

BANK OF NAMIBIA

25 October 2023

GUIDELINE UNDER THE PAYMENT SYSTEM MANAGEMENT ACT, 2023 (ACT NO. 14 of 2023)

In my capacity as Governor of the Bank of Namibia (the Bank), and under the powers vested in the Bank by virtue of section 46 of the Payment System Management Act, 2023 (Act No.14 of 2023), I hereby issue this **Guidelines on the Standardisation of Quick Response Codes in the National Payment System**, which Guidelines shall become effective on the date of signature.



**JOHANNES !GAWAXAB
GOVERNOR
BANK OF NAMIBIA**

Windhoek, 25 October 2023

GUIDELINES ON THE STANDARDISATION OF QUICK RESPONSE CODES IN THE NATIONAL PAYMENT SYSTEM

1. Background

- 1.1.** The Bank of Namibia's (the Bank) strategic plan commits the Bank to drive greater digital transformation and to lead through innovation, among other commitments. Additionally, the National Payment System (NPS) Vision 2025 identified Quick Response (QR) codes as one of the global system megatrends and an opportunity for the industry to explore over the 5-year NPS Vision, with the objective of promoting innovation and transformative payment solutions.
- 1.2.** The Bank conducted research on the feasibility of QR code standardisation in the Namibian financial sector with the aim of providing a regulatory position. The Bank's *Guidelines on the Standardisation of Quick Response Codes in the National Payment System* (the Guidelines) take into consideration the engagements held with various stakeholders inclusive of the financial services industry, consumers, and other regulators as well as desktop research on the various approaches taken in other jurisdictions with respect to QR code standardisation.
- 1.3.** These guidelines are issued in terms of section 3(2)(j) of the Payment System Management Act, 2023 (Act No.14 of 2023) (PSM Act) and are enforceable in terms of section 46 of the PSM Act.

2. Purpose

- 2.1.** The purpose of the Guidelines is to provide guidance on the standardisation of QR codes in the NPS.
- 2.2.** The Guidelines specifically address key aspects of QR codes, including technical specifications, interoperability, security and privacy, accessibility and usability, adoption and promotion, and the approach to enforcing standardisation.

3. Problem Statement

- 3.1.** The rapid growth of digital payments and the increasing use of proprietary QR codes as a convenient method for facilitating payments may lead to a fragmented and diverse landscape of QR code standards and technologies within the NPS. This fragmentation can hinder interoperability, efficiency, and security, limiting the overall effectiveness of the NPS and potentially affecting consumer confidence and adoption of digital payments. The absence of a standardised payment QR code means that each payment service provider (both banks and non-banks) are at liberty to introduce any payment QR code that is based on proprietary or unknown standards. This presents a limitation to innovations based on payment QR codes and may lead to a slow uptake and security concerns.

4. Quick Response Code Overview

- 4.1. The Bank for International Settlements (BIS) defines QR Code to be a type of barcode that can be easily read by a digital device and stores information as a series of pixels in a square-shaped grid.¹ QR codes are based on detailed specifications and are commonly utilised for tracking information about items in a supply chain, and due to the prevalence of smartphones with built-in QR code readers, they are frequently employed in marketing, and advertising campaigns. In recent years, QR codes are increasingly being used to make payments at point-of-sale.
- 4.2. In these Guidelines, the QR codes in scope are those which can be used as access channels for facilitating payments. Payment QR codes have multiple use cases, such as payment in retail stores, restaurants and cafes, events and concerts, public transportation, charitable donations, utility bill payments, peer-to-peer payments, parking payments, in app purchases, etc. QR codes can be classified in multiple ways; however, they predominantly fall into two (2) complementary categories i.e., merchant-presented, or consumer-presented. Both types of payment QR codes can be either static or dynamic. These classifications encompass most use cases and can be further tailored to fulfil specific functions, such as facilitating payments, enabling social media sharing, granting Wi-Fi network access, and more.² The different types of QR codes are discussed in detail below.

Merchant Presented QR Code Payments

- 4.3. Merchant-presented payment QR codes are typically accessed using a customer's smartphone to scan the QR code at a merchant's point of sale. Some feature phones may have the ability to scan QR codes if they have a camera and the necessary software or application. Upon scanning a QR code with the camera viewfinder, the customer is directed to a payment page (online or offline) where they have the option to enter their preferred payment details or select a method. For instance, in India, commercial banks have created merchant-presented QR Codes (UPI QR – Scan and Pay) as digital payment acceptance channels displayed at merchant establishments to facilitate the receipt of payments by scanning the QR Code from any linked UPI mobile application.³ Merchant-based QR codes can also be linked to card, EFT, electronic money, and mobile payment solution, such as ApplePay or GooglePay.⁴ Refer to Figure 2 on the flow of a merchant-presented QR Code Payment.

