REPORT OF THE COMMITTEE ON THE ANALYSIS OF QR (QUICK RESPONSE) CODE

Letter of Transmittal

Shri B.P. Kanungo   **10 July, 2020**
Deputy Governor
Reserve Bank of India
Mumbai

Dear Sir:

We hereby submit the report of the Committee on the Analysis of QR Code.

Yours sincerely,

Prof. D.B. Phatak   **Arvind Kumar**   **Sunil Mehta**
Chairman   Member   Member

Dr. A.S. Ramasastri   **Dilip Asbe**   **Vishwas Patel**
Member   Member   Member

Encl: As above

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कार्यपालक निदेशक
Executive Director

DO. DPSS. No. 1185/ 02.14.003 / 2019-20   December 23, 2019

Dear Prof. Phatak,

Committee for Analysis of QR (Quick Response) Code

The Reserve Bank of India is thankful to you for having accepted to Chair the Committee for Analysis of QR Code. Reserve Bank has announced the constitution of this Committee in the Press Release dated November 08, 2019 on 'Furthering Digital Payments'.

2.   The composition and Terms of Reference of the Committee are provided in the Annex. Since developments in this area are taking place at a fast pace, we request the Committee to submit its recommendations to the Deputy Governor, Department of Payment and Settlement Systems, Reserve Bank of India, within two months from the date of its first meeting.

3.   The National Payments Corporation of India would be providing the secretarial support and other necessary logistics to the Committee.

4.   We wish you fruitful discussions in the Committee for drawing out a plan with which the country will benefit immensely.

With warm/personal regards,

Yours sincerely,
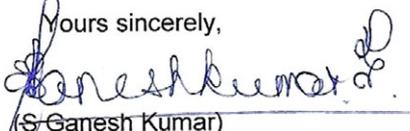
(S. Ganesh Kumar)

Encl.: As above

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हिंदी आसान है, इसका प्रयोग बढ़ाइए

Terms of Reference of the Committee

- To examine and review the current system of QR codes in India for facilitating digital payments;

- Analysis of benefits arising out of a common QR code;

- Assess the scope for improvement in existing QR codes and suggest measures towards adoption of Bharat QR as a convergent which would be future-proof; and

- Any other issue, germane to this area of reference.

Committee Members

Prof. D.B.Phatak

Professor Emeritus,
Indian Institute of Technology, Mumbai

Shri Arvind Kumar

Director General,
STQC, Ministry of Electronics and Information Technology, Government of India

Shri Sunil Mehta

Chief Executive,
Indian Banks' Association

Dr. A.S. Ramasastri

Director,
Institute for Development of Research in Banking Technology

Shri Dilip Asbe

Managing Director and CEO,
National Payments Corporation of India

Shri Vishwas Patel

Chairman,
Payments Council of India
Executive Director,
Infibeam Avenues Limited

The Committee held 3 meetings between 10th February and 28th March, 2020.

Acknowledgements

The Committee expresses its gratitude to the RBI for various initiatives taken to promote digital payments in the country.

Post demonetization, the acceptance infrastructure for QR codes has seen tremendous growth. As a result, QR based payments are rapidly increasing. One can simply scan a QR code to pay utility bills, fuel, grocery, food, travel, and several other categories. The acceptance infrastructure is a key element for the overall development of digital payments in India.

The committee invited views of various industry players currently involved in or associated with the use of QR codes. The committee benefited from the perspectives and insights of these participants and derived deep knowledge to drive digital adoption in the country. The presentations and discussions also helped the Committee to develop a comprehensive view of the issues, suggestions and opportunities.

It would also like to thank Shri Pramod Varma, Chief Architect, UIDAI, Shri Sanjay Jain, Member of Committee on Deepening of Digital Payments, Shri Rajesh Sakpal for sharing their views and providing support to the Committee and the staff of NPCI and IIT Bombay office for all logistical support as well as access to important documents and people.

The Committee thanks these organizations:

Abbreviations

App	Application
API	Application Program Interface
BHIM	Bharat Interface for Money
BBPS	Bharat Bill Payment System
IBA	Indian Banks' Association
KYC	Know Your Customer
NPCI	National Payments Corporation of India
PAs	Payment Aggregators
PAN	Permanent Account Number
PCI	Payments Council of India
PPI	Prepaid Payment Instrument
PSP	Payment System Provider
QR	Quick Response code
RBI	Reserve Bank of India
TPAP	Third Party App Provider
UPI	Unified Payment Interface
UPI ID	Unified Payment Interface User ID
VAS	Value Added Service

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CHAPTER

Executive Summary & List of Recommendations

The QR Code is type of a two-dimensional bar code. It consists of black squares arranged in a square grid on a white background. Imaging devices such as smartphone cameras can be used to read and interpret these codes.

While QR Codes are similar to linear barcodes, they can store a larger amount of information. A Japanese company named Denso Wave in the 1990s invented the QR Code. Initially, these codes were used in the automotive industry, for production, tracking, and shipping. These codes are now used in a broader context for applications that involve item identification and tagging.

The committee considered the use of QR Codes in the context of digital payments.

There are two types of QR codes,

a. **Static**

b. **Dynamic**

A QR code that cannot change and is mostly printed on paper is referred to as a static QR code. It contains information about the payee, and the consumer must enter the amount after scanning.

On the other hand, a dynamic QR code, is generated by software and can include additional fields such as the amount etc.

In China, QR codes played a crucial role in the growth of mobile payment services. They enabled businesses to accept digital payments without investing in hardware such as a point of sale (PoS) terminal. Since 2011,

WeChat and AliPay have popularized QR code based payments in China. They are now expanding and improving the popularity of these payments outside China.

QR codes have proved to be versatile, and are useful for every payment use case.

