



Growth of Digital Infrastructure in India: A Periodical Analysis

Aditi Desai, Aman Chain, Amisha Singh, Aryan Govindkrishnan,
Jheel Doshi, S Vasudevan

Introduction

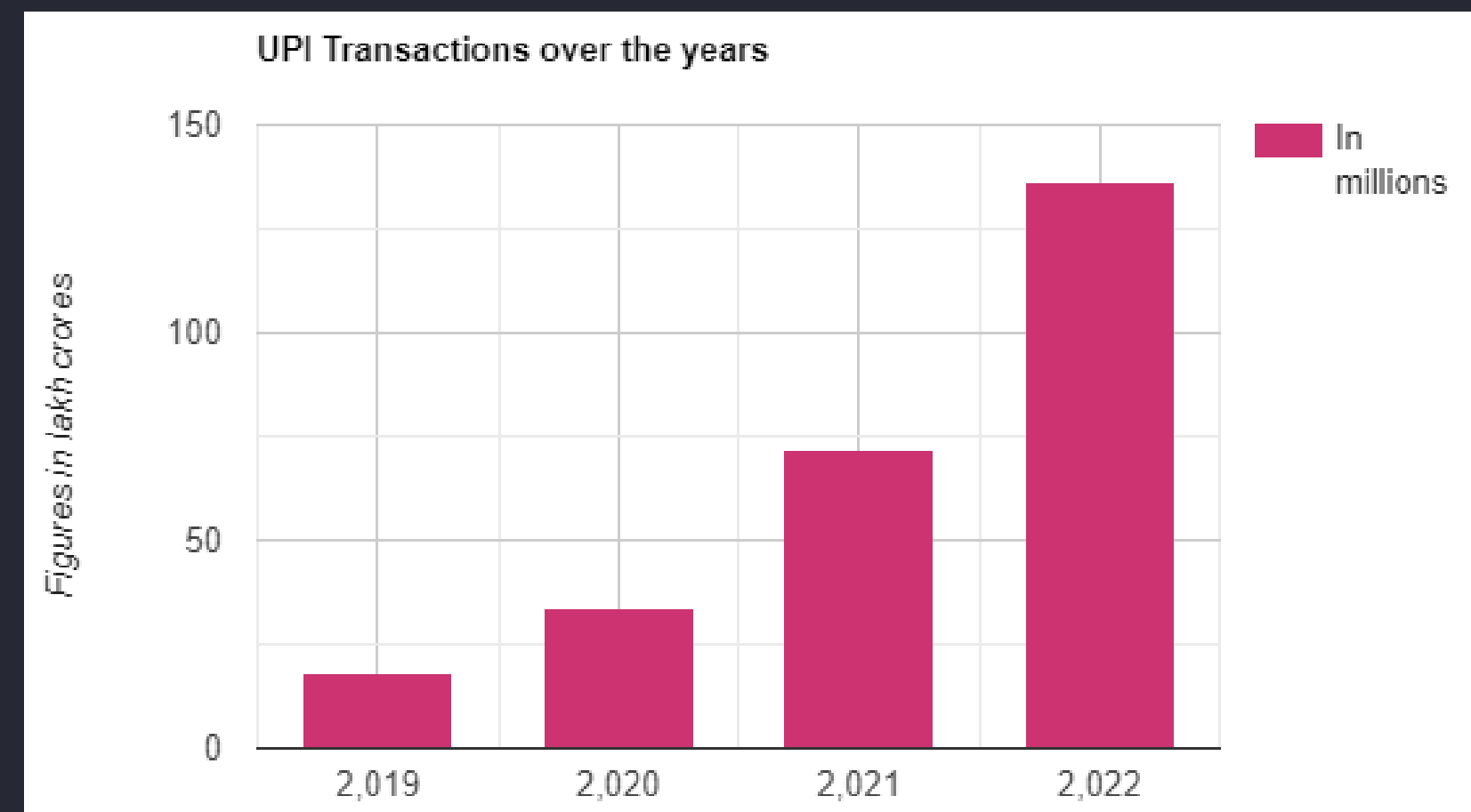
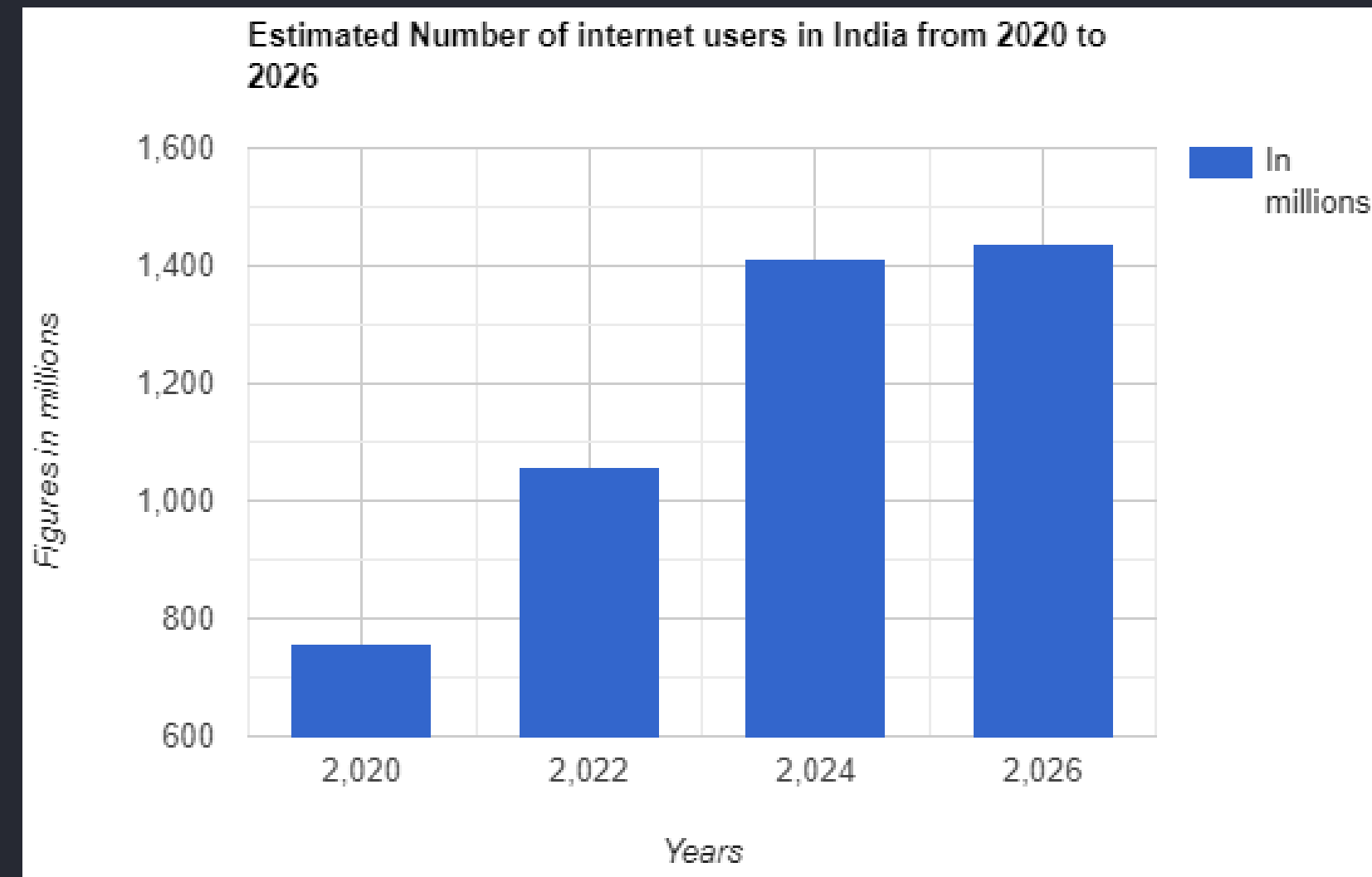
The digital Infrastructure of our country forms an important part of economic growth and social development. With the penetration of Digital Infrastructure across the various parts of our country, much needs to be done to address key issues in terms of accessibility to various services online

