Towards Inclusive Digital Transformation:

# DPI GAP ASSESSMENT FOR NAMIBIA

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# EXECUTIVE SUMMARY

Namibia stands at a turning point in its digital transformation journey. With a population that is young, increasingly urban, and largely mobile-first, the country has the demographic foundations to leapfrog traditional infrastructure and build a digital economy anchored in Digital Public Infrastructure (DPI). At the heart of this opportunity lies the ability to integrate three essential building blocks, digital identity (Digital ID), payments, and trusted data exchange, into a coherent system that can expand financial inclusion, improve government efficiency, and spur innovation.

Progress in this regard has already begun. Namibia has developed an electronic national population registry platform and plans to roll out electronic identity cards from 2026, while also partnering with India's National Payments Corporation of India (NPCI) to implement an instant payments system modelled on the Unified Payments Interface (UPI). The NamX platform, inspired by Estonia's X-Road, has been introduced as a backbone for secure data exchange across government departments to provide eGovernment services. Together, these initiatives demonstrate political will and technological ambition. However, the absence of a comprehensive National Data Protection Act, the lack of a national cybercrime law or framework, and the non-operational status of electronic signature provisions create gaps that undermine trust, prevent private-sector participation, and delay the benefits of scale.

International experience underscores what Namibia stands to gain as well as lose. India's combination of Aadhaar and UPI shows how regulatory mandates and interoperable platforms can rapidly transform inclusion and commerce. Singapore's SingPass and PayNow and Nigeria's virtual National Identity Number (vNIN) and NINAuth application programming interfaces (APIs), illustrate the importance of privacy, consent, and collaborative governance in building trust. Brazil's Pix and Open Finance demonstrate how regulator-led, mandatory frameworks can accelerate adoption and innovation across society. Namibia, by contrast, risks lagging behind its peers if it cannot align regulatory reform with the speed of technology implementation.

The lessons are clear: To unlock the full potential of its digital transformation, Namibia must fast-track the passage of enabling laws on data protection, cybersecurity, electronic Know Your Customer (e-KYC), and electronic signatures, while accelerating the rollout of Digital ID with strong safeguards and API access for private-sector use. Its instant payments system must be deployed at scale, with a central addressing scheme and mandatory interoperability that reach both banks and financial technology (fintech) firms, while being designed for cross-border trade within the Southern African Development Community (SADC). The NamX platform needs to define a service portfolio and target outcomes to steer implementation priorities. Moreover, the platform should include consent-as-a-service for use cases requiring citizen-level permission. At the same time, investments in rural connectivity, digital literacy, and affordability are essential to ensure that DPI does not deepen divides but instead brings all Namibians into the digital economy.

Namibia has the chance to position itself as a regional leader in digital transformation, using DPI as a catalyst for growth, efficiency, and social inclusion. However, realising this vision will require urgency, coordination, and trust. If the right regulatory foundations are laid and systems are integrated inclusively, Namibia can move from aspiration to action, transforming its demographic and technological advantages into a digital dividend for citizens, businesses, and government alike.



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# 01 INTRODUCTION AND CONTEXT

This section examines Namibia's foundational characteristics and strategic positioning for DPI implementation, analysing demographic advantages, infrastructure capabilities, and policy frameworks that will influence the success of digital transformation initiatives.

## 1.1 Understanding Digital Public Infrastructure

Digital Public Infrastructure (DPI) is gaining significant traction worldwide as countries recognise its potential to transform public service delivery and economic inclusion. The three foundational layers, digital identity (digital ID), payments, and data exchange, are being deployed at varying scales globally: 102 countries have implemented DPI-like data exchange systems, digital payment services have reached 100 countries, and digital ID systems span 57 nations, according to the UCL DPI Tracker.[1] This uneven deployment reflects differing national priorities and developmental contexts; nevertheless, the trend towards comprehensive, integrated DPI stacks is accelerating as countries witness the exponential benefits of coordinated infrastructure development.

Digital ID systems are increasingly adopting interoperable standards and mobile-first approaches, enabling citizens to authenticate seamlessly across government and private services while maintaining privacy through consent-based frameworks. Payments infrastructure is evolving rapidly, with instant payment systems emerging as the preferred pathway to financial inclusion over retail central bank digital currencies (CBDCs), while cross-border interoperability advances through initiatives such as Association of Southeast Asian Nations (ASEAN) quick response (QR) linkages, Europe's Single Euro Payments Area (SEPA) Instant, and Africa's Pan-African Payment and Settlement System (PAPSS). Meanwhile, data exchange infrastructure is maturing through privacy-preserving technologies and standardised application programming interfaces (APIs) that enable secure, consent-based sharing across institutions.

The transformative power of DPI lies in its ability to create exponential value through these three layers, where each additional user increases utility for all participants, while integration across infrastructure layers multiplies benefits. When integrated effectively, DPI can drive financial inclusion, reduce transaction costs, improve government service delivery, and foster innovation, while maintaining security and privacy standards. Current global trends indicate that countries implementing comprehensive DPI stacks experience accelerated digital transformation, improved economic outcomes, and enhanced social inclusion. For African countries such as Namibia, these developments underscore both the opportunity to leapfrog traditional infrastructure constraints and the strategic importance of building integrated DPI systems that align with emerging regional standards to maximise economic integration and social inclusion.[2]

These global developments are underpinned by a common architectural framework that defines DPI's structural foundation. At its core, DPI comprises three interconnected layers that work synergistically to enable scalable, secure, and inclusive service delivery across both the public and private sectors:

**1. Digital ID infrastructure** provides every individual with a unique, verifiable digital identity that can be used across multiple services. This layer serves as a foundational component enabling secure authentication across both government and private-sector services, thereby reducing fraud and streamlining access to essential services.

**2. Digital payments** infrastructure enables instant, low-cost, and interoperable financial transactions through digital channels. This layer includes real-time payment systems, mobile money platforms, and digital wallets that seamlessly connect banks, financial technology (fintech) providers, and users.

**3. Data Exchange infrastructure** infrastructure facilitates secure, consent-based sharing of data across institutions while maintaining privacy and user control over what data can be shared. This layer enables government agencies and authorised private entities to access necessary information efficiently, while protecting user privacy.

## 1.2 Namibia's Country Profile

### 1.2.1 Demographic Foundations for Digital Transformation

Namibia presents a compelling case for DPI development, with demographic characteristics that create substantial opportunities for digital adoption and innovation. With a population of 3.03 million, the country stands at a pivotal point where demographic dynamics could drive meaningful digital transformation.[3] The population structure reveals exceptional potential for digital adoption. According to Namibia's 2023 Population and Housing Census (preliminary results), approximately 37% of the population is aged 0–14 years, while the working-age group (15–59 years) makes up about 56%, and those 60 years or older account for 6.8% of the population.[4] This potential is reinforced by global evidence: adoption studies such as those examining digital

[1] UCL Institute for Innovation and Public Purpose, "The Digital Public Infrastructure Map," accessed September 2, 2025, https://dpimap.org/

[2] World Economic Forum, "Can Digital Public Infrastructure Help Guide the Transformation?", accessed September 8, 2025, https://www.weforum.org/stories/2024/12/can-digital-public-infrastructure-help-guide-the-transformation

[3] World Bank Open Data, "Population, Total - Namibia," accessed September 2, 2025, https://data.worldbank.org/indicator/SP.POP.TOTL?locations=NA

[4] UNFPA, "Youthful Population Dominates Namibia's 2023 Census Preliminary Results: 71.1% of Population Is under Age 35," accessed September 8, 2025, https://namibia.unfpa.org/en/news/youthful-population-dominates-namibias-2023-census-preliminary-results-711-population-under-age?

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payments and public digital programmes in India and fintech services among young students in Colombia demonstrate that younger populations tend to embrace digital infrastructure and financial technologies more rapidly than older cohorts due to greater familiarity with technology and lower reliance on legacy systems.[5]

Urbanisation trends further reinforce both opportunities and challenges for DPI implementation. Currently, 56% of Namibians live in urban areas, with urban populations growing at 3.9% annually compared to just 0.2% in rural regions.[6] This concentration enhances the viability of digital infrastructure investment in urban centres, where economies of scale can be achieved, while simultaneously raising concerns about rural exclusion from DPI benefits. Educational foundations present mixed readiness indicators. An adult literacy rate of 92% provides a strong baseline for digital service adoption, but gaps in higher-level skills suggest potential limitations in advanced digital service utilisation.[7] This implies that while basic DPI services, such as identity verification and simple payments, are likely to achieve broad adoption, more sophisticated services requiring advanced digital literacy may face adoption constraints.

### 1.2.2 Digital Infrastructure and Connectivity Landscape

Namibia's telecommunications infrastructure suggests mixed prospects for DPI viability. The country supports approximately 2.6 million mobile subscribers through three main operators: Mobile Telecommunications Company (MTC), Telecom Namibia, and Paratus, with Telecom Namibia serving as the primary fixed-line operator.[8]

Network coverage reached 93% nationally in 2024, but regional variations remain stark. Urbanised regions such as Erongo (97.6%) and Oshana (99.8%) have achieved near-universal access, while peripheral regions lag significantly. In Kunene, for example, nearly 20% of the population relies solely on 2G networks, with large unserved areas, and Kavango West sees 55% of the population with no access at all.[9]

International connectivity infrastructure remains limited, with one voice gateway and three data gateways serving the entire country. Domestic infrastructure development has concentrated along urban corridors such as Windhoek and Walvis Bay, creating a reinforcing cycle in which urban areas receive continued investment while rural regions struggle with limited commercial viability for private-sector expansion.

## Underserved population segments or businesses (%)




*Figure 1: Namibia's digital infrastructure and connectivity landscape*

[5] Stavros Sindakis and Gazal Showkat, "The digital revolution in India: bridging the gap in rural technology adoption," Journal of Innovation and Entrepreneurship 13, May 14, 2024. https://doi.org/10.1186/s13731-024-00380-w

[6] World Bank Open Data, "Urban Population (% of Total Population) - Namibia," accessed September 8, 2025, https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS?locations=NA

[7] World Bank Open Data, "Literacy rate, adult total (% of people ages 15 and above) - Namibia," accessed September 8, 2025, https://data.worldbank.org/indicator/SE.ADT.LITR.ZS?locations=NA.; The Namibian, "Education overhaul needed for 4th Industrial Revolution," August 24, 2022, https://www.namibian.com.na/education-overhaul-needed-for-4th-industrial-revolution/

[8] World Bank Open Data, "Mobile Cellular Subscriptions - Namibia," accessed September 2, 2025, https://data.worldbank.org/indicator/IT.CEL.SETS?locations=NA

[9] The Brief, Namibia's Leading Business & Financial News, "Namibia achieves 93% telecom coverage," December 5, 2024, https://thebrief.com.na/2024/12/namibia-achieves-93-telecom-coverage/

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### 1.2.3 Digital Adoption and Inclusion Patterns

The financial inclusion rate, based on findings from the 2017 National Financial Inclusion Survey, stands at 78%.[10] In addition, internet penetration in Namibia stands at 64%, as of 2023.[11] This mobile-first context aligns with broader African trends and has important implications for DPI design, suggesting that successful digital government services must be optimised for mobile delivery and capable of functioning effectively on lower-bandwidth connections.

Financial services adoption serves as a proxy for broader digital engagement, revealing pronounced digital divides. According to the Global Findex Database, between 2014 and 2024, bank account ownership among the poorest 40% of the population increased from 41% to 60%, representing significant progress but still trailing the richest 60%, where account ownership stands at 82%.[12] Mobile money adoption follows a similar pattern, with 36% uptake among the poorest compared to 57% among the richest, indicating that even innovative digital financial services may struggle to reach the broader population and overcome underlying barriers. This gap reflects fundamental differences in economic opportunity, digital literacy, and infrastructure access.

Comprehensive stakeholder research (with detailed methodology provided in Annex A) across Namibia's digital financial ecosystem consistently identified rural communities as the most underserved segment across all stakeholder categories. Small and medium-sized enterprises (SMEs) were also recognised as significantly underserved, particularly by digital financial service providers.

Key barriers to the uptake of digital financial services identified through stakeholder engagement include:

- High transaction costs, discouraging frequent use of digital channels, especially for low-value transactions
- Trust and digital literacy challenges, including persistent fraud concerns
- Connectivity and device limitations, particularly affecting rural populations
- Complex onboarding processes, including lengthy Know Your Customer (KYC) requirements
- Limited interoperability between payments platforms, causing user inconvenience

## 1.3 Namibia Digital Strategy and Objectives for transformation

### 1.3.1 Inclusive Digital Economy Objectives

Namibia's digital transformation agenda recognises that inclusive access to digital services is essential for equitable economic growth. Yet significant divides persist across income, geography, and demographics. As of 2022, nearly 370,000 Namibians remained without 4G coverage, while high relative data costs continue to constrain participation among low-income groups, women, and rural households.[13] High data costs create ongoing exclusion barriers that require policy intervention, such as facilitating subsidised access for essential government services and implementing data cost regulations to ensure affordability.

To address these barriers, the government has embedded digital inclusion within its core policy frameworks. The Harambee Prosperity Plan II (2021–2025) positioned Information and Communication Technology (ICT) as a driver of economic transformation, with targets of 95% broadband coverage (minimum 2 Mbps) and 95% digital television coverage by 2025.[14] The Universal Service Fund (USF) was adopted in 2012 to support rural network expansion through a levy on telecommunications operators. However, Section 23 of the Communications Act, which provides for the USF's operationalisation, was subject to litigation by operators, preventing the Communications Regulatory Authority of Namibia (CRAN) from collecting levies. In March 2024, the High Court ruled in favour of the Authority, allowing the USF to be operationalised and levies to be collected.[15] Complementing this, CRAN enforces an 'open access' regime, requiring operators to share towers and fibre networks to lower deployment costs and expand coverage.

