	Singapore	South Africa
Account (% age 15+)	71.63	52.81	84.04	88.71	**77.53**	20.98	89.72	97.55	85.38
Borrowed any money from a formal financial institution or using a mobile money account (% age 15+)	32.08	16.28	41.28	39.18	**12.81**	3.61	30.78	44.42	18.99
Can use a mobile money account without help from anyone, including a mobile money agent (% age 15+)	32.62	20.39	17.59	..	**6.61**	..	11.38	22.23	25.83
Borrowed any money from a formal financial institution or using a mobile money account (% age 15+)	60.82	39.26	58.78	44.19	**25.5**	15.62	62.38	..	51.16
First financial institution account ever was opened to receive a wage payment (% age 15+)	33.17	7.83	43.95	44.11	**37.91**	4.54	33.8	23.98	52.33
First financial institution ever account was opened to receive money from the government (% age 15+)	14.43	4.44	14.84	14.28	**38.17**	1.27	20.18	5.78	19.32
Has access to the Internet (% age 15+)	85.17	26.87	78.3	82.96	**27.58**	30.11	92.76	93.81	64.23
Made a digital merchant payment (% age 15+)	44.71	2.78	52.42	81.54	**11.9**	1.07	71.05	82.98	54.07

Indicator	Argentina	Bangladesh	Brazil	China	India	Pakistan	Russia Federation	Singapore	South Africa
Made a digital merchant payment for the first time after COVID-19 started (% age 15+)	16.08	..	17.92	10.89	**7.68**	..	6.7	24.56	20.24
Made a digital merchant payment for the first time after COVID-19 started (% age 15+)	16.08	..	17.92	10.89	**7.68**	..	6.7	24.56	20.24
Made a utility payment: using a mobile phone (% age 15+)	16.76	10.86	25.76	0	**5.25**	3.02	39.22	17.53	14.72
Made a utility payment: using cash only (% age 15+)	34.52	12.18	24.57	4.47	**19.5**	42.7	18.23	8	20.38
Mobile money account (% age 15+)	35.08	29.01	26.96	..	**10.44**	8.54	32.94	30.6	36.57
No account because financial institutions are too far away (% age 15+)	6.89	22.97	7.85	3.65	**10.44**	24.11	4.05	..	4.7
No account because of a lack of necessary documentation (% age 15+)	8.56	21.06	6.14	2.76	**6.52**	21.78	2.76	..	4.54
No account because of a lack of trust in financial institutions (% age 15+)	13.37	15.7	5.73	2.37	**7.75**	14.61	10.08	..	3.68
Own a mobile phone (% age 15+)	92.07	78.94	84.66	100	**65.57**	62.99	99.38	96.81	87.76
Received government transfer or pension: into an account (% age 15+)	15.31	7.75	25.29	10.82	**10.46**	..	40.75	20.16	28.68
Saved at a financial institution (% age 15+)	11.15	6.01	22.82	44.69	**12.75**	2.37	17.93	59.99	37.21

Source: Global Financial Inclusion Database 2021, World Bank. For metadata, visit https://databank.worldbank.org/source/global-financial-inclusion#

Penetration of Digital Services in India



Source: World Bank

According to the data, about 38% of people opened their first financial institution account to receive a wage payment. Similar was the percentage of people receiving money from the government. Also, about 8% of people made a digital merchant payment for the first time after the COVID-19 pandemic started.

A total of 1.10 billion cellular mobile connections were active in India in early 2023, with this figure equivalent to 77.0 percent of the total population. However, government transfer or pension into an account despite a reduction in the DBT failure.[33] The above table also highlights the fact that India has a long road to traverse in terms of improving its outcomes, be it in terms of digital literacy (only about 7% of people can use a mobile money account without help from anyone – including a mobile money agent), internet access, increasing the digital utility payments, or simply formal savings. Although India has some of the cheapest mobile data plans in the world and internet tariffs have declined from more than ₹15 per GB (2017) to less than ₹10 per GB (2020) (RBI, 2020), with internet subscribers also witnessing a rise, there remains a significant gap. The table below gives the number of internet subscribers in the country. Latest reports show that Total number of Internet subscribers increased from 850.95 million at the end of Sep-22 to 865.90 million at the end of Dec-22, registering a quarterly growth rate of 1.76%. [34] Moreover, the average data consumption per month per user has risen from about 0.27 GB/month to more than 14 GB/month from 2014 to 2021. As per the Mobile Broadband Index (MBiT) 2023 report by Nokia, Indians now consume nearly 20 GB data per month on average. This is expected to reach 46 GB[35] by 2027. Therefore, with gaps also exists opportunities that the Indian market must leverage, which has been the government's focus area in recent times.

[33] The share of DBT failures due to avoidable reasons as a percentage of total DBT failures has decreased from 13.5% (FY 19-20) to 9.7% (FY 21-22).retrieved from Pradhan Mantri Jan Dhan Yojana (PMJDY) - National Mission for Financial Inclusion, completes eight years of successful implementation. PIB. 28 AUG 2022

[34] Source https://www.trai.gov.in/sites/default/files/PR_No.49of2023.pdf

[35] MBiT Index 2023 , Here's how much data Indians consume in a month on average, The hindu . February 16, 2023

Table 5.2 Internet Users in India

Year	Total Subscribers (in crore)	Broadband Subscribers (in crore)	Narrowband Subscribers (in crore)
2016-17	42.218	27.651	14.567
2017-18	49.395	41.26	8.135
2018-19	63.673	56.331	7.342
2019-20	74.322	68.746	5.576
2020-21	82.53	77.809	4.721
2021-22	82.489	78.83	3.659
2022-23	86.59	83.22	--

Source: Department of Telecommunications (DoT) Dashboard

In passing, it can be said that the expected benefits of digital financial inclusion can be fully realised if the cost of obtaining a digital transactional platform by poor individuals is negligible or low. In terms of cost, the average cost of UPI transactions is just about 0.25%, distributed across payer's bank, its UPI provider, and its payment service provider (PSP) bank, beneficiary's bank, and its UPI provider, and its PSP bank, and NPCI. These collectively bear the 0.25% cost of transactions (RBI, August 2022)[36] . Moreover, the cost of installing a QR code for UPI transactions is negligible as related to card-based transactions. With such a low cost, it would be prudent for the agencies to continue to bear the cost to promote digital transactions. This would certainly help boost the growth of digital financial services.

A study by McKinsey (2016) predicts that digital finance (including mobile money and mobile banking) could boost the GDP of emerging economies by 6% by 2025.[37]

[36] Discussion Paper on Charges in Payment Systems (2022). RBI

[37] The research is based on seven large economies including Brazil, China, Ethiopia, India, Mexico, Nigeria, and Pakistan.

Moreover, a study by MeitY (2019) estimates that India can create up to $1 trillion of economic value from the digital economy in 2025.[38]

With UPI[39] currently constituting well over

73%[40]

of all digital transactions in the country,

it can boost small businesses and street vendors since it enables fast and secure bank-to-bank transactions even for considerably small amounts. In terms of broader digital financial inclusion, and especially in light of MSMEs, digital credit would have a significant role since it closes the geographical barriers to availing formal credit. With the current credit gap of about ₹26 trillion (IFC, 2018) in the Indian context, digital credit can be a game-changer.

In a concerted effort to bridge the divide between conventional credit avenues, digital payment systems, and digital credit services, in April 2023, the Reserve Bank of India (RBI), proposed expanding UPI's scope to allow pre-sanctioned credit line operations through banks on the UPI platform, aligning with the 2025 payments vision(EY, 2023). This integration aims to bridge formal credit, digital payments, and digital credit, benefiting over 30 crore Indian UPI users. The move enhances NBFCs' efficiency, encourages innovative UPI solutions from banks and PSPs, bolsters credit interoperability, empowers FinTechs to offer improved services using UPI-based lending data and increases in interoperability in the credit domain.

Lastly, the need to shift to digital transactions would only be felt if people perceive some problem dealing with cash. People need to be informed that the benefits of digital transactions are considerable even if they don't see any problem in dealing with cash. This requires constant efforts from the government and other stakeholders to market the benefits of shifting to 'digital'. In this regard, the government has been proactively taking various initiatives to digitize all interactions between government, citizens, and businesses like those mentioned above. Moreover, with growing market spaces like e-commerce, greater formalisation of MSMEs, and growing competition among players like Fintech, EdTech, E-Health, etc., India could undoubtedly reach the pinnacle of digital development.

[38] India's Trillion-Dollar Digital Opportunity (2019). MeitY

[39] UPI transactions equaled ₹12.8 lakh crore in December 2022. This is almost 55% rise within the CY2022.

[40] Transforming India's Digital Payment Landscape. PIB . 03 OCT 2022

06

UPI AND FINANCIAL INCLUSION: PATH TO SOCIAL PROGRESS

The impact of a public good can be termed holistic only if it, along with contributing to economic progress, promotes social progress in a country. Social Progress is defined as " the capacity of a society to meet the basic human needs of its citizens, establish the building blocks that allow citizens and communities to enhance and sustain the quality of their lives, and create the conditions for all individuals to reach their full potential." by the Institute for Strategy and Competitiveness, Harvard Business School (Institute for Competitiveness, 2022).

Social development is vital for a country's overall progress in the long run. Improving the ease of living of its citizens, eradicating existing inequalities, increasing their access to opportunities, and improving the quality of opportunities available to them are some of the ways in which social progress can be accelerated by the government. To this end, multiple initiatives are undertaken by the government, impact of which requires continuous and comprehensive assessment. Measurement of the impact of an initiative, like a good or service, requires identification of key parameters, changes in which can be assessed either empirically or rhetorically.

UPI is at the interface of economic and social progress. For a financial service such as UPI, a good way to evaluate its impact is to assess its role in improving financial inclusion in the country, since financial inclusion has been identified as a driver of social progress.

Financial Inclusion, understood as "ensuring access to appropriate financial products and services at an affordable cost and in a fair and transparent manner" (Vasile, Panait, & Apostu, 2021), is seen as a facilitator of growth and resilience. Financial inclusion is not limited to access to banks or loans but encompasses affordable access to other financial products like insurance, pensions, or investment options. Along with having a significant impact on a country's economic growth, financial inclusion can help in the eradication of poverty (Sharma & Kukreja, 2013). Vulnerable sections of the society, if included in the formal channels of the banking system, are given an opportunity to undertake financial control of their

lives and improve their standard of living. However, there exist significant barriers in delivering financial services to the otherwise excluded sections of the society. In a developing country like India, it is imperative that such barriers are overcome, and an inclusive financial system is constructed. Digitization of financial services is seen as a means using which these barriers can be overcome (Kanungo & Gupta, 2021). UPI in India is one such tool using which financial services are digitized and brought to the doorstep of people. Owing to its reliability, convenience, and speed, it has encouraged people to explore other financial services such as accessing credit, insurance, investments etc., digitally.

