

# Can India get to 25 billion retail digital transactions in 2017–18?

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## ABSTRACT

The government of India has set a target of 25 billion retail digital transactions for the year 2017–18 and is pushing all agencies to work towards this goal. This is an ambitious goal when one considers that India had only 9.6 billion retail digital transactions in the year 2016–17. This paper examines the last 10 years of payment system data to establish trends and identify when India is likely to reach this target of 25 billion retail digital transactions. It also examines where India stands on the Rogers diffusion innovation curve with regard to the adoption of digital payments. Drawing on statistics from the Committee on Payments and Market Infrastructures, the paper discusses aspects that support the adoption of digital payments. It then proposes strategies for how India could meet the government's goal more quickly, including pricing decisions, reducing taxation, widening access

and tapping specific market segments. While this paper focuses on India, the strategies are applicable to any developing country interested in strengthening digital payments.

**Keywords:** digital payments, India, retail payments, Immediate Payment System, national automated clearing house, digital ID (AADHAAR) based payments, CPMI statistics



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## INTRODUCTION

The government of India has set a target of 25 billion retail digital transactions for the year 2017–18<sup>1</sup> and is pushing all agencies to work towards this goal. This goal is certainly ambitious, given that for the year 2016–17, India had just 9.6 billion retail digital transactions. By considering payment system data from the last ten years (ie from 2006–2007 to 2016–17), this paper identifies trends in order to project where India's retail digital transactions are headed. It then proposes a few key strategies that could help the country reach the government's target.

The total retail digital payments was calculated by adding retail electronic clearing services (ECS), comprising both debit and credit transactions, national electronic funds transfer (NEFT) and the Immediate Payment System (IMPS); credit card transactions at POS/e-commerce; debit card transactions at POS/e-commerce; pre-paid instrument transactions (ie digital wallet transactions); and

**Table 1: Volume of retail digital payment instruments from 2007–08 to 2016–17, with projections for the next three years**

Sl. No.	Year	EFT/NEFT volume (million)	Immediate payment service volume (million)	Credit card at POS volume (million)	Debit card at POS volume (million)	Prepaid payment instruments volume (million)	ECS + NACH volume (million)	Total retail digital volume (million)
1	2007–08	73.26	0.00	228.21	155.49	0.00	231.05	688.01
2	2008–09	32.17	0.00	259.58	127.65	0.00	248.46	667.86
3	2009–10	66.34	0.00	234.25	170.17	0.00	247.43	718.19
4	2010–11	132.33	0.00	265.16	237.06	0.00	274.05	908.60
5	2011–12	226.10	0.09	319.96	327.52	30.60	286.24	1,190.51
6	2012–13	394.13	1.23	396.72	466.86	66.94	298.71	1,624.59
7	2013–14	661.01	15.36	509.08	619.08	133.63	431.95	2,370.11
8	2014–15	927.55	78.37	615.12	808.09	314.46	681.53	3,425.13
9	2015–16	1,252.88	220.81	785.67	1,173.61	748.02	1,667.84	5,848.83
10	2016–17	1,622.10	506.73	1,085.75	2,399.30	1,963.66	2,032.96	9,610.49
Projections for the next three years (based on trend-line equations)								
11	2017–18	2,054.40	959.06	1,383.01	3,378.05	3,933.45	3,194.85	13,950.49
12	2018–19	2,529.79	1,626.43	1,771.97	4,876.90	6,994.99	4,562.76	19,875.73
13	2019–20	3,052.92	2,549.00	2,242.58	6,792.12	11,363.16	6,291.23	27,365.66

EFT/NEFT, National Electronic Funds Transfer System; POS, point of sale; ECS, electronic clearing services; NACH, national automated clearing house.

The key assumptions and notes are:

1. Data source is Reserve Bank of India website. Readers are encouraged to verify the data and analysis before coming to their own conclusions and then take actions.
2. Mobile banking transactions were not considered because this may result in duplication, as the payment transactions initiated through mobile would already have been counted in the above transactions. Cheques and cash withdrawals are also not included as they are not digital.
3. Please note that the sum of forecasted individual items does not match with total retail digital predictions because the equations are different for different items and total retail digital.

national automated clearing house (NACH) transactions for direct debits and direct credits, for which a breakdown is available from the Reserve Bank of India (RBI).<sup>2</sup> Details were also taken from the statistics provided on the National Payments Corporation of India (NPCI) website.<sup>3</sup> Having consolidated the individual instrument details, the total retail digital payment transactions for India was calculated for the last ten financial years (Table 1). Various trend line options were then examined to identify the trend line of best fit in order to predict the transaction volume for the next three years.

Linear, exponential, logarithmic, polynomial of second order and third order, power and moving average trend lines were all considered. The trend line that best fits the data set is

the polynomial third-order trend (with best R-square of 0.99494) — see Figure 1.

## AGGREGATE RETAIL DIGITAL TRANSACTION ANALYSIS

### Trend for total retail digital transactions

Figure 1 presents the total retail digital transactions for the last ten years and a projection for the next three years informed by polynomial degree of third order. The trend line indicates that for 2017–18, India will probably achieve about 13.95 billion transactions — considerably lower than the target of 25 billion transactions. Figure 2 provides the details for individual payment instruments and their projections.