Looking ahead, the government has elevated digital transformation as a whole-of-society priority in the Sixth National Development Plan (NDP6, 2025–2030), which emphasises coordinated action through the National Digital Strategy (2025–2029).[16]

### 1.3.2 Government Vision and Strategic Goals

Namibia launched its National Digital Strategy (2025–2029) in August 2025, led by the Ministry of Information and Communication Technology (MICT), providing a comprehensive overarching roadmap for digital infrastructure expansion,

[10] The Namibia Financial Inclusion Strategy 2025-35, https://www.bon.com.na/CMSTemplates/Bon/Files/bon.com.na/69/69d02c71-5762-41b5-949e-76cff74ac75b.pdf

[11] World Bank Open Data, "Individuals using the internet (% of population) - Namibia | data," accessed September 2, 2025, https://data.worldbank.org/indicator/IT.NET.USER.ZS?locations=NA

[12] World Bank Group, "The Global Findex Database 2025," August 8, 2025, https://www.worldbank.org/en/publication/globalfindex

[13] Ecofin Agency, "Namibia Plans Internet Speed Upgrade to Boost Digital Services," accessed September 8, 2025, https://www.ecofinagency.com/news-digital/2305-46967-namibia-plans-internet-speed-upgrade-to-boost-digital-services

[14] Konrad-Adenauer-Stiftung e. V., "The Harambee Prosperity Plan II (2021-2025)," accessed September 8, 2025, https://www.kas.de/documents/279052/279101/Der%2BHarambee%2BProsperity%2BPlan%2BII.pdf

[15] Shania Lazarus, "Govt Commits N$145 Million to Bridging Rural Digital Divide," The Namibian, March 24, 2025. https://www.namibian.com.na/govt-commits-n145-million-to-bridging-rural-digital-divide

[16] National Planning Commission, "NDP 6," accessed September 8, 2025, https://www.npc.gov.na/national-plans/national-plans-ndp-6/

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interoperability across government systems, e-governance platforms, and strengthened cybersecurity and data protection frameworks.[17]

In addition, the eGovernment Strategic Roadmap (2024–2026), launched in March 2024 by the Office of the Prime Minister (OPM), established a 'Digital First, Services for All' vision. It focuses on improving government operations for service delivery, with key goals including:[18]

- Digitising the top 10 public services
- Reducing paperwork in at least 50 government processes through the NamX interoperability framework
- Issuing electronic identity cards to 25% of the population within the roadmap's lifecycle

These initiatives are interconnected, share common goals, and exhibit thematic overlap. They are structured around six pillars, as outlined in the eGovernment Strategic Roadmap (2024–2026, OPM):

(1) governance and institutional leadership;

(2) foundational DPI such as electronic identity and civil registries;

(3) interoperability through NamX;

(4) digital transformation of public services;

(5) cybersecurity and privacy; and

(6) inclusive connectivity.

Taken together, these initiatives reflect Namibia's determination to build a digitally empowered nation in which public services are seamless, secure, and accessible to every citizen. With strong institutional leadership and a focus on interoperability, cybersecurity, and inclusive connectivity, Namibia is positioning itself for a more competitive and inclusive digital future.



[17] Ministry of Information and Communications Technology, "National Digital Strategy Plan 2025," accessed September 8, 2025, https://ictsummit.gov.na/presentations/day_1/DIGITAL-STRATEGY-PRESENTATION-ICT-SUMMIT.pdf

[18] Joosep Kään, "Namibia Sets a New E-Government Strategic Roadmap to Support the Vision "Digital First Services for All," DIGITAL NATION, May 3, 2024, https://www.digitalnation.eu/news-end/namibia-sets-a-new-e-government-strategic-roadmap-to-support-the-vision-digital-first-services-for-all

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# 02
# CURRENT DPI LANDSCAPE ASSESSMENT

This section evaluates Namibia's current legal and policy framework as well as the country's technological infrastructure for DPI implementation.




*Figure 2: Current digital public infrastructure landscape assessment*

## 2.1 Legal, Policy, and Regulatory Landscape

This section evaluates Namibia's current legal and policy framework for DPI implementation. It examines existing legislation, identifies critical gaps in data protection and cybersecurity laws, and assesses institutional governance structures. The analysis reveals that while Namibia has established foundational strategies such as the National Digital Strategy (2025–2029), key enabling legislation remains incomplete or non-operational, creating barriers to safe and inclusive DPI deployment.

### 2.1.1 Current Legal and Regulatory Framework

While specific legislation has not been finalised to support the rollout of DPI, several existing laws could provide an underlying framework through which DPI systems can be implemented across Namibia. However, other key legal and regulatory frameworks, such as data protection and privacy laws, required for the safe rollout of DPI have not yet been enacted.

**1. National Digital Strategy**

The Government of Namibia has acknowledged the importance of a whole-of-society approach to digital transformation. Namibia's Sixth National Development Plan (NDP6, 2025–2030) highlights the need to coordinate digital development through the National Digital Strategy (2025–2029), launched in August 2025.

The strategy articulates ambitions to improve digital public services through the provision of unique digital IDs for citizens and enhanced government data sharing. It also sets out roadmaps for improving digital infrastructure and digital skills, as well as strengthening policies and regulations to support a digital economy. Similarly, the Namibia Financial Sector Transformation Strategy (2025–2035) identifies the implementation of IDs, electronic Know Your Customer (e-KYC), digital payments, including instant payments, secure data sharing, and open banking as critical to the transformation of Namibia's financial sector.[19] In addition, the Ministry of Home Affairs, Immigration, Safety and Security (MHAISS) has announced plans to roll out a digital ID system, while the Bank of Namibia (BoN) is rolling out an instant payments system by 2026.[20]

**2. Data Protection and Privacy Laws**

Namibia's data protection and privacy laws, which are critical to the safe and responsible rollout of DPI layers, remain a work in progress. The absence of comprehensive data protection legislation represents a major barrier to DPI implementation in Namibia. Without such legislation, Digital ID systems cannot scale, data exchange platforms cannot enable effective consent management, and payment systems cannot integrate digital ID verification. The draft Data Protection Bill is aligned with

[19] Bank of Namibia, The Namibia Financial Sector Transformation Strategy 2025 - 2035, July 28, 2025, https://www.bon.com.na/CMSTemplates/Bon/Files/bon.com.na/69/69d02c71-5762-41b5-949e-76cff74ac75b.pdf

[20] Ayang Macdonald, "Namibia to roll out digital ID card in July 2026," Biometric Update, June 12, 2025, https://www.biometricupdate.com/202506/namibia-to-roll-out-digital-id-card-in-july-2026; Market Watch, "Central Bank's Payment Solution to Launch 2026," July 30, 2025, https://www.marketwatch.com.na/banking/central-banks-payment-solution-to-launch-20262025-07-30165301

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regional and international instruments; however, its enactment is essential to establish clear rules on consent, data portability, and liability, thereby helping to build the trust framework needed for DPI adoption.

The Civil Registration and Identification Act, 2024, which links digital notices of births and deaths with Namibia's identity management system, was passed by the Parliament of Namibia and gazetted in 2024, but has yet to come into force.[21] The Act includes key data protection safeguards, including the strict regulation of access to information by private entities and other state organisations. Namibia has also ratified the African Union Convention on Cyber Security and Personal Data Protection. While Article 13 of Namibia's Constitution enshrines the right to privacy, no comprehensive data protection laws governing the collection, processing, use, or transfer of personal data have been enacted.[22] A draft Data Protection Bill was circulated in 2022 for stakeholder feedback but has yet to undergo parliamentary review.[23]

**3. Cybersecurity Legal Framework**

MICT tabled an Electronic Transactions and Cybercrime Bill in 2017, which was subsequently withdrawn and directed to be separated into distinct Bills. In the absence of this legislation, the Ministry developed a National Cybersecurity Strategy and Awareness-Raising Plan (2022–2027). In addition, MICT and CRAN have finalised consultation and drafting of the electronic signature regulations, which have been submitted for gazetting.

The absence of comprehensive cybersecurity legislation creates vulnerability risks for large-scale digital systems, while providing inadequate legal frameworks for incident response and international cooperation. As DPI systems handle sensitive citizen data and critical payment transactions, robust cybersecurity legal frameworks are essential for system security, which in turn builds public trust. Prioritising such legislation is a vital component of the broader safeguards required for DPI.

**4. Digital Signature and Authentication Laws**

Namibia's Electronic Transactions Act (2019) establishes the legal framework for electronic transactions and communications, supporting the country's digital transformation agenda, including e-commerce and e-government. Within this framework, the Act formally recognises electronic signatures, establishing the basis for citizens and institutions to use digital signatures for document signing.[24] However, the specific provisions on electronic signatures have not yet come into force. MICT and CRAN have announced plans to operationalise these sections by 2026. That said, the digital ID being designed and rolled out by MHAISS will include biometrics and a contactless chip. In practice, the digital ID verifies identity, while the electronic signature authorises transactions, both essential components of a trusted digital ecosystem.

The non-operational status of electronic signature provisions prevents citizens from using digital signatures for document signing and contract execution, thereby limiting the practical utility of digital ID systems. This capability gap forces continued reliance on manual processes, reducing efficiency gains.

**5. Digital Financial Services Regulations**

Under the Payment System Management Act (2023), BoN oversees the licensing, regulation, supervision, and oversight of payment service providers and payment services, including e-money and mobile payment services.[25] BoN has comprehensively reviewed the Determination on Issuing of Electronic Money in Namibia (PSD-3). The revised PSD-3, published in 2024, aims to promote the availability and acceptance of e-money, enable interoperable wallets, foster financial inclusion, stimulate competition, and encourage innovative financial products and services. The revision broadens the scope and application of e-money wallets by allowing both banks and non-bank financial institutions to offer a wider range of financial products and services, such as savings, credit, insurance, and investment products, through e-money wallets.[26]

## 2.1.2 Policy Framework Evaluation

**1. Institutional Governance Structures**

Namibia's DPI-related institutional landscape is characterised by a distributed governance model, with responsibilities allocated across several key public institutions rather than a single, central coordinating authority. While a formal, overarching DPI coordination body has not yet been established, core DPI functions are clearly assigned within existing mandates.

MHAISS is responsible for the national population registry and is leading the development of a legal national digital ID, in coordination with OPM, MICT, and CRAN. BoN oversees Namibia's digital payments landscape, while MICT is responsible for the country's national digital transformation and ICT plans.

In addition, OPM plays a central role in e-government initiatives. In this regard, OPM worked with Estonia's Cybernetica on the implementation of NamX, a government data exchange and interoperability system based on Estonia's open-source UXP platform infrastructure.[27]

Notwithstanding these institutional arrangements, Namibia currently lacks a dedicated national data protection authority

[21] Namibia, The Gazetting of the Civil Registration and Identification Act 2024, January 23, 2025, https://mha.gov.na/documents/292728/5692036/Media+Release+Civil+Registration+and+Identification+Act+23+January+2025.pdf/

[22] Namibia, Constitution of the Republic of Namibia, 1990, art. 13.

[23] Frederico Links, "Rights Watered down in Draft Privacy and Data Protection Bill in Namibia," Association for Progressive Communications, March 25, 2024, https://www.apc.org/en/news/rights-watered-down-draft-privacy-and-data-protection-bill-namibia

[24] Electronic Transactions Act 4 of 2019 (Namibia)

[25] Payment System Management Act 14 of 2023 (Namibia)

[26] PSD-3: Determination on Issuing of Electronic Money, Bank of Namibia, March 27, 2025

[27] Cybernetica, "e-Government interoperability system Nam-X and other e-governance projects for the Government of Namibia," February 13, 2025, https://cyber.ee/resources/case-studies/namibia/

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responsible for the oversight and enforcement of data protection and privacy obligations. The proposed Data Protection Bill makes provision for the establishment of a Data Protection Supervisory Authority. In the interim, data protection responsibilities are enforced through sector regulators, including BoN, Namibia Financial Institutions Supervisory Authority (NAMFISA), and CRAN, within their respective regulatory mandates.

**2. Cross-border Data Regulations**

Namibia currently lacks a data protection regulatory framework governing cross-border data flows. Such a framework is expected to follow once the Data Protection Bill is enacted. A cross-border framework is party to regional initiatives that could pave the way for the eventual adoption of a cross-border data transfers regime aligned with regional standards. Namibia is part of the global village, and therefore, regional and international instruments set a foundation to guide member states without data privacy laws. Namibia has ratified the African Union Convention on Cyber Security and Personal Data Protection (the Malabo Convention), which came into force in 2023.[28] The Convention aims to establish a harmonised legal framework for cybersecurity and personal data protection across African Union member states and could facilitate the adoption of harmonised data flow regulations across the continent. As a member of the Southern African Development Community (SADC), Namibia is also aligned with the SADC Data Protection Model Law, a non-binding instrument intended to guide member states in harmonising data protection laws and supporting open and secure cross-border data transfers.

The ratification of the Malabo Convention and alignment with SADC frameworks provide important foundations for cross-border DPI integration. However, in the absence of domestic data protection legislation, Namibia cannot fully participate in regional digital integration initiatives that require comprehensive privacy frameworks for cross-border data flows.

**3. Policy Implementation Capacity**

Namibia faces policy implementation hurdles, including gaps in universal civil registration coverage that impede digital ID rollout, as well as budgetary constraints that hinder the deployment of digital systems.

Namibia has expanded its civil registration efforts in support of its forthcoming digital ID programme. However, many Namibians remain without identity documents, with at least 100,000 undocumented and stateless persons residing in the country.[29] The government has allocated US$9.7 million for the continued issuance of national identification documents.[30] Without comprehensive civil registration coverage, the implementation of a digital ID system risks widening inclusion gaps. Historically, budgetary constraints have constrained efforts to expand civil registration and have slowed Namibia's digital ID rollout.[31]

To address implementation capacity gaps, Namibia is working closely with international partners. These include Estonia, with which Namibia has collaborated on the development of NamX; India, with which Namibia is building its instant payments system; and the United Nations Development Programme (UNDP), which is supporting Namibia's digital ID programme. These partnerships can help Namibia overcome budgetary constraints and human capital gaps, particularly in the deployment of new technologies and the acceleration of rollout efforts.

**4. Innovation-enabling Initiatives**

NAMFISA introduced a regulatory sandbox in 2024 to support fintech innovation. BoN also operates a regulatory sandbox for fintech innovations that fall outside the scope of existing regulations. Introducing similar sandboxes for DPI could support Namibia in testing new DPI technologies, policies, and services in a safe and controlled environment before launching them at scale, helping to ensure that DPI development is grounded in real-world applications. Such sandboxes could help Namibia avoid design failures that may cause harm or impede adoption, while also playing an important role in crowding in DPI solutions and participation from the local digital economy. This approach would support the development of local solutions and help secure buy-in from Namibian fintech firms and private-sector stakeholders.

In other countries, such sandboxes have demonstrated significant promise by providing foundational support infrastructure for solution providers to experiment and innovate. The Reserve Bank of India (RBI) offers a relevant example: its regulatory sandbox has enabled new approaches to expanding access to financial services. One such outcome is ToneTag, a pioneer in voice-based, contextual offline payment solutions, which emerged through the sandbox. This experience illustrates how other markets could adopt similar models to stimulate local innovation built on DPI layers.[32]

Regulatory sandboxes operated by NAMFISA and BoN are relatively new. Twenty out of forty-two survey* respondents reported that these sandboxes are not being used effectively, suggesting that current engagement approaches require substantial enhancement to stimulate innovation and private-sector participation.

### 2.1.3 Assessment: Absent Legal and Policy Components

Several legal and policy components are currently absent, and these are obstacles to the safe and inclusive deployment of DPI.

**1. Pending Data Protection Act -** Prevents digital ID from scaling beyond government use, limits private-sector use for e-KYC services, constrains citizen consent management for data exchange, and creates legal uncertainty for cross-border integration

[28] Josephine Kaaniru, "The African Union Convention on Cyber Security and Personal Data Protection: Key Insights," Centre for Intellectual Property and Information Technology Law, Strathmore University, July 24, 2023, https://cipit.org/the-african-union-convention-on-cyber-security-and-personal-data-protection-key-insights/

[29] Hertta-Maria Amutenja, "Over 100 000 stateless people live in Namibia," Windhoek Observer, 2023, https://www.observer24.com.na/over-100-000-stateless-people-live-in-namibia

[30] Ayang Macdonald, "Namibia to step up civil registration efforts with $9M budget," Biometric Update, May 12, 2025, https://www.biometricupdate.com/202505/namibia-to-step-up-civil-registration-efforts-with-9m-budget

[31] Melody Musoni, Ennatu Domingo, and Elvis Ogah, "Digital ID Systems in Africa: Challenges, Risks and Opportunities," ECDPM, December 2023, https://ecdpm.org/application/files/5517/0254/4789/Digital-ID-systems-in-Africa-ECDPM-Discussion-Paper-360-2023.pdf

[32] Advait Palepu, "Interview: ToneTag CEO Kumar Abhishek on bringing voice-based payments to the masses," MediaNama, March 10, 2021, https://www.medianama.com/2021/03/223-tonetag-feature-phone-voice-upi-2/

*Survey methodology and details are available in Annexes A, B, and D.