This section first explores the link between financial inclusion and social progress. Later it expands on the role of UPI in improving financial inclusion in India by investigating access to financial services. Further, it elaborates on the concept of digital financial inclusion and how India can leverage our digital infrastructure to achieve it. Lastly, it discusses the impact of financial inclusion on women and how their inclusion can be improved by digitization and briefly discusses two schemes launched by the Government of India to aid financial inclusion. Using this, the chapter tries to argue that India's journey to achieve financial inclusion, which in turn is a step towards achieving social development, is aided significantly by UPI.

6.1
Financial Inclusion and Social Progress

Financial inclusion is measured on three parameters –

access to financial service

financial service use

quality of financial services

All these three parameters in the conventional terms, can only be improved upon by doing manual field-based investments. Improving access requires financial institutions to reach backward areas where people are the most vulnerable. Improving usage entails considering banking as a public good

coupled with government campaigns which improves its visibility to the public. Lastly, improving quality requires investment from both institutions and the government that can help enhance user experience and enable their retention in the formal banking system. For example, a cumbersome and time-consuming experience while accessing credit from a bank might lead to a person returning to the moneylender for quick access. Therefore, all these parameters, in the context of India, require immense investment by the public institutions. Given India's geographical and social diversity, these efforts can take years to bear fruit and improve India's financial inclusivity.

Financial Inclusion has a significant impact on poverty alleviation in a developing country. Providing access to improved financial services at an affordable rate to everyone, thus becomes a crucial responsibility of the government. Bringing people under the ambit of formal financial channels helps them tackle the existing disparities between their income and savings. Using formal institutions, people can save parts of their income and learn capital formation (Sharma & Kukreja, 2013). These savings, instead of getting spent, can be used to invest in a household's development and growth. Once familiar with savings and formal financial institutions, people start learning how to maximize their utility from financial services. This helps in the improvement of financial literacy among the population in a country. Adoption of services like investment options and insurance policies contributes to improving their resilience in terms of financial risks and other adversities. People from weaker section of the society in the face of loss of job, health issues or other such financial shocks can often be pushed into poverty. To make them more secure and help them create a sustainable means of income, provision of affordable credit via formal channels is necessary. This helps them setup businesses and enterprises which can make them more resilient and contribute to their development. In this way, financial inclusion can be used as a tool to tackle poverty (Sharma & Kukreja, 2013).

The rich diversity of India, in terms of class, caste, income, gender, geography etc. gives rise to different barriers in accessing financial services. Low penetration of banks in rural areas, low literacy rates and socio-economic inequalities prevent people from entering the sphere of formal banking (Sharma & Kukreja, 2013). Low number of bank branches in some areas increases the cost of accessing financial services for people living in these areas, since they must travel long distances to access banks or other such institutions. Furthermore, low level of education across the country leads to lesser knowledge about available financial services and pushes people into informal financial system with high exploitation. One such example is the informal credit system, involving moneylenders and loan sharks, with its high rate of interest and unfriendly terms for the loan-taker. Many people who take such credit get caught in the debt trap which worsens their financial condition. Existing socio-economic inequalities in terms of caste, class and gender prevent people from exercising complete financial freedom. This has long term impacts on their financial health, as they often rely on informal methods of saving, raising capital and always remain at risk of falling into poverty when faced with a shock.

Digitization of financial services has emerged as on solution to these problems. Facilitated by high internet and smartphone penetration in the country, digital financial services increase the outreach of financial institutions without establishing a bank branch in rural areas (Tay, Tai, & Tan, 2022). Any person with a smartphone and internet can access most of the services offered by banks, irrespective of their caste, class, or gender.

Digital financial services cut across geographical barriers and bring down the cost for accessing financial services. Multiple banks have therefore launched their own banking apps which are touted as safe and reliable (Sharma & Kukreja, 2013). For people to adopt digital financial services as the primary way, trust must be established with the digital medium. This required a push, which came in the form of United Payments Interface (UPI).

Since UPI was being promoted and backed by the government it helped people in adopting it quickly. Its speed, convenience and reliability helped people retain it in their lives. UPI opened the door for faster adoption of digital payments in India and further led people to get acquainted with the medium. This role of UPI as a gateway to digital financial services, and later to financial inclusion is what we now turn to.

6.2
UPI and Financial Inclusion

Financial Inclusion is a multi-dimensional concept and thus achieving it requires advancements across various dimensions of social and economic life. The examination of financial inclusion in India post-UPI will be done across 3 parameters – Access to financial services, Digital Financial Inclusion, and its Impact on sections of population. This will give a trajectory of how India moved towards improving financial inclusion.

6.2.1
Access to Financial Services

The first step to access financial services is opening a bank account. The Government of India led this initiative under the Pradhan Mantri Jan Dhan Yojana launched in 2014. With the aim of banking the unbanked section of the population, PMJDY further aimed to provide access to financial services like credit, insurance, savings account, pension, etc., at an affordable cost to the poorer sections of the society. The bank accounts were therefore opened with minimal paperwork and KYC requirements. The minimum account balance required to keep the account was also reduced to zero for accounts opened under the scheme. As per the World Bank, the value of FI Index for March 2022 stands at 56.4 vis-à-vis 53.9 in March 2021, with growth witnessed across all the sub-indices.

In 2021, 78 percent of adults had an account, a share that is relatively unchanged from 2017, and is just 6 percentage points higher than the developing economy average of 71 percent. Nearly 55 percent of the total bank accounts opened in the world during 2014 to 2017 were Jan Dhan accounts (D'Souza, 2018). This massive drive put India on the path to financial inclusion in a rapid way. As per the latest reports submitted by banks the total number of Jan Dhan accounts have crossed 51 crore as of December 2023.


SBI
भारतीय स्टेट बैंक
मुख्य शाखा, ब्यावर
GOLD LOANS
Loans against Gold Jewelery
SAVINGS@SBI
FULLY PACKED SAVING BANK ACCOUNT
SBI Pension Loans
SBI General
SBI Life
SBI Card
सोजन्य से
SBI
24X7

An account of improved financial inclusion due to PMJDY was recorded in XLRI Jamshedpur, where casual laborer and migrant workers had no access to formal financial services. To improve that, the nearby State Bank of India Branch opened 160 new accounts for women laborers residing in the college. A woman who had lost her entire life savings to a scam was imparted financial literacy, and over 90% of the accounts opened remain active with an average balance of over Rs. 2000 (GoI, Success Story: Financial Inclusion, 2022).

To provide people with an incentive to open bank accounts and shift to the formal financial world, Direct Benefit Transfer (DBT) was introduced. DBT was launched in 2013 for directly transferring LPG subsidies and MGNREGA benefits. However, with a low number of bank accounts for the weaker sections, its benefits did not reach as intended. Since 2014, with over 460 million new bank accounts opened in India (Verma, 2022), the number of beneficiaries of DBT have reached 80 million receiving funds from over 310 schemes across 53 ministries (GoI, Direct Bank Transfer, 2022). To make this possible, the relationship between the bank and the beneficiary needed to be strengthened. AADHAAR was used as the linkage using which a universal identification number was linked with the bank account. This helped the government to link the beneficiary of a scheme to his or her bank account seamlessly, thus facilitating the transfer of funds. To further strengthen the relationship, mobile number was used as the final spoke of what was to be later called as the JAM trinity. Since mobile phones were used by most of the population, linking the mobile number with AADHAAR and later to Jan Dhan Account helped register a user in a unique manner, and improved security by employing two-factor authentication (2FA) using AADHAAR and mobile number. All these steps ensured that trust can be established in this new form of banking for the unbanked population by keeping the process transparent and secure. However, these steps were not enough to push India towards a digital future and help it pave its way towards financial inclusion and reap its benefits.

The next step of this journey was taken with the launch of UPI in 2016. Leveraging the linkage of mobile numbers with bank accounts, and biometric measures in smartphones, UPI apps were able to break into the market quickly. UPI was a fast and cheap alternative to the existing mediums of exchange in the market.

Furthermore, since it was linked directly to the bank account, it did not require any additional information to use. The underserved sections of the society, which recently had their bank accounts opened, could leverage this immediately. The growth of UPI had its impact on India's pursuit of financial inclusion. As more people began to adopt UPI as their preferred payments method, their demand for other financial services also switched to their phones. This led to the fourth stage of financial revolution – digital financial inclusion in India.

6.3
Digital Financial Inclusion

Digital Financial Inclusion is understood as the next step in a country's pursuit to achieve an inclusive financial system which undertakes all citizens under the formal financial system and helps them access its benefits to improve their quality of life. In other words, digital financial inclusion aims to achieve the same goals as financial inclusion but by leveraging the technological advancements made in a country. This section elaborates on the global agenda surrounding digital financial inclusion and its role in the achievement of sustainable goals and later highlights India's growth in terms of access to internet and communication, after which it showcases the impact of digital financial inclusion on women and other sections.

6.3.1
Global Agenda on Digital Financial Inclusion

Digital Financial Inclusion has been identified globally as the next step towards achieving financial inclusion and the sustainable development goals. Various international agencies have joined hands to spread knowledge about digital financial inclusion and elaborate on the ways to achieve it. Organisations like G20 have established dedicated committees to this cause, and how it can used to achieve the Sustainable Development Goals.