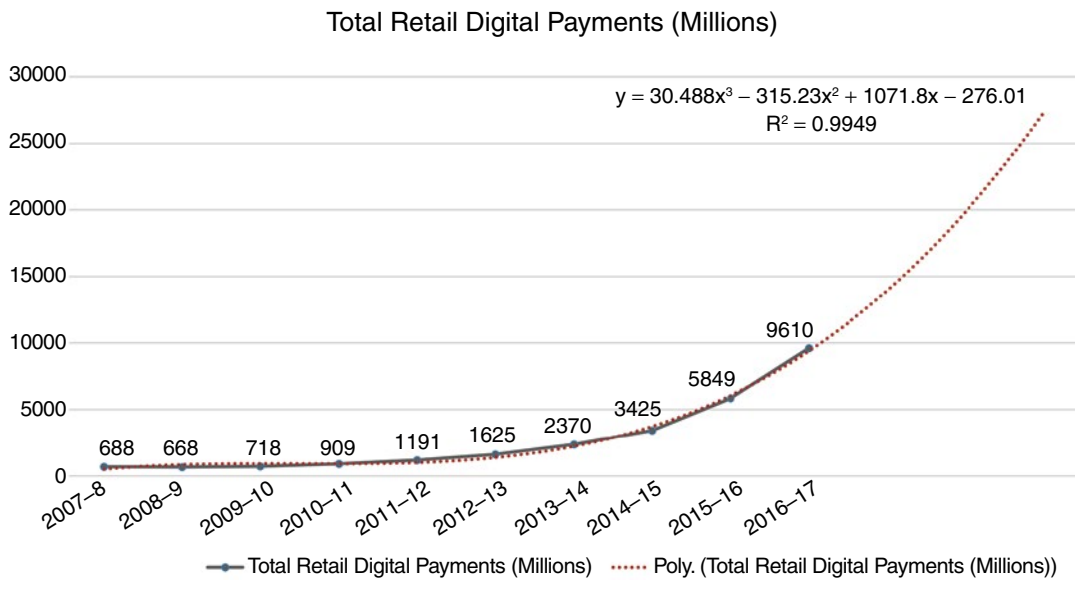


Figure 1: Total retail digital payments for the last ten years, with projections

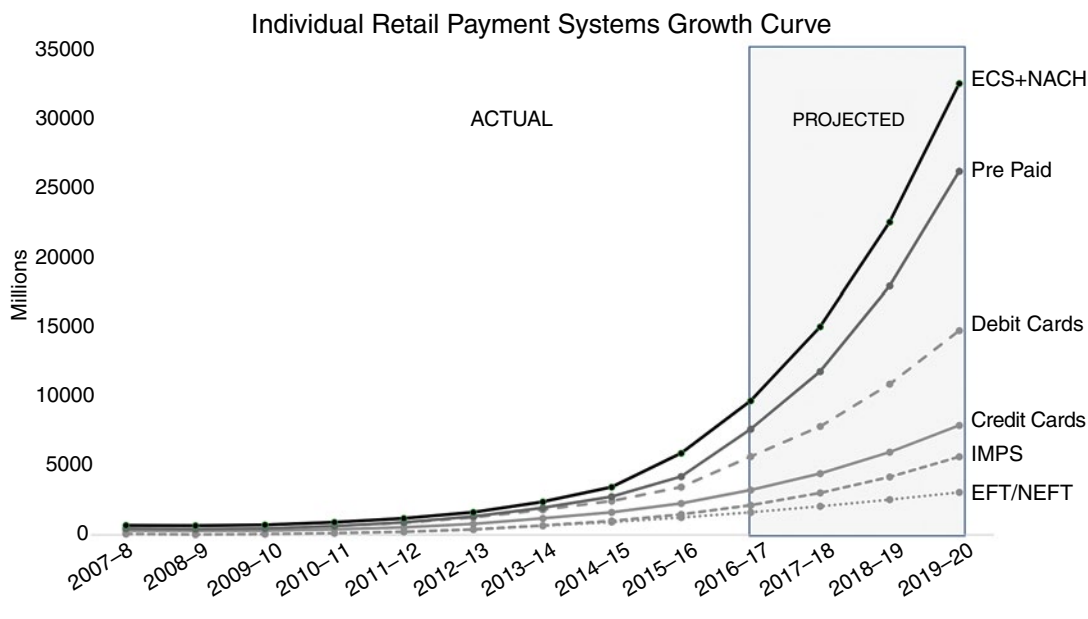


Figure 2: Individual retail digital payments for the last ten years, with projections

**High-level conclusions**

The following conclusions can be drawn from this analysis:

- At the present rate, India will only meet the target of 25 billion retail digital transactions by 2019–20.
- Pre-paid instruments, debit cards at POS and the NACH are the three most promising areas where India should focus to increase

retail digital transactions. While the NACH is a direct debit/direct credit transfer system, pre-paid instruments and debit cards used at POS and for e-commerce are actually used for purchase transactions.

- The growth of retail digital payments has accelerated since 2012–13. There are several reasons for this, most notably:
  - The creation of an umbrella organisation to promote retail digital payments. The NPCI,

formed in 2009, had several very useful and stable products by 2012–13, including the IMPS; NACH system direct debits and credits; the Aadhaar-based credit transfer system; and RuPay, the domestic card scheme which now has around 400 million debit cards in use in India.

- *Licensing pre-paid issuers (PPIs) and giving them access to national payment systems.* PPIs issue digital wallets and can also connect to IMPS to send and receive money from the banking system for open-loop pre-paid accounts.
- *Demonetisation of high-value notes.* By demonetising INR 500 and INR 1,000 notes in November 2016, the government of India stoked demand for digital payments.
- *Incentives to adopt digital payments.* Prime Minister Jan Dhan Yojna's financial inclusion programme opened over 300 million

accounts and provided all families with access to bank accounts and digital transactions, as well as a direct benefit transfer programme using NACH and incentives for digital payments.

### ADOPTION LEVELS IN INDIA VERSUS OTHER BRICS COUNTRIES

The CPMI statistics<sup>4</sup> on payment systems for 2015 provide interesting insights (Table 2). For the year 2015, India's annual per capita digital transaction level was 11 — the lowest among all countries for which data are available. Even among BRICS nations (ie Brazil, Russia, India, China and South Africa), this is the lowest, with the next highest being China at 26. Indeed, at the same time as India moved up from nine transactions in 2014 to 11 in 2015, China moved up from 17 to 26. The statistics for 2016 may be better