In India, the increased penetration of smartphones and high-speed internet connectivity has led to the increased adoption of QR codes for digital payments. Three different types of QR Codes have emerged – Bharat QR, UPI QR and Proprietary QR (closed loop, non-interoperable).

To ensure the growth of the payments ecosystem, it is important to provide a consistent experience for merchants as well as consumers. Given the early stage of deployment, now is the best time to remove any future issues (such as lack of interoperability), so that this technology can reach its maximum potential.

The Committee's perspective revolved around enhancing efficiency, security and transparency of QR based payments. It looked at the entire life cycle of the transaction and all the parties involved in it.

The recommendations are based on four pillars

Interoperability and Scalability   **Innovation**   **Security**   **Customer Education and Awareness**
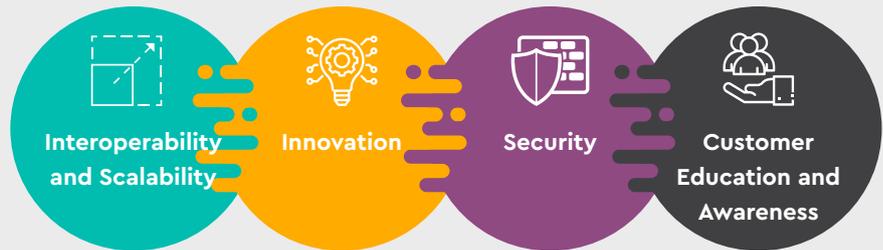
The list of the recommendations is as below:

1. Interoperability and Scalability

(a) Proprietary, closed loop QR codes are a hindrance to an open, interoperable payments ecosystem. There should be a clear plan to phase out proprietary, closed loop QR codes in favour of open, interoperable standards.

(b) Considering the scale of the country, multiple interoperable QR codes should drive the acceptance infrastructure in coming years. A common QR code or single QR across all payment instruments will create greater concentration risk. RBI should encourage multiple interoperable QR codes like Bharat QR and UPI QR to enable faster on-boarding of all types of merchants for digital payments.

The paper based QR code is very cost effective (sticker) and does not need any maintenance. In due course, the QR codes will migrate to the dynamic version (generated from a software with the amount embedded). The payer's software can handle multiple interoperable QR codes, allowing the acceptance infrastructure to evolve.

2. Innovation

(a) Standardization of apps (banks and non-banks) and network (common) QR branding to be assessed to deliver a consistent and seamless experience for customers.

(b) Consumer presented offline QR code can be explored for low value payments like transit, ticketing etc. This will help to enable various use cases.

(c) QR enabled apps can explore additional features such as 'Save QR', 'Invoice relay through Dynamic QR', 'Setting up eMandate' etc. for recurring payments.

(d) The regulator may accept the existing bank account as a valid KYC for faster merchant on-boarding. For all purposes, the merchant acquiring bank (or any regulated entity as permitted by the regulator for merchant acquiring activity referred hereon as regulated entity) shall be responsible for the KYC of the merchant. The merchant acquiring bank/regulated entity depending on the value and volume presented by the merchant, may strengthen the KYC of the merchant.

(e) P2PM (Merchant treated as person) category may be extended to Bharat QR to enable faster and simpler on-boarding of micro merchants, using their existing bank account.

(f) Bharat QR-specific: Participation of non-banks and fintechs can be explored to increase penetration of Bharat QR.

(g) UPI QR-specific: Multiple UPI IDs for a single recipient may be permitted. If one of their UPI IDs is unusable, e.g. because the corresponding PSP is down, then an alternate UPI ID can be used by the payer or such mapping can be done at the backend too.

(h) In due course when the 4G/5G network connectivity is available in India, the QR resolution should happen from the backend using APIs. This will help to build lot more value added services.

3. Security

(a) Signing requirements for Bharat QR codes may be evaluated. To enable UPI QR, the signed QR must be fast tracked.

(b) Consumer presented offline QR should preferably be a signed dynamic QR

(c) Security test and security audit of the Application being used for QR Code based payment must preferably be conducted by 3rd party entities. The use of encrypted and signed API instruction between app provider, payment gateways and banks may be evaluated.

(d) Resolution of the merchant name should be at the acquirer systems instead of it being hard coded in the QR. There is need for a common registry that enables payments apps to look up and validate recipients. Such a registry could be accomplished by a central trust-provider or by a blockchain-based approach.

(e) Framework for revoking / rotating keys used to sign static QR codes to be formulated without causing a lot of disruption.

4. Customer Education and Awareness

(a) All stakeholders should drive education and awareness campaigns for QR code adoption.

(b) Multi-currency and multi-language support can be explored to ensure customers in different countries can work in their native languages and currencies.

(c) Payment apps should provide users a deeper understanding of security.

(d) Consumer education and awareness towards usage of secured wifi network or his / her own mobile network for digital transactions.

(e) Generic names like "Verified Merchant" or "<Payment app> Merchant" makes it difficult to build trust in the system and results in poor consumer & merchant experience. P2M QR scans should provide meaningful, user-friendly names.