In the past decade, although the number of cellular mobile connections has increased drastically, the quality of data connectivity has been insufficient, and the number of “Data Centres” in the country has been low which threatens the Data Security of the country

This research piece focuses on the State of Digital Infrastructure in India and analyses key trends in the Digital Infrastructure Space, also it throws light on various Schemes and Initiatives taken by the government to promote the growth of Digital Infrastructure

State of Digital Infrastructure in India as of today

- Compared to the previous decade, the digital infrastructure has seen explosive growth making India the second-largest internet market globally
- Almost 52% of the population has access to the internet as of 2022, compared to just 4% in 2007
- Initiatives such as UPI (Unified Payment Interface), e-Aadhaar, Digilocker etc have made transacting through the internet hassle-free

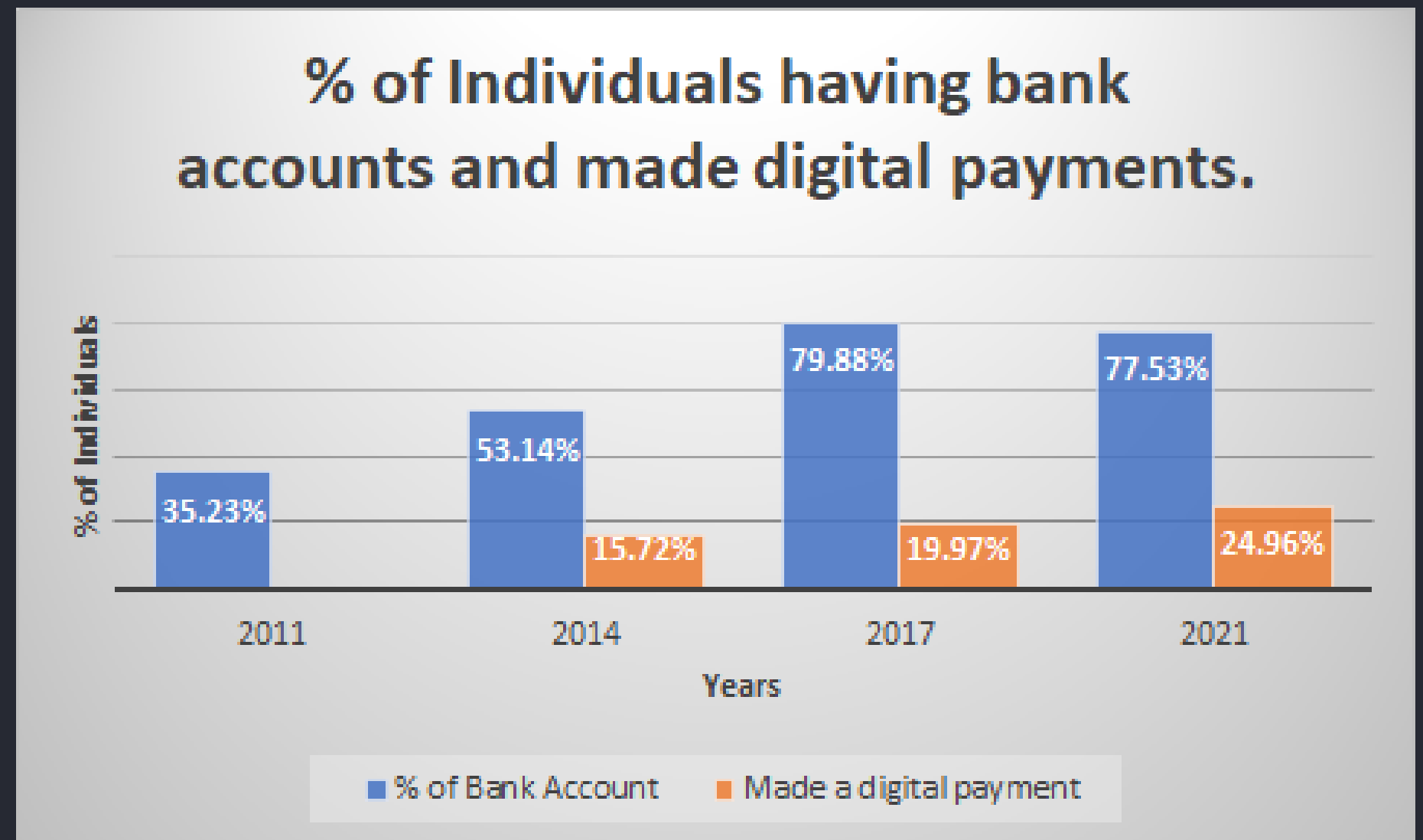


Digital Payment in India

UPI became an efficient payment alternative due to wide smartphone adoption, government initiatives for bank accounts, and cheap data and high internet penetration.