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**2. Absent Cybersecurity Framework -** Creates vulnerability risks for critical digital systems, provides inadequate legal authority for incident response, and limits international security cooperation

**3. Non-operational Electronic Signature Provisions -** Necessitate continued manual document processing, limit fully digital service delivery, and constrain potential government efficiency gains

The absence of a comprehensive Data Protection Act and a cybersecurity legal framework weakens DPI policy readiness, particularly in relation to the rollout of digital ID and the consistent handling of personal data by public agencies, banks, and businesses. Stakeholder consultations echoed these concerns, highlighting that weak policy and regulatory frameworks fail to provide clear guidance for digital transformation initiatives across both the public and private sectors. While these legal frameworks remain absent, it is noteworthy that the Financial Industry Cybersecurity Council was officially launched on 21 November 2022 to address cyber threats. The Council was subsequently renamed the Financial Industry Cybersecurity and Operational Resilience Council in 2025.

Beyond legal and policy frameworks, stakeholders also identified several barriers requiring immediate attention to support effective DPI implementation (Figure 3). Cost-related barriers, particularly those associated with mobile data and internet access, were the most frequently cited hindrance to digital service uptake among end users (92.8%). This was followed by high infrastructure and system integration costs (86%). From a technical perspective, 85% of respondents identified closed-loop and siloed systems as the primary barrier preventing full interoperability among stakeholders. In terms of accessibility, poor network coverage or limited device access was reported by 83.3% of participants as a major obstacle to the digital inclusion of underserved groups, particularly rural populations. In addition, 80.9% of respondents highlighted a lack of trust in digital financial services as a significant barrier.

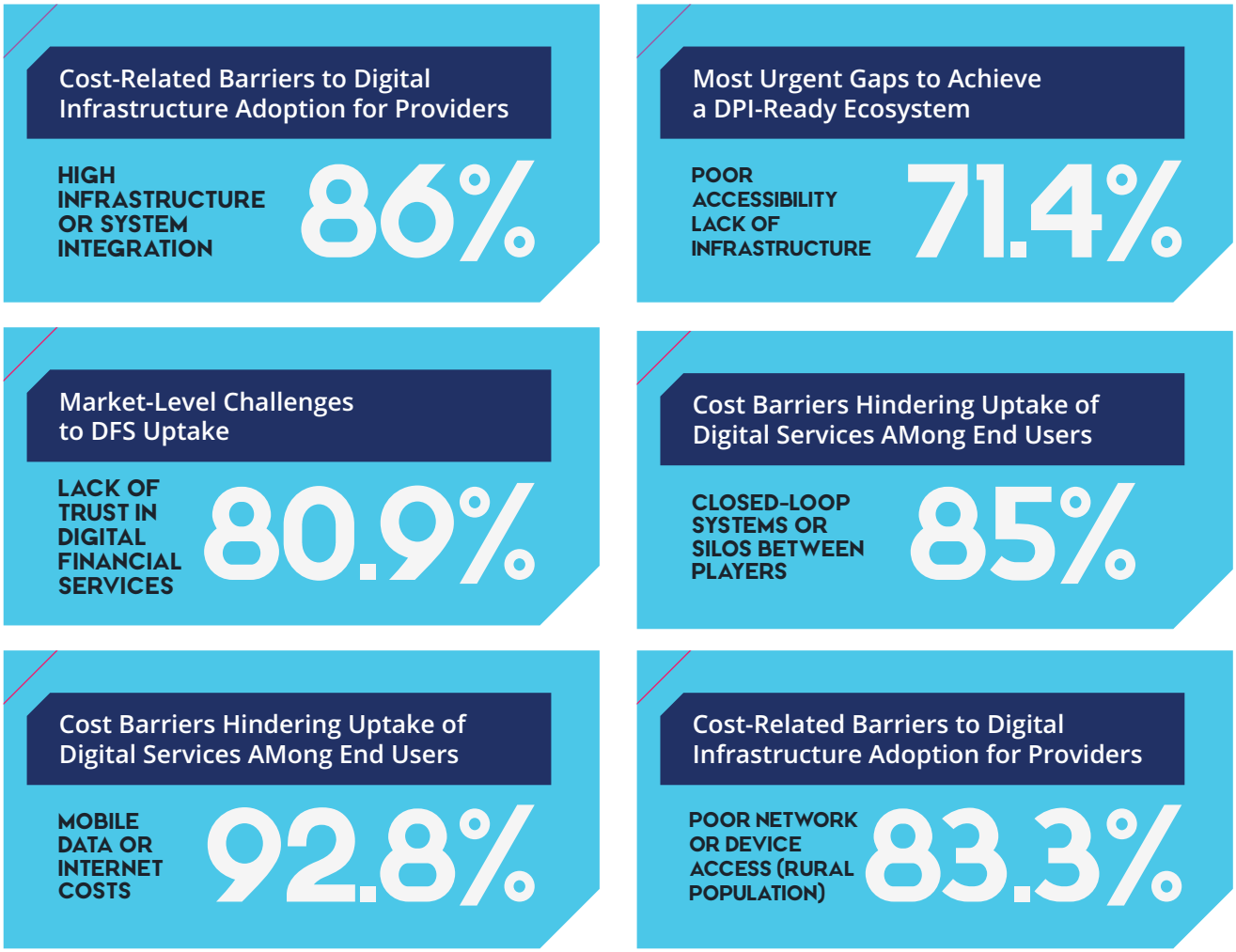



*Figure 3: Stakeholder-identified barriers to digital public infrastructure implementation*

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## 2.2 Technology Landscape

This section provides a comprehensive assessment of Namibia's technology infrastructure across the three DPI pillars: digital ID, digital payments, and data exchange. It evaluates current capabilities, including the electronic National Population Registration System (eNPRS) biometric identity system, instant payments development through the United Payments Interface (UPI) partnership with India, and the NamX data exchange platform, which is based on Estonia's X-Road model.

### 2.2.1 Digital Identity Systems

Namibia's digital ID infrastructure has evolved from manual, siloed registries to the eNPRS, a centralised, biometric-enabled population system. Its implementation aims to support lifecycle identity management and enable connections to priority systems, including passports, statistics, and civil registration events.

The DPI survey findings underscore the strategic importance of national digital ID development, with 95% of respondents (40 of 42) affirming that a national digital ID or e-KYC system would enhance access to digital financial services. This consensus spans banking institutions, digital financial service providers, public sector entities, and infrastructure providers.

**1. Institutional Setup**

MHAISS serves as the central authority for the Namibia Identity Management System (NIMS). Responsibilities are divided between the Civil Registration department, which documents vital events and issues national identity documents, and the Immigration department, which manages passports, permits, visas, and citizenship. The broader ecosystem also includes OPM, which coordinates e-government initiatives, and the Namibia Statistics Agency (NSA), which integrates civil registration data into national statistics.

**2. Current Architecture**

The eNPRS consolidates identity information into Person Profiles, anchored by a Unique Profile Number that links the birth-to-death lifecycle, biometrics, identity documents, and civil registration events. This multi-tier, web-based platform integrates with civil registries, the Civil Identity Registry, biometric systems such as the Automated Fingerprint Identification System (AFIS), and imaging systems for chip-enabled plastic identity card production.

- The eNPRS is projected to integrate with:
- Passports and Immigration systems
- Data warehouse and NSA statistics
- Other government systems, including health, education, taxation, voter, and pension systems
- Private-sector entities, including banks, telecommunications companies, and fintechs, for KYC purposes
- E-government portals and services for citizen-facing authentication

**3. Security Framework**

Public Key Infrastructure (PKI) employs digital certificates to enable authentication, confidentiality, and integrity in electronic communications. It is anchored by Certificate Authorities (CAs), which manage the full digital certificate lifecycle, including issuance, administration, renewal, and revocation. The National PKI Root Certificate Authority will be hosted by CRAN, alongside the Smart ID Root Certificate Authority. OPM will operate and administer subordinate CAs responsible for government digital service identities and credentials.

**4. Assessment: Digital Identity Infrastructure**

*Table 1: Assessment of Namibia's digital identity infrastructure*

**STRENGTHS**

1. Robust eNPRS biometric platform with comprehensive lifecycle management
2. PKI security architecture with CRAN Root CA providing enterprise-grade protection
3. Integration capabilities across government systems and civil registries
4. Planned smart card deployment for secure authentication

**GAPS**

1. Data protection legislation gap prevents private-sector integration.
2. Absence of tokenisation creates identity theft risks and surveillance concerns that undermine citizen trust and put them at risk.
3. PKI-only authentication excludes rural users with basic phones, preventing inclusive access essential for network effects.
4. From an infrastructure perspective, the APIs are available; however, leveraging them for e-KYC purposes has not yet been implemented. This prevents financial institutions from adopting automated e-KYC processes and results in continued manual procedures, which exclude a significant portion of the eligible population.

Namibia's planned rollout of a biometric digital ID by 2026 represents a significant step toward modernising service delivery and enabling digital finance. However, until the system is operational, its full value cannot be realised: citizens continue to rely on physical IDs, onboarding for banking and payment services remains cumbersome, and opportunities for seamless e-KYC, fraud reduction, and cross-sector interoperability are missed. Moreover, without supporting data protection and cybersecurity legislation, as noted in Section 2.1.3, trust in the future digital ID could be undermined before it gains traction. In other words, Namibia is at a critical transition point: the digital ID has the potential to anchor open finance and digital government, but without speed, inclusion, and safeguards, the country risks creating a powerful tool that people may hesitate to use.

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## 2.2.2 Digital Payments Infrastructure

Namibia's digital payments infrastructure has undergone modernisation and aims to be trusted, future-fit, and globally competitive, offering consumers and businesses safe, efficient, and accessible transaction options. Continued modernisation is a strategic priority for BoN to support inclusive economic participation, strengthen resilience, and advance shared prosperity for all Namibians.

Given the current infrastructure, interoperability remains a major challenge, constraining the foundation for instant payments deployment. Survey respondents (Figure 4) across the financial ecosystem assessed existing system integration as follows: 43% described systems as 'slightly interoperable', 26% as 'moderately interoperable', and 24% as 'mostly interoperable'. Only 2% considered the current systems fully interoperable, highlighting substantial gaps in seamless payment interactions across banks, mobile money providers, and fintech platforms.

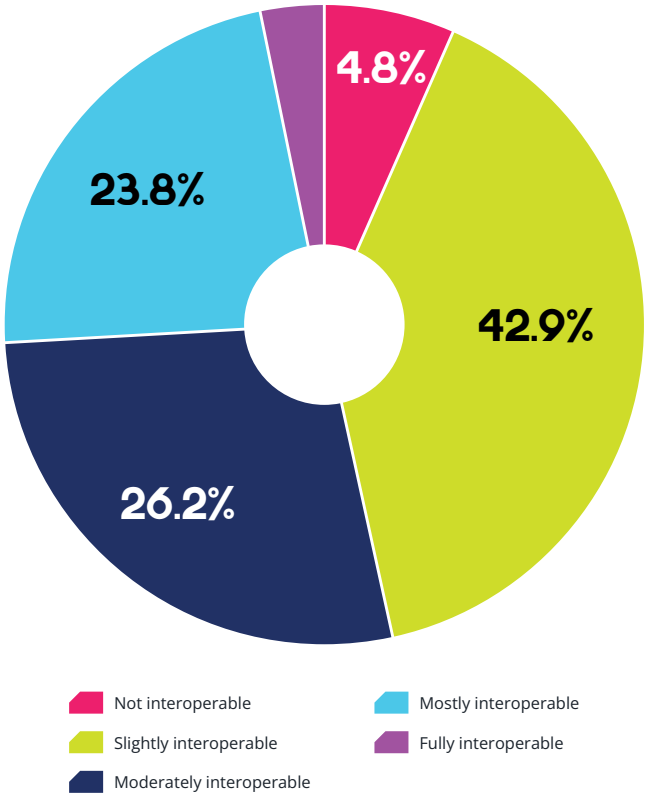



*Figure 4: Stakeholder-identified interoperability assessment*

**1. Institutional Architecture**

BoN regulates and operates the Namibia Interbank Settlement System (NISS), the country's real-time gross settlement (RTGS) system, providing final settlement in central bank money for interbank transfers. NamClear serves as the designated Automated Clearing House (ACH) and Financial Market Infrastructure for Namibia, clearing domestic interbank electronic funds transfers (EFTs) and card transactions with NISS settlement.

**2. Digital Payment Channels**

Current digital payment instruments include:

- RTGS: high-value interbank payments settled through NISS
- EFTs: cleared via NamPay with ISO 20022 support
- Cards: domestic transactions processed via NamSwitch with NISS settlement
- Mobile money and wallets: offered by commercial banks, mobile network operators, and fintechs
- QR and merchant payments: transitioning toward standardised, interoperable QR systems

**3. Instant Payment Development**

In May 2024, BoN and the National Payments Corporation of India (NPCI) entered into a Technology Agreement to implement a UPI-class real-time payments (RTP) platform in Namibia.[33] Under the agreement, NPCI will provide technology transfer, advisory support, and a reference UPI stack to BoN to establish a domestic instant payments scheme. The intended outcomes include greater financial inclusion, interoperability, lower transaction costs, and strengthened security across both person-to-person and person-to-merchant use cases.

BoN's directive mandates e-money interoperability via an instant payment switch, with a February 2026 implementation milestone.[34] The UPI technology stack emphasizes open-source, microservices, cloud-native infrastructure through a layered architecture including user layer (mobile apps), middleware layer (core processing), and bank layer (account integration).

**4. Assessment: Digital Payments Infrastructure**

Namibia possesses solid foundational payment infrastructure through NISS, the adoption of ISO 20022, and NamClear, supported by a clear regulatory framework under BoN oversight, placing it on par with global standards. However, limited interoperability between current systems and pending instant payment implementation create barriers to comprehensive DPI deployment. Without these connections, the upgrade risks remaining a back-end improvement that the average consumer or SME does not experience directly. In short, Namibia is building strong 'rails', but the real test lies in converting this infrastructure into tangible benefits and usage, which in turn provide evidence of inclusion, efficiency, and financial innovation. Only 22% of banking sector respondents reported being 'fully ready' for instant payments.

[33] Directive Under the Payment System Management Act, 2023 (Act No. 14 of 2023).

[34] Directive Under the Payment System Management Act, 2023 (Act No. 14 of 2023).