(f) Government / RBI should allow a controlled interchange instead of zero MDR on QR code / UPI / RuPay Debit card transactions, as well as give tax incentives to merchants who accept payments through electronic mode. Further, Government should provide incentive schemes to ensure popularity of QR code transactions among consumers in the country.
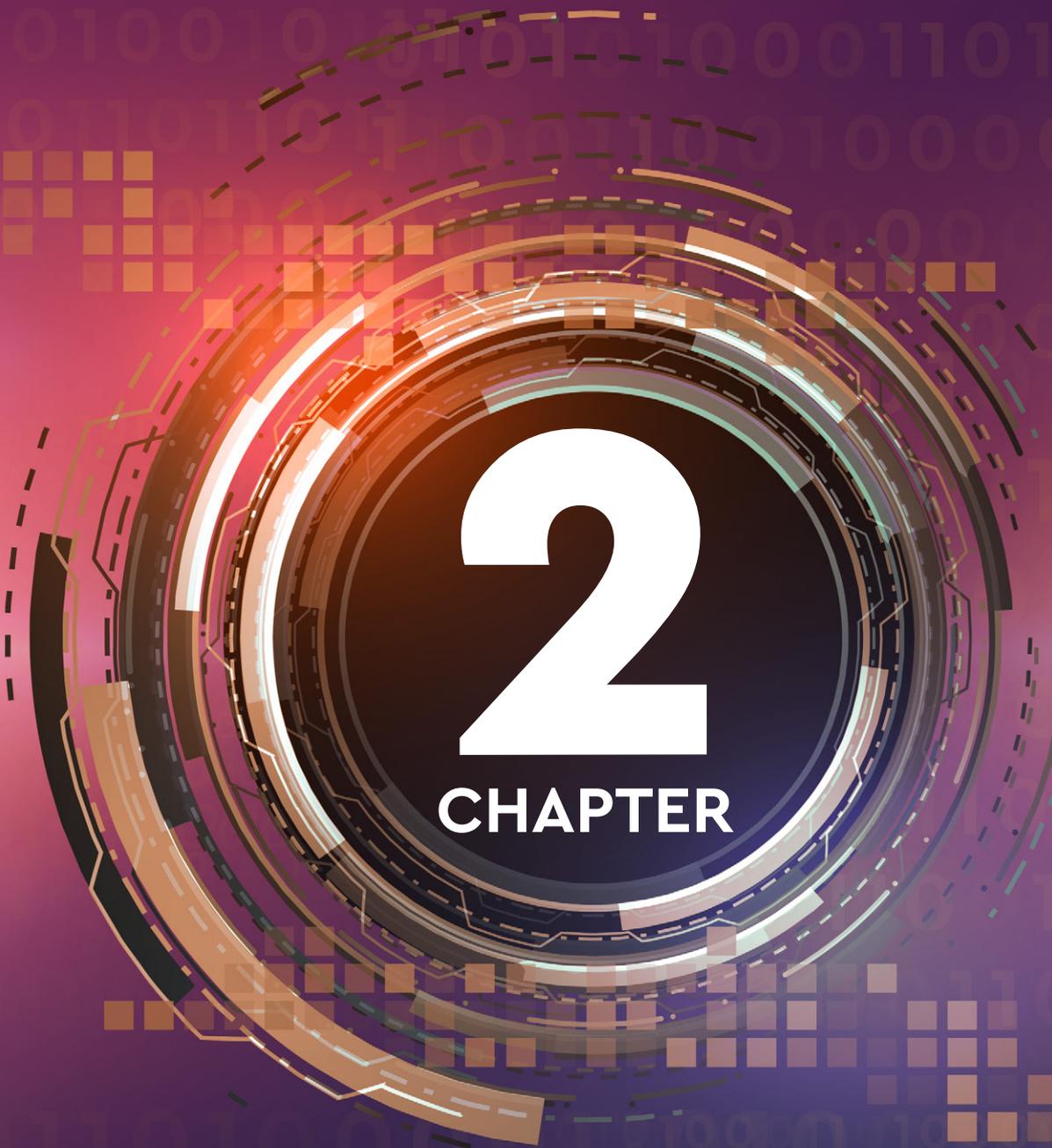
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Overview of QR Code based Payments in India

QR Codes are two-dimensional machine-readable barcodes, which are increasingly used to facilitate mobile payments at the point-of-sale.

In India, QR Code Payment Systems broadly support three different types of QR Code payments:

BHARATQR

a) Bharat QR

UPI
UNIFIED PAYMENTS INTERFACE

b) UPI QR

c) Proprietary QR

a) Bharat QR

India has launched Bharat QR – the world's first fully interoperable QR code payment system. Its specifications have been jointly developed by RuPay, Visa, MasterCard, and Amex. It is a digital solution to increase the acceptance infrastructure in the country. A considerable amount of effort has been invested by banks (issuers and acquirers), in both technological and non-technological areas, to provide this mode of payment to its customers. This included changes in the mobile banking app and the issuing and acquiring hosts to comply with all networks.

Support for QR code payments is growing within the payments industry. In mid-2017, the global technical body that manages EMV specifications – EMVCo, responsible for developing standards used for chip-based payment cards, published specifications designed to ensure interoperability of merchant-based and consumer-based QR code transactions.

EMVCo officially announced the release of two QR code payment specifications supporting merchant-presented QR code and consumer-presented QR code use cases.

i. Merchant-presented QR codes: These are unique QR codes offered to businesses by a bank or payment service. Customers scan the QR code using their smartphone camera and enter the payment amount and PIN. This initiates a payment to the seller. Key advantages of this method are its low cost and simplicity. Sellers do not need additional point of sale technology in this case and they can simply print their QR codes for scanning.

ii. Customer-presented codes: Customers select a product using the seller's website, app or other method. This generates a transaction-specific QR code, which the customer uses to collect the physical product from the store. Besides capturing additional detail about each purchase, this method can also be used to offer loyalty points. However, according to experts, the seller needs a special device to read the customer's transaction-specific QR code.

Bharat QR is based on EMVCo Merchant presented QR standards, which allows interoperability across banks and card schemes. It supports all card payment network credentials and has provisions for domestic payment methods such as UPI / proprietary payment methods.