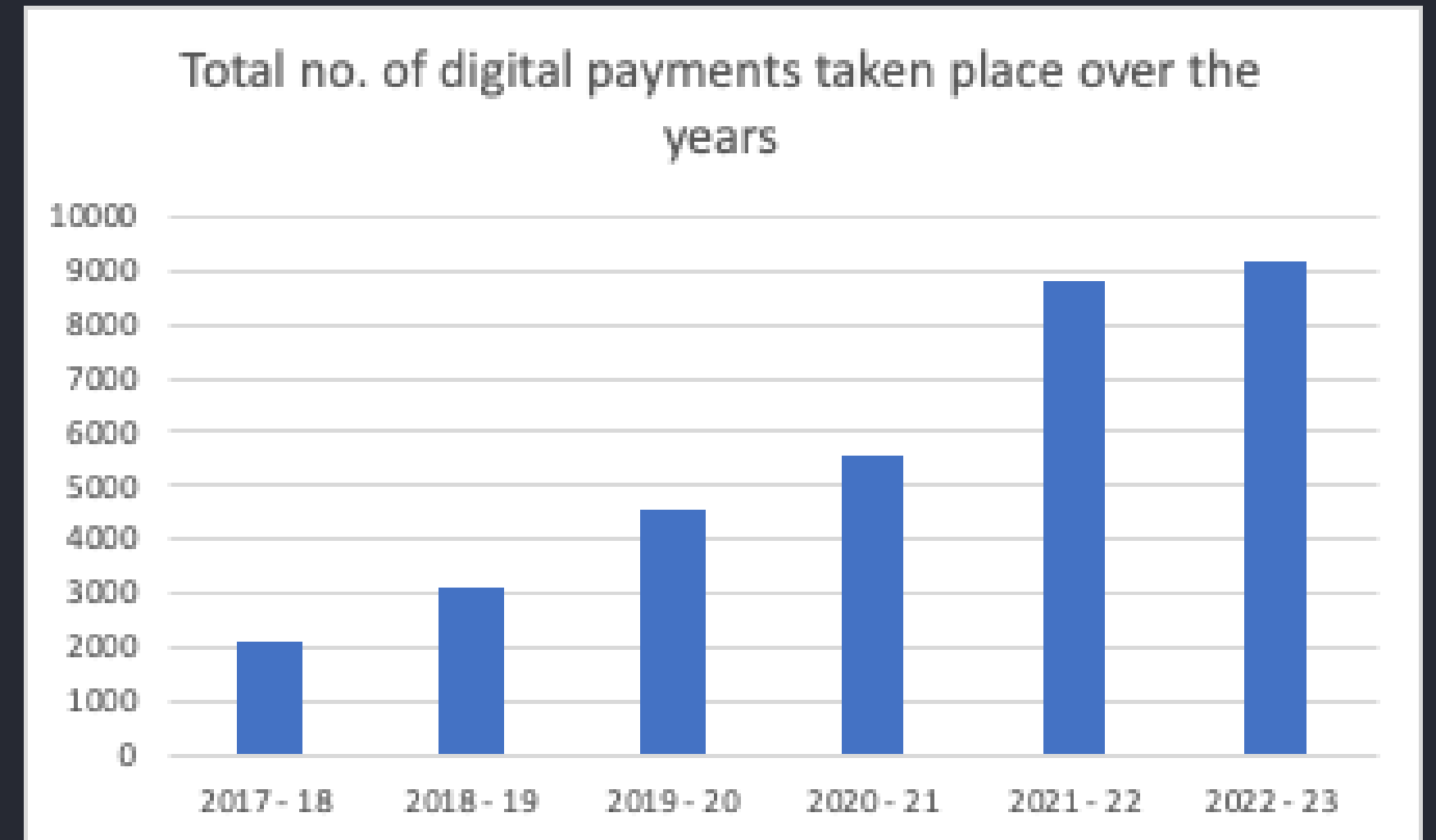
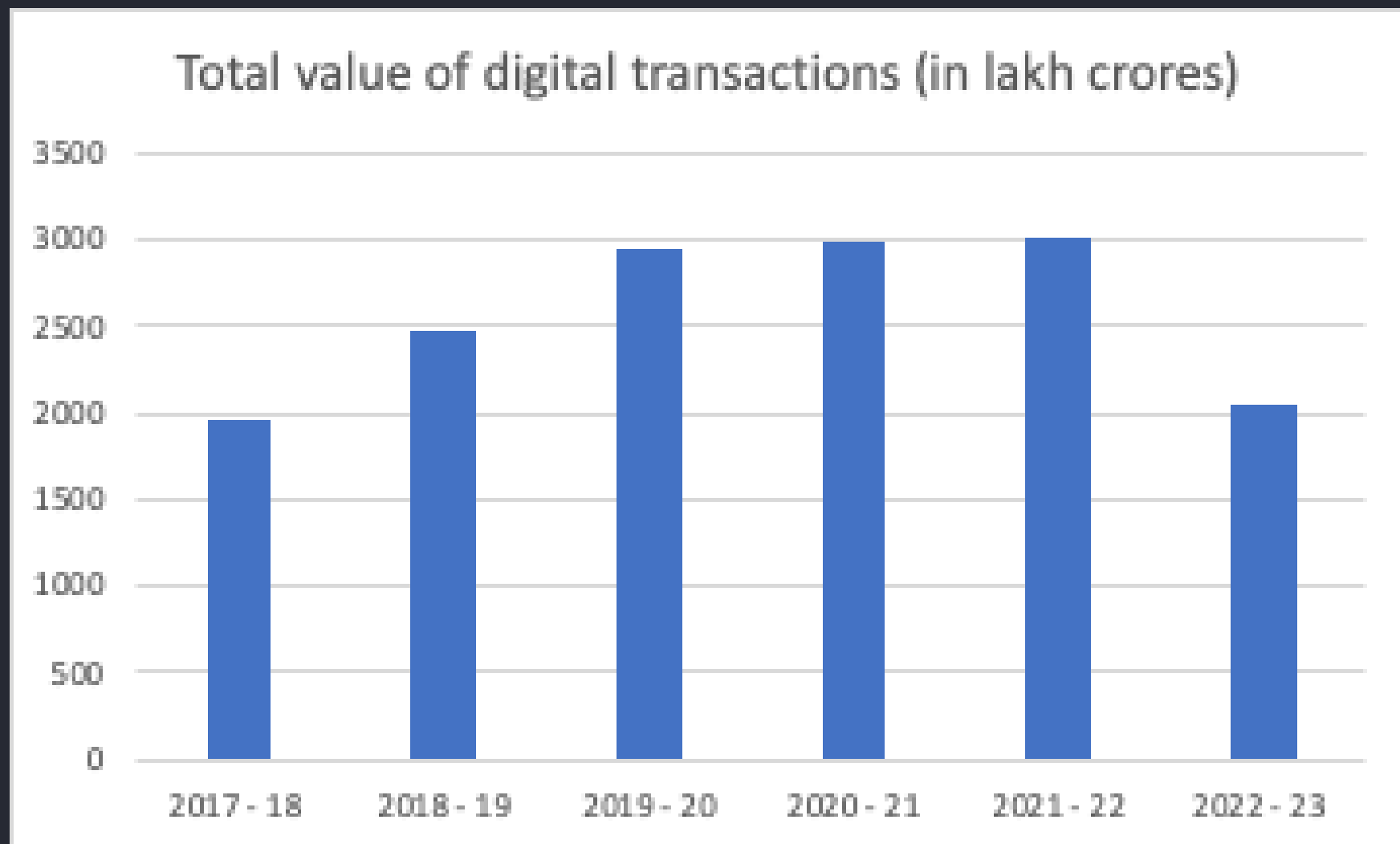
UPI payments resulted in cost savings of \$12.6 billion and added \$16.4 billion to the Indian economy in 2021. It has led to higher financial inclusion across India.

France, UAE & Sri Lanka will accept transactions through UPI. This will help to reduce the cost for migrants to send money back to India and will boost bilateral trade



Digital payments over the years

Over the years there is exponential increase in the total number of digital transactions that have taken place



The total value of digital payments in India has witnessed tremendous growth in recent years, mirroring the country's rapid adoption of digital payment methods.