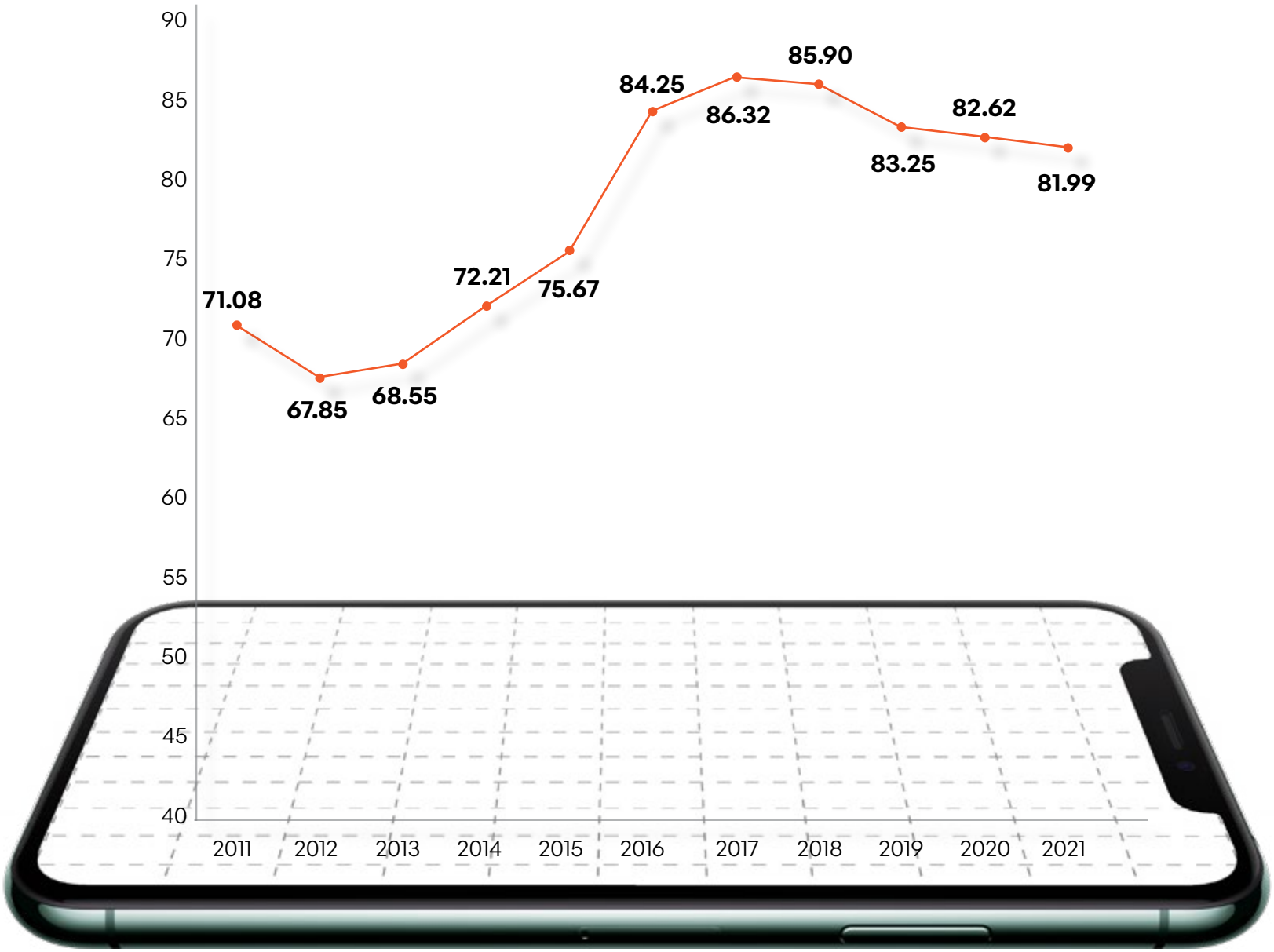
6.3.2

India's Journey to Digital Financial Inclusion

Access to Internet and Communication

The network of accessible and affordable digital financial services can only be built on the foundation of a robust digital infrastructure. Digital Infrastructure includes access to cheap, reliable, and widespread internet services.

Number of Mobile Phones per 100 Population



In 2011, as per the Social Progress Index[41] , India's score was 32 on a scale of 100 under Access to Internet and Communications[42] , 12 points lower than the world average of 44. This indicated that people in India had less access to mobile phones, internet services, and online government services, compared to the rest of the world. This situation was non-conducive to establish digital services in the country. To rectify it, government launched the 'Digital India Campaign' in 2015 which aimed to improve India's access to internet and the extent of digitization in the country. The initiative, backed by immense resources and enthusiasm, transformed the digital infrastructure of the country. Subsequent years saw the entry of new players in telecom market with innovative ideas, which improved the competition in an otherwise stagnant space. This led to cheap and high-speed internet becoming available to the Indian population, which in turn boosted the growth of digital services in India. This change reflected in India's score under 'Access to Internet and Communication' in the Social Progress Index 2017, where it scored 59, showing a 25-point increase over 6 years. The world average at the same time registered an increase of 22 points, which highlights India's rapid pace at improving the digital infrastructure in the country.[43]

As of 2022, India has a robust network infrastructure with one of the cheapest internet services in the world. This improved access to internet has led to a boom in the availability of mobile applications for all kinds of products and services.

[41] Social Progress Index is a multivariate composite score calculated across multiple socially relevant indicators by the Social Progress Initiative, a non-profit based out of Washington DC, USA. (https://www.socialprogress.org)

[42] This parameter is a composite measure of 8 indicators – Households having landline; Access to online state government services per lakh population; Access to online services; Households having mobile phones; Households having internet; Households having computers; Households having television; Internet connectivity in rural areas.

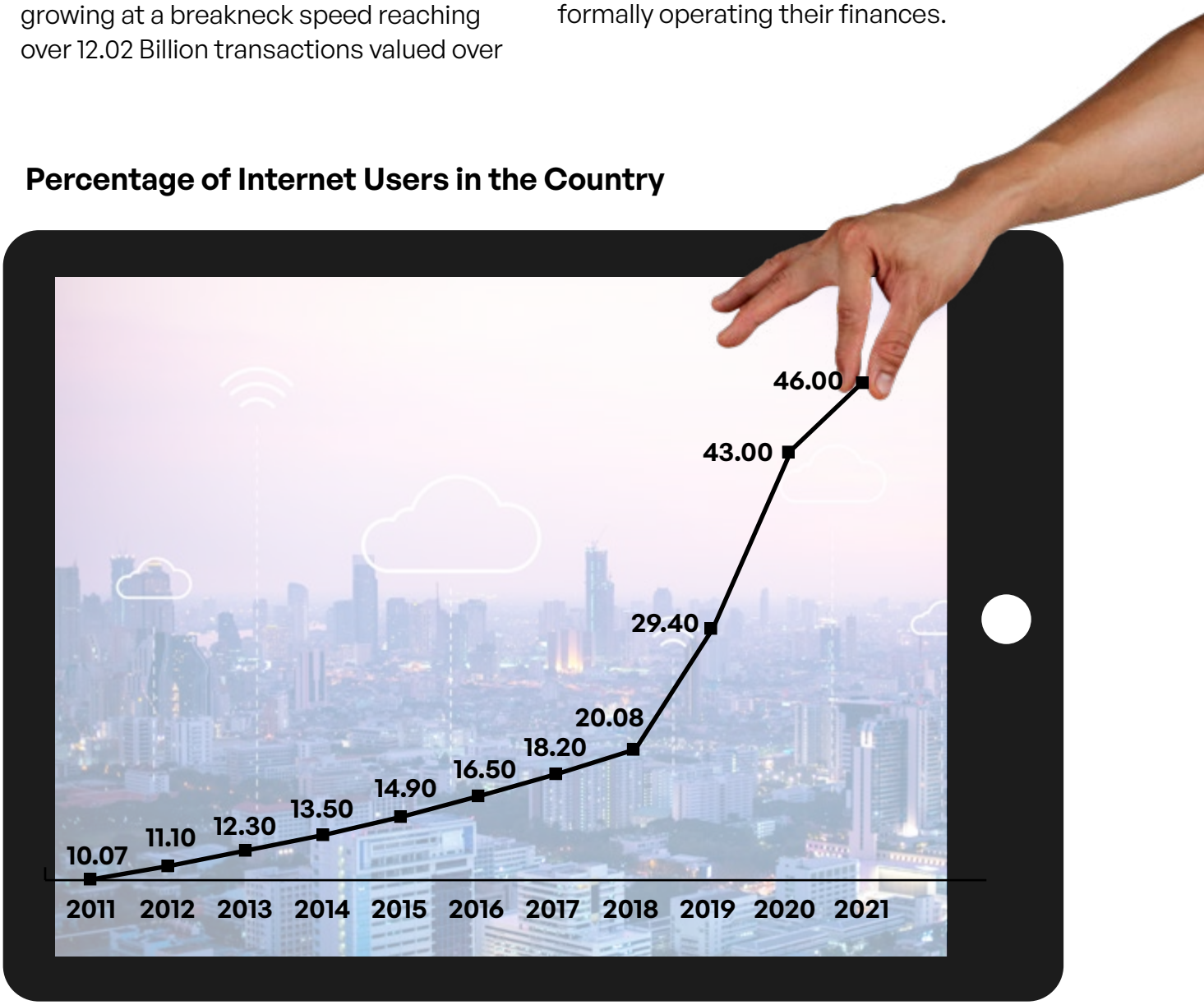
[43] Social Progress Index Reports

India has a booming e-commerce industry which was enabled by the improvement in country's digital infrastructure. Similarly, availing government services such as LPG connection, issuing identity cards, or paying for services like electricity, water supply, etc., can be done using dedicated online platforms. This helps people be removing hassle and enhancing their experience which was earlier cumbersome and exhausting. Thus, for 2022, India's score under 'Access to Internet and Communications' in the Social Progress Index saw an uptick of nearly 38 points, whereas the world average only moved by 31 points over the same period.[44] This transformation is only expected to show an upwards trajectory as there are 1.2 billion mobile phone users and 600 million smart phone users 2022 (PIB,2022) in India consuming over 14 gigabytes of data per capita (Service, 2022) (RBI). This is the single largest userbase residing in one country, waiting to be unlocked.

[44] id

Having a strong foundation, India is on the path to achieve digital financial inclusion. The first step in this long journey has been the launch of UPI. UPI led the initiative of cashless transactions in an economy dominated by cash. Establishing itself on its merits, UPI is growing at a breakneck speed reaching over 12.02 Billion transactions valued over 18 trillion in December, 2023. Adoption of UPI by the underserved and vulnerable sections of the society has immensely helped its reach and improved India's financial inclusion. Transacting digitally, these sections of the society now have access to a safe and reliable method of formally operating their finances.

Percentage of Internet Users in the Country



Although, UPI is one of the financial services offered by institutions in the country, its impact is by far the most significant. This can be seen in the way UPI has currently established itself as the preferred digital payments method in the country. Every new app, be it related to health, education, food, shopping, or a government service such as energy, water etc., has listed UPI as a payment option.

All financial services in the country being offered right now, ranging from investment options, buying stocks, or insurance to payment of existing financial services such as credit card bills etc., have UPI listed as a payment option. This can only be attributed to UPI's security, reliability, speed, convenience, and an immaculate user experience. In August 2023, National Payments Corporation of India (NPCI) has launched the third edition of the UPI Safety Awareness Campaign, "UPI Chalega,". The campaign's objective is to propagate UPI as a convenient, secure, and immediate payment mechanism. It aims to provide users with insights into various features, such as UPI LITE, designed for swift execution of low-value transactions; UPI AUTOPAY, facilitating secure and hassle-free recurrent payments through any UPI application; and UPI Interoperability, streamlining seamless fund transfers among all UPI-enabled applications. The collaborative endeavours of governmental bodies and key stakeholders within the digital financial ecosystem are diligently working towards establishing UPI as a trusted mode of payment. UPI's reliability makes it an important catalyst in realizing India's ambitious vision of digital financial inclusivity.

Impact of Digital Financial Inclusion on Women

Women comprise of almost half our country's population and their growth is vital for our countries' overall growth. Studies have shown that women still earn less, own less, learn less, and wield less economic power than their male counterparts (Hendriks, 2019). This has an impact on their health, job prospects, education and the control women have over their lives and the choices that they make. To overcome this gender divide, financial inclusion was identified as a tool for empowerment of women and aiding their path to reach gender equality. (Hendriks, 2019) To aid financial inclusion in a diverse country such as India, with its social, cultural, and geographical obstacles, increased digitization can serve as a solution. The impact of digitization on women, therefore, can be investigated from two lenses – domestic and entrepreneurial.