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## 2.2.3 Data Exchange Infrastructure

NamX is Namibia's secure, distributed data-exchange layer, functioning as a national 'interoperability bus' based on Cybernetica's Unified eXchange Platform and the Estonian X-Road model, operated under OPM. The system is designed to connect ministries, agencies, and authorised external parties, enabling e-government services to access each other's APIs without copying data to a central hub.

**1. Core Architecture**

The architecture is divided between a central control plane, operated by OPM, and edge nodes at participating institutions. Centrally, OPM hosts the Member and Service Registry, with global configuration defining authorised communications. At the edge, each institution runs a Security Server that acts as a gateway for all inter-agency traffic.

**2. Security Properties**

Security is enforced end-to-end through message-level signing and encryption, mutual Transport Layer Security (TLS) between Security Servers, non-repudiation via trusted timestamps, least privilege enforced through per-service Access Control Lists (ACLs), and a peer-to-peer topology that eliminates single points of failure.

**3. Service Development**

Service development progresses through structured tracks, including a 2024–2025 programme funded by Estonia's development agency, Namibia's e-government roadmap committing to 'Digital-First Services' with priority services integrated by 2026, and vendor documentation of platform evolution.

**4. Assessment: Data Exchange Infrastructure**

NamX represents an advanced foundational infrastructure for secure data exchange, based on the proven Estonian model. However, the platform remains in the implementation phase, with operational services still limited. Its success depends on agency onboarding, service catalogue development, and integration with digital ID and payment systems. This underscores the importance of finalising the Data Protection Bill, e-signature framework, and cybersecurity legislation promptly, in order to realise tangible economic benefits such as financial inclusion, efficiency gains, and trust in digital finance.

## 2.2.4 Overall Technology Landscape Assessment

Namibia demonstrates solid foundational capabilities across all three DPI pillars but continues to face integration and operational challenges. The digital ID infrastructure requires enhanced private-sector access and stronger privacy protections. Payment systems need accelerated deployment of instant payments and improved interoperability. Data exchange infrastructure, while architecturally sound, requires operational scaling and service integration. Coordinated development across these systems is essential for comprehensive DPI implementation.



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# 03 BENCHMARKING ANALYSIS

This section provides a systematic comparison of Namibia's DPI development against international best practices, examining both regulatory frameworks and technology implementations to identify gaps and opportunities.

## 3.1 Comprehensive Country Comparisons

### 3.1.1 India

**Regulatory Framework**

India represents one of the most comprehensive examples of regulatory-led DPI implementation globally. The RBI anchors a robust regulatory framework through the Payment and Settlement Systems Act (2007).[35] Under RBI oversight, NPCI operates key payment infrastructures, including the UPI, which serves as the national real-time payment rail. UPI operates as a regulatory-mandated, open-access, and interoperable real-time payments platform, requiring participation by financial institutions while ensuring a zero Merchant Discount Rate for small-value transactions.

Similarly, the Aadhaar Act (2016) provides the legal basis for India's biometric digital ID system, with over 1.4 billion individuals enrolled.[36] Aadhaar enables instant, paperless onboarding for financial services, significantly reducing costs and fraud. The system is mandatory for many government services and is supported by evolving data protection safeguards, enabling financial inclusion at scale.

Lastly, the Account Aggregator framework, launched and regulated by RBI under the Data Empowerment and Protection Architecture, mandates that regulated entities share financial data through licensed intermediaries based on user consent. This enables consent-based data sharing among financial institutions, allowing individuals and SMEs to securely share financial data and supporting innovation in digital lending and payments.

**Technology Implementation**

**Digital ID:** Aadhaar functions as a foundational digital ID infrastructure governed by the Unique Identification Authority of India (UIDAI). Each resident is issued a unique 12-digit identifier that serves as the digital ID and authentication layer. The identity data model encompasses biometric attributes (fingerprints, iris scans, and facial images) and demographic attributes maintained in the Central Identities Data Repository.

Authentication workflows include demographic verification, biometric authentication, and one-time password-based authentication. The Virtual Aadhaar ID provides a tokenised alternative that reduces exposure of the raw Aadhaar number.

**Digital Payments:** UPI processes over 20 billion transactions monthly, lowering costs, formalising trade, and boosting consumption.[37] This has contributed to the digital economy accounting for 11.7% of the Gross Domestic Product (GDP) in 2022–23, with projections approaching 20% by 2030. The system demonstrates impressive scale and inclusion and serves as a global benchmark, particularly through deep mobile integration and the maintenance of trust and system reliability.

**Data Exchange:** The Account Aggregator framework enables individuals and SMEs to access financial data across institutions while maintaining user consent and privacy controls. For example, India's National Digital Health Mission (NDHM) illustrates how integrating disparate datasets supports evidence-based health interventions.

**Key Outcomes:** Aadhaar-based e-KYC has slashed customer onboarding costs for financial institutions from ₹500–700 (US$6–9) to just ₹3 (US$0.033) per customer: an over 99% reduction. The Aadhaar-enabled Direct Benefit Transfer (DBT) system disburses over US$322 billion annually to approximately 650 million beneficiaries and has saved the government more than US$27 billion by eliminating leakages. The acceleration of digital economy growth demonstrates the transformative economic impact of comprehensive DPI implementation.

### 3.1.2 Singapore

**Regulatory Framework**

Singapore's Payment Services Act (2019), overseen by the Monetary Authority of Singapore (MAS), provides modular, activity-based licensing covering e-money, digital wallets, remittances, merchant acquisition, and digital payment tokens. The approach encourages fintech innovation through regulatory sandboxes while ensuring consumer protection and Anti-Money Laundering/Combating the Financing of Terrorism compliance.

SingPass (2003) and CorpPass (2016) serve as a federated digital identity ecosystem for individuals and companies respectively, enabling 97% of citizens, residents and businesses to authenticate across government and private services. SingPass links to MyInfo, the government service that allows citizens to instantly share their verified personal data with banks and other service providers for digital onboarding, eliminating paperwork. As a result, it allows banks and fintechs to conduct instant e-KYC using verified government data. Strong privacy and cybersecurity protections exist under the Personal Data Protection Act.

[35] Shreyika Walia, "The Payment and Settlement Systems Act, 2007 and RBI's Regulatory Powers," Ahlawat & Associates, August 25, 2023, https://www.ahlawatassociates.com/blog/the-payment-and-settlement-systems-act-2007-and-rbis-regulatory-powers

[36] The Aadhaar (Targeted Delivery of Financial and Other Subsidies, Benefits and Services) Act, 2016, https://uidai.gov.in/images/Aadhaar_Act_2016_as_amended.pdf; Unique Identification Authority of India, Government of India, "About UIDAI," accessed September 28, 2025, https://uidai.gov.in/en/about-uidai/unique-identification-authority-of-india.html

[37] Sonu Vivek, "How NPCI powers half the world's digital payments on just Rs 500 crore," India Today, September 24, 2025, https://www.indiatoday.in/business/story/npci-rs-500-crore-profit-half-of-world-digital-payment-upi-transactions-2792595-2025-09-24

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Fast and Secure Transfers (FAST) (2014) and PayNow (2017) enable real-time transfers using phone numbers, national identities, or QR codes as payment proxies. Overseen by MAS, these are collaboratively developed by banks with an open and interoperable access framework for fintechs. MAS provides guidelines and sandbox environments but participation is incentivized rather than mandated.

While Singapore has no formal Open Banking law, MAS promotes industry-driven API standards through the Singapore API Exchange and Singapore Financial Data Exchange (SGFinDex). SGFinDex enables individuals to view consolidated financial information across different financial institutions using the SingPass digital ID. Participation is voluntary but strongly encouraged under MAS guidance.

**Technology Implementation**

**Digital ID:** SingPass integration with private-sector services has streamlined business processes, with companies reporting up to an 80% reduction in customer onboarding time and significant cost savings through automated verification. As a result, banks and fintechs can conduct instant e-KYC using verified government data.

**Digital Payments:** FAST operates 24/7 and adheres to ISO 20022 message harmonisation. PayNow functions as an overlay Central Addressing Scheme operated by the Association of Banks in Singapore, mapping proxies (mobile numbers, national identity numbers, such as National Registration Identity Card (NRIC)/ Foreign Identification Number (FIN) for individuals, and Unique Entity Number (UEN) for corporates) to deposit accounts.

Since 2020, MAS has permitted eligible non-bank financial institutions to connect directly to FAST and PayNow, widening scheme participation and enabling real-time, interoperable bank-to-wallet transfers. PayNow also enables cross-border transfers through bilateral linkages with Thailand (2021), Malaysia (2023), and India (2023).

**Data Exchange:** SGFinDex is a DPI for consumer-permissioned financial data sharing, using SingPass for authentication and a centrally managed online consent service. It functions as a pass-through orchestration layer without maintaining a central repository of personal financial data, brokering point-to-point data pulls from each provider to authorised recipient applications.

SGFinDex anchors security on Singapore's national identity stack, with SingPass providing strong customer authentication and federated identity via OpenID Connect/OAuth 2.0. Platform-to-platform calls are enforced through mutual TLS, signed requests, and short-lived tokens, with end-to-end encryption ensuring that the platform routes, but cannot read, financial payloads.

**Key outcomes:** PayNow and Singapore QR anchor a digital economy worth S$113 billion (17.7% of GDP) in 2023, growing at more than twice the pace of GDP while enabling SMEs to access regional markets. Similarly, SGFinDex's rollout has enabled fast, automated data sharing across banks and government agencies, leading to tangible improvements in customer behaviour, such as a 36% increase in investments among OCBC Bank users following data consolidation.[38]

### 3.1.3 Brazil

**Regulatory Framework**

Brazil's Central Bank directly supervises payments under the National Payments System Law (2013). The framework mandates market participation and enables innovations such as Pix, Brazil's instant payment rails. Brazil's regulatory stance balances stability with innovation, with the Central Bank actively prioritising financial inclusion and mandating interoperability.

The Cadastro de Pessoas Físicas (CPF, individual tax identity) and Cadastro Nacional da Pessoa Jurídica Cadastro Nacional da Pessoa Jurídica (CNPJ, business identity) serve as the backbone for identity verification. e-KYC is mandatory for financial institutions and enforced by the Central Bank. Integration with Gov.br, Brazil's national digital ID portal, enables authentication for digital banking, e-government, and Pix payments.

Pix, launched in 2020, is mandatory for all regulated financial institutions. The Central Bank operates Pix directly, enforcing interoperability and ubiquity. This approach promotes financial inclusion, competition, and innovation. Pix also enables free payments for individuals and low-cost transactions for merchants.

The Central Bank launched Open Finance in 2021 as a phased, mandatory framework requiring banks and financial institutions to share data, products, and services with licensed third parties. The rollout includes customer data sharing, payment initiation, and product comparability, integrated with Pix.

**Technology Implementation**

**Digital ID:** Brazil employs a federated identity model anchored in tax identity, tightly integrated with payments, delivering strong efficiency gains. The system illustrates how foundational identity infrastructure can drive both government efficiency and private-sector innovation when it is properly integrated across services.

**Digital Payments:** Pix, which handled 42 billion transactions worth US$3.5 trillion in 2023, is expected to add R$271 billion to GDP by 2028 by accelerating e-commerce and financial inclusion. The system demonstrates how instant, low-cost payments can rapidly reshape economic activity patterns. Brazil's rapid Pix adoption further illustrates how well-designed systems can transform financial access at speed, achieving 76% population adoption.

**Data Exchange:** Brazil's Open Finance framework enables customer data sharing, payment initiation, and product comparability, and is fully integrated with Pix. Brazil is among the globally most advanced jurisdictions in implementing a mandated regulatory open finance framework linked directly to payments. This approach demonstrates the value of standardised APIs in enabling enhanced data-sharing initiatives and fostering competition and innovation across the financial ecosystem.

[38] Sheila Chiang, "Banks, insurers see more customers using SGFinDex for financial planning," The Straits Times, March 8, 2025, https://www.straitstimes.com/business/banks-insurers-increasingly-see-customers-using-sgfindex-for-financial-planning

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**Key Outcomes:** Since its launch, Pix has scaled rapidly, processing 6.4 billion transactions in December 2024 alone.[39] Notably, adoption has been broad-based across income levels, with low-income populations recording the highest relative growth in digital payment usage. Pix was also leveraged for rapid emergency payment distribution during COVID-19, reaching millions of recipients within days. This mandatory interoperability model illustrates how regulatory-led frameworks can drive comprehensive transformation across the financial ecosystem.

## 3.1.4 Regional Context and Examples

### Nigeria

**Regulatory Framework:**

Nigeria established foundational digital ID through the National Identification Number (NIN), managed by the National Identity Management Commission (NIMC), and the Bank Verification Number (BVN), operated by the Nigeria Inter-Bank Settlement System (NIBSS). The Central Bank of Nigeria's (CBN) 2023 Customer Due Diligence Regulations mandate tiered, risk-based KYC requirements, including electronic identity verification.

The regulatory framework for instant payments is anchored by CBN, which designated NIBSS as the National Central Switch (NCS) in 2006. This mandate requires all CBN-licensed banks, switches, and mobile money operators to connect through NIBSS, ensuring interoperability across payment instruments and networks. The NIBSS Instant Payments (NIP) system, launched in 2011, operates under CBN oversight and provides the regulatory and technical foundation for real-time EFTs nationwide.

**Technology Implementation**

**Digital ID:** Nigeria's digital ID infrastructure is anchored in the NIN as the root identity for citizens and residents. The system includes virtual NIN tokenisation to enhance privacy protection, NINauth APIs enabling real-time identity verification, and platforms such as Uqudo that support fully digital onboarding processes. The Nigeria National Digital ID Card functions as a chip-based smart card embedding the NIN, biometric data, and payment functionality through a Mastercard partnership.

**Digital payments:** Nigeria's digital payments ecosystem is built on the NIP system, which operates as a 24/7 real-time EFT platform connecting all licensed financial institutions and is accessible through multiple channels, including mobile and internet banking. In June 2024, NIBSS announced a new solution, the National Payments Stack, which will introduce instant settlement using the ISO 20022 standard. The new system includes additional features such as KYC verification via BVN or Tax Identification Number (TIN) and request-to-pay functionality.

**Data Exchange:** Nigeria currently lacks a comprehensive data exchange framework comparable to more advanced DPI implementations, with data sharing operating largely through fragmented, bilateral arrangements between institutions. The BVN system enables basic cross-institutional customer identity verification, while NINauth APIs provide limited real-time identity verification capabilities. However, there is no structured, consent-based data-sharing infrastructure or standardised APIs to support broader financial data exchange across the ecosystem.

**Key Outcomes:** Nigeria's experience with NIN underscores the critical importance of a unified and interoperable identity system. Early duplication across agencies, such as banks, SIM registration, and voter ID systems, created inefficiencies that were later addressed through consolidation under NIMC. The integration of the NIN with BVN and SIM registration has expanded financial inclusion, enabling more citizens to access banking and mobile financial services. However, a comprehensive, economy-wide data-sharing approach has remained absent. Only in September did the National Information Technology Development Agency (NITDA) announce plans to roll out DPI and the Nigerian Data Exchange (NGDX) platforms across key sectors of the economy, starting in early 2026.