Cost Structure of UPI

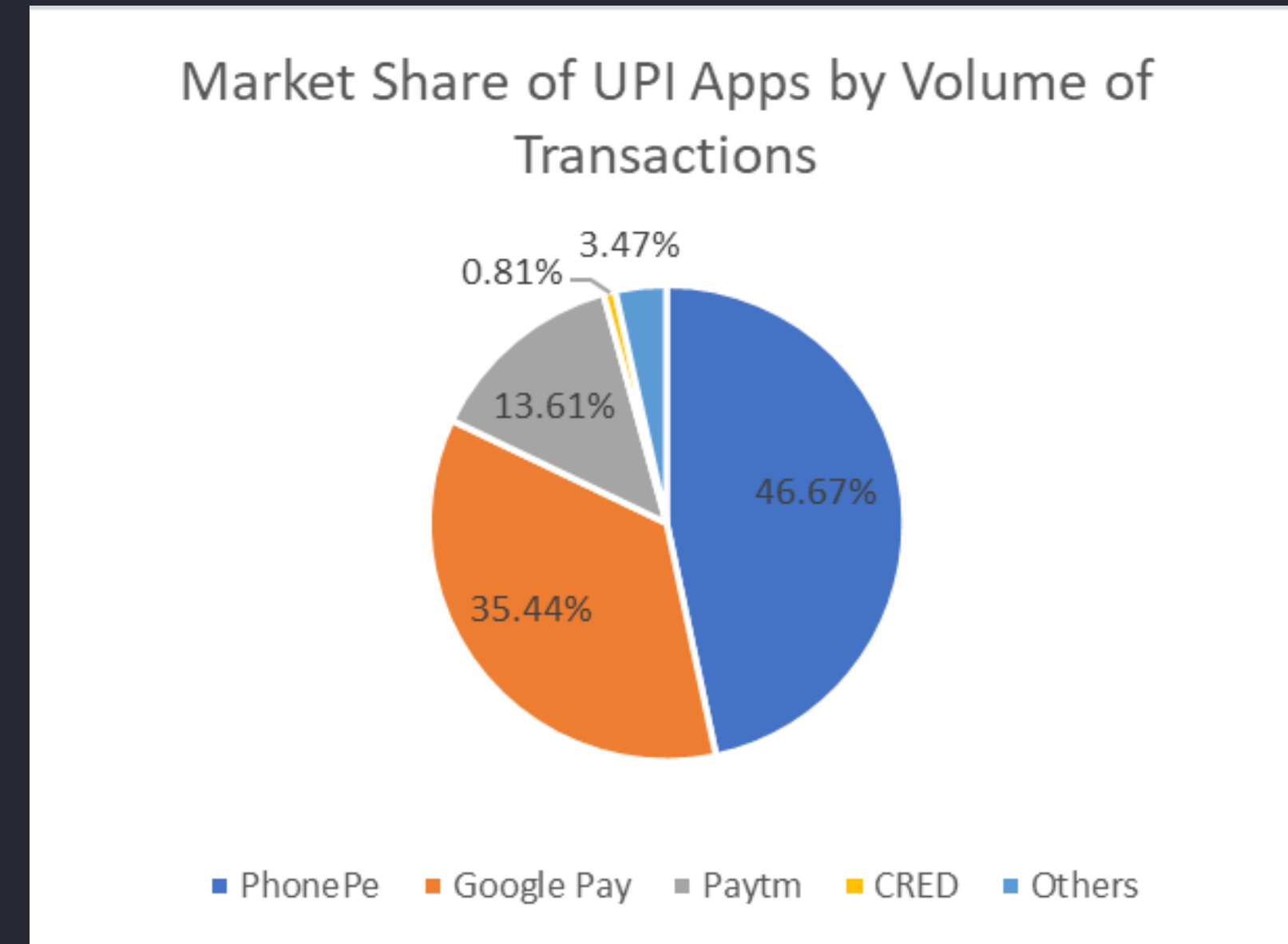
- UPI is owned and operated by the National Payments Corporation of India (NPCI). The RBI and the Indian Banks Association (IBA) formed the NPCI. PSP is a financial institution that supplies end-users with the UPI app. There are multiple banks involved, including HDFC, ICIC, and SBI. TPAPs are companies that develop and sell UPI-enabled applications to end consumers. These include G-pay, Paytm, and Phonepay, among others.
- Mostly transactional costs are associated with digital payments. MDR bears most of the transaction costs, while the revenue earned is split among aggregators, acquirers, networks, issuers, and technology providers. PSPs or banks receive 60-80% of the funds, with the remainder going to others. When MDR is nil, the stakeholders mentioned above bear the entire expense.
- Since 2020, the government has set a zero-MDR (merchant discounting rate) structure for UPI. Merchants are charged no fees by their issuing bank for receiving payments, hence UPI charges are nil for both consumers and merchants, further increasing its market share in comparison to other payment modalities that charge MDR.

Budgetary Allocation & Cost of UPI

- Previously, when announcing zero MDR on UPI in 2020, the finance minister indicated that the RBI and banks would cover the expenses of zero MDR from the savings that would accrue to them as people switch to these digital modes of payment. The government allocates a budget every year to incentivize banks and PSPs to increase their UPI user base. These incentives, however, do not cover the operational costs of banks and PSPs.
- According to NPCI data, the total amount of all UPI transactions in FY 2021-22 was Rs 84 lakh crores. Even if we assume that the overall cost percentage for all UPI transactions is as low as 0.1% of the transaction amount, the total cost will be 8400 crores. In comparison, the allocated Government incentives of Rs 1300 crores for FY 2021-22 are insignificant.
- The Payment Council of India, the leading industry association for digital payment aggregators, revealed in January 2022 that the payments sector estimates a loss of Rs 5,500 crores as a result of zero MDR.

Effect on UPI Payment Apps

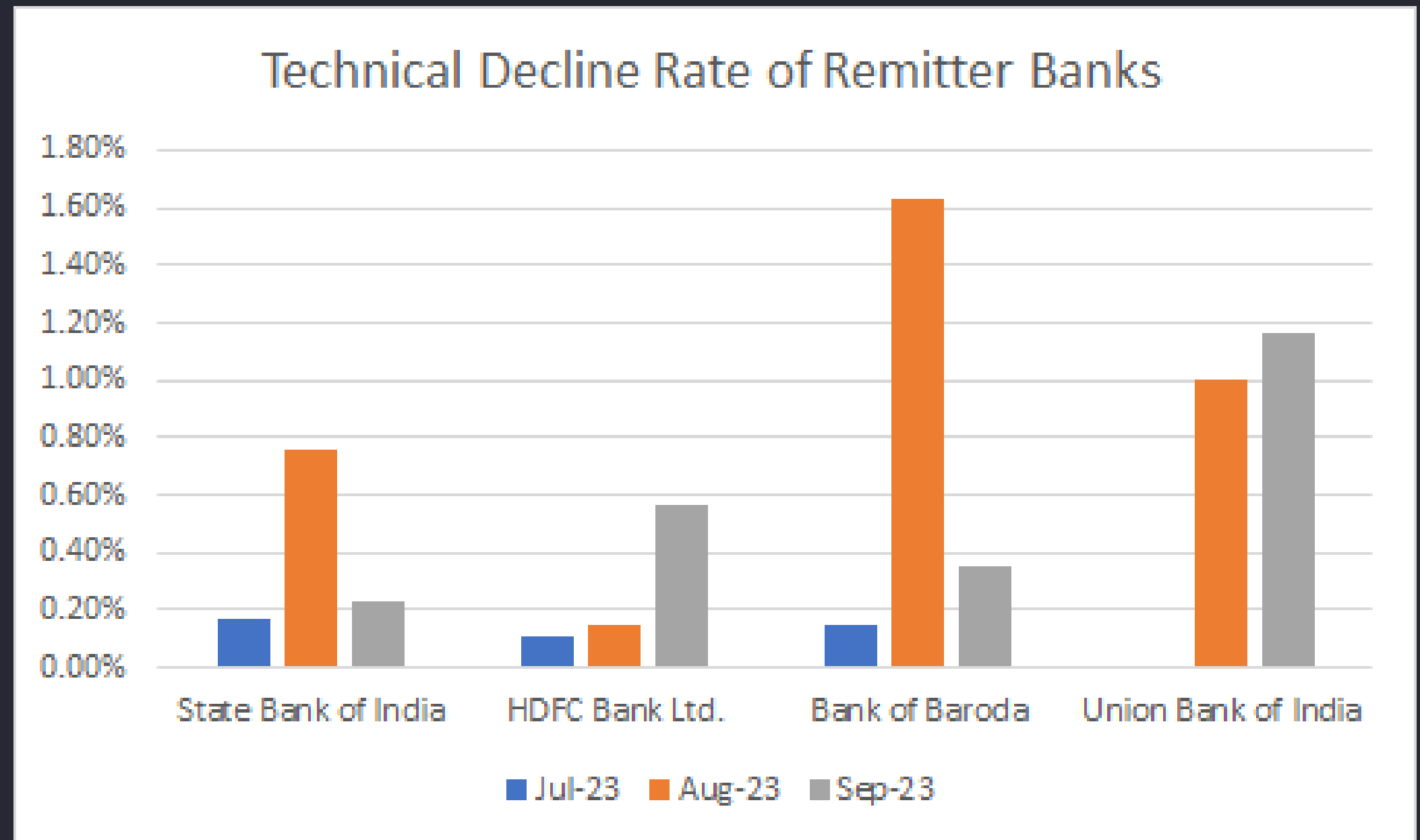
- In its early years, UPI saw widespread adoption among startups. However, the landscape has dramatically shifted with the zero-MDR rate.
- This has led to foreign tech giants such as Google and Walmart's PhonePe gaining control over UPI innovation, while transaction costs burden small startups. These tech giants can provide substantial discounts and cashback without immediate profit concerns, due to their diversified businesses.
- Small startups lack this financial flexibility, and as a result, a significant power shift has occurred, with the tech giants forming a strong lobby while startups struggle on the fringes, seeking ways to survive in this challenging environment.
- The primary payment mechanism of UPI makes it an unsustainable business for startups who lack additional sources of revenue like the big firms, resulting in unequal competition and innovation in the field.