Although, Bharat QR is based on card networks, it is not the only way to make payments. It allows users to pay through UPI payment address or through account number and IFSC code. Bharat QR supports dynamic QR code generation which eliminates the need to enter the amount for payment. Multiple cards can be linked to Bharat QR supported apps and any one of them can be selected to handle transactions conveniently. With this method, there is no need to share mobile number, account details

or CVV with anyone. Currently, Bharat QR is supported on Android and iOS devices. **Bharat QR has two versions:**

i. Bharat QR Version 3.0 & less – Only supports payment through Cards

ii. Bharat QR Version 4.0 – Supports Cards & UPI payments

As per RBI data, 2 million Bharat QRs have been deployed in the market by acquiring banks. The volume of digital payments made with Bharat QR is still very low. Multiple stakeholders have indicated that merchant on-boarding, lack of standardization of Bharat QR enabled apps and commercial models need to be looked at. The Bharat QR is fairly flexible for carrying additional data. However, any major structural change may require approvals from EMVCo.

b) UPI QR

UPI was launched by the NPCI in August 2016. UPI enabled apps enable a direct debit to the bank account, unlike the Bharat QR code where the payment is aligned with a debit / credit / prepaid card of the customer, linked to the mobile banking app used by the customer. NPCI gradually enabled interoperable UPI QR code specifications used by Payment Service Providers (PSPs) as the de-facto substitute for acquiring smaller merchants at a very minimal cost, owing to its asset-lite acquiring model.

Since the launch of UPI, there has been a paradigm shift in payments. People relied on it for fund transfers, leading to a significant rise in QR code adoption by merchants and

customers. UPI has also proved to be truly interoperable and is open to third-party applications. UPI's ability to innovate at a faster pace, to meet local requirements, has enabled various use cases.

UPI QR has three versions:

i.   UPI Version 1.0 – Supports peer to peer and merchant payments using UPI

ii.   UPI Version 2.0 – Enhancement in security & new functionalities

iii. UPI Version 3.0 (Work in progress) – New Functionalities like GST, Tips, International transactions (multi-currency)

Over 20+ million UPI QRs deployed in the market. The volume of digital payments using UPI QR are approximately over 250 million on a monthly basis.

c)   Proprietary QR (Closed loop)

After demonetization, Quick Response (QR) codes have become a popular option for making payments at restaurants, grocery shops and other bill payments. Wallet based companies authorized by RBI, as Prepaid Payment Instruments (PPI), pioneered the system of Proprietary QR codes. The wallet providers expanded their merchant networks and strengthened their team to aggressively acquire new merchants. However, QR codes developed and deployed by wallet providers are non-interoperable.

While closed loop systems make the customer experience more convenient, they also require customers to acquire and manage a payment app. So, if a customer wants to use a phone to pay at 10 different retailers – each with its own proprietary system – he or she would need to manage 10 separate apps.
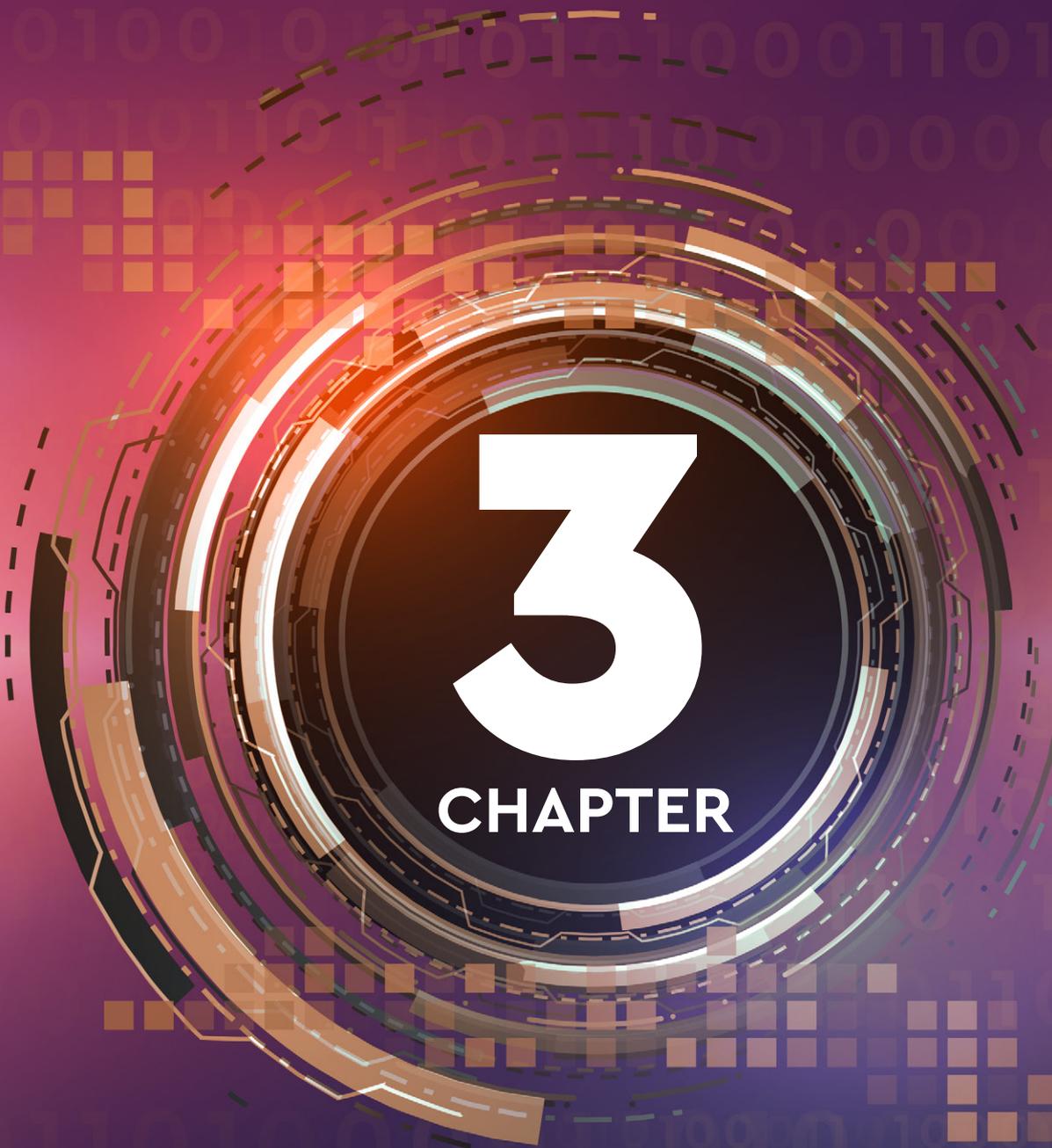
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CHAPTER