### Ghana: Infrastructure-Centric Payment Innovation

**Regulatory Overview**

Ghana's vision for ubiquitous, low-cost, 24/7 payments is enabled through the Ghana Interbank Payment and Settlement Systems (GhIPSS), a Bank of Ghana (BoG) subsidiary mandated to implement interoperable digital payment infrastructure. The regulatory framework establishes GhIPSS as the central switching hub for all payment rails, operating under BoG oversight to ensure system integrity and interoperability. The Payment Systems Act provides the legal foundation for digital payment operations, while BoG payment system regulations mandate participation and standardisation across banks and mobile money operators.

Similarly, the National Identification System is intended to generate a population register of all Ghanaian citizens and to serve as a centralised foundational identity system for verifying information across other registries. To advance this objective, the government launched a mass registration drive and has enrolled almost 19 million Ghanaians to date.[40] Popularly known as the GhanaCard, the system is managed by the National Identification Authority (NIA), established under the aegis of the Ministry of Communications and Digitalisation.[41]

Meanwhile, the Data Protection Act, 2012 (Act 843) established the foundational legal framework for data privacy, creating the Data Protection Commission as an independent statutory body responsible for protecting individual privacy and regulating the processing of personal data.[42] Relatedly, in December 2024, the

[39] Matera, "Pix By The Numbers | Q4 2024," January 2025, https://20392958.fs1.hubspotusercontent-na1.net/hubfs/20392958/Whitepaper%20-%20US/matera-pix-by-the-numbers-q4-2024.pdf

[40] National Identification Authority, Ghana, "Registration Statistics," accessed September 12, 2025, https://nia.gov.gh/nia-registration-statistics/

[41] Smith Oduro-Marfo, et al., "Digital Identity in Ghana," Centre for Internet and Society (CIS) and Research ICT Africa (RIA), 2021, https://digitalid.design/RIA%20docs/CIS_DigitalID_RIA_Ghana_31.10.21.pdf.

[42] Data Protection Commission Ghana, "Who We Are," accessed September 29, 2025, https://dataprotection.org.gh/who-we-are/

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BoG issued a Draft Open Banking Directive proposing mandatory participation by all regulated financial institutions in standardised, API-based data sharing through the proposed Open Data Exchange (OpenDX) platform.[43]

### Technology Implementation

**Digital ID:** Ghana's digital ID infrastructure is built around the GhanaCard, a biometric national identification card issued by NIA. The system has enrolled approximately 19 million Ghanaians and serves as the foundational identity layer linking citizens to a wide range of government and private-sector services. GhanaCard features biometric authentication capabilities, including fingerprint and facial recognition, enabling secure identity verification across multiple platforms. The centralised identity database managed by NIA provides the authoritative source for identity verification, supporting both online and offline authentication processes for banking, telecommunications, and government service.

Digital Payments: GhIPSS Instant Pay (GIP), operated by GhIPSS, provides 24/7 real-time interbank account-to-account credit transfers, while Mobile Money Interoperability (MMI) connects mobile network operator wallets with bank accounts. The system operates a hub-and-spoke model in which switching occurs at the scheme level, with settlement finality in central bank money. GhQR functions as Ghana's national interoperable QR payment scheme, enabling standardised merchant acceptance across all payment providers. The e-zwich platform serves as an inclusive payment rail supporting government-to-person transfers and financial inclusion initiatives, particularly for underserved populations.

**Data Exchange:** In 2009, Ghana launched the eGIF project, a multi-process e-government interoperability framework intended to create a national data exchange hub. However, the initiative appears to have stalled, with no major breakthroughs to date. Currently, Ghana's data exchange capabilities operate through basic API connections between GhIPSS and participating financial institutions, enabling interoperable payments across banks and mobile money operators. The proposed OpenDX platform, outlined in the Draft Open Banking Directive, is intended to establish a comprehensive data exchange infrastructure featuring standardised APIs for secure, consent-based financial data sharing. The platform will integrate with the existing GhanaCard identity system and GhIPSS payment rails to create a unified ecosystem. OpenDX will govern API standardisation, manage consent workflows, ensure end-to-end encryption of shared data, and maintain a registry of participating institutions, representing a significant advancement over current fragmented data-sharing arrangements.

**Key Outcomes:** GIP has recorded strong recent growth, with throughput increasing by 233% year-on-year to GH₵ 47.5 billion (US$3.7 billion) in 2024, and transaction volumes rising by 44% to 14.89 million.[44] Ghana leveraged its instant payments infrastructure during the COVID-19 pandemic for emergency social transfers, waiving fees on transactions below GH₵ 100 and enabling a rapid crisis response through mobile money channels.[45] While far from universal, GhanaCard has also witnessed momentum, having now enrolled more than 50% of the population.

## Rwanda

### Regulatory Overview

Rwanda plans to enable secure, consent-based data sharing through the National Bank of Rwanda's Open Finance Position Paper, which sets out definitions, key actors, and API-based consent-driven data exchange. The Data Protection Law establishes lawful bases for processing, consent standards, and a supervisory authority, providing the legal foundation for trusted data sharing.

In parallel, the National Bank of Rwanda exercises oversight of the payment system, with authority to license operators, establish technical standards, and ensure interoperability across all payment channels.[46] Rswitch currently operates the National Digital Payments system, eKash, and provides interoperability between banks, mobile money operators, and other financial institutions.[47] Meanwhile, the National Identification Agency (NIDA), established under Law No. 43/2011, manages population registration, civil registration, and the issuance of national identity cards.[48]

### Technology Implementation

**Digital ID:** Rwanda's digital ID system is administered by NIDA, which maintains authoritative identity records for all citizens and residents. The system integrates with multiple service delivery platforms while preserving the integrity of the central identity database.

**Digital Payments:** Rwanda's payment infrastructure is built around the eKash system, developed by Rswitch using open-source Mojaloop technology to enable seamless interoperability across banks, mobile money operators, and financial institutions.[49] eKash operates as Rwanda's National E-Payment Switch, established in 2003, providing the core switching infrastructure that connects financial service providers and enables cross-network transactions. The platform supports multiple access channels, including Unstructured Supplementary Service Data (USSD), mobile banking applications, and internet banking, facilitating instant money transfers between different providers. The system has expanded

[43] Bank of Ghana, "Draft Open Banking Directive for Regulated Financial Institutions," December 2024, https://www.bog.gov.gh/wp-content/uploads/2024/12/Draft-Open-Banking-Directive-for-Regulated-Financial-Institutions-201224.pdf

[44] National Identification Authority, Ghana, "Registration Statistics," accessed September 12, 2025, https://nia.gov.gh/nia-registration-statistics/

[45] Smith Oduro-Marfo, et al., "Digital Identity in Ghana," Centre for Internet and Society (CIS) and Research ICT Africa (RIA), 2021, https://digitalid.design/RIA%20docs/CIS_DigitalID_RIA_Ghana_31.10.21.pdf.

[46] Rwanda, Regulation Governing Payment Services Providers, Regulation 5 of 2018, assented to March 27, 2018, published in Official Gazette no. 14 (April 2, 2018).

[47] Vanessa Umutoni, "AfricaNenda Foundation and Partners Celebrate the Successful Announcement of Rwanda's Instant Inclusive Payment System – eKash," AfricaNenda Foundation, April 7, 2025, https://www.africanenda.org/en/in-the-media/2025/africanenda-foundation-and-partners-celebrate-the-successful-launch-of-rwandas-instant-inclusive-payment-system-ekash

[48] Rwanda, Law establishing the National Identification Agency and Determining its Mission, Organization and Functioning, Law 43 of 2011, Legislation as at 19 December 2011.

[49] Paula Hunter, "How Open Source is Powering Financial Inclusion through eKash," Finextra, March 21, 2025, https://www.finextra.com/blogposting/28111/how-open-source-is-powering-financial-inclusion-through-ekash

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from basic person-to-person transfers to include person-to-business payments, with plans to support business-to-business and government-to-person transactions, thereby creating a national digital payments ecosystem.[50]

**Data Exchange:** IremboGov acts as the citizen-facing transaction front-end for identity services, while NIDA remains the authoritative system of record. The platform facilitates secure, consent-based data sharing across government agencies through standardised APIs, enabling citizens to access multiple services, such as initial land registration or local domain name applications, via a single portal, while maintaining privacy and data security.

**Key Outcomes:** Rwanda's development of national data exchange systems demonstrates the importance of inclusive stakeholder engagement, robust legal frameworks, and interoperability. Public service delivery has improved through streamlined access to over 100 government services, enhancing efficiency and citizen satisfaction. IremboGov has been critical in this regard and provides a potential blueprint for public-private partnership models.

### 3.1.5 Namibia: Current State and Development Trajectory

#### Regulatory Framework

BoN oversees payments through frameworks largely modelled on traditional banking oversight. The Payment System Management Act No. 14 of 2023 governs operators but previously lacked a comprehensive regulatory regime for fintechs or digital-only providers. Recent amendments expand BoN's powers to license and supervise new payment provider categories, laying the foundation for modernisation initiatives.

The foundations of a national identity system exist but are not yet digitised or interoperable with financial services. The digital ID ecosystem remains fragmented without a fully integrated national digital ID platform. Namibia is introducing its first electronic identity card, scheduled for rollout beginning July 2026.

In Namibia, DPI-related progress is at an early design phase, with a focus on regulatory design, interoperability, and financial inclusion. BoN recognises that national instant payments can reduce cash dependency, improve SME payments, and enable regional integration. In July 2025, BoN signed a licensing agreement with the India's NPCI for UPI deployment, aiming to achieve these objectives through the rollout of a national instant payments system.

Open Finance in Namibia remains nascent, with no specific regulatory framework. BoN acknowledges its importance, but data sharing continues to be fragmented. The Namibian Open Banking Standards Version 1.0 (March 2025) reflects a regulatory-led approach, emphasising secure data sharing via open APIs.

#### Technology Implementation

**Digital ID:** Namibia's system employs a Single Person Population Profile model, with each individual profile anchored by a Unique Profile Number linking all life-cycle events. The system integrates with AFIS for biometrics and plans PKI-based authentication through smart digital-ID cards.

**Digital Payments:** Namibia plans a UPI-like platform layered above existing payment service providers, aiming to enable inclusive, low-cost person-to-person and person-to-merchant transactions with strong interoperability. Currently, interoperability operates largely via EFT and card rails, with full wallet-to-wallet and wallet-to-bank integration expected once the instant payment rail is implemented.

**Data Exchange:** NamX is Namibia's secure, distributed data-exchange layer, based on Cybernetica's Unified eXchange Platform and the Estonian X-Road model. Its architecture splits between a central control plane, operated by OPM, and edge nodes at participating institutions, with each institution running a Security Server as the gateway for inter-agency traffic.



[50] Digital Frontiers Institute, "The Role of Digital Payment Systems in Promoting Financial Inclusion and Redefining the Payments Lifestyle in Rwanda," September 16, 2024, https://digitalfrontiersinstitute.org/the-role-of-digital-payment-systems-in-promoting-financial-inclusion-and-redefining-the-payments-lifestyle-in-rwanda/

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## 3.2 Comparative Overview: India, Singapore, and Brazil

To contextualise Namibia's current design and regulatory trajectory, Table 2 below summarises Table 2 below summarises how selected countries (India, Singapore, and Brazil) structure legal frameworks, operational models, and interoperability mechanisms. These international examples provide insights to inform Namibia's implementation of secure, inclusive, and efficient digital systems.

*Table 2: Comparison of legal frameworks, operational models, and interoperability mechanisms across India, Singapore, and Brazil*

| Country | DIGITAL IDENTITY | DIGITAL PAYMENTS | DATA EXCHANGE |
|---|---|---|---|
| India | Aadhaar Act (2016) provides legal basis, mandatory for government services<br><br>Biometric authentication with virtual ID tokenization, API-enabled private sector integration<br><br>UIDAI as single authority, multi-channel authentication (demographic, biometric, OTP) | Payment & Settlement Systems Act mandates participation, RBI oversight ensures interoperability<br><br>NPCI operates open-access platform, zero merchant fees for small transactions<br><br>Centralized switch model with distributed bank integration | RBI-regulated under DEPA framework, enables consent-based sharing<br><br>"Data-blind" intermediary architecture, encrypted end-to-end data flow<br><br>Licensed Account Aggregators as consent managers between Financial Information Providers (FIPs) and Financial Information Users (FIUs). |
| Singapore | Govt owned without mandatory participation but required to access a large number of services<br><br>Federated identity with SingPass/MyInfo, multi-factor authentication | Activity-based licensing under MAS oversight, voluntary but incentivized participation<br><br>Bank consortium management with MAS guidance, cross-border bilateral linkages | No formal Open Banking law, industry-driven API standards<br><br>Relies on ID layer for a consent-based pass-through orchestration without central data storage |
| Brazil | Tax-anchored federated identity using CPF (individual) and CNPJ (business)<br><br>Mandatory e-KYC for financial institutions, enforced by Central Bank regulation<br><br>Integrated through Gov.br portal for digital banking, e-government, and Pix payments | Central Bank operates Pix directly under National Payments System Law, mandatory for all regulated financial institutions<br><br>Instant payment rails with enforced interoperability, free for individuals and low-cost for merchants | Open Finance framework requiring data sharing between banks and licensed third parties<br><br>Phased mandatory rollout with Central Bank oversight<br><br>API standards integrated with payment systems, comprehensive data portability |



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# 04
# IMPACT ANALYSIS

This section analyses the potential economic and social impacts of comprehensive DPI implementation in Namibia, drawing on international experiences while assessing implementation risks and opportunity costs.

## 4.1 Economic and Social Impact Analysis

DPI has emerged globally as a catalyst for economic growth, social inclusion, and government efficiency. International experiences from India, Singapore, and Brazil provide compelling evidence of DPI's transformative potential across all three infrastructure layers.

### 4.1.1 Economic Impact Across DPI Components

**1. Digital Payments Economic Impact**

In India, UPI processes over 18 billion monthly transactions, lowering costs, formalising trade, and boosting consumption.[51] This has contributed to the digital economy representing 11.7% of GDP in 2022–2023, with projections approaching 20% by 2030.[52] Singapore's PayNow and Singapore's unified QR (SGQR) anchor a digital economy worth S$113 billion (17.7% of GDP) in 2023, growing at more than twice the pace of GDP while enabling SMEs to access regional market.[53]

Brazil's Pix, handling 42 billion transactions worth US$3.5 trillion in 2023, is expected to add R$271 billion to GDP by 2028, accelerating e-commerce and financial inclusion.[54] The system demonstrates how instant, low-cost payments can rapidly transform economic activity patterns.