Existing gender norms in the country often prevent women from making decisions in the household, thus hampering their agency. In 2016, 73%[45] women reported to have a say in decision making, however only 21%[46] of them were solely responsible for these decisions. This has a direct relation with their control over financial resources of the household. Unbanked women who do not have access to a bank account are unable to save their money, and their limited physical access to a bank branch further aggravates this inability. Lack of savings prevent them from reinvesting whatever money they have towards development of the household, or self-development. A solution to this problem was increasing women's access to a bank account.

Undertaken by the PMJDY, there was a significant increase in women owning bank accounts that they reported using themselves.

In 2021,

79%[47]

of women reported owning a bank account, which has seen a sharp increase from 2015 when only 53%[48] women reported owing a bank account.

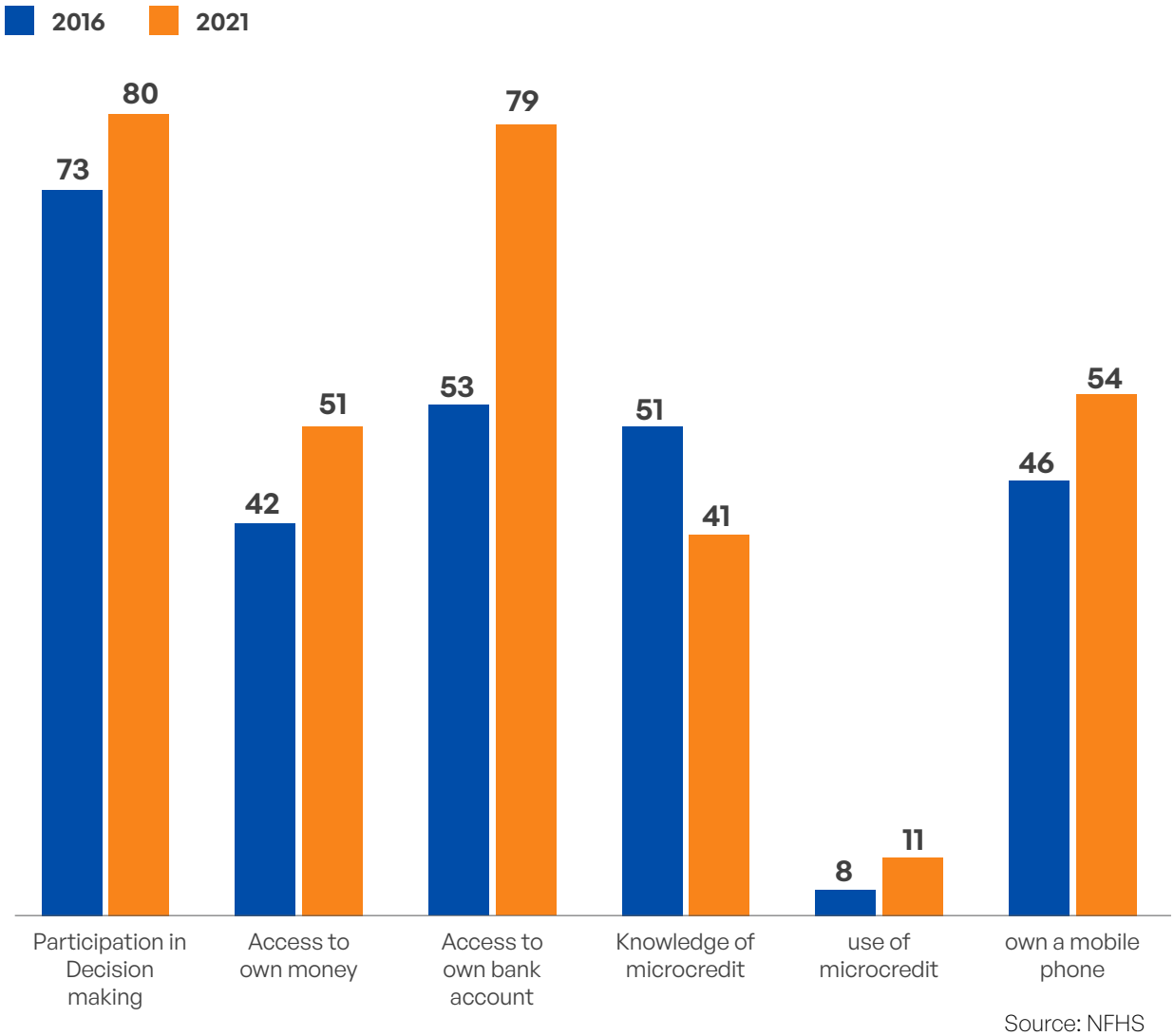
Nearly 56% of all bank accounts under PMJDY belong to women (PIB, 2023). A similar increase was seen in their decision-making power in the household, where 80% women reported having a say, an increase of 7 percentage points from 2015. Bringing them under the

[45] NFHS-5, 2021
[46] NFHS-4, 2015-16

[47] NFHS-5, 2021
[48] NFHS-4, 2015-16

formal financial system was a key first step in enabling their journey towards digitization. The government began emphasizing the role of Direct Benefit Transfer of government aid aimed at facilitating women's empowerment. With women owing a bank account, 51%[49] women reported having access to their own money in 2021, an increase of 9 percentage points from 2015.[50] In 2022, Women own a little over one-third of deposit accounts but only one fifth of the total deposit amount in scheduled commercial banks.[51] Owning and accessing their financial resources enable women to manage their households in a better way. Evidence suggests that women when provided with financial support have shown a propensity towards healthier choices for the household and improve social outcomes on a whole by wielding higher bargaining power (Hendriks, 2019).

Women across the Years



Source: NFHS

[49] NFHS-5, 2021
[50] NFHS-4, 2015-16
[51] MoSPI,2022

On their journey to digitization, women needed to have access to technology, an indicator of which is the ownership of a mobile phone. Owning a mobile phone opens avenues for women, where they can access opportunities which were inaccessible to them due to various constraints. As their agency increases, a change in their choices, and digital literacy was also observed. In 2021, 54% women reported to have a mobile phone that they themselves use, and 71% of them reported to know how to read text messages. In 2015-16, the same proportion stood at 46% and 66% respectively. With their increased access to bank accounts, mobile phones and a rise in digital literacy, women began venturing into entrepreneurial endeavors which were facilitated by improved digitization in the country.

Women being able to establish new enterprises and small-scale businesses, or manage existing ones, helps them create a sustainable means of income which aids their growth. Generating this ability comes with its share of challenges such as knowledge and access to safe avenues of microcredit, access to formal financial system to manage finances, and a payment system which is reliable and convenient. Digitization holds the key to overcome all these challenges. With an increase in digital platforms, women's knowledge and use of microcredit saw an increase across the years. The proportion of women who had knowledge of microcredit increased from 41% in 2015-16 to 51% in 2021. Subsequently, this saw an improvement in women accessing microcredit services with 11% of women reported having availed microcredit in 2021, an increase from 8% in 2015. As women's access to bank accounts improved, their ability to manage their resources improved, however it was further aided by increased digital services.

Numerous accounts have been recorded of women benefitting from improved access to digital financial services. A woman in Maharashtra's village with limited access to a bank branch cited improvement in her life after using digital financial services. Earlier she had to manage meticulous accounts on paper of her finances, keep them safe, and make regular trips to her nearest bank branch to deposit and withdraw money. This process was prone to being hampered due to multiple reasons – error in manual accounting, transport issues, and unsafe nature of travel with large amounts of cash. With digital financial services, she can efficiently manage all her financial needs without leaving her shop. Digital payments, aided by UPI, further help her in managing transactions made every day at her shop directly. Similar stories can be found across India where women entrepreneurs are leveraging the benefits offered by digitization

(Chaintreau, Lele, & Velde, 2022). Building on the digital drive initiated by the government, various private suppliers are now offering to transact digitally with these small-scale businesses. A shop owner in Odisha recounted how a shift to digital has enabled them to increase profits as it eliminates the costs involved in managing cash. A key principle remains security offered by digital transactions, as they are transparent, backed by the government, and have improved accountability. Furthermore, he often benefits from the offers and schemes provided by the suppliers on digital transactions. Incentives to shift to digital aid in its fast adoption across a large demographic. Long-term benefits experienced by the user, helps their retention in the digital ecosystem. Another woman in Maharashtra reported how she earlier had to keep the cash ready before the suppliers visit, but with digital transactions, this need has vanished making her life easier. Digital payments by customers help her further as it maintains a steady bank balance which can be used to purchase emergency supplies or other necessary products. With increased familiarity with technology, these small shops have begun offering additional services such as bill payments, recharges, money transfer all accomplished digitally thus adding to their income. Improved convenience offered by digital solutions help women undertake opportunities which they were previously unable to avail.

However, low-income users are often treated as a homogenous chunk with similar needs, overlooking their inherent heterogeneity (Chaintreau, Lele, & Velde, 2022). Women who are digitally illiterate still cannot leverage the benefits offered by these services and are thus excluded. This is helped by initiatives by government and private players, where they target this demographic and work on improving their digital literacy. This involves holding seminars which inform of the benefits in going digital, encourage adoption by handholding them through this journey, and consistently guiding them after they've gained initial familiarity with these systems. These services, therefore, rely on a robust digital infrastructure and an inclusive payment ecosystem which is fast, convenient, and easy-to-use. The benefits offered by digitization are enjoyed by women, which helps them in their journey of self-realization and empowerment.

Access to credit to farmers

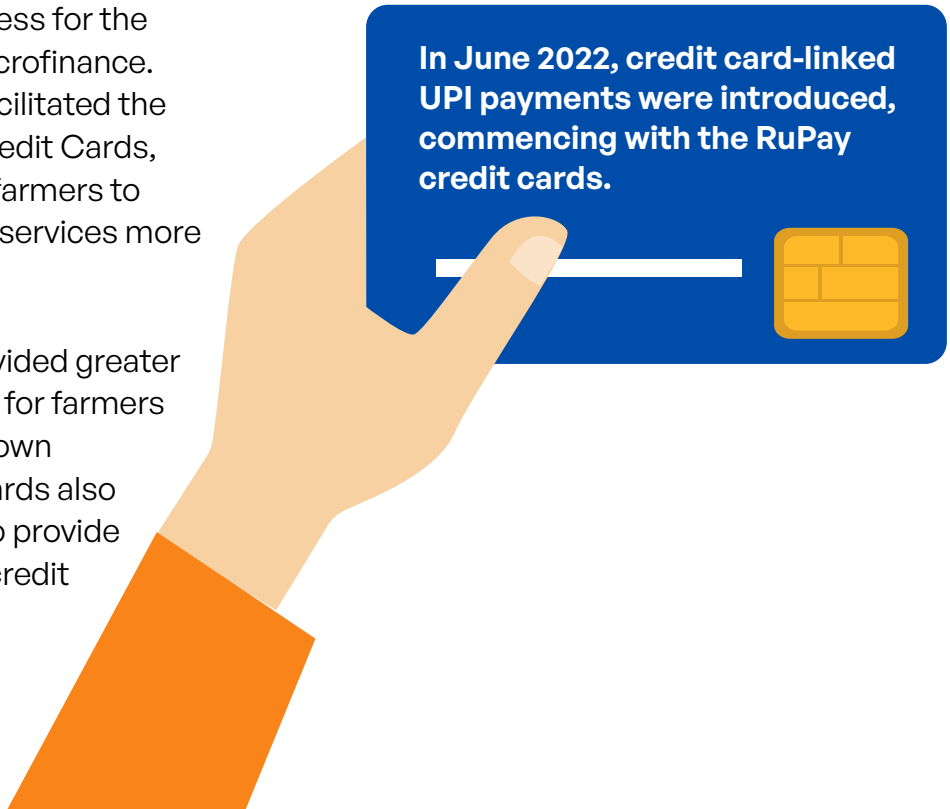
Easy access to formal means of credit is one of the fundamental principles of financial inclusion. Vulnerable sections of the society can leverage formal credit to secure sustainable means of income such as businesses, small-scale enterprises and improve their lives. One of the sections of the society which relies heavily on channels of credit are the farmers, as they are often at risk of crop failure and incurring losses. Thus, it becomes essential to help them secure credit lines which they can use to buy better inputs for farming such as fertilizers, hybrid seeds etc. A case of Kisan Credit Card, in this light, is discussed in this section.