QR Code based Payments: Opportunities and Challenges

With the growing penetration of smartphones in India, QR code based payments present the most cost-effective way of expanding the digital footprint.

In India, cash is still king, but recently there has been a perceptible shift in favour of digitization. According to a report by telecom equipment maker Ericsson, mobile subscribers in India may touch 1.4bn by 2020. The growing smartphone user base in India indicates an immense growth opportunity for digital payments.

India still incurs a large expenditure in printing and transportation of currency notes. Digital payments provide an opportunity to reduce these costs.

As compared to other modes of payments, QR codes present a viable and cost-effective option. Users have started to prefer cashless transfers due to the large number of benefits. People can conveniently pay bills, shop, schedule transactions and manage their finances using their smartphones at a time and place of their choice. However, there remain plenty of opportunities to grow and develop varied digital payment modes.

Opportunities:

1. Encourage and grow multiple Interoperable QR

Interoperability of payment systems benefit all participants in the ecosystem. Interoperability can also produce cost efficiencies and enable superior risk management. True interoperability should be offered to customers by offering them the flexibility to use multiple payment methods such as Bharat QR and UPI QR. Payment software can handle multiple interoperable QR codes, allowing complete customer choice. Therefore, RBI should encourage both Bharat QR and UPI QR or any other interoperable QR that may be developed in future.

Interoperability and customer choice are paramount for adoption of QR Code payments. Bharat QR has both UPI account linked payments as well as card based payments. However, concerns related to its flexibility and innovation capacities persist and networks may jointly work to resolve such issues and may depend on EMVCo for structural changes.

A potential example of an interoperable QR system could be BBPS. BBPS currently caters to all utility billers like electricity, telecom, gas, water and DTH, wherein the billers are offered a standardized platform for third party bill payments. A separate interoperable BBPS QR will augur well for billers to ensure faster onboarding using existing systems established with BBPS. It will offer an additional payment channel for the biller as well as the customer.

2. Simplified Merchant On-boarding

QR codes bring a significant advantage for informal establishments with low technology adoption. As seen in the recent past, QR codes can be deployed very quickly to improve digital payments acceptance, even in the remotest corners of our country and can penetrate all merchants. QR codes are a Do it yourself (DIY) solution, where any merchant can download an acquiring app and sign up, download and print the QR code and display it at his place of business and start collecting payments. However, the biggest hindrance faced today, by prospective merchants and acquiring entities like the payment aggregators and the acquiring banks is the delay in the onboarding process due to KYC

formalities, document collection, verification and updation. It requires the same set of documents and KYC formalities that were already completed while opening the bank account. However, a repetition of the process leads to significant delays in the onboarding process.

For a QR transaction, a specific amount moves from the customer's bank account through the acquiring bank / payment aggregator's Nodal/Escrow bank account to the Merchant's bank account. It is a Bank to Bank transfer and there is no element of cash in this transaction. The banks are already complying with various regulations and have adopted best practices at every level of merchant interaction to fulfil these obligations.

Banking entities have been conducting relevant KYC procedures while following due diligence for opening bank accounts according to the RBI guidelines, which are updated from time to time.

Regarding Merchant KYC, the Gowri Mukherjee report dated 2nd June, 2011 mandated that the set of documents must be procured by acquiring banks and Payment Aggregators as a pre-requisite for accepting electronic payments by merchants.

Documents Required for KYC Compliance: As per Business Filing Status (BFS)

	Payment Aggregator/Acquiring Bank	Opening and maintain a Bank account by merchant
Common Documents	• Business License / Registration copy • Identity Proof of the Owners/ Authorized Signatory • Company Address Proof • Cancelled Cheque/Bank Letters	• Business License/Registration copy • Identity Proof of the Owners/ Authorized Signatory • Company Address Proof
Documents basis BFS	**Partnership** • Partnership Authority Letter • Partnership Deed	**Partnership** • Partnership Authority Letter • Partnership Deed
	Hindu Undivided Family (HUF) • Declaration by all members of the HUF	**Hindu Undivided Family (HUF)** • Declaration by all members of the HUF
	Private/Public Limited Company • Board Resolution • Certificate of Incorporation • Memorandum of Association • Articles of Association • Company PAN Card	**Private/Public Limited Company** • Board Resolution • Certificate of Incorporation • Memorandum of Association • Articles of Association • Company PAN Card
	Others (NGO /Government/ Education/ Society): • Memorandum of Understanding / Certificate of registration (for registered trust only) & Copy of Trust deed or Society Deed / Government Certificate. • List of trustees / member/ authorized signatory certified. • Copy of Pan card of Trust. • Trust Resolution	**Others (NGO /Government/ Education/ Society):** • Memorandum of Understanding / Certificate of registration (for registered trust only) & Copy of Trust deed or Society Deed / Government Certificate. • List of trustees / member/ authorized signatory certified. • Copy of Pan card of Trust. • Trust Resolution

As per the above observations, except for the agreement, merchants are supposed to provide all the above KYC documents to acquiring banks/payment aggregators. These documents have already been collected by banks at the time of account opening as per the regulated KYC procedures. The money from the customer's bank account flows through the PA's Nodal / escrow bank account to the merchant's bank account. For all these accounts, the banks periodically update information following all norms for Know Your Customer (KYC), Anti-Money Laundering (AML) / Combating the Financing of Terrorism (CFT), as per RBI regulations.