**2. Digital ID Economic Impact**

India's Aadhaar system has led to dramatic cost reductions while expanding service access. Aadhaar-based e-KYC has slashed customer onboarding costs for financial institutions from ₹500–700 (US$6–9) to just ₹3 per customer: an over 99% reduction. Meanwhile, the Aadhaar-enabled DBT system disburses over US$322 billion annually to approximately 650 million beneficiaries and has saved the government more than US$27 billion by eliminating leakages.[55]

Singapore's SingPass integration with private-sector services has streamlined business processes, with companies reporting up to an 80% reduction in customer onboarding time and significant cost savings through automated verification.[56]

**3. Data Exchange Economic Impact**

Estonia's X-Road system, which inspired Namibia's NamX, has generated significant economic benefits. The system saves an estimated 2% of GDP annually through reduced administrative burden and improved efficiency. Citizens save approximately 820 years of working time annually through digital services enabled by secure data exchange.[57]

SGFinDex's rollout has enabled fast, automated data sharing across banks and government agencies, which led to tangible improvements in customer behaviour, including a 36% increase in investments by OCBC Bank users after data consolidation.[58]

**4. Projected Economic Impact for Namibia**

For Namibia, implementing comprehensive DPI could generate substantial economic benefits:

- **GDP Growth:** Based on international benchmarks, DPI implementation could contribute to higher annual GDP growth, particularly through reduced transaction costs, increased financial inclusion, and digital service innovation.
- **Financial Inclusion:** Comprehensive DPI could expand access to formal financial services, bringing thousands of Namibians into the formal economy.
- **Government Efficiency:** Digital service delivery could reduce government operational costs while improving service quality and accessibility.
- **Private-Sector Innovation:** Open APIs and interoperable systems could enable new business models and services, particularly benefiting SMEs and startups.

### 4.1.2 Social Impact Assessment

**1. Financial Inclusion and Access**

Digital payments have redefined financial inclusion globally. India's

[51] UPI Product Statistics, NPCI, accessed 2025, https://www.npci.org.in/what-we-do/upi/product-statistics

[52] Deepak Mishra, et al., Estimation and Measurement of India's Digital Economy, Indian Council for Research on International Economic Relations [ICRIER], 2025, https://www.meity.gov.in/static/uploads/2025/01/5ff397f9e8152d5562ed4cef1a6b767b.pdf

[53] Infocomm Media Development Authority, Singapore Digital Economy Report, Report, 2024; Monetary Authority of Singapore, "Launch of Cross-border QR Payments Linkage between Indonesia and Singapore", 2023, https://www.mas.gov.sg/news/media-releases/2023/launch-of-cross-border-qr-payments-linkage-between-indonesia-and-singapore; Monetary Authority of Singapore, "Launch of Cross-border QR Code Payments Connectivity between Singapore and Malaysia", 2023, https://www.mas.gov.sg/news/media-releases/2023/launch-of-cross-border-qr-code-payments-connectivity-between-singapore-and-malaysia

[54] Bank for International Settlements, Faster Digital Payments: Global and Regional Perspectives, BIS Papers No. 152 (Basel: Bank for International Settlements, December 2024), 24, 2024, https://www.bis.org/publ/bppdf/bispap152.pdf; ACI Worldwide, Real-Time Payments: Economic Impact and Financial Inclusion, Report, 2024 https://www.aciworldwide.com/wp-content/uploads/2024/10/Real-Time-Payments-Economic-Impact-and-Financial-Inclusion-Report.pdf

[55] Shishir Sinha, "Aadhaar brought down KYC cost to ₹3 from as high as ₹700, says Nirmala Sitharaman," The Hindu Business Line, April 15, 2023, https://www.thehindubusinessline.com/economy/aadhaar-brought-down-kyc-cost-to-3-from-as-high-as-700-says-nirmala-sitharaman/article66740192.ece?

[56] Nazir Amir, "How Singpass helps organizations enhance digital services and data quality," Adnovum, March 21, 2022, https://www.adnovum.com/blog/how-singpass-helps-organizations-enhance-digital-services-and-data-quality.

[57] Heiko Vainsalu, "How do Estonians save annually 820 years of work without much effort?" e-Estonia, December 12, 2017, https://e-estonia.com/how-save-annually-820-years-of-work

[58] Sheila Chiang, "Banks, insurers see more customers using SGFinDex." The Strait Times, March 8, 2025, https://www.straitstimes.com/business/banks-insurers-increasingly-see-customers-using-sgfindex-for-financial-planning.

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UPI enables instant, low-cost transfers, including welfare payments that reach households directly and transparently.[59] Singapore's PayNow allows seamless transactions using mobile numbers or national identification, and serves as a government disbursement channel for grants and benefits.[60] Brazil's Pix has achieved 76% population adoption, enabling citizens, particularly low-income and informal workers, to access formal financial tools without fees.[61]

For Namibia, DPI implementation could transform financial access patterns. Current survey findings reveal significant barriers that DPI can address:

- High transaction costs (identified by 92.8% of stakeholders) could be reduced through competitive, interoperable payment systems;
- Trust and digital literacy challenges (affecting rural and low-income populations) could be addressed through government-backed, standardised systems; and
- Complex onboarding processes could be simplified through digital ID integration.

**2. Service Delivery Transformation**

Digital ID systems enable the transformation of government service delivery. In Estonia, 100% of government services are available online, with citizens able to complete most government interactions in minutes rather than hours.[62] India's Aadhaar integration with government services has enabled DBTs reaching over 1.76 billion beneficiaries.[63]

For Namibia, digital ID implementation could:

- Reduce time for government service access from hours or days to minutes;
- Enable rural populations to access services without travelling to urban centres;
- Improve transparency and reduce corruption in government service delivery; and
- Enable targeted social programme delivery with reduced leakage.

**3. Digital Inclusion and Equity**

International experiences demonstrate that well-designed DPI can reduce, rather than exacerbate, digital divides. Brazil's Pix achieved rapid adoption across all income levels, with low-income populations showing the highest relative growth in digital payment usage.[64] However, DPI implementation must address existing barriers identified through Namibian stakeholder research:

- Device and connectivity limitations affecting 83.3% of rural populations;
- Digital literacy gaps requiring comprehensive education programmes;
- Language barriers necessitating multilingual interfaces; and
- Gender- and income-based access disparities requiring targeted interventions.

**4. Social Programme Efficiency**

DPI enables more efficient and transparent social programme delivery. India's DBT system, built on Aadhaar and UPI, has saved billions through reduced leakages and improved targeting.[65] In another example of efficiency, Brazil used Pix for rapid emergency payment distribution during COVID-19, reaching millions of recipients within days.[66]

For Namibia, DPI could transform social programme delivery, including (but not limited to):

- Direct pension payments, reducing intermediary costs and improving recipient experience;
- Agricultural subsidy distribution with better targeting and reduced fraud;
- Emergency relief distribution with rapid deployment capability; and
- Educational grant distribution with transparent, traceable payments.

## 4.2 Risk and Opportunity Cost Assessment

### 4.2.1 Implementation Risk Analysis

**1. Regulatory and Legal Risks**

Comprehensive DPI implementation requires robust legal and regulatory frameworks to ensure security, privacy, and consumer protection. International experiences highlight critical risk factors. For example, India's Aadhaar system faced significant legal challenges

[59] NITI Aayog, Government of India, Annual Report 2022–23, Report, 2023, https://www.niti.gov.in/sites/default/files/2023-02/Annual-Report-2022-2023-English_06022023_compressed.pdf

[60] GovTech Singapore, "GovWallet," accessed 2025, https://www.tech.gov.sg/products-and-services/for-citizens/directories-and-distribution/govwallet

[61] Andreia Verdélio, "Pix: Most used payment method in Brazil," Agencia Brasil, December 2024, https://agenciabrasil.ebc.com.br/en/economia/noticia/2024-12/pix-most-used-payment-method-brazil

[62] Kristiina Kriisa, "Estonia: 100% digital government services, with divorce as the final step," e-Estonia, January 27, 2025, https://e-estonia.com/estonia-100-digital-government-services

[63] Shakil Bhat, "The digital transformation and efficiency of India's direct benefit transfer model," DD News, February 24, 2025, https://ddnews.gov.in/en/the-digital-transformation-and-efficiency-of-indias-direct-benefit-transfer-model-2/

[64] Theodora Lau, "The story of Pix and the future of financial inclusion," Fintech Futures, August 12, 2025, https://www.fintechfutures.com/financial-inclusion/the-story-of-pix-and-the-future-of-financial-inclusion

[65] Shakil Bhat, "A Quantitative Assessment of India's DBT System: A Policy Analysis," BlueKraft Digital Foundation, Report, April 2025, http://bluekraft.in/wp-content/uploads/2025/04/Shakil-Bhat_DBT-Paper_FNL-paper.pdf

[66] Pedro Lara de Arruda, et al., The Payment System Used by Auxilio Emergencial: Introduction of the Digital Social Account, and the Banking of More than 100 Million People in 9 Months - Technical Note No. 2 (English), Report, December 2021, https://doi.org/10.1596/36837

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related to privacy and data protection, requiring Supreme Court intervention and subsequent legislative amendments.[67] These challenges emphasise the importance of comprehensive privacy legislation prior to large-scale digital ID deployment.

Singapore's success with PayNow and SingPass benefited from a clear regulatory environment under MAS and strong data protection laws, although ongoing cybersecurity considerations remain key risk factors.[68] Brazil's Pix faced initial stakeholder resistance from banks concerned about fee erosion and system security, necessitating careful public–private collaboration and a phased rollout.[69]

For Namibia, key regulatory risks include:

- Deployment of digital ID systems without comprehensive data protection legislation;
- Cybersecurity vulnerabilities arising from an incomplete cybersecurity legal framework;
- Stakeholder resistance from financial institutions concerned about disruption to existing revenue models; and
- Consumer protection gaps in rapidly evolving digital services landscape.

### 2. Technology and Infrastructure Risks

DPI implementation involves significant technology risks that must be carefully managed:

- **System Security and Resilience:** Large-scale digital systems become attractive targets for cyberattacks. India's Aadhaar database has reportedly faced multiple security challenges, requiring continuous security enhancements.[70] Namibia must invest in robust cybersecurity infrastructure and capabilities.
- **Interoperability Challenges:** Ensuring seamless integration across multiple systems and stakeholders requires careful technical coordination. Ghana's GhIPSS experience demonstrates the importance of strong technical standards and governance to achieve scale.
- **Scalability Requirements:** Systems must be designed to handle rapid user growth and increases in transaction volumes. Brazil's Pix required significant infrastructure investment to accommodate massive adoption.[71]

### 3. Resource and Capacity Risks

Successful DPI implementation requires substantial human and financial resources:

- **Technical Skills and Capacity:** Namibia faces skills gaps in areas critical for DPI implementation, including cybersecurity, system integration, and digital service design. International partnerships can help address these gaps but require careful management. A robust capacity-building and training programme would benefit Namibia by upskilling its talent pool and relevant workforce.
- **Financial Investment:** DPI implementation requires significant upfront investment in technology infrastructure, system integration, and change management. However, delayed implementation often results in higher long-term costs. There are no simple answers as to how best to fund the DPI stack. International examples show varied approaches, with India largely relying on government funding, including subsidies to promote UPI uptake. In contrast, Pakistan has adopted a mixed model combining government funding with non-profit partnerships, such as support from the Gates Foundation.
- **Institutional Coordination:** DPI success requires coordination across multiple government agencies and private-sector stakeholders. Weak coordination mechanisms can lead to fragmented and ineffective implementation.

### 4. Opportunity Cost Assessment

International evidence demonstrates substantial opportunity costs from delayed DPI implementation:

- **Economic Growth:** Countries with comprehensive DPI consistently show higher digital economy growth rates India's digital economy growth acceleration following UPI implementation demonstrates the economic opportunity costs of delay.[72]
- **Financial Inclusion:** Delayed instant payment implementation prolongs financial exclusion for vulnerable populations. Brazil's rapid Pix adoption showed how quickly properly designed systems can transform financial access.[73]
- **Government Efficiency:** Continued reliance on manual, paper-based processes imposes ongoing efficiency costs. As mentioned earlier, the digital authentication and signature system used by Estonia has been estimated to save up to 2% of GDP annually.[74]
- **Competitive Disadvantage:** Regional competitors implementing DPI may gain advantages in cross-border trade, investment attraction, and economic integration. A lagging or inefficient DPI stack will see the risk of Namibia being left behind in regional digital integration efforts.

[67] Kamakshi Ayyar, "The World's Largest Biometric Identification System Survived a Supreme Court Challenge in India," Time, September 26, 2018, https://time.com/5388257/india-aadhaar-biometric-identification/

[68] Gerald Tang Yew Hong, "Safeguarding Digital Identity Challenges, Strategies, and Future Solutions," BDO Singapore, February 18, 2025, https://www.bdo.com.sg/en-gb/blogs/bdo-cyberdigest/safeguarding-digital-identity-challenges%2C-strategies%2C-and-future-solutions

[69] Rob Dwyer, "Brazil's PIX moves in the banks' favour," Euromoney, May 10, 2023, https://www.euromoney.com/article/2bn7k3rrb1f0k3625924g/opinion/brazils-pix-moves-in-the-banks-favour/[70] BBC, "Aadhaar: 'Leak' in world's biggest database worries Indians," January 5, 2018, https://www.bbc.com/news/world-asia-india-42575443

[70] BBC, "Aadhaar: 'Leak' in world's biggest database worries Indians," January 5, 2018, https://www.bbc.com/news/world-asia-india-42575443

[71] Red Hat, "Banco Original uses Red Hat OpenShift to boost real-time payments by 700%," July 26, 2021, https://www.redhat.com/en/resources/banco-original-case-study

[72] Deepak Mishra, et al., Estimation and Measurement of India's Digital Economy, 2025

[73] Banco Central Do Brasil, Pix Management Report: Conception and First Years of Operation, Report, 2022, https://www.bcb.gov.br/content/estabilidadefinanceira/pix/relatorio_de_gestao_pix/pix_management_report_2023.pdf

[74] Shania Lazarus, "Govt Commits N$145 Million," The Namibian, March 24, 2025, https://www.namibian.com.na/govt-commits-n145-million-to-bridging-rural-digital-divide/

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# 05 RECOMMENDATIONS

This section provides comprehensive, actionable recommendations for Namibia's DPI implementation based on international best practices, stakeholder input, and gap analysis findings.

## 5.1 Overview

The following recommendations address the critical gaps identified in Namibia's DPI implementation. They are prioritized based on urgency and impact, focusing on three key areas: completing essential legal frameworks, integrating existing technology systems, and ensuring inclusive deployment. The recommendations draw from international best practices while addressing Namibia's specific institutional context and stakeholder needs identified through the gap analysis.

## 5.2 Summary of Recommendations and Best Practices

**1. Establish DPI Coordination Framework**

***Priority Status: Immediate Implementation***

Namibia should establish a national DPI Coordination Taskforce comprising key public sector stakeholders (MHAISS, MICT, BoN, OPM) with a clear mandate and authority to coordinate DPI implementation across agencies. This taskforce should operate under the National Digital Strategy framework to ensure coherent policy making and implementation. The taskforce should include private-sector representation to ensure industry buy-in and collaborative implementation. High-level participation from banks, telecommunications companies, fintech providers, and infrastructure companies will accelerate DPI adoption through a variety of use cases and implementation expertise.

**2. Expedite Critical Legislation**

***Priority Status: Immediate Implementation***

Namibia must prioritise the enactment of enabling legislation that supports safe and secure DPI implementation, despite Article 13 of the Constitution currently governing the protection of personal data from abuse. The draft Data Protection Bill should be expedited through parliamentary review to provide a comprehensive framework for personal data handling across public and private sectors.