**Table 2: CPMI 2015 data for comparison**

	<i>GDP per capita (US\$) 2014</i>	<i>2015</i>	<i>No. transactions per inhabitant 2014</i>	<i>2015</i>	<i>Cards with a payment function 2014</i>	<i>2015</i>	<i>POS terminals ('000s) 2014</i>	<i>2015</i>
Australia	61,189	51,003	385	417	64.70	66.60	843.6	956.2
Belgium	47,648	40,379	309	290	20.15	7.26	183.2	185.3
Brazil	11,911	8,649	135	142	474.28	482.58	5,036.4	5,160.9
Canada	51,014	43,493	325	335	101.58	96.87	879.0	1,301.4
China	7,575	7,904	17	26	4,935.72	5442.31	15,935.2	22,821.0
France	42,986	36,432	287	298	81.04	77.41	1,604.5	1,476.7
Germany	47,889	41,169	223	240	135.44	138.85	1,034.6	998.8
Hong Kong SAR	40,076	42,214	nav	Nav	18.51	19.04	nav	Nav
India	1,615	1,650	9	11	575.03	686.57	1,126.7	1,385.7
Italy	35,555	30,130	79	87	73.64	77.15	1,847.5	1,979.4
Japan	38,200	34,472	nav	Nav	677.90	nav	nav	Nav
Korea	27,982	27,214	375	417	246.37	252.32	nav	Nav
Mexico	10,906	9,506	29	32	163.19	171.34	765.2	864.7
Netherlands	52,138	44,296	383	398	31.52	31.96	398.5	444.9
Russia	14,274	9,098	88	106	227.67	243.91	1,288.7	1,489.8
Saudi Arabia	24,499	20,828	70	79	20.55	22.46	138.8	225.4
Singapore	56,009	52,890	710	728	20.32	19.73	143.7	172.1
South Africa	6,566	5,801	64	70	nav	nav	393.9	394.3
Sweden	59,120	50,320	402	427	22.10	21.01	197.0	183.8
Switzerland	85,871	80,950	220	244	15.82	16.25	243.2	250.6
Turkey	10,283	9,117	48	53	162.52	170.60	2,191.4	2,158.3
UK	46,452	43,878	329	355	154.74	157.78	1,701.9	1,958.4
USA	54,635	56,116	403	421	1,246.70	1,305.40	nav	Nav
CPMI	14,980	14,078	84	93	9,469.49	9,507.39	35,952.9	44,407.8

CPMI, Committee on Payments and Market Infrastructures

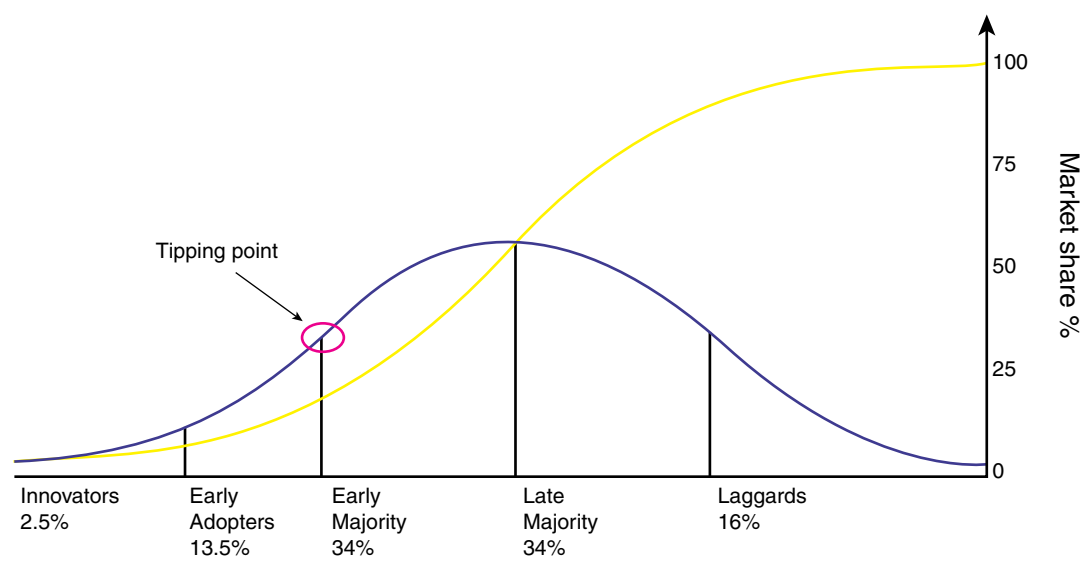


Figure 3: The Rogers innovation diffusion model

following the surge in digital transactions due to the demonetisation of large-value bank notes; nonetheless, it will still remain the lowest among these countries as other countries have enjoyed a better growth rate.

### India's position in terms of adoption: The Rogers diffusion of innovation model

While digital transactions in India have grown significantly from the levels of 2007–08, a good way to see the status of digital payment adoption in India is to use the Rogers diffusion of innovation model<sup>5</sup> (Figure 3). Rogers provides a simple framework by classifying the members of a social system into five categories that reflect their innovativeness or predisposition to adopt a new technology. The first two of the five are known as innovators and early adopters; the remainder are the early majority, late majority and laggards.

Before adopting this model to see India's position in terms of digital payments adoption, it is important to know the maximum possible transactions in a foreseeable period. One way to calculate this is to look at the mean number of transactions per inhabitant for the countries for which CPMI data are

available: for 2015, this was 93 transactions per inhabitant. This figure is arguably problematic, however, as it comprises both well developed and developing countries. Another approach is to look at the mean number of transactions in the BRICS countries, which was about 71 per inhabitant for this period. A third approach is to look at China and use this number as potential for India; this stands at the much lower figure of 26 transactions per inhabitant. Generally, it is better to look at the BRICS average as a good measure for India's potential as it has already indicated an objective of 25 billion transactions for the current year. Therefore, if one takes 71 transactions per inhabitant per year as the full societal potential of retail digital payments in India, India should have  $71 \times 1.25$  billion (population) = 88.75 billion retail digital transactions per year. Using this figure as the potential, Table 3 presents the current and projected levels of usage.

When this is mapped against the Rogers innovation diffusion curve, India is still in the early adopter's stage for the year 2016–17, and only by 2018–19 will it be ready to pass the tipping point into the early majority stage. Thereafter, one would hope that the

**Table 3: Retail digital transaction adoption levels in India (assuming 88,750 million as potential)**

Year	Retail digital transactions (million)	% of adoption
2016–17	9,610.49	10.82
2017–18 (projected)	13,950.49	15.72
2018–19 (projected)	19,875.73	22.40
2019–20 (projected)	27,365.66	30.83

speed of digital payments adoption will accelerate and soon reach its potential.

While much has been achieved, a lot of work remains to be done if India is to realise this goal.

**KEY STRATEGIES FOR STRENGTHENING RETAIL DIGITAL PAYMENTS**

The overall key strategies to strengthen and increase the digital payments are indicated

in Figure 4. They are also separately discussed in the subsequent sections.