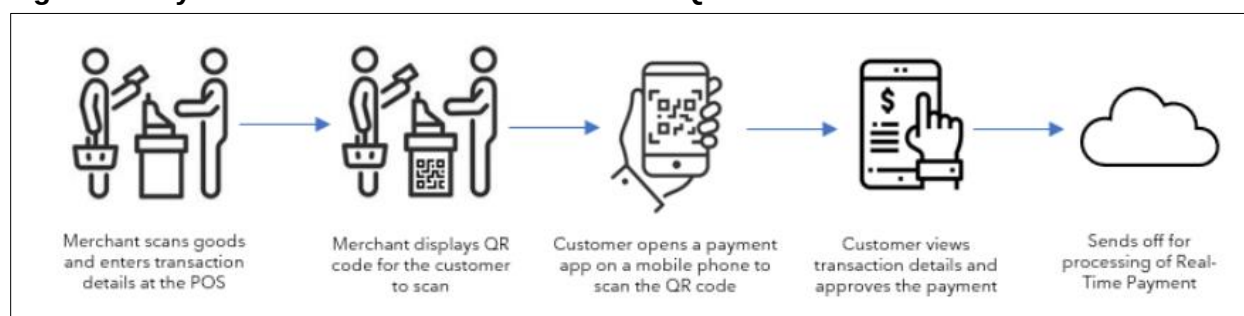
¹ <https://www.bis.org/>

² <https://www.beaconstac.com/types-of-qr-codes-examples>

³ https://www.indianbank.in/departments/merchant_upi_qr_code/#!

⁴ <https://www.checkout.com/blog/post/a-quick-guide-to-qr-code-payments>

Figure 2: Payment Flow for Merchant-Presented QR code



Source: US Faster Payments

Consumer Presented QR Code Payments

4.4. Consumer-presented QR code payments are made when a merchant scans a QR code displayed on a customer's phone, which is provided by their bank or non-bank payment service provider (FinTech), which contains their card information (or bank details), enabling the merchant to complete a payment transaction. Moreover, consumer-presented QR codes can facilitate app-to-app payments between individuals. In this scenario, both the payer and payee can open the relevant app, scan the payee's QR code, confirm the payment amount, and proceed with the transaction.⁵ For instance, Alipay, an international wallet provider allows its customers to have consumer presented QR codes on their mobile wallet applications. The QR code identifies the owner of the wallet, and what account to charge and it is auto-refreshed every minute in the wallet application without requiring an internet connection⁶. Refer to Figure 4 on the flow of a consumer presented QR Code Payment.

Figure 3: Payment Flow for Consumer-Presented QR Code



Source: US Faster Payments

4.5. Considering the above, banks, authorized non-bank payment service providers and FinTech's should be able to offer both types of payment QR codes to the public given the role and benefits of both options to consumers and merchants.

⁵ Ibid.

⁶ <https://global.alipay.com/docs/ac/barcode/barcodeintro#:~:text=The%20barcode%2FQR%20code%20essentially,be%20charged%20for%20the%20payment>

Static QR Codes and Dynamic QR Codes

- 4.6. Both merchant and consumer presented QR codes can either be static or dynamic. Static QR codes contain fixed, unchangeable information, such as a Uniform Resource Locator (URL), e-mail addresses, or text. They are generated once and cannot be edited after creation. Due to their static nature, these QR codes are primarily used for sharing basic information that is not expected to change over time or at all, like a website link, contact details, or text such as birthdays or identification numbers⁷. Unlike static QR codes, dynamic QR codes offer the ability to store information that can be updated or altered even after the code has been generated. This flexibility is achieved by redirecting the QR code to an intermediary URL, which can subsequently be modified to point to a new destination. Dynamic QR codes prove particularly beneficial in scenarios where content may require updating at a frequency or on demand, such as marketing campaigns, product information, banking details, or card numbers⁸.
- 4.7. Dynamic or static QR codes can be used for both consumer or merchant-presented payment use cases, depending on the merchant or consumer preference. From a financial inclusion perspective, static QR codes provide real benefits for very small and medium enterprises from a cost and ease-of-use perspective and should be sufficient for simple payment instructions. Dynamic QR codes may be more suitable for bigger enterprises as they provide more functionality at a higher cost and the requisite technical expertise to maintain. From a standards perspective, both types of QR codes should be accommodated by the Namibian payments industry to ensure there are no artificial barriers to entry.