The Cybercrime Bill should be developed and tabled to provide a legal framework for protecting DPI systems against cyber threats.

The proposed National Cybersecurity Strategy and Awareness Raising Plan can be a next-phase priority and should encompass DPI components, including digital ID, payment systems, and data exchange, with clear incident response and recovery procedures.

**3. Strengthen Payment System Regulations**

***Priority Status: Next-Phase Priorities***

The Payment System Management Act framework should be expanded to ensure comprehensive coverage of fintech providers and payment service providers, based on newly identified payment services. Regulations should promote interoperability and ensure fair, transparent access to electronic payment systems through open standards. While BoN has already included a framework for payment system operators on instant payments, there is still a need to develop other comprehensive regulatory guidance for instant payment system implementation, including clear participation criteria, risk management requirements, and consumer protection measures.

**4. Deploy Comprehensive Instant Payment System**

***Priority Status: Next-Phase Priorities***

Namibia should complete its instant payment system deployment with a comprehensive Central Addressing Scheme enabling alias-based payments using mobile numbers, national ID numbers, and business identifiers. The system should enable 24/7 operation with real-time settlement finality and implement a tiered access model enabling banks, licensed payment service providers, and fintech companies to participate in the instant payment ecosystem with appropriate risk management safeguards.

**5. Accelerate Digital ID Implementation**

***Priority Status: Next-Phase Priorities***

Namibia should accelerate National Smart Identity card issuance to strengthen foundational identity for all citizens. The planned July 2026 rollout should be expanded to achieve comprehensive coverage within three years through mobile registration units and streamlined processes. It should implement a national digital ID system with a robust API framework enabling private-sector integration for e-KYC and authentication services. The system should incorporate privacy-by-design principles, including tokenisation and multi-factor authentication.

**6. Scale Data Exchange Infrastructure**

***Priority Status: Next-Phase Priorities***

The NamX implementation should be accelerated to enable seamless government service delivery through secure data exchange. Priority should be given to high-impact services including

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identity verification, business registration, and social programme delivery, as well as Open Finance use cases. Namibia must also develop a consent-driven data sharing framework enabling citizens to control access to their personal data across government agencies and authorised private-sector entities. This should be anchored on the digital ID system with granular permission controls.

### 7. Ensure Cross-System Integration

***Priority Status: Core Enablers & Good Practices***

DPI components must be designed for seamless integration to maximise efficiency benefits and network effects. Digital ID should serve as the authentication layer for instant payments and data exchange services. The instant payment system should enable direct government-to-person transfers for social programmes and benefits. Data exchange infrastructure should facilitate real-time identity verification and eligibility checking for both government and private-sector services.

### 8. Build Trust and Public Awareness

***Priority Status: Core Enablers & Good Practices***

Trust represents the fundamental building block of any DPI system. Government agencies must lead in enabling and engendering confidence through a concerted and holistic DPI deployment approach. This requires comprehensive public awareness campaigns highlighting the advantages of digital services while addressing security and privacy concerns. Implementation should align with internationally recognised principles for responsible DPI deployment, including those outlined in UN frameworks emphasising human rights, inclusion, and citizen empowerment in digital infrastructure design. Namibia should implement comprehensive digital literacy and training programmes, ensuring that citizens can use DPI effectively and safely. These programmes should be delivered through multiple channels including schools, community centres, and mobile training units to reach all population segments including rural populations.

### 9. Promote Private Sector Innovation

***Priority Status: Core Enablers & Good Practices***

Regulatory frameworks must be created to encourage private-sector innovation on top of DPI foundations. This should include clear API access policies, developer support programmes, and intellectual property protections encouraging investment in DPI-enabled services. Innovation sandboxes specifically for DPI applications must be established, enabling testing of new services and business models in a controlled environment before full-scale deployment.

### 10. Address Digital Divide

***Priority Status: Core Enablers & Good Practices***

In order to encourage ubiquitous adoption of digital channels for service access, Namibia should implement a comprehensive digital inclusion strategy addressing barriers identified through stakeholder research. This should include subsidised device programmes, reduced data costs for essential services, and multilingual service interfaces. Particular attention should be paid to rural populations, women, elderly citizens, and persons with disabilities to ensure DPI benefits reach all segments of society.

### 11.Strengthen Rural Connectivity

***Priority Status: Core Enablers & Good Practices***

Through the USF launched in March 2025 and managed by CRAN, Namibia supports ICT access in underserved and rural areas. Namibia can accelerate rural connectivity improvement with the USF through targeted investments and infrastructure sharing requirements. Recent allocations (N$31 million for nine sites and N$40 million for 15 sites serving schools and clinics) focus on regions like Kavango West, Kavango East, and Kunene, where 4G coverage remains below target.[75]

Table 3 below distils the recommendations into clear action phases, highlighting immediate priorities for urgent action, next-phase measures to prepare, and ongoing initiatives to sustain.measures to prepare, and ongoing initiatives **to sustain**.

*Table 3: Action phases for digital public infrastructure implementation in Namibia*

| ACTION | OWNER | RISK OF DELAY |
|---|---|---|
| **IMMEDIATE PRIORITIES** | | |
| Establish National DPI Taskforce | BoN to catalyse various relevant national government departments to establish the taskforce | Fragmented implementation across agencies, duplicated efforts, lack of ownership and accountability. Absence of coordination multiplies delays across interdependent systems |
| Pass Data Protection Bill and Pass Cybercrime Bill | Parliament, MICT | Potential private data leakage, legally uncertain consent-based data sharing, complicated cross-border flows, and undermined trust. Delays building digital ID infrastructure. Lack of consumer protection will lead to an impact on consumer trust and hence uptake of services |

[75] Shania Lazarus, "Govt Commits N$145 Million," The Namibian, March 24, 2025, https://www.namibian.com.na/govt-commits-n145-million-to-bridging-rural-digital-divide/

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| NEXT-PHASE PRIORITIES | | |
|---|---|---|
| Cybercrime Strategy | Parliament, MICT | Absent legal framework for incident response, limited international cooperation on threats, accountability gaps |
| Operationalise Electronic Signature Provisions | MICT, CRAN | Continued reliance on paper-based processes, unenforceable digital contracts, limited e-government efficiency |
| Update Payment System Regulations to align with the new PSM Act | BoN, NAMFISA | Limited interoperability and constrained fintech innovation, impeding digital payments to proliferate to full potential |
| Deploy Instant Payment System with Central Addressing | BoN | Transaction costs remain high, but experience in countries where faster payments have been deployed shows a drop in small-value transaction costs. The poorest population segment remains outside formal Digital Financial Services |
| Accelerate Digital ID Rollout with API Framework | MHAISS | Persistent manual KYC costs, continued slow onboarding continues, missed fraud reduction opportunities |
| Scale NamX with Priority Services & Consent Layer | OPM | Government services remain paper-based and fragmented, open-banking efforts remain limited, potential efficiency gains unrealised |
| **ONGOING PRIORITIES** | | |
| Ensure Cross-System Integration | All agencies | Siloed operation of digital ID, payments, and NamX, limited network effects, fragmented citizen experience. Negative impact on interoperability that support payments efficiencies |
| Build Public Trust & Awareness | MICT, All agencies | Low adoption despite investment, limited ROI on infrastructure |
| Promote Private Sector Innovation | MICT, BoN | Underutilisation of existing sandboxes, limited fintech ecosystem growth |
| Strengthen Rural Connectivity | MICT, CRAN, OPM | Rural populations unable to use instant payments or digital ID services, deepening urban-rural inequality |

# CONCLUSION

Namibia has a unique opportunity to implement comprehensive DPI layers that can transform its economy and society. The country's young demographic profile, government commitment to digital transformation, and supportive policy environment create favourable conditions for successful DPI implementation. However, success requires coordinated action across multiple dimensions, including legal frameworks, institutional governance, technology implementation, and stakeholder engagement.

The recommendations outlined in this report provide a comprehensive roadmap for achieving this transformation while learning from international best practices and addressing Namibia's specific challenges and opportunities. By focusing on building robust foundations, ensuring inclusive access, and promoting innovation, Namibia can position itself as a regional leader in DPI implementation while delivering tangible benefits to all citizens and businesses. The economic and social transformation potential is substantial, but realising these benefits requires sustained commitment, adequate investment, government leadership, and centralised coordination for collaborative implementation across public and private sectors.

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# 06
# ANNEXES

## Annex A: Survey methodology

This assessment presents a comprehensive DPI gap analysis for Namibia, benchmarking the country's progress against global best practices and identifying areas for improvement. The study employed a multi-source data collection strategy integrating primary and secondary research to ensure the analysis was grounded in contextual realities while reflecting international best practices.

At the methodology's core was stakeholder mapping identifying and categorising over 100 organisations across Namibia's DPI ecosystem. The mapping clarified organisational roles, potential DPI development contributions, and influence on policy and market dynamics.

The assessment considers all relevant actors across Namibia's financial and digital ecosystem. Stakeholders are grouped into five categories, with full details, including abbreviated names, licensing status, and operational status, provided in Annexes C and D.

- **Banking Institutions:** Licensed financial institutions that provide traditional and specialised banking services
- **Digital Financial Service Providers:** Entities that provide or support digital payments and financial services; non-bank entities offering technology-enabled financial products such as mobile payments, wallets, remittances, and digital credit
- **Infrastructure Providers:** Entities that provide foundational tech or identity infrastructure; technology and network providers that supply the underlying systems (such as payments switches, connectivity, data centres, and cybersecurity) required for digital and financial services to operate
- **Public Sector:** Organisations owned, operated, and controlled by the government; government ministries, regulators, and statutory bodies responsible for policy-making, oversight, licensing, supervision, and enabling conditions for the digital and financial ecosystem
- **Development Partners:** Organisations that support or influence DPI through funding, research, or policy; bilateral, multilateral, and international organisations that support ecosystem development through funding, technical assistance, capacity building, and research

**Data Collection Approach**
Four key data collection streams were implemented:

**1. Qualitative Stakeholder Survey:** Structured survey with generic and customised sections distributed during June–July 2025, achieving a 75% response rate (42 responses from 55 targeted institutions)

**2. Desk-Based Research:** Comprehensive review of Namibian policy frameworks, infrastructure strategies, and international case studies

**3. Key Informant Interviews:** Ten semi-structured interviews with senior representatives from public and private-sector organisations

**4. In-Person Stakeholder Workshop:** Validation workshops in August 2025 bringing together ecosystem actors to refine findings and co-develop recommendations

## Annex B: Survey Insights Summary

**Stakeholder Representation:** The survey achieved broad representation with digital financial service providers and banking institutions each representing 21.4% of respondents, public sector entities 23.8%, and the remainder comprising ecosystem support entities, infrastructure providers, and development partners (Figure B1).

### Composition of Survey Respondents

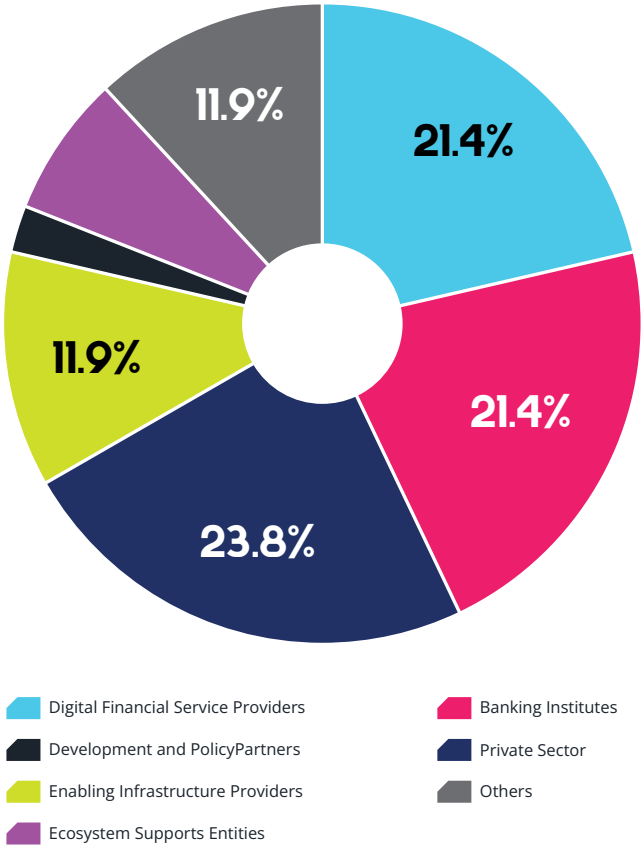



*Figure B1: Composition of survey respondents*

**Key Barriers Identified**

- Cost barriers related to mobile data/internet: 92.8% of respondents
- High infrastructure/system integration expenses: 86%
- Closed-loop and siloed systems preventing interoperability: 85%
- Poor network/device access affecting rural inclusion: 83.3%
- Lack of trust in digital financial services: 80.9%

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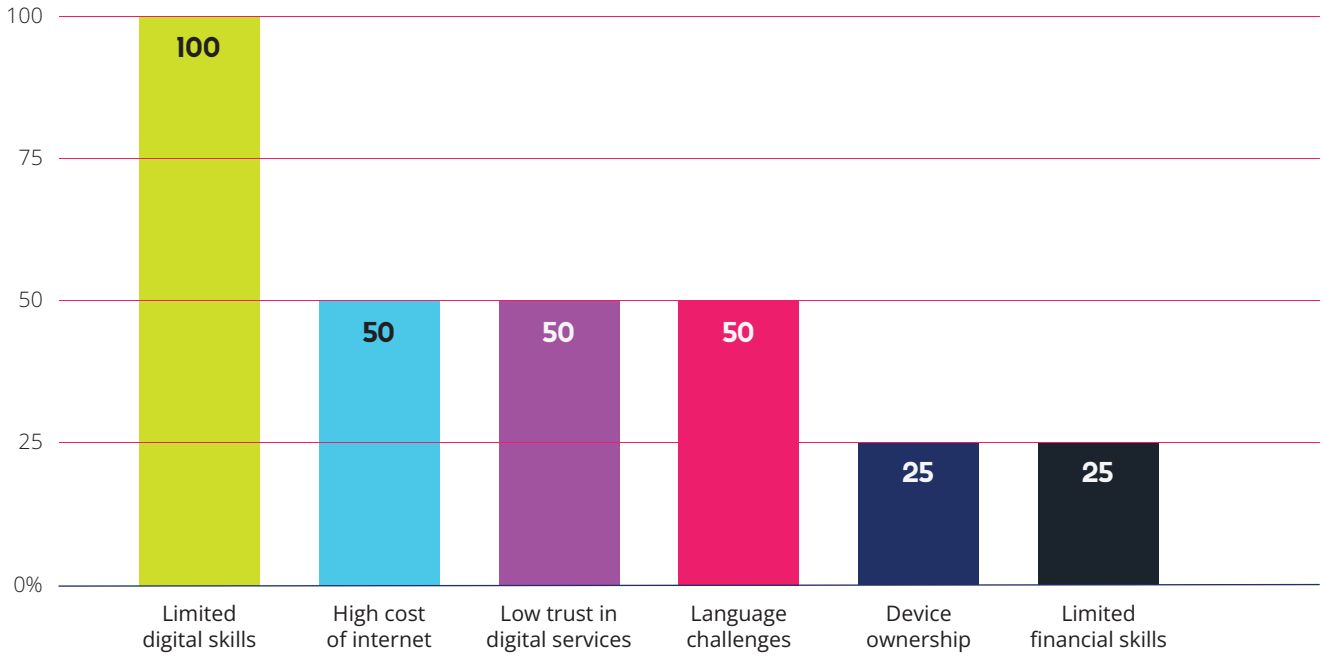



*Figure B2: Barriers to digital public infrastructure implementation*

**Digital ID Findings**

- 95% of respondents affirmed the national digital ID/e-KYC system would improve digital financial service access.
- 80% agreed access to national ID/e-KYC as essential for achieving digital service scale.
- Complex onboarding processes were identified as major barrier to user acquisition.