SOURCE: NPCI

Effect on Banks

- In 2022, According to The Payments Council of India (PCI), banks have not been sharing the Rs. 1300 crore subsidy amount with payment aggregators (like Paytm and PhonePe). This lack of cooperation raises concerns, particularly since banks are finding less incentive to invest in UPI.
- This reluctance is attributed to the fact that payment systems currently do not generate sufficient revenue for both banks and payment service providers.
- The issue is further highlighted when examining a chart depicting the transaction decline due to technical reasons among the top 4 performing remitter banks, which are the banks of the account holders sending money.
- The chart reveals a pattern of constant fluctuation, which could pose a significant challenge for users, particularly those who rely on digital payments.



SOURCE: NPCI

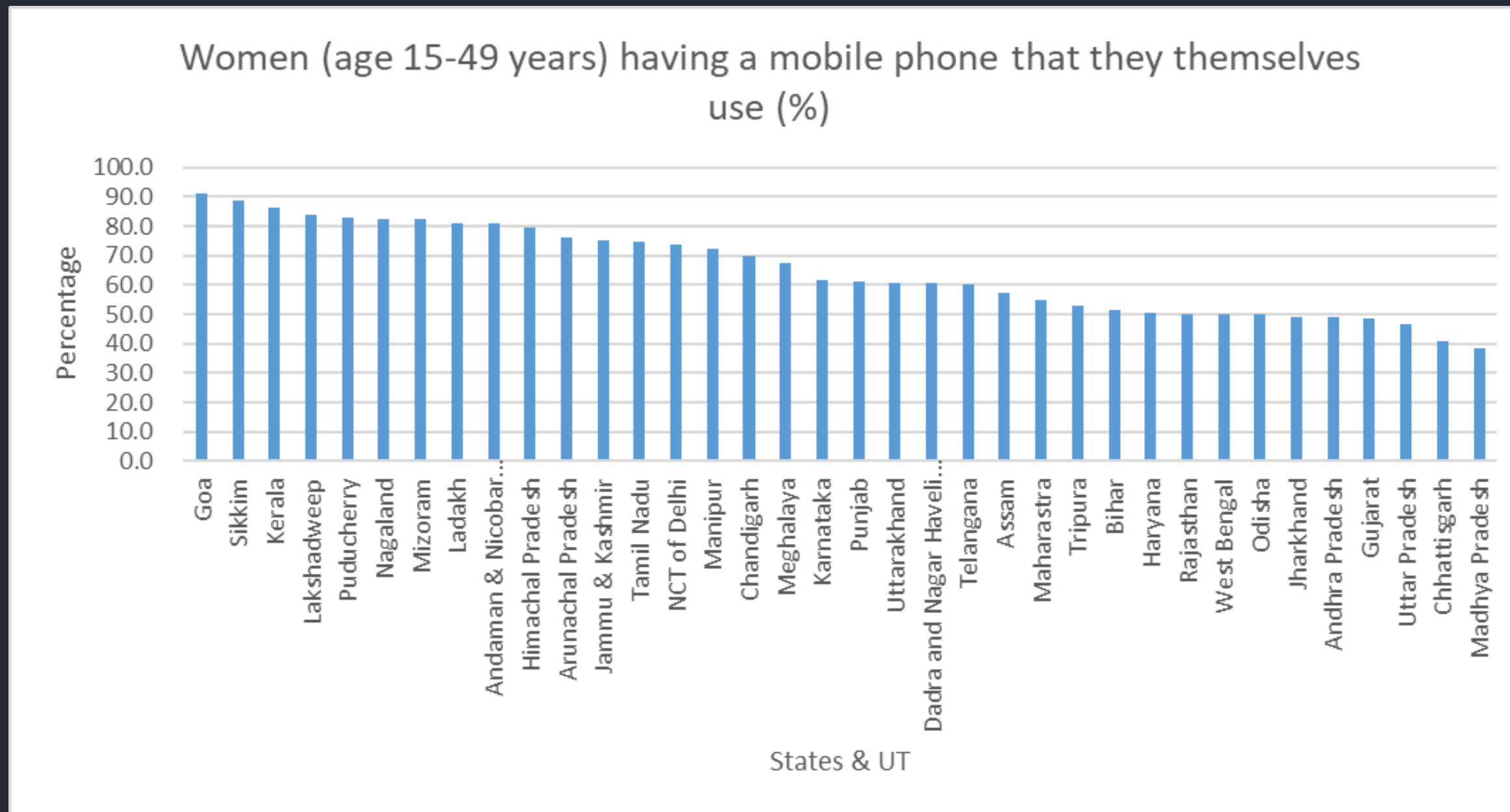
The other point of view

- Although some fin-techs favour this move. BharatPe's President states that *zero MDR has turned on the innovation tap in the fintech field. Profitability on relatively simple goods like UPI payment acceptance is tough (and properly so). As I previously stated, this is counter-productive to fostering widespread acceptance of digital payments. This has prompted fintech firms to consider alternative revenue streams such as commerce, inventory management, or loans. This would enable the economy to reach the next stage of growth, particularly in the SME/MSME sectors.*
- The committee on Deepening Digital Payments constituted by RBI in 2019 under the chairmanship of Shri Nandan Nilekani had recommended that market forces should drive transaction prices (MDR), regulators should let the market compete on MDR for inclusion of small startups and incentivising innovation. Only the interchange rate should be regulated.

Recent Policies

- In the minutes of a meeting between banks and NPCI on February 14, 2020, it was emphasized that despite UPI's early stage of replacing cash, its rapid progress and potential deserve full support from the RBI. The report suggested that, just as RBI accounts for the cost of managing physical cash, it should also account for the expenses related to UPI infrastructure. It underlined that while banks have a role in contributing to the payment system, the government and RBI should also share the cost burden in promoting the country's digital payment system.
- The NPCI recommended an interchange fee of up to 1.1% on UPI transactions above Rs.2,000 carried out with PPIs in March 2023. Interchange fees will be applied on UPI transactions done through PPIs such as wallets. This cost corresponds to the merchant discount rate for credit cards. When a customer conducts a transaction, the merchant must pay transaction fees. The impact will be felt by larger merchants whose customers will conduct online transactions using digital wallets. The retailer may raise their pricing to compensate for the additional costs. However, this will increase revenue. Hopefully, this will increase revenue for payment service providers and banks.