Proposed process for Simplified Merchant On-boarding Process:

India as a country, has anywhere between 45 to 60 Mn merchant community according to various reports, that includes all mom and pops or small format merchants. It is necessary to have a simplified merchant on-boarding process to get such large merchants base to accept digital payments in next 36 to 48 months in a cost-effective manner.

After thorough deliberation, the following revised process is recommended for merchant on-boarding,

1 The merchant should be allowed to be on-boarded with the acquiring bank/regulated entity with the online agreement signing and the valid savings/ current bank account.

2 Merchant should also confirm in the agreement or with the separate declaration with the acquiring bank/regulated entity, that he has updated his latest KYC with the settlement bank where he expects the acquiring bank to settle the transactions acquired by the merchant.

3 The merchant acquiring bank/ regulated entity may strengthen the KYC depending upon the value and volume processed by the merchant on monthly basis with the board approved policy and the limits for such enhancements.

4 All the liability of the merchant on-boarding and the KYC, other compliances shall remain with the merchant acquiring bank/regulated entity and the settlement account holding bank shall assume no liability in this process.

3. Standardization of QR enabled App

Mobile banking apps are embedded with various functionalities such as Mutual Fund, Demat, Insurance, NEFT, RTGS, IMPS etc. Each bank performs due diligence as per their internal compliance rules and polices to ensure risk mitigation and protection of their brand. Mobile banking apps have been working to improve their services in the past few years and have added Bharat QR as an added feature. As per regulatory guidelines, 2nd factor authentication is required for online transactions. In case of Bharat QR, the 2nd factor authentication is met through MPIN, Debit Card PIN, OTP etc.

Similarly, banks and third party application providers are offering separate UPI apps. Some banks have also integrated UPI in their existing mobile banking apps.

To drive QR adoption, there is a need to standardize user experience on apps. This also requires standardization guidelines to ensure consistent and seamless customer experience for on-boarding, prominent display of QR option, branding, dispute management sections etc.

4. Explore Offline QR Code use cases

Offline QR codes can be used for facilitating quick and simple payments in various industries like airlines, transit etc. Digital payment companies are increasingly exploring offline QR code based payments to penetrate the untapped market. For better customer experience and security, consumer-presented offline QR code should be a dynamic QR code. These are immensely useful in places such as the mass transit system, where there is high footfall and quick authorization of any payment mode is essential to avoid queue build-up.

5. Strengthen QR Code proposition

Additional features such as 'Save QR', 'share QR in app from gallery', 'Invoice relay through dynamic QR', 'Setting up eMandate' etc. for recurring payments will help QR codes to compete with other digital payment products.

Permission for multiple UPI IDs for a single recipient will help to enhance customer experience. In the event of failure to use a single UPI ID, an alternative UPI can be used by the customer. This will further increase customer confidence in QR payments.

Ensuring rapid on-boarding of micro merchants under Bharat QR (similar to P2PM category) will help to improve the micro merchants' network. A decentralized QR generation process, transparent dissemination of QR codes and inclusion of a wider merchant base will help in faster on-boarding of merchants.

QR codes provide a means to interact with consumers. Interactions and engagement create a kind of 'track record' with consumers, and repeated successful interactions build trust, which in turn helps to build habits. Banks, Non-Banks and Fin-techs need to get creative with their designs, provide meaningful, user-friendly merchant names to make their QR codes an attractive proposition.

6. Encourage Non-Banks and Fin-tech participation

In recent years, India has been at the forefront of payment transformation. The intersection of mobile technology and financial services have paved the way for increased digital adoption. Non-Banks and Fin-tech, in collaboration with Banks, played a vital role to drive digital payment adoption among customers, with a continuous focus on changing customer behaviour. The contribution from all stakeholders i.e. government, regulators, banks and financial institutions, merchants, mobile payment service providers and investors have become a key enabler to leverage the mobile payment ecosystem.

The participation of non-banks and fin-tech will help to bring fresh investment to the payments sectors, enable rapid growth of acceptance infrastructure and innovative solutions for banks, customers as well as merchants.

7. Multi-currency and multi-language support

As India continues to expand its home-grown payment network, QR codes should also be equipped with multi-currency and multi-language support for cross border payments. The prominent display of transaction information like Merchant Name, Tip & Convenience Fee, Transaction Amount, Terminal ID, Location or any optional information in local language and currency will increase customer confidence. This information will also help the customer to verify transaction details as well as merchant credentials before making payments.

8. Customer and Merchant Education

It is critical to build a strong brand for common QR, by promoting its interoperability feature. This will help build visual recall at a merchant location and encourage customers to use any application for making payments.

The merchants also have the right to choose, whether they wish to accept payments through a payment application, after consenting to the charges levied by the payment application provider i.e. instrument selection, bank out etc.

To encourage QR adoption, banks should offer VAS as an optional service to consumers and merchants. Media campaigns by all stakeholders including the Government, Networks, Banks and TPAP can help to improve awareness and knowledge about digital payment methods.