**Widen access**

*Accelerate the creation of acceptance infrastructure*

Balakrishnan<sup>6</sup> argues that although population levels may be used to determine the maximum possible transactions in a country, the number of transactions made by individual inhabitants really depends on their income level, with higher incomes associated with

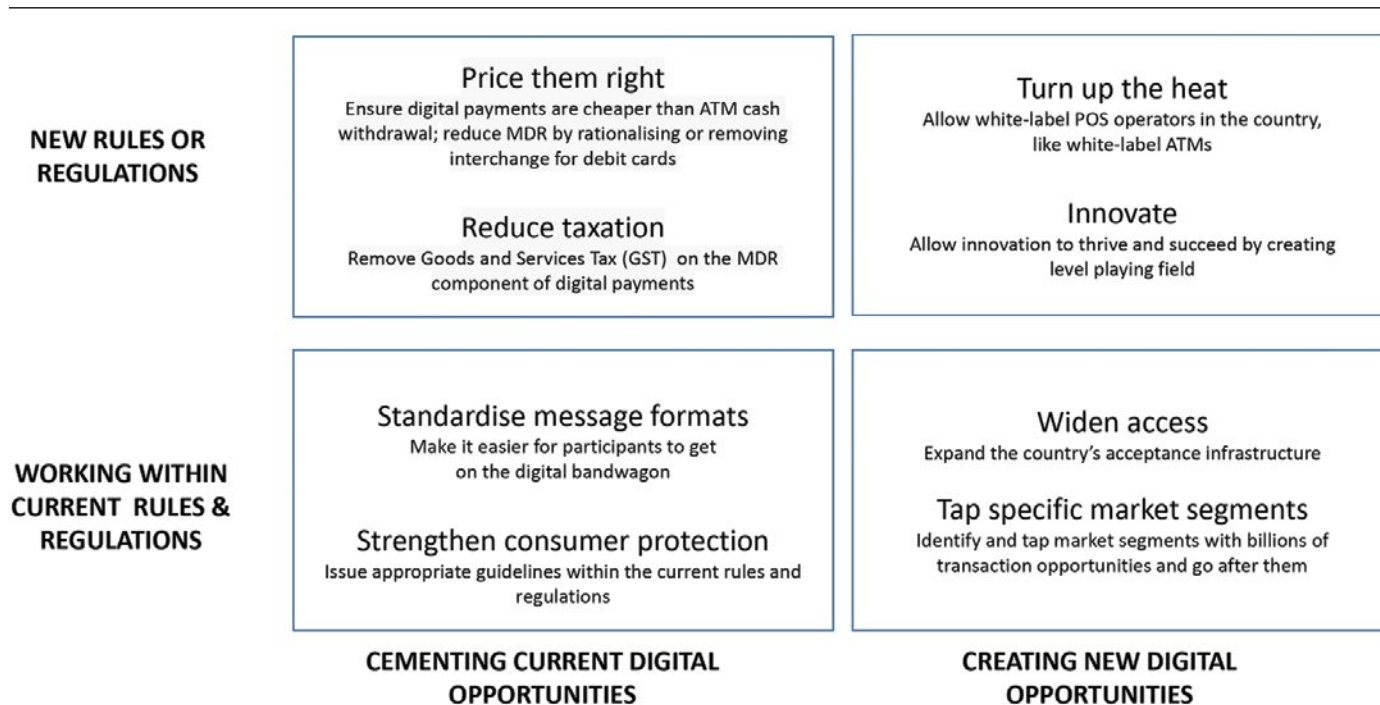


Figure 4: Key strategies for strengthening digitisation efforts

**Table 4: CPMI data on the number of ATM/POS terminals per millions of population in select countries**

	ATMs 2011	2012	2013	2014	2015	POS terminals 2011	2012	2013	2014	2015
Australia	1,377	1,332	1,305	1,339	1,329	33,546	33,168	34,734	35,892	40,130
Belgium	1,436	1,417	1,338	1,137	1,387	12,837	12,326	12,617	16,421	16,443
Brazil	881	879	908	910	892	17,811	20,561	22,146	24,837	25,241
Canada	1,749	1,703	1,852	1,859	1,855	21,573	22,883	23,617	24,763	36,331
China	248	308	382	450	631	3,592	5,270	7,814	11,650	16,602
France	896	897	894	1,738	911	22,234	21,459	20,505	24,283	22,246
Germany	1,048	1,027	1,026	1,071	1,051	8,856	8,952	9,221	12,775	12,229
Hong Kong SAR	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
India	80	94	131	149	165	550	695	865	889	1,080
Italy	869	847	831	821	836	24,052	25,220	26,305	30,563	32,750
Japan	1,078	1,077	1,083	1,076	1,076	14,628	14,725	15,328	nav	nav
Korea	2,381	2,458	2,474	2,425	2,397	nav	nav	nav	nav	nav
Mexico	335	349	342	362	382	5,033	5,346	5,798	6,431	7,189
Netherlands	467	452	439	425	414	16,748	15,970	14,831	23,628	26,270
Russia	993	1,200	1,316	1,549	1,413	3,899	5,014	6,728	8,960	10,176
Saudi Arabia	415	435	463	504	555	3,129	3,170	3,593	4,510	7,266
Singapore	515	512	505	500	507	17,337	25,523	27,110	26,279	31,096
South Africa	466	438	494	519	533	5,374	4,870	5,841	7,356	7,267
Sweden	377	359	337	333	333	22,167	20,837	20,380	20,304	18,660
Switzerland	842	845	843	832	841	19,461	21,268	20,594	29,702	30,254
Turkey	434	480	548	587	613	26,455	28,223	29,917	28,205	27,410
UK	1,017	1,038	1,060	1,074	1,079	21,499	25,732	25,800	26,346	30,078
USA	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
CPMI	403	437	484	537	588	5,924	6,910	8,144	9,864	12,074

CPMI, Committee on Payments and Market Infrastructures

a greater number of transactions. Based on the CPMI data, Balakrishnan also concludes that those countries with a higher number of per inhabitant transactions also have a higher volume of ATM and POS terminals per millions of population. A step-wise regression of the CPMI data also indicates that the number of annual card transactions per person is determined by per capita gross domestic product as well as the number of POS terminals per million people in the country, rather than the number of cards *per se*.

Clearly, increasing the number of acceptance terminals would help in increasing POS transactions in India too. As of March 2017, India had over 850 million cards in circulation yet only 2.53 million terminals; as a result, the combined number of debit and credit card transactions for the year 2016–17 was in the region of only 3.45 billion.