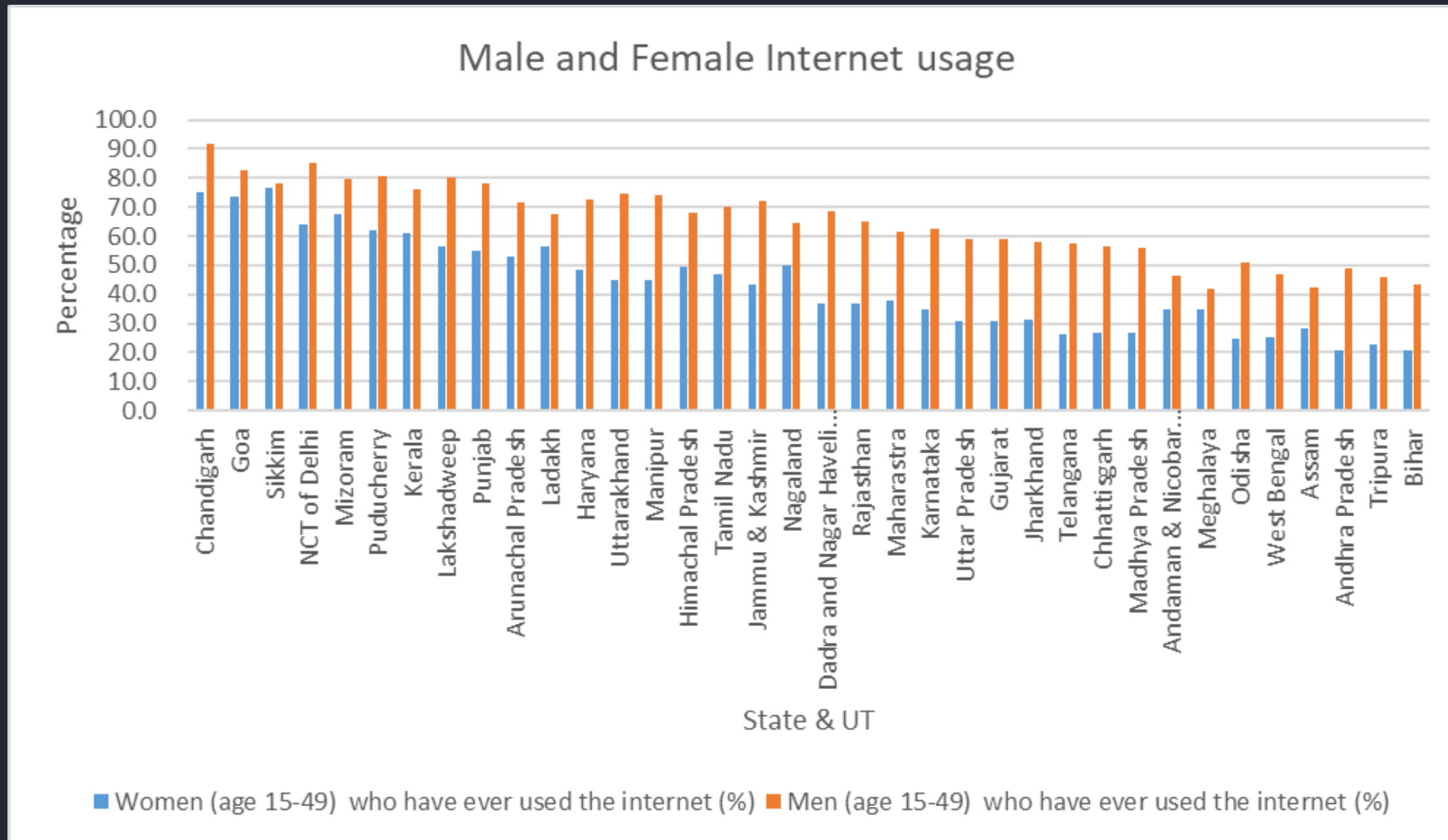
Women (age 15-49 years) having a mobile phone that they themselves use (%)



Goa has the greatest mobile phone usage among women compared to all other states and union territories. This indicates a significant disparity in phone usage among women, which consequently hampers their capacity to utilize digital payment applications.

The National Family Health Survey (NFHS) conducted in 2020 reported that just 25% of the total adult female population in India had a smartphone, compared to 41% of adult men. The survey also indicated that Goa has the greatest number of women who use their own mobile phones, with 91.2% of 2,030 women surveyed in the state reporting that they use their own mobile phones. In contrast, Madhya Pradesh had the lowest percentage of women who use their own mobile phones, with only 38.5% of 48,410 women surveyed in the state reporting the same