Introduced in 1998, the Kisan Credit Card (KCC) scheme in India played a key role in the mobilization of agricultural credit for farmers, legitimising and institutionalising credit access for the rural poor, and fostering microfinance. In 2012, the KCC scheme facilitated the issue of electronic Kisan Credit Cards, which made it possible for farmers to take advantage of financial services more easily.

These electronic cards provided greater security and more freedom for farmers in terms of managing their own accounts. The electronic cards also allowed the KCC scheme to provide more flexibility in terms of credit to farmers.

As of March 2020, the total amount outstanding under operative KCCs stood at ₹6,970.176 billion, as compared to ₹6,682.563 billion in 2019, while the total number of operative KCCs stood at 65,280 in March 2020.

In terms of facilitating social progress, the KCC scheme is a success story that highlights several lessons for the future. With a humble beginning, the KCC scheme has gradually transformed into a crucial tool for achieving Sustainable Development Goals (SDGs). In addition, it has contributed to the growth of non-farm activities such as education, health and other services (RBI).



In June 2022, credit card-linked UPI payments were introduced, commencing with the RuPay credit cards. The move was seen as a positive step towards enabling greater financial inclusion of rural farmers. Credit card-linked UPI payments is expected to improve cash flows of farmers and the RuPay cards will have a positive impact on the financial inclusion of farmers, which in turn will help in improving their access to credit. The success of the KCC scheme, therefore, is a source of inspiration for the current and future development of similar schemes in India and other countries. RuPay is a payment solution offered by the National Payments Corporation of India (NPCI) that has been developed in collaboration with the Reserve Bank of India (RBI). For financial inclusion of farmers, RuPay is a cheaper and safer payment solution. The RuPay credit cards are provided to all farmers who have an account in the KCC scheme.

Digital Payments for the not-so-digital

Feature phones are inexpensive and widely available, and thus, they are a major source of financial inclusion for the unbanked and underbanked population. In the face of digital banking services, UPI123Pay has helped to extend the benefits of digital payments to people who do not have access to internet or smartphones. This is especially important as the rural population is increasingly becoming dependent on electronic banking services for their day-to-day transactions. (RBI, 2022)
With more than 400 million feature phone mobile subscribers in the country, UPI123 Pay Service is a simple solution for financial inclusion in India for the population which is digitally challenged. Since its launch in March 2022, the service for feature phones has made it possible for people to transact and pay for goods and services without an internet connection.
Interactive voice response (IVR) technology has made it possible for feature phone users to make UPI payments through pre-defined IVR numbers. The service has compensated for the lack of infrastructure and internet connectivity in various parts of India by making use of proximity sound-based payments (NPCI). The proximity sound-based payment enables contact-free, offline, and proximity data communication on any device. This is especially important in areas where the internet could be more readily available, or data costs are too high for widespread usage.

As of March 2022, UPI123Pay had 37,096 users on board, along with 21,833 successful transactions. By offering the majority of UPI functionality through an IVR platform, UPI123Pay has also helped to reduce transaction costs for users who cannot afford or do not have access to smartphones. The service has also been used to complete a wide variety of financial transactions, such as the transfer of funds, bill payments, and regular purchases. The IVR platform also provides multiple language options for customers to use UPI123Pay in their own native languages. As of March 2022, UPI123Pay was able to attain successful transactions worth ₹7.915 million (RBI, 2022).

On October 7, 2022, the Reserve Bank of India (RBI) released a concept note detailing the Central Bank Digital Currency (CBDC) framework (PIB, 2022). In India, the CBDC initiative, known as eRupee, commenced its pilot testing phase in December 2022. Collaborating with various financial institutions and retailers, the RBI is actively exploring the practical applications of the eRupee.
To streamline adoption, the RBI intends to integrate CBDC payments using the

existing Unified Payments Interface (UPI) QR codes (Forbes, 2023).
An International Monetary Fund (IMF) working paper highlights the potential of CBDC in extending banking services to the unbanked population while bolstering overall lending. The growing interest in Central Bank Digital Currencies (CBDCs), particularly in emerging markets, is underscored by a recent survey conducted by the CFA Institute. This enthusiasm is notably pronounced among the younger demographic in developing economies, with China and India being noteworthy examples. The driving force behind this fervor is the pursuit of financial inclusivity and stability. Developing economies place substantial emphasis on the pivotal role that CBDCs can play in advancing financial inclusion.

6.5
G20 and Digital Financial Inclusion

Financial Inclusion was identified as one of the key pillars of the G20 Global Agenda in 2010 in Seoul. This led the G20 leaders, in collaboration with other financial organizations, to establish the Global Partnership for Financial Inclusion (GPFI). It served as an international platform for countries to exchange knowledge on financial inclusion, promote policies for its realization, and foster coordination among institutions involved in policy implementation. GPFI convenes meetings during different presidencies to formulate a G20 Financial Inclusion Action Plan, outlining a roadmap for countries to advance their financial inclusion efforts. In addition to that, it has identified key indicators that can be periodically measured to evaluate the extent of financial inclusion in a country.
Over the years, G20 countries have increased emphasis on digitization and its role in improving financial inclusion. In 2016, during the Chinese presidency, the countries adopted the High-Level Principles for Digital Financial Inclusion (HLP). These principles were an update on the existing financial inclusion indicators listed by the GPFI and added parameters such as cashless transactions, digital payments, debit card ownership and access to digital infrastructure as indicators of financial inclusion in a country (Tay, Tai, & Tan, 2022). Building on this the German Presidency in 2017 called for an implementation of these principles in countries in a bid to enhance digitization and facilitate digital financial inclusion to improve financial resilience. Since then, subsequent presidencies have improved on these principles and established

digital financial inclusion as the key towards achieving prosperity. During the Indonesian presidency, digital payment was identified as a key priority for the G20 countries.

India, touting itself as a leader in digitization citing our ongoing digital revolution led by UPI during the Indonesian presidency in 2022, stands at the centre of the digital agenda. Under the G20 India Presidency, there is a strong commitment to global financial inclusion and elevating the voices of emerging economies in G20 deliberations. Setting an example, the scale of achievements in India cannot be understated. In just a decade, The Indian government's concerted effort towards the development of digital payments through the Unified Payments Interface (UPI) as part of the "India Stack" initiative has led to over 800 million people acquiring a verifiable identity, over 80% of the population receiving access to financial services, and the overall level of financial inclusion exceeding 90%(Business 20 (B20), 2023). The momentum continues as UPI evolves with novel features, facilitating transactions for Indian nationals and extending to merchant transactions by foreign nationals/non-resident Indians (NRIs) from G20 member states (B20,2023). India has signed a memorandum of understanding (MoU) with 13 countries that want to adopt the UPI interface for digital payments, while Singapore has successfully integrated with the UPI system (Mint, 2023).

Adding to India's global engagements, it has assumed the role of GPFI Co-Chair alongside Italy. This collaborative leadership, backed by the membership, is set to span three years, commencing in 2024. India is in a position to leverage its accomplishments to epitomise the motto of its G20 presidency- "One Earth, One family, One future" - by spearheading the development of an interconnected and interoperable digital ecosystem.

At the G20 Summit in February 2023, Prime Minister Narendra Modi made a case for the global adoption of India's state-backed digital payments platform – UPI, "We would be happy to share our experience with the world and the G20 can be a vehicle for this," said Prime Minister Narendra Modi, about the tech that allows real-time money transfers to bank accounts using smartphones, eliminating the need for wallets.

The G20's comparative advantage lies in its convening power and its collective ability to adopt and support initiatives at the highest global level, including those that involve a macro-economic framework, and to create the global enabling environment (G20, 2023). G20 governments can showcase leadership in bridging the global digital divide by supporting multilateral standardization systems and bodies, which is crucial amidst rapid technological changes. The G20 must make efforts to develop Digital Public Infrastructure and must prioritise the rights, security and safety of all

human beings; accompanied by enabling techno-legal approaches and involve an effective congruence between public policy and public technology (Think 20 (T20), 2023). The third Finance Ministers and Central Bank Governors Meeting held on July 17-18 2023, endorsed the Regulatory Toolkit for Enhanced Digital Financial Inclusion of Micro, Small and Medium Enterprises (MSMEs) along with G20 Policy Recommendations for Advancing Financial Inclusion and Productivity Gains through Digital Public Infrastructure (G20,2023).