It should also be noted that in 2015,<sup>7</sup> Europe had about 780 million cards in circulation and about 52 billion transactions during 2015, largely because of the better acceptance infrastructure. Referring back to the CPMI 2015 data in Table 4, a quick look at the number of POS terminals per million population clearly indicates India's 1,080 POS terminals is much lower than Brazil's 25,241 terminals, Russia's 10,176 terminals, China's 16,602 terminals and South Africa's 7,267 terminals. It is time for India to increase its digital footprint by shifting its focus to the creation of acceptance infrastructure.

Clearly, to grow debit/credit card and pre-paid card transactions at POS, significant investments will be required to create a widely available and affordable acceptance infrastructure. India probably needs at least 10 million terminals that can accept digital payments — but that number stands at

a woefully inadequate 2,528,758 as of March 2017. Furthermore, what little acceptance infrastructure is available in India is concentrated in a few cities, leaving a large part of the country uncovered with respect to digital payments infrastructure.

#### *Disincentivise cash and create a national acceptance infrastructure*

Another step that the government of India could take is to disincentivise cash transactions in urban areas that are well served by digital payment options like POS terminals. For example, a levy of INR 1.00 per cash withdrawal transaction from ATMs and bank branches could easily provide the country with enough capital to build an acceptable level of acceptance infrastructure. India had 8.563 billion ATM cash withdrawals during the year 2016–17. Assuming a similar number of cash withdrawals at bank branches, a transaction levy of INR 1.00 would raise approximately INR 17bn every year. Over five years, this would be enough to create an acceptable digital payment acceptance infrastructure in the country. Even if this fee were charged only in urban locations with sufficient acceptance infrastructure so that people can use debit cards at POS, the levy could easily raise about INR 10bn every year, which would be more than enough capital to build adequate acceptance infrastructure across India. By creating a specialised national acceptance infrastructure — along the lines of the NPCI, the organisation that is spearheading retail payments in India — and providing it with sufficient capital and a mandate to build acceptance infrastructure where it is presently lacking, would help to nail this issue forever.

#### **Tap specific market segments with huge potential**

Stakeholders would do well to identify major transaction opportunities and pursue

them aggressively. Examples of such specific opportunities include:

- *Liquefied petroleum gas (LPG) cylinders:* Approximately 180 million LPG cylinders are used every month in India, translating to 2.16 billion transactions a year. The main four LPG marketing companies could work with payment system service providers to supply dealers with a platform for taking LPG cylinder bookings through internet or mobile channels and collecting the payments at the time of booking via an integrated payment gateway. This would work well in urban areas. For rural areas, the dealers' delivery crews could be provided with a customised mobile POS device to accept digital payments.
- *Petrol stations:* India has in the region of 250 million motor vehicles. Assuming the average vehicle is refuelled twice monthly, this translates to 500 million transactions a month, or 6 billion transactions a year. As there are only about 60,000 refuelling stations in the country, it should not be too onerous fit these out with POS terminals. Again, stakeholders would only need to work with the big four fuel marketing companies as all service stations are affiliated to one or other of them. In this scenario, there are two options. By creating an integrated refill station that can automatically accept digital payments (basically cards) much like one sees in the USA and other countries, customers could use this option. Again, while this would work well in an urban setting and areas with a high volume of transactions, for rural and lower-volume fuel pumps, one could look at providing customised mobile POS terminals to support digital payments.
- *Toll collections:* India has about 400 toll plazas on its national highways. It would require just 20 terminals at each of them (ie 80,000 terminals) to fully digitise toll-station payments. While India is trialling FASTAG — an automated toll collection



method much like those used in the USA (Ezepass) and other developed countries, its success is not a given. This is due to a variety of reasons, including lower usage away from metropolitan areas and the additional efforts that FASTAG requires of individuals, such as the need to procure and fund the tag. A better approach would be to provide toll agents with mobile POS terminals and slowly move customers to contactless general-purpose cards instead of purpose-specific cards.

- *Bill payments*: Bill payments will be capitalised by the Bharath Bill Payments System (BBPS) that India has recently introduced. The implementation of BBPS should be accelerated to cover all kinds of entities, from the present scenario of catering to a small section of billers.

By sitting down to discuss the options, stakeholders should be able to identify a dozen such opportunities with the potential of over 1 billion annual transactions and ensure those opportunities are quickly converted to digital payments.

### **Allow white-label POS operators**

At the time of writing, white-label POS operators are still not allowed in India, with the result that banks have the lead position with respect to implementing/providing POS and payment gateway solutions to merchants. (There are, of course, FinTech service providers, but they must all go through the banks). It is therefore time for RBI to consider permitting white-label POS operators in the same way that it has permitted white-label ATM operators. It should be noted that in the USA, the two largest acquirers during 2016 were non-banks — Vantiv (with 21.18 billion transactions) and First Data (with 19.80 billion transactions).<sup>8</sup> Such an arrangement would help increase the acceptance of terminals in India from the current low level to a more desirable level.

### **Innovate and create a level playing field**

Innovation drives adoption. Customers seek convenience and consequently this is where many innovations on payments have focused, making things easier for customers while still using the underlying payment system rails for clearing and settlement. The implementation of the Immediate Payment System (IMPS) on top of India's ATM network is a classic example of innovation in the Indian context. The government of India, the RBI and other stakeholders should keep promoting continuous technological and institutional innovations to increase and expand financial access to all Indians. The interoperability of bank and non-bank payment service providers (eg issuers of pre-paid instruments, remittance operators, banking agents etc) is extremely critical in making digital payment cost-effective and sustainable for all, and allowing innovation to thrive and succeed.

Equally important is to create a level playing field for the payment system players. India has already allowed non-bank payment system providers to issue pre-paid wallets and given them access to IMPS so that money can be moved seamlessly between bank accounts and pre-paid accounts. This is convenient for topping up pre-paid wallets in order to conduct transactions with merchants or other parties. As has been observed, pre-paid wallets are one of the fast-growing digital payment instruments in India. However, when India introduced the unified payment interface (UPI) — an API based payment instrument — it restricted its access to banks only and completely shut out the pre-paid wallet operators. Such an approach does not help to create a level playing field when pre-paid wallets are showing significant growth. This policy must be re-examined and pre-paid wallet operators should be allowed access to the UPI so that the huge volume of pre-paid wallet customers do not miss out on the capabilities and

convenience of the innovative UPI system and any other such innovations coming to the market.