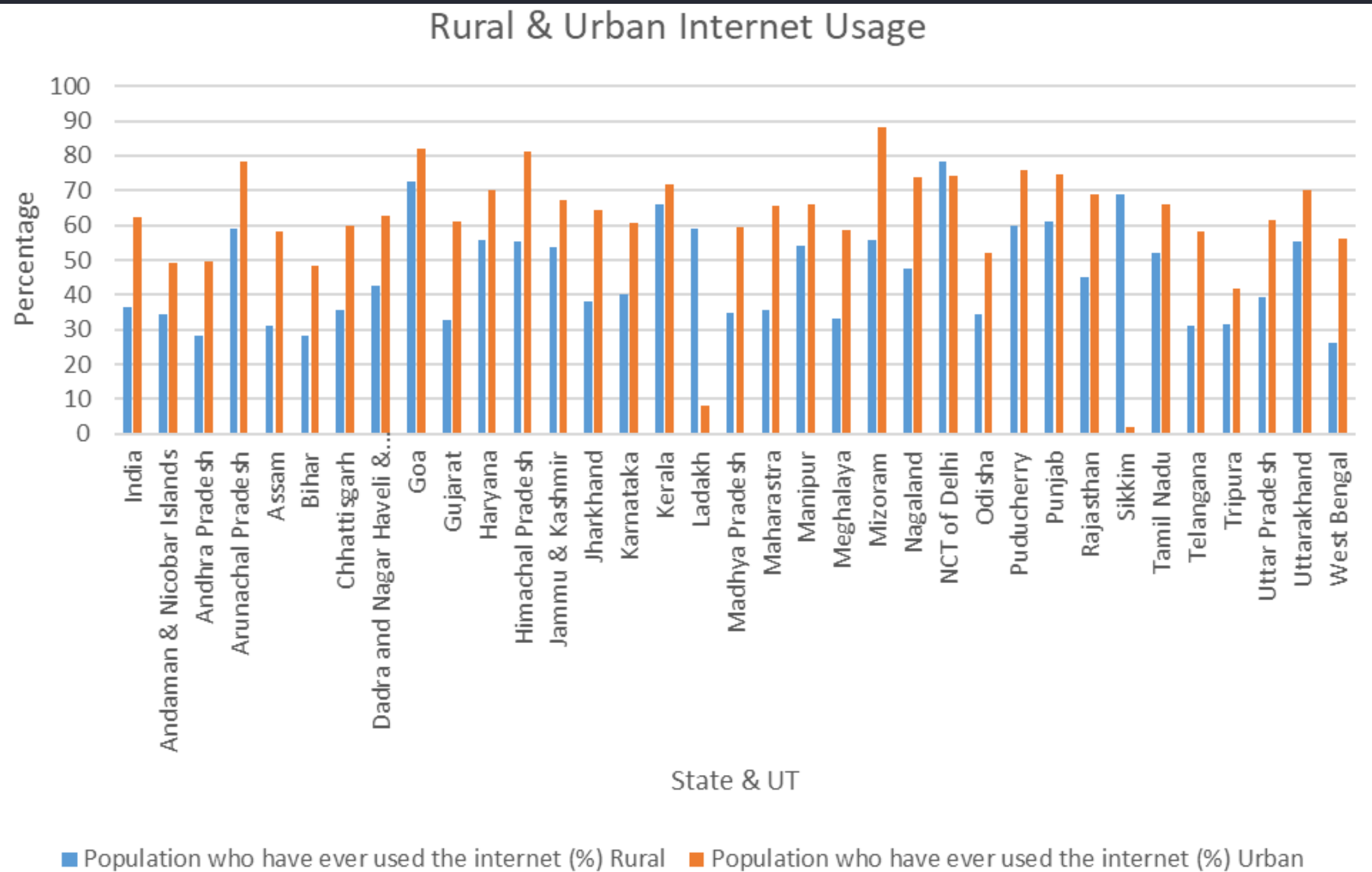
Male and Female Internet usage



- It is evident that there is a distinct disparity in internet usage between men and women across all states. Men have exhibited higher levels of internet usage in comparison to women. This further demonstrates the disparity in the utilization of digital payment applications between women and men.
- The IAMAI-Kantar Report ICUBE 2020 states that 58% of internet users in India are male, while 42% are female. According to the 2020 National Family Health Survey (NFHS), the ownership of smartphones among adult women in India was only 25%, whereas it was 41% among adult men.
- The digital gender disparity in India is a notable concern, as Indian women exhibit a 15% lower likelihood of possessing a mobile phone and a 33% lower likelihood of utilizing mobile internet services compared to men¹. This difference is worsened by the fact that women's availability of mobile phones differs greatly across various states and union territories.

SOURCE: NFHS FACTSHEET

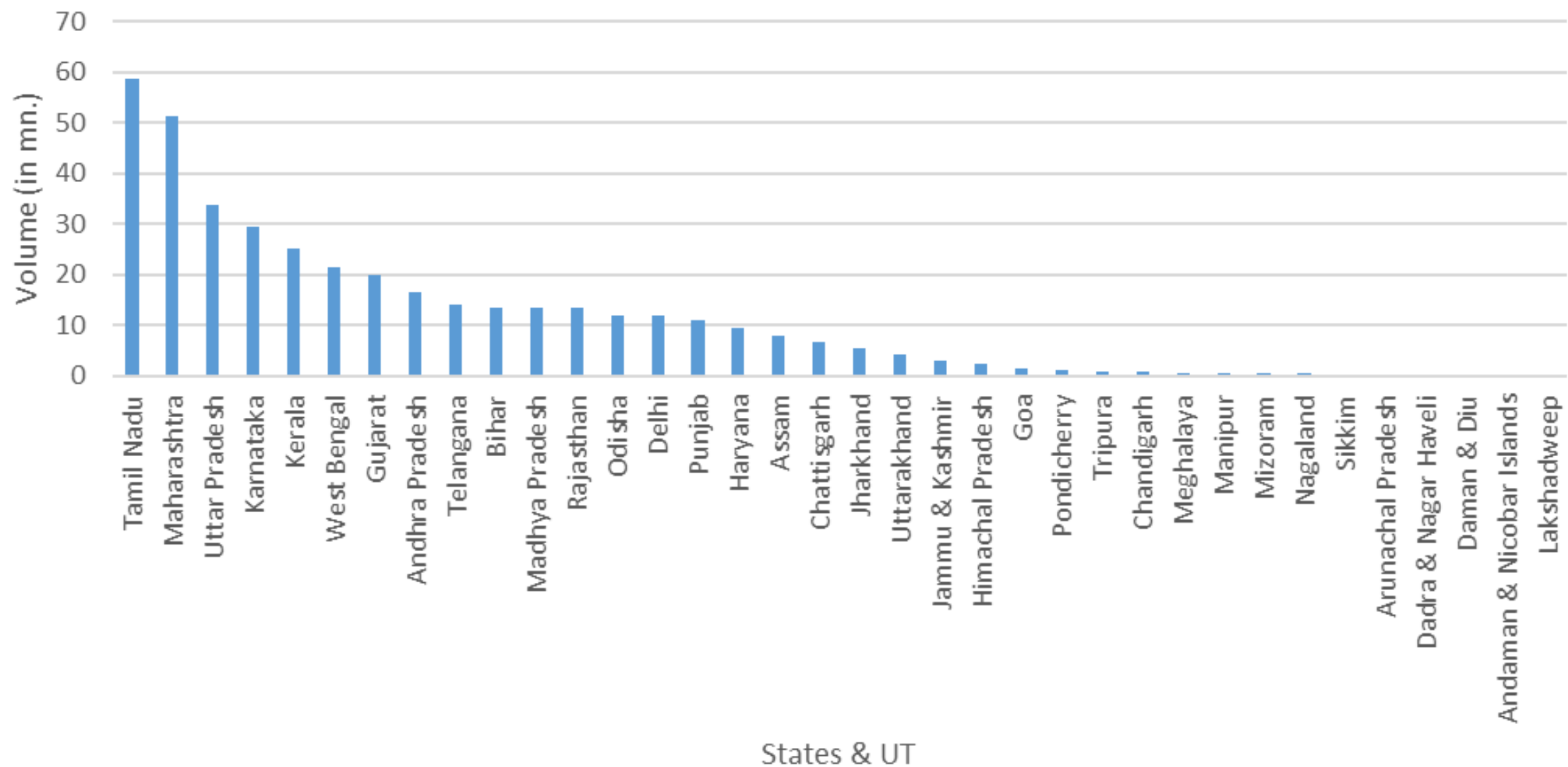
Rural and Urban Internet Usage



- We can see that there is a clear urban-rural divide in the country. The state of Kerala and Delhi has an even distribution in rural and urban internet usage.
- Based on a study carried out by the National Sample Survey from 1983 to 2005, there was a notable reduction in the disparities in educational achievement, occupational distribution, and earnings between people living in rural areas of India and those residing in urban areas. Nevertheless, the distinction between rural and urban areas remains prominent in India, with the rural population outnumbering the urban population.
- Kerala and Delhi exhibit a more equitable distribution of internet usage between rural and urban areas in comparison to other states in India. Based on the 2019-2020 National Family Health Survey

National Financial Switch usage

Total NFS App. Volume (in mn.)



- Here we see that states with better access to internet has more usage of digital financial services. Tamil Nadu and Maharashtra are the front runners in the usage of digital financial services.
- States that have improved internet accessibility typically exhibit greater utilization of digital financial services. As per a report published by the National Payments Corporation of India, Maharashtra, Tamil Nadu, and Karnataka emerged as the leading states in terms of Unified Payments Interface (UPI) transactions during the first quarter of 2022.

Key highlights of 2021 - 22 budget related to digital payments

In the year 2021 - 22 the Government allocated INR 1,500 crore towards the Ministry of Electronics and Information Technology (MeitY) for the promotion of digital payments

Allocation of INR 1300 crores

the funds were allocated for various financial incentive schemes for acquiring banks to promote RuPay debit cards and low-value Bharat Interface for Money-United Payments Interface (BHIM-UPI) transactions (up to INR 2,000), which provided a boost to the acquiring segment of the payments business, in terms of promoting the homegrown payments products like RuPay and BHIM UPI

Allocation of INR 200 crores

the remaining funds were spent on promotion of digital payments for unorganised sectors including street vendors, sector-specific schemes, contactless payment solutions and digital payment solutions using feature phones and in conducting awareness campaigns and capacity building to increase the penetration of digital payments in the market

Key highlights of 2022 - 23 budget related to digital payments

In the year 2022 - 23 the Government allocated INR 1,500 crore towards schemes for the promotion of digital payments

The funds were utilized for further developing digital payment infrastructure and promoting innovations in tier II and III cities that have witnessed significant growth in the past couple of years. Some part of it was set side for the Payments Infrastructure Development Fund (PIDF) operationalised in 2021. The funds were also utilized for reimbursement for UPI/RuPay to make good the zero MDR policy.