The G20 Summit convened in New Delhi resulted in a pivotal declaration recognizing the essential role of DPI in driving inclusive development. The New Delhi Leaders' Declaration highlighted DPI as a critical driver for achieving Sustainable Development Goals (SDGs. Within this declaration, G20 members endorsed the establishment of a voluntary framework for DPI development, deployment, and governance. While this framework does not impose binding obligations, its voluntary nature provides valuable guidance for nations initiating DPI endeavors, offering a shared direction and principles for their implementation. Significantly, one notable outcome of the G20 Summit was India's proposition to create the Global Digital Public Infrastructure Repository (GDPIR). This initiative aims to serve as a global platform, fostering collaboration among G20 member nations and beyond, enabling the sharing of DPI solutions. The GDPIR is envisioned as a virtual repository where participating countries voluntarily contribute their DPI innovations, facilitating knowledge exchange and expediting the global adoption of successful technological models. Furthermore, India's proactive approach extended beyond declaration to practical action through the proposal of the One Future Alliance (OFA). This voluntary alliance aims to provide technical support and financial assistance for the implementation of DPI in low and middle-income countries (LMICs), seeking to bridge the digital divide and ensure widespread access to DPI benefits across diverse socio-economic contexts worldwide. Looking ahead, the commitments and endorsements made within the G20 framework in support of DPI represent a collective understanding among nations regarding technology's transformative potential in fostering equitable and sustainable development. Notably, prioritizing the establishment of trust, ensuring security, addressing ethical considerations, and mobilizing sustained investments are vital aspects to materialize the envisaged benefits of DPI outlined within the G20 commitments.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Open Amazon app
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BHIM UPI
Paytm
ALL-IN-ONE QR
Pay using Paytm or any UPI App
Paytm
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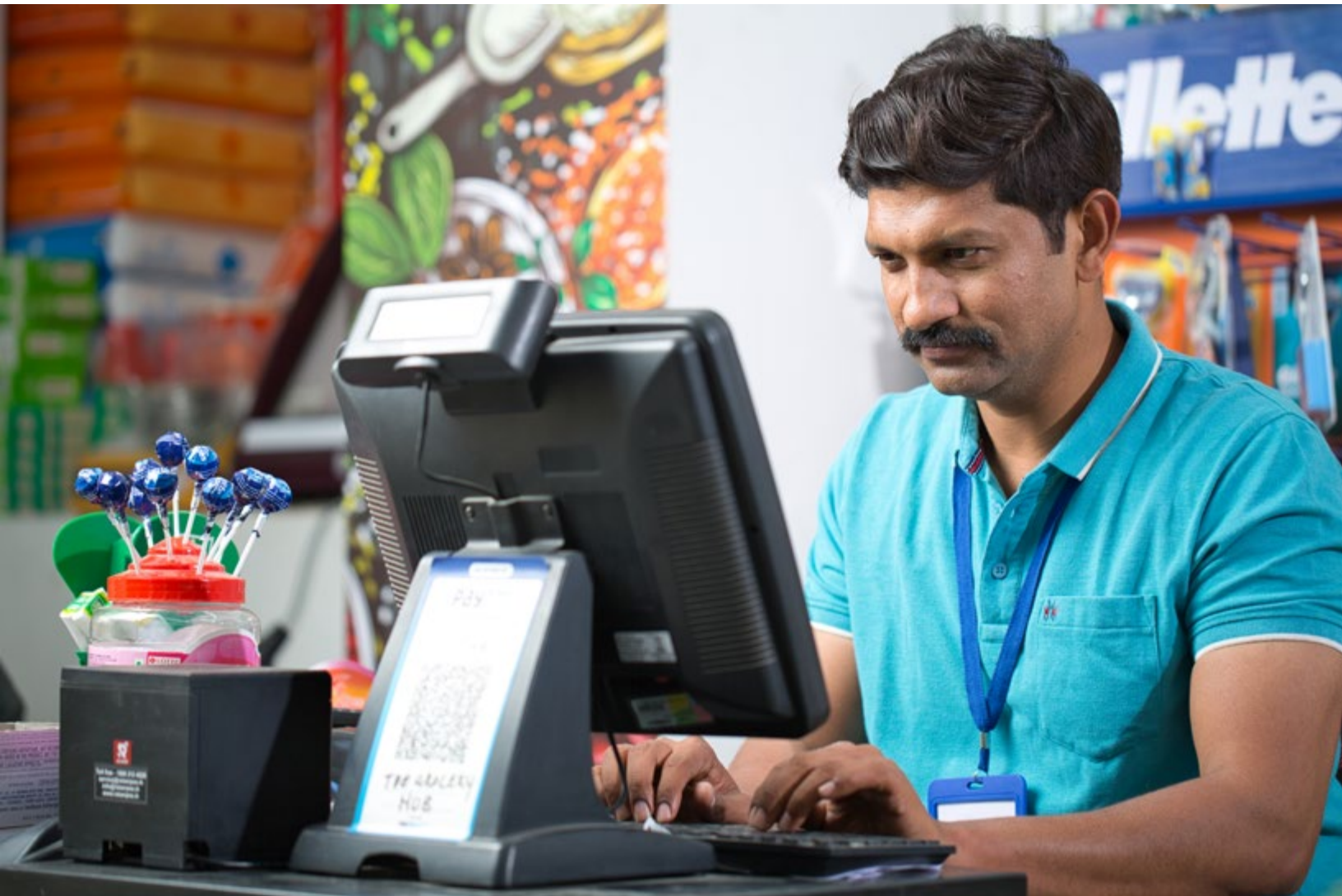
6.4
Conclusion

Social Progress has been long identified as key area for a country's holistic development. Improving people's overall well-being contributes to sustaining economic development of a country in the long run. Financial Inclusion is one of the ways in which social progress can be accentuated in a country. By bringing people under the formal financial system and improving their access to its benefits, the overall goal of eradication of poverty can be efficiently targeted. In a country as diverse as India, physically fulfilling these goals becomes a difficult task. Thus, digitization emerged as a solution to overcome India's existing regional, social, and geographical barriers. Improving access, financial literacy and creating a robust digital infrastructure to facilitate digital financial inclusion were identified as the key areas by the government. Thus, India's journey began with PMJDY and providing hassle-free access to bank accounts to the unbanked population. This introduced them to the formal system, and paved way for kickstarting their adoption of formal financial services. Direct Bank Transfers, where monetary aid was directly transferred to beneficiaries was the next key step, which improved people's access to their own money. Government then spearheaded the creation of a digital infrastructure which could support a digital payments ecosystem. Provision of cheap internet services and UPI fulfilled this ambition. Positive impact of these was seen in terms of improved participation in the economy by sections who were earlier excluded. Women emerged as one of the key beneficiaries and reported an improvement in terms of access to bank accounts, microcredit services, and adoption of digital financial services. Stories from across the country show how women reported an increase in their agency to manage financial resources, and to establish and manage enterprises and businesses. This led to an improvement in their decision-making abilities. Similar initiatives – Kisan Credit Card and UPI23, targeted at farmers and people with low digital literacy bore fruitful results. Globally, digital financial inclusion is seen as a key facilitator of various Sustainable Development Goals aimed at improving the ease of living for the citizens. G20, with its targeted agenda over the years has further led the way in establishing global norms to support and facilitate financial inclusion. India, has therefore, set itself on the path to holistic development. Leveraging its digital infrastructure, and the innovative UPI, India has fast-

tracked the empowerment of sections which were earlier left behind in our economic development. Thus, using innovation and a targeted approach, India has not only set a domestic benchmark of growth but has emerged as global model of achieving social progress using digital financial inclusion.



07

PATHWAY TO DEVELOPMENT
UNVEILING THE FUTURE PROSPECT OF UPI IN THE COUNTRY

India's domestic success with UPI in terms of economic and social progress inspired us to export it to the world. Technological innovation such as UPI helps India demonstrate to the world its technological capabilities and positions us as a key global force. To achieve this, the National Payments Corporation of India (NPCI) set up an international subsidiary, called NPCI International Payments Limited (NIPL) in 2020 (NIPL). NIPL, banking on the domestic success of UPI, extended its technical support to other countries looking to establish a similar payment platform in their country. In addition to that, NIPL also looked to introduce UPI as a method of payment in countries with Indian residents, to aid them in sending money back home. Currently, the Society for Worldwide Interbank Financial Telecommunication (SWIFT) is the dominant player in the global payments network and has been responsible for nearly half of all the cross-border payments in the world in 2018. NIPL further aims to establish UPI as a key player in the global financial market, reducing the hegemony of western countries who largely own the current dominant systems. The following sections go into detail about the issues, starting with a look at India's remittances, followed by highlighting the numerous international collaborations established by NIPL. Further, we will discuss the potential case for UPI replacing SWIFT as the primary network for handling cross-border payments. Lastly, we will shed light on how India's journey to a digital transformation can serve as an inspiration for other developing countries.

7.1

UPI and International Payments

A non-commercial transfer of money from a foreign country by an immigrant to their homeland, called remittances, constitutes a part of the household income. With over 32 million people globally, according to the Ministry of External Affairs, India's diaspora is the largest in the world.[52] India, with its widespread diaspora, received highest ever foreign inward remittances in a single year of $89,127 million in FY 2021-22. During 2021-22, India received foreign inward remittances of $89,127 million which was the highest ever inward remittances received in a single year. (PIB, 2023)

[52] Population of Overseas Indians , retrieved from https://www.mea.gov.in/images/attach/NRIs-and-PIOs_1.pdf

Remittances, in developing countries like India, serve as an important part of household income. Many families often take loans to send a member abroad, to a country with adequate opportunities and a higher exchange rate and expect them to send money back home to support them. Remittances help in reducing the burden of foreign exchange and balance of payments, while also driving up national savings. In this way, they contribute to the development budget. When received by the households in a developing country, remittances help in poverty reduction and economic development of the recipients. However, all these benefits only contribute to the national economy if remittances are tracked and are sent through formal channels like banks, transfer companies, etc. If sent through informal channels, like via friends or relatives, remittances contribute to the black economy of the recipient country and become detrimental instead. Many people working low jobs use these informal methods to avoid the costs associated with a formal transfer (Sutradhar, 2020). Tapping this loophole, NPIL aimed to introduce UPI as an affordable, secure, and quick formal channel of sending money back home.