5. QR Code Specification

- 5.1. Various interoperable QR specifications are being adopted in different jurisdictions. Standards for interoperable merchant-presented and consumer-presented QR codes normally define and describe the format, encoding, and decoding of the data “payload” as well as the requirements used to perform QR code transactions. A variety of interoperable specifications are publicly available for countries to adopt and are flexible enough to accommodate different use cases and to cater to local and business needs. Regarding QR code standardization in Namibia, 100% of the payments industry participants indicated (through a survey) that the NPS should adopt open source QR code specifications without differentiating between merchant-presented and customer-presented QR codes.
- 5.2. Before deciding on and building a QR specification, it is important to clearly define the payment use cases and business application scenarios in the domestic payment ecosystem. Consideration should be given to whether the QR codes will be used in-store at merchants, whether they will have both online and offline payment capabilities, and whether

⁷ <https://www.beaconstac.com/types-of-qr-codes-examples>

⁸ <https://www.beaconstac.com/types-of-qr-codes-examples>

they are peer-to-peer payments and/or cross-border payment scenarios, among others. Based on the payment uses and business application scenarios, corresponding standards, and specifications should be agreed upon by the industry and built accordingly. In doing so, the NPS industry should be guided by international best practice and compatibility with QR Code Specifications for Payment Systems for both Merchant-Presented Mode and Customer-Presented Mode.

6. Principles for Payment QR Code Standardisation in the National Payment System

6.1. Successful adoption is dependent on a clear roadmap that clarifies the approach, technical specifications, level of interoperability, security and privacy considerations, accessibility and usability, and the adoption and promotion strategy. It is the Banks guidance and position that the following principles should be considered for the standardisation of payment QR codes in the Namibian NPS:

- a) **Approach:** It is the Bank's position that a hybrid approach should be adopted wherein the Bank provides guidance and the industry develops standards that are based on international best practices to promote interoperability. Should the Bank not see alignment or collaboration within the industry, the Bank will mandate the adoption of standardised QR code specifications for payments in the NPS by July 2024. The banks and payment services providers are further required to drive customer and merchant education on the adoption and usage of payment QR codes.
- b) **Technical specifications:** The industry should establish a common structure and format for QR codes, including the length or size, error correction level, and encoding scheme, to ensure that they can be easily scanned and processed by various payment platforms. The technical specifications to be used for the QR code standards should only be open source and based on international best practice and should be fit-for-purpose supporting all dynamic and static, consumer-presented, and merchant presented use-cases.
- c) **Level of interoperability:** The industry should ensure that payment QR codes can be used across different payment platforms, banks, FinTech's, payment service providers, and wallets, etc., facilitating seamless transactions for users. All QR code standards should be interoperable with all payment instruments.
- d) **Security and privacy:** The industry should ensure that they implement measures to protect user information and transaction data from unauthorised access, tampering, and other security threats. All safety and privacy aspects of payment QR codes should at a minimum be guided by and comply to *Determination of the Operational and Cybersecurity Standards within the National Payment System* (PSD-12). Two-factor authentication should be required for every QR Code payment.
- e) **Accessibility and usability:** The industry should ensure that payment QR codes are easily accessible to users, with clear guidelines on how to generate, scan, and use them

in various contexts and use cases and in line with the standardised QR code specifications. Every merchant presented QR code should provide clear guidelines on how to generate, scan, and use them in applicable use cases.

- f) **Adoption and promotion:** The industry through PAN should encourage and promote the widespread use of standardised payment QR codes by collaborating with financial institutions, payment service providers, merchants, and users to increase awareness and adoption.
- g) **Cost effectiveness:** It is the Bank's position that QR codes solutions should be in the public interest, promote competition and efficiency and comply with the standards determined by the Bank.

6.2. Further to the above, the Bank hereby emphasises the following:

- a) Technical specifications employed for the QR code standards should be based on international best practice and be fit-for-purpose applying to all dynamic, static, consumer-presented, and merchant-presented QR codes use cases.
- b) Proprietary, exclusive, and non-open-source codes are strongly discouraged.
- c) All entities issuing or accepting payment facilitated by QR codes are requested to take the initiative to increase awareness about interoperable QR codes.
- d) Industry is requested to establish QR code specifications that are reflective of the Namibian landscape to ensure Namibian QR code interoperability.
- e) The industry developed payment QR codes specifications will be subject to the Bank's approval. The specification/rules etc., should include but not be limited to consumer-presented and merchant-presented QR codes to fulfil the matrix presented in the table below:

	Bank	Non-Bank	EFT	Card	E-money	App
Bank						
Non-Bank						
EFT						
Card						
E-money						
App						

- f) Entities that use proprietary QR codes are strongly encouraged to migrate to interoperable QR codes that are based on standardised specifications, with the process of migration to be completed by 30 June 2024.
 - g) Should the Bank not see alignment or collaboration within the industry, the Bank will mandate the adoption of standardised QR code specifications for payments in the NPS by October 2024.
- 7. The banking industry and the entire financial sector are encouraged to act in accordance with the Guidelines and the Bank's position included herein.
 - 8. The Bank may amend the Guidelines from time to time.
 - 9. All enquiries related to the Guidelines should be forwarded to:

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P.O. Box 2882
Windhoek
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Signed:



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