Key highlights of 2023 - 24 budget related to digital payments

In the year 2023 - 24 the Government allocated INR 1,500 crore towards the Ministry of Electronics and Information Technology (MeitY) for the promotion of digital payments

Digital payments industry seeks ₹8,000 crore to offset losses and MDR

The digital payments industry has been asking the finance ministry for an overall corpus of Rs 8,000 crore, which includes Rs 6,000 crore for UPI and Rs 2,000 crore for RuPay debit card transactions to cover the loss, and offset of merchant discount rate (MDR) to merchants.

Utilization of funds

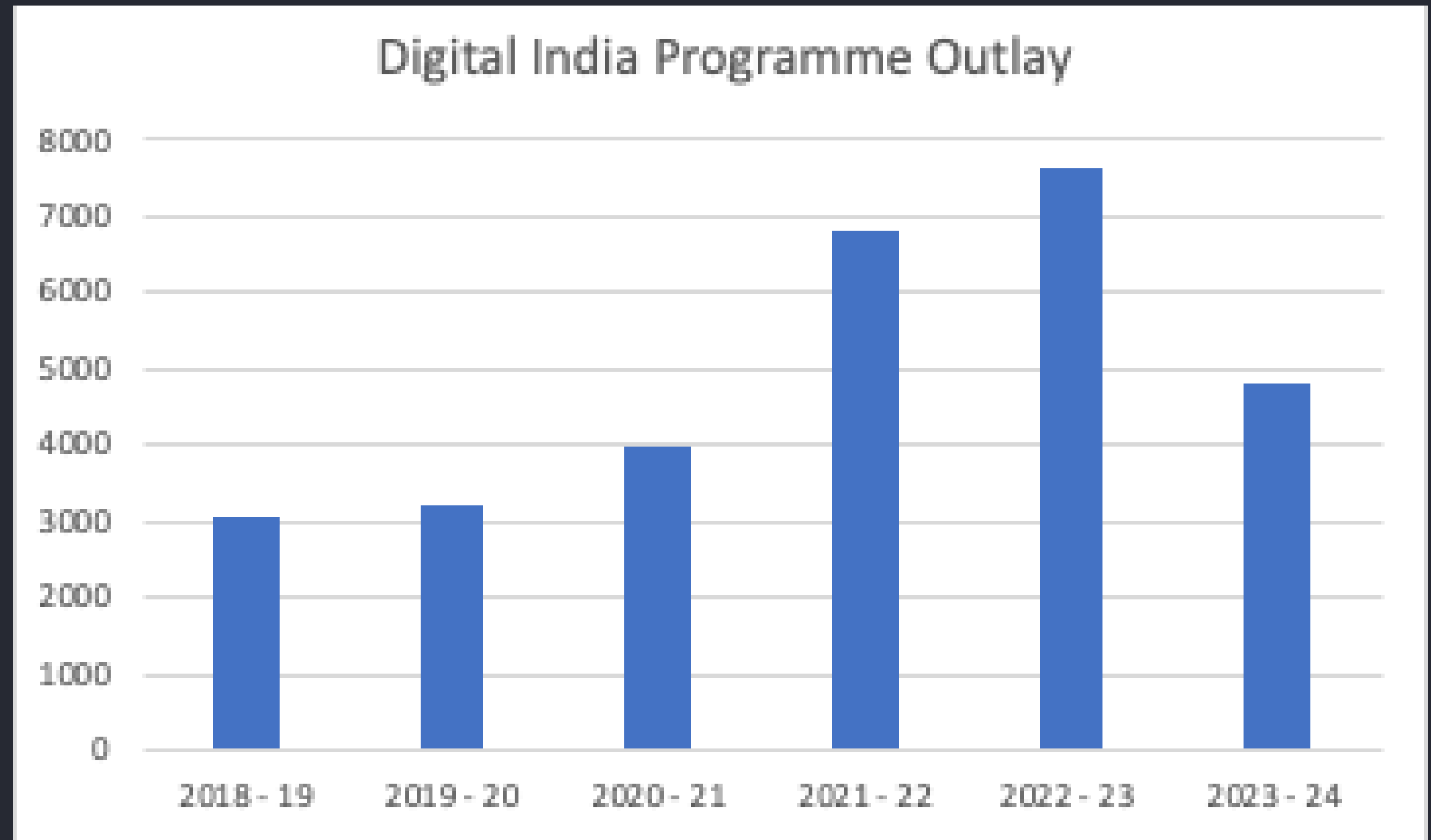
The budget shall be allocated for the expansion of the scope of documents available in DigiLocker for fintechs as well as a push to make the know-you-customer (KYC) ecosystem more amenable to digitisation.

Digital India Programme

- Digital India is a flagship program of government of India with a vision to transform India into digitally empowered society and knowledge economy
- The programme was launched on July 1, 2015 with a vision to establish a robust and inclusive digital infrastructure.
- Digital India is a major contributor to the economy with the digital economy's contribution to India's GDP has increased from 4-4.5% of the GDP in 2014 to 11% in 2023

Digital India Programme outlay over the years

- The government announced an outlay of Rs 4,795.24 crore for the Digital India Programme as part of the Budget 2023-24 which was a 37 percent decrease from last year's actual outlay of Rs 7,603.5 crore
- Last year, MeitY had received around Rs 10,676.18 crore for Digital India in the Budget, a 67.13 percent jump from Rs 6,388 crores the previous financial year. This was eventually revised to Rs 6,703.5 crore.



Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA)

- The Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA) is a government initiative launched under the Digital India program. This scheme aims to promote digital literacy in rural areas with a target to make 6 crore people digitally literate, which is 40% of rural households by covering 1 member from every household
- The training provided is free of cost and the participants are introduced to topics relating to digital services, its usage, internet, operating cashless transactions, digilocker and other citizen centric services.
- PMGDISHA is a significant step in India's efforts to equip rural citizen with digital skills and promote digital literacy and expand the reach of digital technologies to rural areas

Progress of PMGDISHA

- So far around 6.69 million have registered and 4.3 million have been certified which is far from the Govt's target of 60 million digitally literate people.
- The hierarchy of high registration rate to low certification rate is prevalent in every state/UT, However PMGDISHA has performed well in UP with a high registration, training and certification rate compared to other states.



The potential advancements and features to expect in UPI in the coming years

UPI could harness voice recognition technology to simplify transaction processes. Users would only need to verbally communicate their payment instructions, and UPI would handle the transaction seamlessly. This will enhance accessibility, thereby extending the reach of digital payment solutions.

UPI has the potential to incorporate blockchain technology. Integrating blockchain into UPI could bring advantages like data immutability, instantaneous transaction validation, and heightened privacy.

The increasing global recognition and adoption of UPI could pave the way for future developments in cross-border remittances. The introduction of international remittances via UPI has the potential to simplify the procedure, lower expenses, and present a more efficient option compared to conventional methods such as wire transfers.

Future Prospects

Based on industry projections, India's consumer digital economy is anticipated to reach a market size of around US\$800 billion by the year 2030, representing a substantial tenfold increase from its 2020 figures. This remarkable growth is being fueled by the swift expansion of internet access and the rising prevalence of smartphones, both of which are catalysts for the increasing popularity of online activities, including e-commerce and digital payments.

According Goldman Sachs, the future valuation of digital marketing in the Indian internet business is projected to reach US\$160 billion by 2025, marking a threefold increase from its present value.

According to EY, E-commerce is expected to capture 11.4% of total Indian retail market by 2026.



For any inputs, suggestions or clarifications, please contact us at cnesinfosphere@gmail.com



Thank you!