### Price it right

The pricing of digital transactions is very important for improving their acceptance among merchants and customers. The pricing for retail digital transactions should not be greater than for ATM transactions. Indeed, it should be significantly lower, with both a minimum and maximum charge. Further, in such a context, there must be some serious thinking on the interchange and merchant discount rates for e-commerce and POS transactions in India. Many countries that have looked at interchange rates have capped them to reduce the overall merchant discount rate (MDR). There is also empirical evidence that reducing the cost of transactions will increase the usage.

Using a decade's worth of data from Spain, Sujit *et al.*<sup>9</sup> found evidence that reducing interchange fees may have a positive effect on consumer and merchant adoption and use when merchant adoption is far from complete. They also found that bank revenues increased following reductions in interchange fee as the increase in the number of transactions appeared to offset the decrease in the per transaction revenue. However, they also suggested that there is likely a critical interchange fee below which revenues no longer increase. They also acknowledged that payment card networks may lower interchange fees to increase merchant acceptance. For example, they highlighted that in the 1990s, payment card networks in the USA significantly reduced interchange fees for new entrants, such as grocery stores, to encourage merchant acceptance of payment cards. Such market-based strategies also internalise the merchant adoption externality. As Sujit *et al.* argued, once merchant and consumer adoption is complete, interchange fee regulation will result only in the

redistribution of surplus among participants, most notably between banks and merchants.

The 2014 study by Korsgaard,<sup>10</sup> titled 'Paying for payments — free payments and optimal interchange fees', is very relevant here. In this working paper for the European Central Bank, Korsgaard argues that when banks do not charge transaction fees (ie there is a zero marginal cost for customers to use card payments), the optimal fees are likely to be zero, possibly even negative. This is because the optimal interchange fee depends on the difference between the marginal cost of producing the card payments and the marginal cost of producing cash payments, and the marginal cost of producing card payments is lower than that of cash payments. Therefore, according to the model presented in the paper, the lower the interchange fee, the higher card usage would be. With the exception of a few surcharges, there is no transaction fee to use debit cards for POS/e-commerce transactions in India. Some banks do charge an annual fee for debit cards, but this is not a transaction fee; as such, it is reasonable to suggest that the marginal cost of using a debit card for payments in India is zero and this model may be applicable.

Balakrishnan<sup>11,12</sup> conducted a study of per capita transactions prior to and following the RBI's 2012 interchange regulation on debit cards, which capped the maximum MDR at 0.75 per cent for transactions up to INR 2000 and 1 per cent for transactions above INR 2000. This study found that the capping of maximum MDR for debit cards resulted in increased card usage. Therefore, there is also empirical evidence from the Indian context that reduction of MDR helps increase the number of debit cards transactions.

In many countries, public policy makers have intervened on this aspect of MDR and interchange fees. Hayashi<sup>13</sup> provides a quick overview of such intervention on credit cards and debit cards. They also identify a

**Table 5: Proposed MDR for various categories**

Sl No	Merchant Category	Merchant Discount Rate (MDR) for debit card transactions As % of transaction Value	
1	Small merchants	Not exceeding 0.40%	Not exceeding 0.30%
2	Special category of merchants	Not exceeding 0.40%	Not exceeding 0.30%
3	All other category of merchants (other than Government)	Not exceeding 0.95%	Not exceeding 0.85%
4	Government Transactions	Flat fee of INR 5 for transaction value INR 1 to INR1000 Flat fee of INR 10 for transaction value INR 1001 to INR 2000 MDR not exceeding 0.50% for transaction value above INR 2001 with cap of INR 250 per transaction	

number of countries with zero interchange fees for some domestic card schemes, such as Canada, Denmark, New Zealand and Norway. This demonstrates that the concept of a zero interchange fee is perfectly viable. India also has a domestic card scheme called RUPAY, which has been developed to meet country-specific needs, hence RUPAY could perhaps experiment with zero interchange options. In what follows, this paper proposes a number of approaches that could be taken to increase the usage of this debit card.

### *Reduce MDR on debit cards*

To encourage digital payments, in June 2012, the RBI capped MDR for debit card transactions at 0.75 per cent of the transaction value for transactions up to INR 2,000 and 1.00 per cent of the transaction value for transactions greater than INR 2,000. Following demonetisation of the INR 500 and INR 1,000 notes in November 2016, RBI introduced a special measure to temporarily reduce the cap on MDR between December 2016 and March 2017 so that for debit card transactions up to INR 1,000, MDR was capped at 0.25 per cent of the transaction value, and for transactions above INR 1,000 and up to INR 2,000, MDR was capped at 0.5 per cent of the transaction value.<sup>14</sup>

While digital transactions did indeed increase for some months post demonetisation,

it is unclear exactly how much this was due to the withdrawal of the high-value banknotes and how much was due to the reduction of MDR. This aspect should be studied, and if the data indicate that the reduction in MDR did indeed help, this fact should be given further attention.

Further, in February 2017,<sup>15</sup> the RBI proposed a new regime for MDR (Table 5).

This proposal has still not been finalised and remains under discussion. Since the special provisions expired on 31st March, 2017, India has reverted to the previous caps on MDR for debit cards, namely 0.75 per cent and 1.00 per cent of value for transactions up to INR 2,000 and above INR 2,000, respectively. Many different points of view/challenges have emerged on this proposal, including how to distinguish merchant categories; the special treatment given to government payments; and why there is no minimum and maximum for other categories, as is the case with government payments. It is also unclear why there should be pricing for digital payments based on merchant categories while there are no such levies for cash-based payments. It is hoped that good sense will prevail and that stakeholders will soon finalise a simple MDR structure with no differentiation between merchant categories and that will be acceptable to all stakeholders. It is hoped that the MDR will eventually gravitate towards 0.20 per cent (ie equal

to the INR 20 ATM withdrawal fee for the maximum permitted ATM interbank transaction amount per transaction of INR 10,000), with a minimum and maximum amount per transaction — something that the RBI is already suggesting for government transactions.