Overview of Digital Payment Methods in The World

US — Apple Pay

Year- 2014

P2P - Yes

Government Backed - No

Type of Infrastructure - Closed

Cost - None

Regulator - State Government's Financial Regulation Body

UK — PayPal

Year- 1998

P2P - Yes

Government Backed - No

Type of Infrastructure - Closed

Cost - None

Regulator - Financial Conduct Authority

Brazil — Pix

Year- 2020

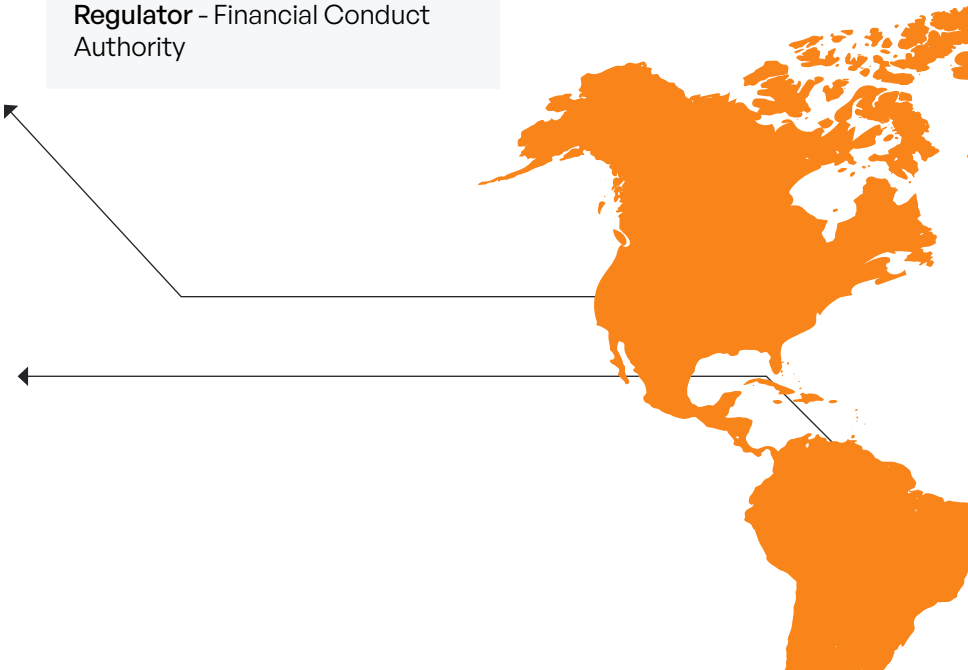
P2P - Yes

Government Backed - Yes

Type of Infrastructure - Open

Cost - For Merchants

Regulator - Central Bank of Brazil



Nigeria

Year- 2019 Tingg

P2P - No

Government Backed - No

Type of Infrastructure - Closed

Cost - Yes

Regulator - Central Bank of Nigeria

India

Year- 2016 BHIM

P2P - Yes

Government Backed - Yes

Type of Infrastructure - Open

Cost - None

Regulator - Reserve Bank of India

China

Year- 2004 Alipay

P2P - No

Government Backed - No

Type of Infrastructure - Closed

Cost - 0.5% for Merchants

Regulator - People's Bank of China

Kenya

Year- 2007 MPesa

P2P - Yes

Government Backed - No

Type of Infrastructure - Closed

Cost - Yes

Regulator - Kenya Revenue Authority

Bangladesh

Year- 2010 bKash

P2P - Yes

Government Backed - No

Type of Infrastructure - Closed

Cost - For withdrawals

Regulator - Central Bank of Bangladesh

Thailand

Year- 2021 PromptPay

P2P - Yes

Government Backed - No

Type of Infrastructure - Closed

Cost - None

Regulator - Central Bank of Thailand

South Korea

Year- 2014 Kakaopay

P2P - Yes

Government Backed - No

Type of Infrastructure - Closed

Cost - None

Regulator - Financial Supervisory Service

NPIL's continued efforts to establish UPI as a global player bore fruit when Malaysia Merchantrade Asia allowed Indians to send remittances via UPI. Similarly, the Central banks of India and Singapore entered a contract that would allow direct transfer of funds between bank accounts from Singapore and India, using their payment platforms i.e., PayNow and UPI respectively (Vanamali, 2022). In February 2023, India and Singapore linked their digital systems and in August 2023 Singapore and Indian Banks and companies effectively inaugurated the first live transaction through the TradeTrust Framework[53] backed Letter of Credit transactions between Singapore and Indian banks and companies, paving the way to digital cross-border trade, (Ministry of Trade and Industry, Singapore.) A major move between Western Union, a leading cross-border payment service, and NIPL allowed people to send money via UPI from all the countries in which Western Union operates. Further success came in 2023 when NPCI, as a pilot project, enabled Non-resident Indians in 10 countries[54] to use UPI with their existing mobile numbers. This would enable them to transact digitally from their country of residence using UPI, without having to buy an Indian SIM card. With this, NPCI eased the flow of money via formal channels to India, and promoted UPI as a payment method in these countries with one swift move (NPCI, 2023). All these efforts are targeted at tackling the challenges posed by cross-border money transfers, namely – high costs, poor user experience, lack of transparency, and long timelines (Singh, 2021). UPI would hence become the affordable and quick alternative and improve the volume of remittances sent through formal channels in the economy.

[53] Countries are – United States, United Kingdom, Singapore, Canada, Australia, Oman, Qatar, UAE, Saudi Arabia and Hong Kong.
[54] TradeTrust enables interoperable electronic Bills of Lading (eBLs)

"For every 100 dollars a worker sent home, they had to pay 10 to 15 dollars to the service. After UPI adoption, the cost has reduced to 3 dollars"

- Sopendu Mohanty, Chief Fintech Officer, Monetary Authority of Singapore

NPIL has secured collaborations with multiple governments which allows them to launch UPI in their countries as a payment service, targeted at facilitating Indian tourists and easing their payment experience. Currently, tourists traveling from India use various international cards to pay in foreign countries, which are mostly operated by foreign banking networks (MasterCard and VISA). India has thus been pushing for the acceptance of RuPay and UPI, its indigenous payment methods, as alternatives. NPIL recently entered a partnership with payment facilitator Worldline which will Indian travelers to pay via UPI in European countries, where Worldline operates. The rollout will begin with Belgium, Luxembourg, the Netherlands, and Switzerland, where QR codes will be installed (PTI, 2022). Similar partnerships have been made with the British payment system PayXpert, NeoPay from the United Arab Emirates, and Lyra from France. All these payment services began supporting UPI as a payment method, thus facilitating Indian travelers, and reducing their dependence on international cards. This is estimated to increase spending by Indian customers while also boosting the number of travelers to these countries. A significant global coverage would improve the chances of assimilation of UPI as a payment method into their domestic networks, which in turn is the aim of NIPL. In a major breakthrough, Nepal has already developed a native payment method along the lines of UPI, with the help of NIPL, and became the first country to do so (Vanamali, 2022). NIPL would thus seek to extend the number of countries which adopt UPI or UPI-based systems domestically and make UPI a global player. In 2023, July was a pivotal period for global expansion of UPI. During this time frame, deliberations held between Prime Minister Narendra Modi and Sri Lankan President Ranil Wickremesinghe resulted in recognition and adoption of UPI in Sri Lanka. Prime Minister Narendra Modi also announced that India and France reached an agreement to utilise the UPI framework which will enable Indian Tourists to pay in rupees. Additionally, Japan expressed serious interest in the adoption of UPI, while commending the role of UPI in democratizing access to digital and banking services and reducing cash dependence. Along with this, Indonesia has also expressed interest in UPI.

> Not just that, the UPI (Unified Payments Interface), the BHIM app, and NCPI (the National Payments Corporation of India) are all now being worked in such a way that their systems in their respective country, however, robust or otherwise can talk to our system and the inter-operability itself will give strength for Indians expertise in those countries"
>
> **– Nirmala Sitharaman, Minister of Finance and Corporate Affairs, India**

In February 2023. Phonepe launched "UPI International" which allows users to make payments at international merchant outlets in five countries (Footnote- Countries are Bhutan, Singapore, Nepal, UAE and Mauritius.). This is a key advancement in the Indian FinTech industry and signifies the establishment of a broader system to extend the global reach of UPI.

7.2
Future Potential of UPI

7.2.1
UPI and Cross-Border Payment Network

SWIFT is a Belgian service provider which acts as the primary messaging network using which international payments are initiated. Essentially, its standardized messages, understood by all member institutions, contain information about the financial institutions involved in a particular transaction (Scott & Zachariadis, 2013). It has no role in managing any accounts on behalf of any individual or financial institution, nor does it handle any funds (Scott & Zachariadis, 2013). It is the most widely utilized payment network in the world and is responsible for nearly half of the high-value cross-border payments made globally. SWIFT however is not short of its criticisms. The payment system is often noted to be inefficient in terms of the time taken to process a payment, as well as the lack of transparency it offers. Furthermore, concerns have been raised about the security of SWIFT-based transactions.

SWIFT transactions are often routed through multiple banks before they reach their designated recipient, which takes a lot of time. Since it does not manage funds, but only relays information about the transaction, there is no clarity as to how much money is being sent and how much of it is received at the other end. This leads to various security issues (Arnold, 2018).

In 2016, after gaining access to poorly encrypted messages, a group of hackers was able to divert funds from a large bank and steal over $80Million which still remains unrecovered (Arnold, 2018).

Although SWIFT is reported to have improved its security standards, the primary infrastructure of its network remains more or less identical and is not immune to future threats. In 2006, SWIFT came under pressure when a series of articles exposed the involvement of the US government in tracking transactions made using SWIFT under the pretext of monitoring terrorism funding. This opened an attack on SWIFT as sensitive information of its users was made privy to government organizations, which in itself is a major breach of privacy (Brand, 2006). Since then, SWIFT has assured the European Union of upholding data privacy protocols by improving its policies. However, similar reports again surfaced as late as 2013, when the National Security Agency was reported to monitor SWIFT-based transactions (Spiegel, 2013).

Western influence on SWIFT was demonstrated when during the Russo-Ukrainian conflict of 2022, the United States persuaded SWIFT to sanction Russia by excluding its banks from the SWIFT network (Shalal, 2022). This would lead to serious repercussions for the Russian economy as it would render it unable to exchange goods and services in absence of an online cross-border payment network, reducing all such transactions to be made in cash (АНАЛІТИКА, 2018). On 1st March, the EU, US, UK, and Canada removed seven major banks from the SWIFT messaging network leading to a major setback in the Russian economy (RFE, 2022).

These factors have highlighted how the field is set for UPI to act as an alternative to SWIFT network. UPI systems are peer-to-peer based payment methods, which function on a transparent and open infrastructure, while also adhering to top-of-the-line security protocols, all of which are an edge above the currently dominant SWIFT. These factors make UPI an ideal candidate, and NIPL's role in pushing for its adoption becomes crucial in the coming future (Gabriel & Thattil, 2022). If successful, this move can be crucial for international relations as it shifts the hegemony over financial transactions from the West to India. Furthermore, it will enforce a smooth payment infrastructure across the world which can elevate the user experience. American banks have immense control over card-based payments in the world owing to both VISA and MasterCard. UPI can, therefore, become the export through which India establishes itself in the cross-border payments network. India is at the cusp of achieving this as it has both, a better product, and favorable circumstances, and thus all that remains is to seize the opportunity to become a global force.

Adoption is a costly process. Can India persuade other countries to adopt its model? Or Can India persuade global institutions to provide money for the poor countries to adopt its model?"

Ashley J Tellis, Tata Chair for Strategic Affairs and Senior Fellow, Carnegie Endowment for International Peace

Box 7.1:

UPI and FedNow

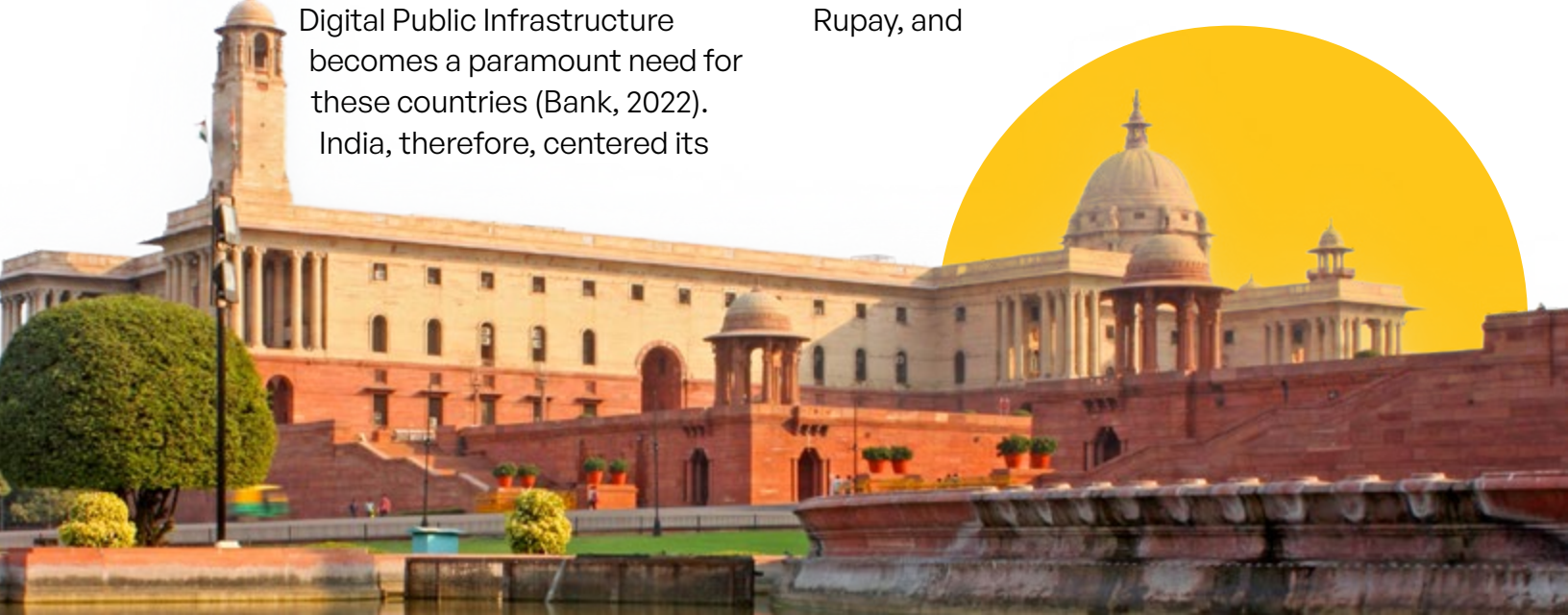
In a letter dated November 7, 2019, by Mark Isakowitz, (Vice President, Government Affairs and Public Policy for Google in the US and Canada) to the Secretary of the US Federal Reserve Systems, he endorses a real-time payments-based system called FedNow for the US to be developed on the lines of India's UPI. In a bid to improve the delivery of financial services in the US, and to improve its financial infrastructure, he cites UPI as an exemplary system, which remains the blueprint for a successful payments platform. Since its inception, NPCI in India has worked closely with various stakeholders to develop UPI, one of which has been Google. Google launched its flagship UPI application 'Google Pay' in 2016. Its critical development and meticulous planning were hailed as the chief factors for its widespread adoption and success. The openness of its architecture invites innovation and fosters development, and hence caters to the needs of the user. Based on these factors, he recommended the US Government collaborate closely with industrial leaders and formulate a cost-effective and user-friendly mobile-based payment solution (Isakowitz, 2019).

This further consolidates the exemplary nature of UPI and establishes its case as a global force majeure. UPI, a unique experiment, has the potential to unlock India's dominance in the global financial market. One way to achieve it is by collaborating with various global stakeholders and promoting UPI's adoption. Another way is to promote UPI as an alternative to currently existing cross-border platforms, such as SWIFT.

7.2.2

India's Governance Model as a Role Model

Countries across the globe aspire to achieve rapid economic and social progress to improve ease of living for their citizens. Developing countries, in particular, are home to people who lack access to services – healthcare, education, finance, etc., which are fundamental to have a good quality of life. Efforts by their respective governments to bridge this gap are often hindered by inefficient policy planning, poor service delivery, disempowerment, corruption and more. To overcome these barriers in the modern world, digitization has been identified as a potent tool. (Hanna, 2017). Efficient digitization can improve service delivery to people, who were otherwise left behind and empower them to secure better opportunities for their growth, which in turn positively impacts a country's development. To this end, the construction of a new governance model centered around a robust Digital Public Infrastructure becomes a paramount need for these countries (Bank, 2022). India, therefore, centered its development approach around efficient DPI from 2014 and has since witnessed growth at an unprecedented scale. Digitization, however, is not a blueprint plan or a one-size-fit-all strategy which can be adopted directly in every country. India identified its key target areas, based on the country's needs, and formulated a strategy involving diverse stakeholders and efficient planning to achieve digitization. The new governance model – SAFE, which was adopted by India was the key force behind this success. India's first step was to build a robust digital infrastructure, which was followed by creation of digital platforms and services which could leverage our digital capabilities. On the one hand, policies and schemes such as the National Digital Literacy Mission (NDLM) and Digital Saksharta Abhiyan (DISHA) improved digital literacy; the Aadhaar Enabled Payment System, FASTag, Rupay, and



IMPS simplified payments; and on the other, projects such as Project BharatNet and DIGIDHAN Mission significantly promoted internet penetration which helped in building strong use cases for merchant payments promoted a shift to digital transactions. (ICWA, 2023). Creation of a competitive space in the digital technologies sector, overseen by the government, enabled an innovation-led ecosystem in India, aimed at improving prosperity in the country. Owing to India's successful journey, countries across the world can learn from the Indian governance model, SAFE, and implement it according to their socio-economic priorities. Digitization helps bring people closer as it cuts across regional and geographical boundaries. If multiple countries follow India's footsteps in embracing a digital transformation, we can aspire to achieve a global village in the truest sense. India, with its digital development model, can lead the way in shaping a better world for tomorrow and become a role model for other developing countries to follow in their journey to sustainable development.

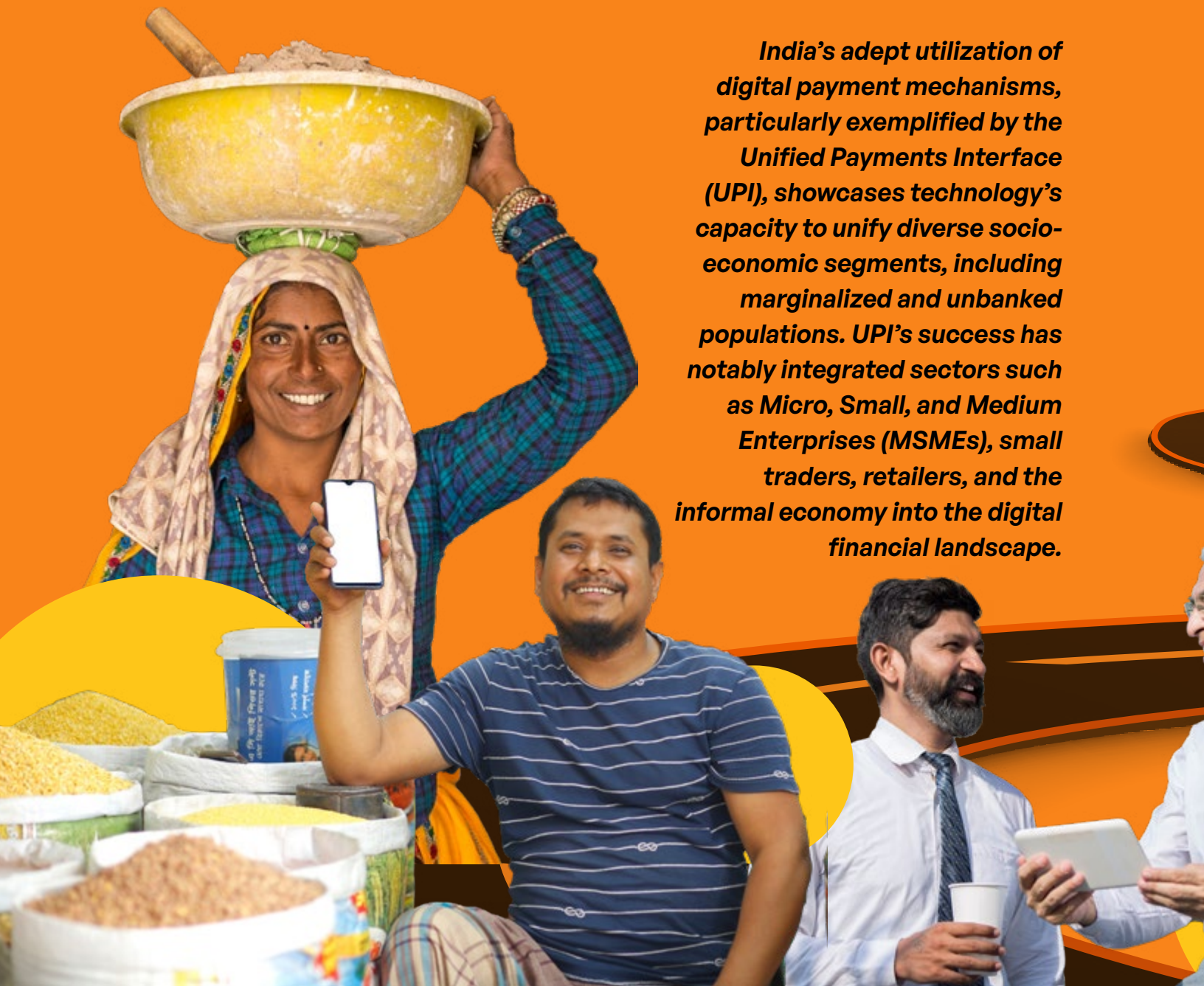
7.2 Conclusion

In passing it can be ascertained that UPI has been India's star product and has disrupted the financial landscape both domestically and internationally. With the establishment of a dedicated organization to promote it globally, India has reinforced its commitment to export it to the world. Owing to its safe, cost-effective, and secure nature, coupled with a technologically sound foundation which remains open to innovation and development, UPI can essentially sell itself to the world. It has been adopted by various countries as a payment method to facilitate Indian travelers, which is a big step in familiarizing the world with its benefits. In addition to that, its promotion as a channel to send remittances will help in further formalizing the influx of money, which will have a significant impact on the Indian Economy as a whole. Lastly, the opportunity remains there to be seized for UPI to replace the SWIFT payments network as the dominant cross-border payment system. This move, other than being a step up to the current global payments market in terms of user experience, security, and cost, can bring significant gains to India with respect to its global standing. UPI, therefore, remains to be the gift that keeps on giving and India, with NIPL as a representative, sits at the cusp of seizing an opportunity for international dominance.

08

WAY FORWARD

India's adept utilization of digital payment mechanisms, particularly exemplified by the Unified Payments Interface (UPI), showcases technology's capacity to unify diverse socio-economic segments, including marginalized and unbanked populations. UPI's success has notably integrated sectors such as Micro, Small, and Medium Enterprises (MSMEs), small traders, retailers, and the informal economy into the digital financial landscape.



This transformative shift is evidenced by widespread digital transaction adoption, even among local fruit vendors who now employ QR codes for payment reception.

India's strategy surpasses mere accessibility, facilitating UPI transactions via feature phones and in environments devoid of internet connectivity, underscoring an inclusive approach prioritizing financial inclusivity for all. Further, India's focused initiatives to enhance digital literacy exemplify that proficiency in digital technology can emerge as an outcome rather than a precondition for embracing digital payments.

The Indian model, led by UPI's success, serves as an exemplary blueprint for nations aiming to leverage digital mediums for development. While not universally applicable, India's adaptable approach provides valuable insights for countries seeking to customize technological advancements to their unique contexts. India's progress in UPI and Digital Public Infrastructure (DPI) highlight technology's role in fostering inclusive and impactful societal development on a global scale.

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