9. Support from Government

Zero MDR: The Committee on Digital Payments constituted by Department of Economic Affairs, Ministry of Finance under the chairmanship of Shri Ratan P Watal, Principal Advisor, NITI Aayog had said that _"MDR is crucial for acquisition of new merchants. It should be high enough for new players to be incentivized to enter the space and low enough that merchants are encouraged to adopt digital payments."_ Also, the Committee on Deepening Digital Payments constituted by Reserve Bank of India under the chairmanship of Shri Nandan Nilekani, Non-Executive Chairman, Infosys had said _"Market forces must result in transaction pricing that creates a viable ecosystem. Regulator should adjust the interchange rate and let the market compete on MDR ultimately growing acceptance ecosystem rather than inhibiting it."_

The recent changes by the government reducing MDR to zero for certain payment methods had a negative impact on the payment ecosystem – impacting survival of payment gateway entities, hampering innovation efforts and resulting in job losses and a slowdown in the expansion of the digital payment infrastructure in India:

1	**Contraction in the national Gross Value of Services:** Significant contraction in the revenue of the payments business which supports multiple participants/ vendors of the ecosystem
2	**Maximum Impact on SME Segment:** The payments ecosystem is driven by a number of technology/service providers and a majority of them would be SME businesses facing a business viability issue
3	**Jobs, Employment:** The payments ecosystem together with the downstream vendors/providers etc. directly and indirectly employ several **lakh people** and without revenues from businesses, these jobs are disappearing as there are no incentives or incomes for deploying QR codes in the country's hinterlands
4	**Negative signal for Capital inflows:** The fintech sector has been a very strong attractor of foreign capital into India – with an estimated investment of **USD 2+ Billion** in the last two years. The expectation of revenue generation from digital transaction processing has been severely affected by Zero MDR and the ability of the Payment Aggregators to further attract capital has been hampered
5	**Impact on digital promotion spends:** The industry has spent INR 2,000 +Crores in the last 2–3 years to promote digital payments and customer incentives and continues to invest about INR 1000 Crores on capex annually
6	**Will adversely impact the ability to achieve the Government's goal of 40 Billion digital transactions and Digital India initiative**

Government should allow a lower controlled interchange instead of zero MDR on QR code / UPI/ RuPay Debit card transactions, as well as give tax incentives to merchants who accept electronic transactions and promote incentive schemes to improve popularity of QR code transactions in the country.

The important factors to promote positive attitudes towards QR code payment are advertising and promotion. There is a need for significant investment and marketing activities to establish a lot of use cases. The large number of discounts and subsidies in a wider payment environment can cultivate user habits.

While QR codes can be great marketing tools for business and a most convenient way of payment, a huge drawback is the lack of payoff for consumers when scanning a code. There is often too little incentive to scan a QR code as compared to other modes of digital transactions. Incentives will engage more customers and help to increase the popularity of QR code transactions in the country.

Challenges:

As the most important part of e-commerce, mobile payment directly involves the capital of users and related parties. Therefore, payment security is one of the key issues in mobile payment. In case of QR code payments, remote access to the payment system is given through a QR code. The security of this payment mode is divided in three parts:

1. QR Code Security

(a) Generic names like "Verified Merchant" or "<Payment app> Merchant" make it difficult to build trust in the system and result in poor consumer & merchant experience. P2M QR scans should provide meaningful, user-friendly names. This can be accomplished by registering the rightful beneficiary's name in a central system available via API calls to validate the VPA.

(b) Like UPI, signing requirements for Bharat QR codes may be evaluated to ensure higher security.

2. App Security

The committee recommends following security measures for all issuer apps that scan QR code for payments:

(a) Card credentials or any PII data should not be stored in the device

(b) RBI guidelines for 'card not present transactions' should be adhered

(c) Merchant name and masked credential must be displayed in the app after scanning a QR, to enable safe transactions

(d) App should allow users to have deeper understanding of security

3. Backend Security

Networks, Banks and TPAP should ensure very high levels of security at this layer to ensure secure transmission and storage of data. They should continually invest on monitoring and enhancing security at this layer – at the physical, network and application infrastructure.

Network Connectivity:

India has taken a big step towards becoming a less-cash economy by registering a quantum jump in number of digital payments, especially after demonetization. However, along with digital empowerment of every stakeholder, seamless and secure internet connectivity across the country remains a big challenge. There is an increased penetration of smartphone users in India but, not everyone has access to seamless internet connectivity to enable digital payments with ease. Moreover, using an unsecured public WiFi or other connections may lead to data leak and compromise data security, leading to financial frauds.