*Consider removing the debit card interchange to reduce MDR on debit cards*

According to NPCI statistics, India had 3,170.18 million interbank ATM cash withdrawals during the year 2016–17. If one also considers onus transactions, the total cash withdrawal transaction in this period was 8,563.06 million. With respect to interbank ATM transactions, issuer banks incur a cost of INR 15 + 18 per cent Goods and Service Tax (GST) as interchange and paid by the issuer banks to servicing/acquiring banks. That ATM interchange for issuing banks totalled INR 56,112.25m. The total debit card POS transactions in India for the year 2016–17 was 2,399.30 million transactions, with a value of INR 3,299.07bn. If one assumes that all debit card transactions are interbank transactions, and the issuing banks received an average of about 0.30 per cent of the value as interchange (the rates changed substantially post demonetisation; until then, it was about 0.45 per cent on average of MDR for debit cards), then the total interchange that banks earned on debit card usage at POS was INR 9.84bn, which is only 17.5 per cent of the interchange they paid because of their customers using other banks' ATMs for cash withdrawals. Were debit card interchange for POS transactions abolished, banks would need to drive only 20 per cent of ATM transactions to POS transactions to cover their revenue loss on POS interchange and everyone would be a winner. Furthermore, such abolition of debit interchange could also result in the overall reduction of the MDR and greater acceptance of digital payments modes by merchants and hence customers. This strategy

could be adopted until a reasonable number of digital transactions was reached and then be subsequently revisited. Issuing banks do charge an annual fee for debit cards and, in this sense, already receive some revenue from debit cards. That apart, banks are also saving money by encouraging customers to shift from branch visits to using the services provided by ATMs. Further, as per NPCI statistics, for the year 2016–17, bank customers made 1,111.57 million interbank non-financial transactions — including balance enquiries, requesting mini-statements, changing PINs, updating mobile details etc. Assuming that about 1,000 million of these transactions were for balance enquiries and mini-statements, the issuing banks incurred an interchange for these transactions at INR 5 + 18% GST, totalling INR 6,200m. Given the massive mobile penetration in India, the bulk of this interchange could be saved by banks by identifying the customers who are conducting these transactions at other banks' ATMs and converting them to SMS banking, or mobile banking or 'missed call banking' (a unique Indian innovation which lets customers call — but not connect — a specific number from a registered mobile number to obtain balances and other services, such as last five transactions) at a very low cost. These savings could also offset the revenue loss due to giving up debit card interchange.

Working on the interchange or capping on MDR is not an easy policy decision. In India, after the regulatory directive on cap on MDR for debit cards in 2012, demonetisation opened the topic again. Although the MDR cap was reduced for a limited period, the final cap (and its impact on the interchange) remains under discussion. The other aspect of interchange is that while merchants would love it to be reduced; customers love discounts, cashback, rewards and loyalty programmes, and it is this interchange that funds these programmes. Therefore, while efforts should be taken to reduce the cost to merchants, the result should not leave acquiring banks without

sufficient funds to cover their costs and incentivise customers to use cards, effectively squeezing them out of business.

Some have argued the case for using push payments, such as faster payments/immediate payments, UPI etc, for merchant payments. In such a scenario, merchants avoid the entire cost of the transaction and instead it is the customer pushing the payment who pays for the payment transaction. Encouraging customers to adopt this behaviour, at the same time as losing the discounts, rewards and loyalty programmes associated with card payments, is a hard sell. Therefore, while the push model of payments for purchase transactions may be viable for certain situations, such as government payments/and government utilities (because government departments do not pay MDR and customers are surcharged in any case and this push transaction could reduce the customer's cost), it is unclear whether this mode has the potential for widespread adoption for other kinds of transactions.

With the advancement of technology, another interesting possibility is for merchants to connect directly with issuing banks and thus reduce the overall costs for themselves. Within India, there is the potential to do this via QR code and UPI based payments. As an open source platform designed for the digital age, the UPI could be a huge help in integrating payments with many platforms as it is API-based and amenable to many innovations. In that sense, platforms like the UPI may help the migration of payment systems from multiple aging (and therefore, more expensive to maintain) systems to a single platform. However, while a single platform for payment may be a good idea and nice to have, it is not essential when it comes to providing customers with a single, easy, convenient and cost-effective experience. Furthermore, could it succeed in finding the right balance between what merchants like and what consumers want? Only time will tell. In UPI, India had an opportunity to reinvent merchant payments.

Unfortunately, however, UPI merchant payments also follow the debit card pricing approach, albeit at a slightly lower rate than debit card MDR.

### **Remove GST on MDR**

In India, GST is levied twice on the MDR that merchants pay to accept digital payments — particularly debit cards, credit cards and pre-paid cards — once on the side of the acquiring bank for MDR and then on the side of the issuing bank when the interchange is passed on to them. This matter of double taxation has been raised in the report of the Committee on Digital Payments.<sup>16</sup> Furthermore, GST has recently increased from 15 per cent to 18 per cent, thus further increasing the tax burden. While the Committee on Digital Payments has only proposed the avoidance of double taxation, the rationale for GST on MDR is questionable as there is no such tax on cash payments for the purchase of goods and services. After all, payment transactions at merchant locations/sites are not done in isolation, but are done to fulfil the obligation of goods or services bought, and the underlying goods or services are already taxed appropriately. Therefore, the removal of GST on MDR for digital payments would provide a huge boost for digital payments. Indeed, it could well be more effective than spending money on the provision of small incentives to billions of individual customers to promote digital payments. It is the merchants who are bearing the cost of digital transactions, and any relief to them would help to enlist their support for digitising more payments.

### **Standardise messages formats**

The world of payments is converging towards the ISO 8583 and ISO 20022 message format and standards for card-based payment systems and other electronic funds transfer systems respectively. The card payments system in India works on the ISO 8583 message format and this covers debit card, credit cards,

pre-paid cards and usage at ATMs and POS, as well as e-commerce and m-commerce transactions. The IMPS system was developed at a very low cost — primarily because it relied on the same card-based ATM infrastructure and used the same ISO 8583 message formats. When NPCI implemented the NACH system in 2012, it was clear that the world was converging on ISO 20022 as the global messaging standard for non-card-based payments and NPCI therefore adopted the same standard for NACH. Recognising the need for migration support, NACH also provided a message conversion utility. In 2013, when RBI modernised the real-time gross settlement system, it also adopted the ISO 20022 message standards. This meant that by the end of 2013, only the NEFT system was using the home-grown Structured Financial Messaging System, although this too will move to move to ISO 20022 when the system gets modernised. With this in mind, it is not clear why, in 2016, UPI used a different home-grown message format instead of adopting either ISO 20022 or ISO 8583 and extending it as required. It would be extremely useful if the NEFT and UPI could also converge to ISO 20022 messages, as this would make the implementation and maintenance easier for all institutions participating in the payment systems. Such a step would facilitate the adoption of these payment systems by banks and can help to create a network effect and thus help to increase the number of transactions.