**Digital Payments Readiness**

- Only 22% of banking sector respondents reported being 'fully ready' for instant payments.
- 67% indicated they were 'somewhat ready' with capabilities limited to select products/segments.
- 80% cited easier system connections, digital ID access, and payment switch inclusion as key enablers.

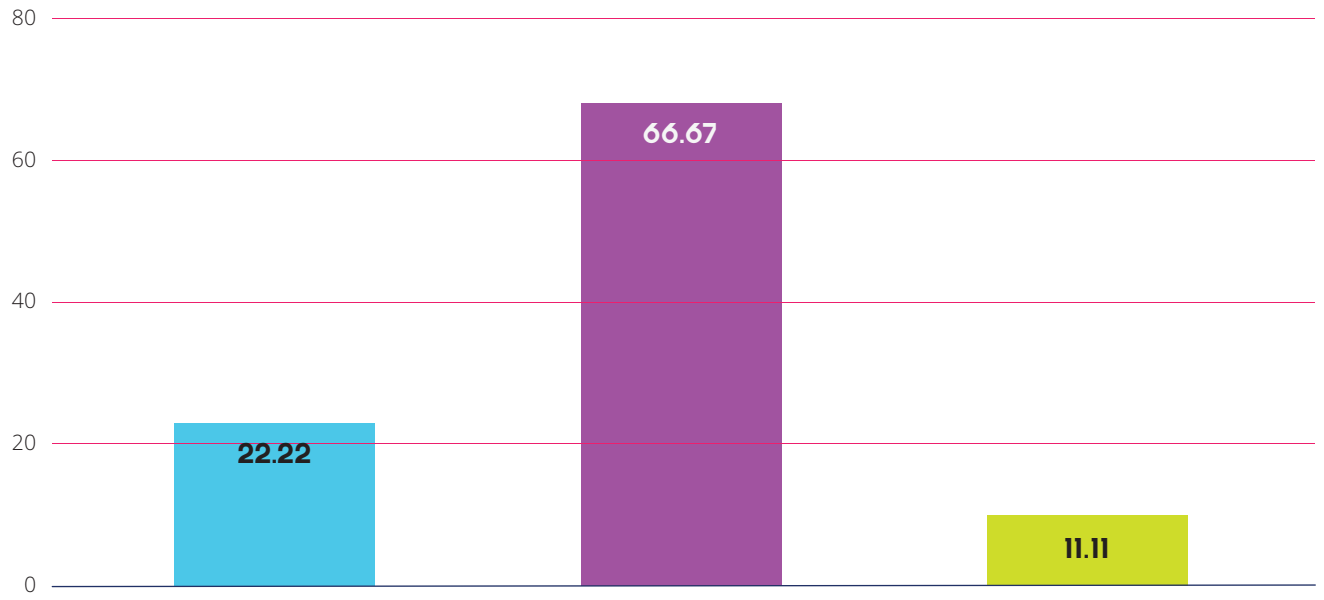



*Figure B3. Readiness for digital payments*

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## Annex C: Abbreviations

ACH - Automated Clearing House

ACL - Access Control List

AFIS - Automated Fingerprint Identification System

AML/CFT - Anti-Money Laundering/ Combating the Financing of Terrorism

API - Application programming interface

ASEAN - Association of Southeast Asian Nations

BoG - Bank of Ghana

BoN - Bank of Namibia

BVN - Bank Verification Number

CA - Certificate Authority

CBDC - Central Bank Digital Currency

CBN - Central Bank of Nigeria

CNPJ - Cadastro Nacional da Pessoa Jurídica

CPF – Cadastro de Pessoas Físicas

CRAN - Communications Regulatory Authority of Namibia

DBT - Direct Benefit Transfer

Digital ID - Digital Identity

DPI - Digital Public Infrastructure

EFT - Electronic Funds Transfer

e-KYC - electronic know-your-customer

eNPRS - electronic National Population Registration System

FAST - Fast and Secure Transfers

FIN - Foreign Identification Number

Fintech - Financial Technology

FIP - Financial Information Provider

FIU - Financial Information User

GDP - Gross Domestic Product

GhIPSS - Ghana Interbank Payment and Settlement Systems

GIP - GhIPSS Instant Pay

ICT - Information and Communication Technology

MAS - Monetary Authority of Singapore

MHAISS - Ministry of Home Affairs, Immigration, Safety and Security

MICT - Ministry of Information and Communication Technology

MMI - Mobile Money Interoperability

MTC - Mobile Telecommunications Company

NAMFISA - Namibia Financial Institutions Supervisory Authority

NCS - National Central Switch

NDP - National Development Plan

NDHM - National Digital Health Mission

NGDX - Nigerian Data Exchange

NIA - National Identification Authority

NIBSS - Nigeria Inter-Bank Settlement System

NIDA (Rwanda) - National Identification Agency

NIMC - National Identity Management Commission

NIMS - Namibia Identity Management System

NIN - National Identification Number

NIP - NIBSS Instant Payments

NISS - Namibia Interbank Settlement System

NITDA - National Information Technology Development Agency

NPCI - National Payments Corporation of India

NRIC - National Registration Identity Card

NSA - Namibia Statistics Agency

OpenDX - Open Data Exchange

OPM - Office of the Prime Minister

PAPSS - Pan-African Payment and Settlement System

PKI - Public Key Infrastructure

QR - Quick Response

RBI - Reserve Bank of India

RTGS - Real-Time Gross Settlement

RTP - Real-Time Payments

SADC - Southern African Development Community

SEPA - Single Euro Payments Area

SGFinDex - Singapore Financial Data Exchange

SME - Small and medium-sized enterprise

TIN - Tax Identification Number

TLS - Transport Layer Security

UEN - Unique Entity Number

UIDAI - Unique Identification Authority of India

UNDP - United Nations Development Programme

UPI - Unified Payments Interface

USF - Universal Service Fund

USSD - Unstructured Supplementary Service Data

vNIN - virtual National Identity Number

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## Annex D: Participating Stakeholders[76]

Note: Each stakeholder's category reflects how they self-identified in the DPI survey.

| FULL NAME | ABBREVIATION | *STAKEHOLDER CATEGORY | OPERATIONAL STATUS IN NAMIBIA |
|---|---|---|---|
| Abba Payments (Pty) Ltd | Abba | DFS Provider | Not licensed and non-operational |
| Banco Atlantico Europa S.A. – Namibia Branch | — | Banking Institution | Licensed by BoN and Operational |
| Bank BIC Namibia | — | Banking Institution | Licensed by BoN and Operational |
| Bank Windhoek Limited | Bank Windhoek | Banking Institution | Licensed by BoN and Operational |
| Bank of Namibia | BoN | Public Sector | Operational under the Bank of Namibia Act 1, 2020 |
| Basecamp Business Incubator | — | Ecosystem Support | Registered business and Operational |
| Buddy Industries (Pty) Ltd | Buddy | Other | Licensed by BoN and Operational |
| Business Financial Solutions (BFS) Fund Manager | | | Licensed by NAMFISA and Operational |
| Canopus Technologies | Canopus | Enabling Infrastructure | Licensed by CRAN and Operational |
| Collexia Payments Namibia | — | DFS Provider | Licensed by BoN and Operational |
| Communications Regulatory Authority of Namibia | CRAN | Public Sector | Operational under the Communications Act, 2009 |
| Development Bank of Namibia | DBN | Development & Policy Partner | Operational under the Development Bank of Namibia Act, 2002 |
| Electricity Control Board | ECB | Public Sector | Operational under the Electricity Act 4, 2007 |
| EveryBank (Pty) Ltd | EveryBank | DFS Provider | Not licensed and non-operational |
| Finatic Technologies Pvt Ltd. | | DFS Provider | Licensed by BoN and Operational |
| Financial Intelligence Centre | FIC | Public Sector | Operational under the Financial Intelligence Act, 2012 |

[76] Note: Each stakeholder's category reflects how they self-identified in the survey.

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| | | | |
|---|---|---|---|
| FNB Namibia | FNB | Banking Institution | Licensed by BoN and Operational |
| Hyphen Technology | Hyphen | DFS Provider | Licensed by BoN and Operational |
| IDToday | IDToday | Enabling Infrastructure | Registered business and Operational |
| Letshego Bank Namibia | Letshego | Banking Institution | Licensed by BoN and Operational |
| Ministry of Finance | MoF | | Namibian government |
| Ministry of Home Affairs, Immigration, Safety and Security | MHAISS | | Namibian government |
| Ministry of Information, Communication and Technology | MICT | Banking Institution | Namibian government |
| Mobicash Payment Solutions t/a MobiPay | MobiPay | Enabling Infrastructure | Licensed by BoN and Operational |
| Nam-Mic Payment Solutions (Pty) Ltd | Nam-Mic | DFS Provider | Licensed by BoN and Operational |
| NamClear | NamClear | Enabling Infrastructure | Licensed by BoN and Operational |
| Namibia Investment Promotion and Development Board | NIPDB | Public Sector | Operational under the Public Enterprises Governance Act of 2019 |
| Namibia Financial Institutions Supervisory Authority | NAMFISA | Public Sector | Operational under the Namibia Financial Institutions Supervisory Authority Act, 2001 |
| Office of Prime Minister | OPM | | Namibian government |
| Namibia Special Risks Insurance Association | NASRIA | Public Sector | Operational under the Namibia Special Risks Insurance Association Act, 2017 |
| Namibia University of Science and Technology | NUST | Public Sector | Operational under the Namibia University of Science and Technology, 2015 |
| NamPost Ltd | NamPost | Public Sector | Licensed by BoN and Operational |
| Nedbank Namibia | Nedbank | Banking Institution | Licensed by BoN and Operational |
| Payment Association of Namibia | PAN | Ecosystem Support | Operational under the Payment System Management Act, 2003 |
| Q LINK Holdings (Pty) Ltd | Q LINK | DFS Provider | Licensed by BoN and Operational |

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| | | | |
|---|---|---|---|
| RealPay | RealPay | DFS Provider | Licensed by BoN and Operational |
| Salt Essential Information Technology | Salt Essential IT | Enabling Infrastructure | Registered business and Operational |
| Selcom Namibia | Selcom | DFS Provider | Licensed by BoN and Operational |
| Standard Bank Namibia | SBN | Banking Institution | Licensed by BoN and Operational |
| Telecom Namibia | Telecom NA | Public Sector | Licensed by CRAN and Operational |
| United Nations Development Programme Namibia | UNDP | Development Partner | Operational |



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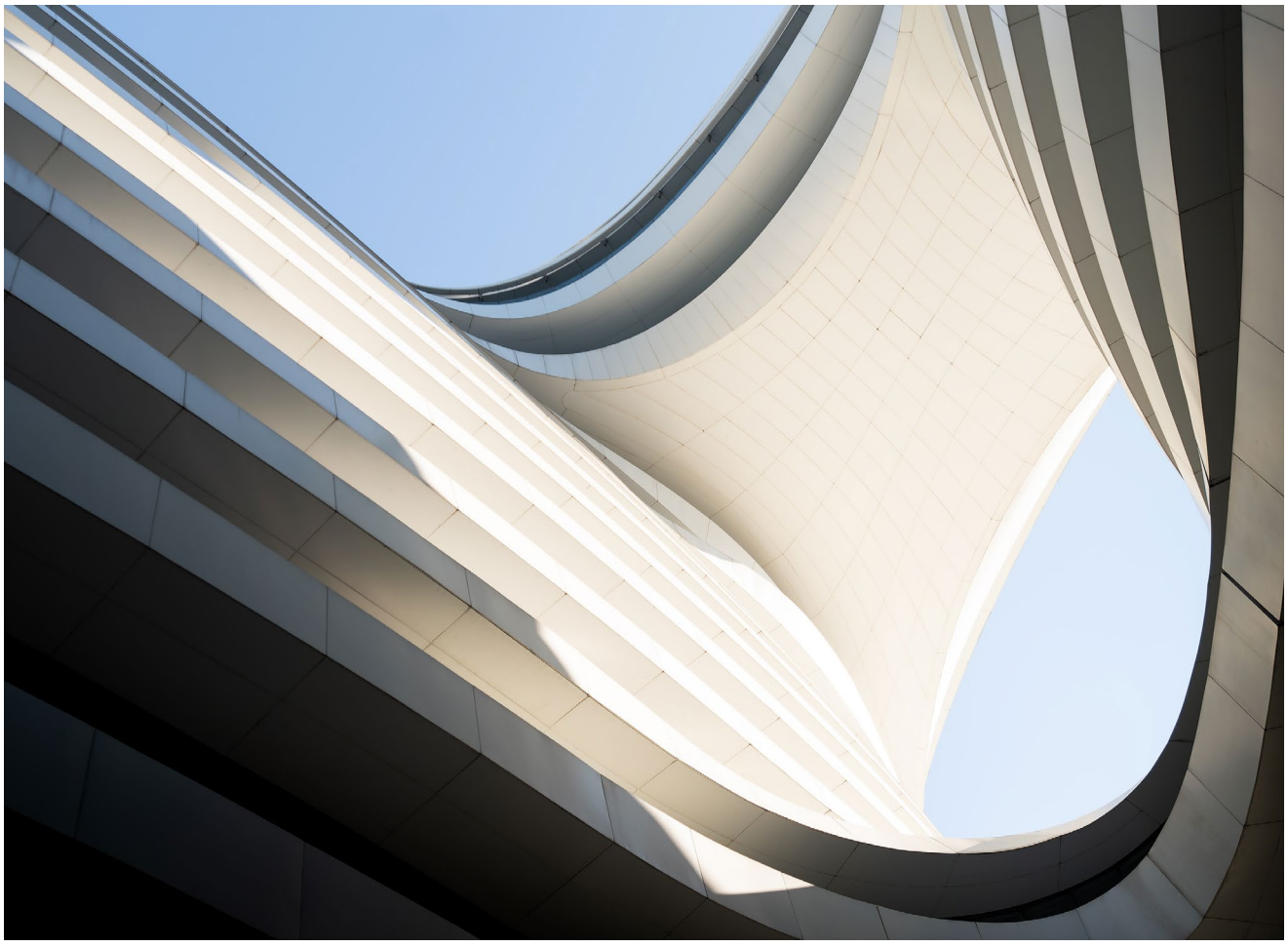
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