4

CHAPTER
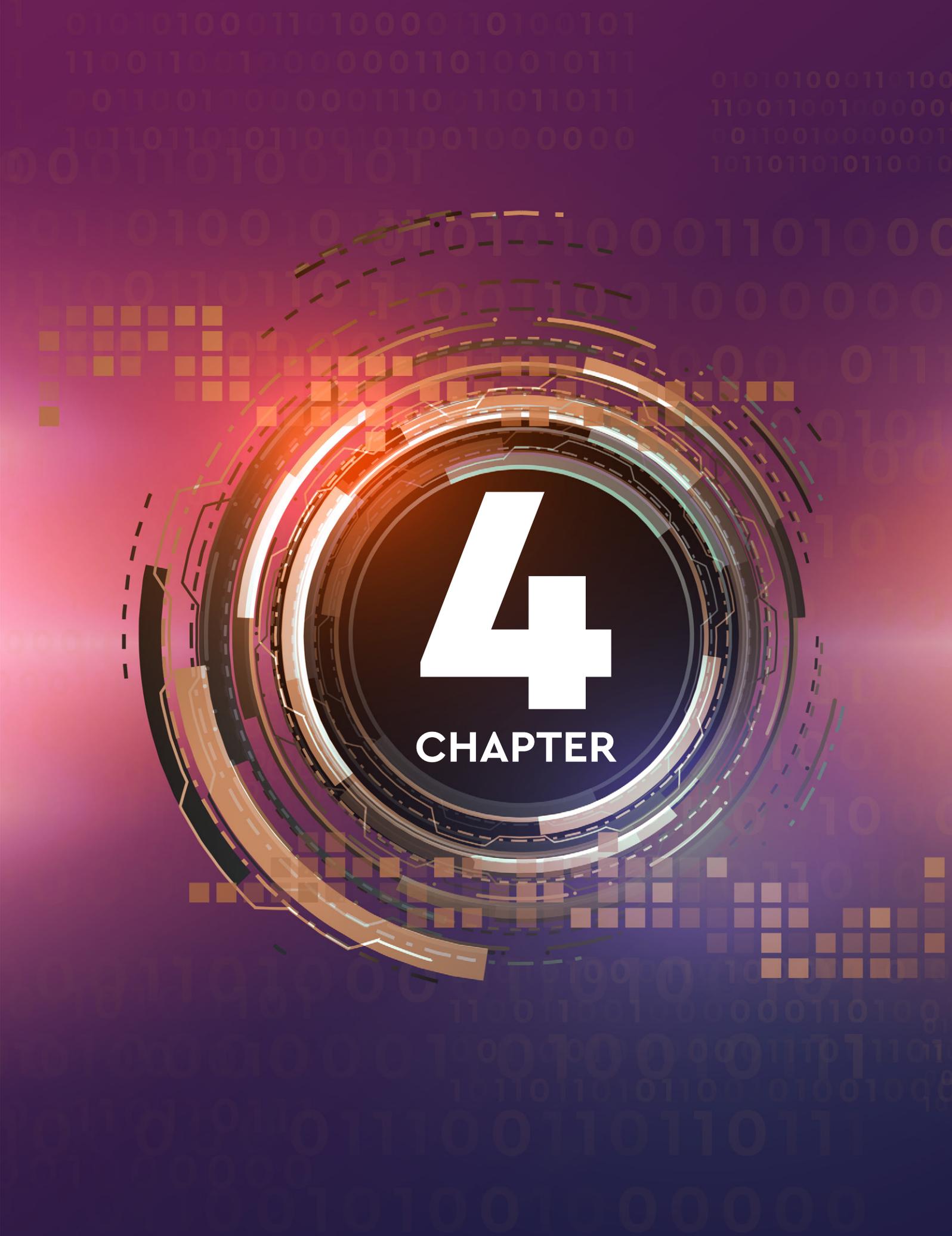
Implementation Roadmap

Implementation of the recommendations needs action from several agencies. In this chapter, we classify the recommendations according to the agencies/ institutions that will have to act to ensure its proper implementation. Recommendations for which action is needed have been listed under each agency/ institution.

1. Networks:

(a) All networks in collaboration with Banks and TPAPs can come out with guidelines for Issuance App standardization to deliver a consistent and seamless customer experience.

(b) Networks can examine and provide necessary guidelines on following matters:

i. Resolution of the merchant name has to be at the Acquirer systems instead of being hard coded in the QR.

ii. The "transaction ID" field for static QR codes should be made optional.

iii. QR scans should provide meaningful, user-friendly names. This can be accomplished by registering the rightful beneficiary's name in a central system, available via API calls to validate the VPA.

iv. Consumer-presented QR may lead to significant confusion and users with limited knowledge of digital transactions may be exposed to potential frauds.

(c) UPI QR-specific: Multiple UPI IDs for a single recipient can be permitted.

(d) Use of encrypted and signed API instruction between APP provider, payment gateways and banks.

(e) QR code generated for payment by/for consumer should be signed and same should be verified by QR code App before proceeding with payments. Signing requirements for Bharat QR codes to be evaluated.

(f) Strategy for revoking / rotating keys used to sign static UPI QR codes without causing a lot of disruption to be formulated.

(g) Multi-currency and multi-language functionalities can be permitted.

2. Reserve Bank of India

(a) RBI may examine and provide a clear plan to phase out proprietary, closed loop QR codes in favour of open, interoperable standards.

(b) RBI may issue the guidelines for revised KYC process to ensure faster merchant onboarding (Refer Page # 11, point (d) and Page 19 and 20, point # 2. Simplified Merchant On-boarding).

(c) Guidelines for creation of common registry that enables payments Apps to look up and validate recipients. Such a system could be implemented by a central trust-provider or through a blockchain-based approach.

(d) New features such as 'Save QR', 'Invoice relay through Dynamic QR', 'Setting up eMandate' etc. for future / repeat payments may be allowed.

(e) On-boarding of micro merchants under Bharat QR (similar to P2PM category) can be permitted (Merchant with upto Rs 1 lakh monthly credits).

(f) Offline QR codes can be permitted for low value payments like transit, ticketing etc.

(g) New Interoperable QR codes to be encouraged. For instance, BBPS QR can be permitted for biller to ensure faster on-boarding and use of existing rail roads established with BBPS.

(h) To avoid concentration risk, both interoperable Bharat QR and UPI QR should be continued to scale the acceptance infrastructure in the country.

(i) Bharat QR-specific: Participation of non-banks and fintechs can be explored to increase penetration of Bharat QR.

3. Government

Government should allow a lower controlled interchange instead of zero MDR on QR code / UPI/ RuPay Debit card transactions, as well as offer tax incentives to merchants allowing electronic transactions and promoting incentive schemes to improve the popularity of QR code transactions in the country.

4. Banks and TPAPs

(a) Implementation of Issuance App standardization guidelines.

(b) Security test and security audit of the App being used for QR code based payments should be conducted by 3rd party entities.

(c) Drive customer and merchant education for QR adoption.

(d) Consumer education and awareness towards usage of secured wifi network or his / her own mobile network for digital transactions.

References

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[ii]**Report of the Working Group on Securing Card Present Transaction**
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