### **Strengthen consumer protection measures**

While digital payments are easy and convenient, the risks of fraud and misuse are inherent. Customers should feel confident about using digital transactions. To this end, clear and consistent guidelines on consumer protection and liability in the event of fraud or unauthorised use go a long way in giving customers the confidence to use

digital payments. In this regard, RBI issued guidelines in July 2017<sup>17</sup> to limit the liability of consumers in the event of unauthorised electronic banking or digital transactions. Table 6 summarises the key aspects of the guidelines.

These guidelines are very helpful in protecting customers' interests. Steps taken by stakeholders to provide wide publicity for these measures will ensure that customers are aware of their roles and responsibilities while transacting digitally and also know about the protection they have in the event of fraud/unauthorised usage of their cards.

### **CONCLUSION**

Although India's digital payments are growing, historical data and trend line projections suggest that the government of India's target of 25 billion retail digital transactions in 2017–18 is unlikely to be reached. It is, however, conceivable that this might happen by 2019–20. With India still at the early adoption stage in digital payments and yet to reach a tipping point in terms of digital payments adoption, it will take a mighty effort to meet the ambitious target this (or indeed next) year. Government, regulators and other stakeholders can, however, adopt specific strategies such as appropriate pricing, reducing taxation, allowing white-label POS operators, supporting innovation and creating a level playing field, widening access, tapping the billions of transaction opportunities, standardising message formats and strengthening consumer protection to improve the digital payment infrastructure and speed up adoption to achieve the target of 25 billion transactions before 2019–20.

### **AUTHOR'S NOTE**

The opinions expressed in this paper are the personal views of the author and do not represent the views of any organisation with which he is or has ever been associated.

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**Table 6: Key provisions of RBI guidelines on customer liability following unauthorised transactions**

## Limited customer liability

*(a) Zero customer liability*

A customer's entitlement to zero liability shall arise where the unauthorised transaction occurs in the following events:

- (i) contributory fraud/negligence/deficiency on the part of the bank (irrespective of whether or not the transaction is reported by the customer); and
- (ii) third-party breach where the deficiency lies neither with the bank nor with the customer but lies elsewhere in the system, and the customer notifies the bank within three working days of receiving the communication from the bank regarding the unauthorised transaction.

*(b) Limited customer liability*

A customer shall be liable for the loss occurring due to unauthorised transactions in the following cases:

- (i) In cases where the loss is due to negligence by a customer, such as where he has shared the payment credentials, the customer will bear the entire loss until he reports the unauthorised transaction to the bank. Any loss occurring after the reporting of the unauthorised transaction shall be borne by the bank.
- (ii) In cases where the responsibility for the unauthorised electronic banking transaction lies neither with the bank nor with the customer, but lies elsewhere in the system and when there is a delay (of four to seven working days after receiving the communication from the bank) on the part of the customer in notifying the bank of such a transaction, the per transaction liability of the customer shall be limited to the transaction value or the amount mentioned in Table 6A, whichever is lower.

Table 6A: Liability of a customer under paragraph (ii) of account above

*Maximum of INR 5,000*

— Basic savings bank deposit accounts

*Maximum of 10,000*

— All other savings bank accounts

— Pre-paid payment instruments and gift cards

— Current/cash credit/overdraft accounts of micro, small and medium sized enterprises

— Current accounts/cash credit/overdraft accounts of individuals with annual average balance (during 365 days preceding the incidence of fraud)/limit up to Rs.25 lakh

*Maximum of 25,000*

— Credit cards with limit up to Rs.5 lakh

— All other current/cash credit/overdraft accounts

— Credit cards with limit above Rs.5 lakh

Further, if the delay in reporting exceeds seven working days, the customer liability shall be determined as per the bank's board approved policy. Banks shall provide the details of their policy in regard to customers' liability formulated in pursuance of these directions at the time of opening the accounts. Banks shall also display their approved policy in the public domain for wider dissemination. Existing customers must also be individually informed about the bank's policy.

The overall liability of the customer in third-party breaches, as detailed in paragraph a(ii) and paragraph b(ii) above, where the deficiency lies neither with the bank nor with the customer but lies elsewhere in the system, is summarised in Table 6B.

Table 6B: Summary of customer's liability time taken to report the fraudulent transaction from the date of receiving the communication

— within 3 working days: zero liability;

— within 4–7 working days: the transaction value or the amount mentioned in Table 6A, whichever is lower; and

— beyond 7 working days: as per bank's board approved policy.

## Reversal timeline for zero liability/limited customer liability

On being notified by the customer, the bank shall credit (shadow reversal) the amount involved in the unauthorised electronic transaction to the customer's account within ten working days from the date of such notification by the customer (without waiting for settlement of insurance claim, if any). Banks may also at their discretion decide to waive any customer liability in the case of unauthorised electronic banking transactions even in cases of customer negligence. The credit shall be value-dated to be as per the date of the unauthorised transaction.

Further, banks shall ensure that:

- (i) a complaint is resolved and liability of the customer, if any, established within such time, as may be specified in the bank's board approved policy, but not exceeding 90 days from the date of receipt of the complaint, and the customer is compensated as per provisions;
- (ii) where it is unable to resolve the complaint or determine the customer liability, if any, within 90 days, the compensation as prescribed is paid to the customer; and
- (iii) in the case of a debit card/bank account, the customer does not suffer loss of interest, and in case of a credit card, the customer does not bear any additional burden of interest.

Source: Adapted from: Reserve Bank of India (2017) 'Customer protection guideline of July 2017', available at: <https://rbidocs.rbi.org.in/rdocs/notification/PDFs/NOTI15D620D2C4D2CA4A33AABC928CA6204B19.PDF> (accessed 22nd September, 2017).

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