

Digital Payment Infrastructure in Nepal

**Why Moving Money Still Costs Money — and What It Will Take to
Build Rails Worthy of a Digital Economy**

Bishawa Raj Bhujel

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Executive Summary

Nepal has, in the space of a single decade, gone from a cash-and-cheque economy to one where a farmer in Ilam and a shopkeeper in Kathmandu can both settle a bill by scanning a QR code. Mobile banking users grew from roughly 1.1 million in 2020 to 28.2 million by mid-2025; mobile wallet users grew from 6.2 million to 24.7 million over the same period; and QR-code transaction volume has been compounding at well over 200 percent a year.¹ By any measure, this is one of the fastest financial-technology transitions in South Asia.

And yet the question this report starts from is a simple, almost embarrassing one, first posed by the author in a short essay in December 2025:² **why does it still cost money to move your own money in Nepal?** A domestic transfer on ConnectIPS carries a fee of NPR 2 to 8; a Fonepay-routed interbank transfer costs roughly NPR 10.³ Across the border, India's Unified Payments Interface (UPI) moves over 23 billion transactions a month — for free.⁴ Brazil's Pix, built and operated by the country's own central bank, is free for every individual.⁵ Kenya's M-Pesa now

¹ Asian Development Bank, *Advancing Digital Payments in Nepal: Infrastructure Upgrades and Policy Development for Enhanced Trade Facilitation*, July 2026, pp. 4–5, citing Nepal Rastra Bank (NRB) Monthly Payment Systems Indicators; Kathmandu Post, “QR code drives Nepal's digital payment boom,” 11 April 2025.

² Bishawa Raj Bhujel, “Should Digital Payment Infrastructure Be a Public Utility?,” *bishawaraj.com.np*, 13 December 2025.

³ connectIPS, “Digital Payment,” accessed November 2025, <https://connectips.com/knowmore/digital-payment.php>; kharchapatra.com, “ConnectIPS vs mobile banking Nepal: fees and limits,” 31 May 2026.

⁴ National Payments Corporation of India (NPCI) data, reported in ANI, “UPI Hits new high in May 2026 with 23.2 billion transactions worth Rs 29.9 Trillion,” 2 June 2026.

⁵ Central Bank of Brazil / EBANX, “Pix in Brazil: Latest Statistics,” *paymentscmi.com*, 7 March 2025; PaymentExpert, “How Brazil built Pix into a global payments success,” 13 August 2026.

processes the majority of its volume — 58 percent — completely free of charge under a program called M-Pesa Kadogo.⁶

This report is an attempt to answer that question properly — not with a blog post’s worth of intuition, but with the data, the comparative evidence, and the policy detail the question deserves. It asks four things in sequence:

1. **What, precisely, is broken (or merely unfinished) in Nepal’s digital payment ecosystem?** Not “digital payments are hard in poor countries,” but the specific, documented, numbered gaps: interoperability, cost, literacy, infrastructure, cybersecurity, governance, and cross-border friction.
2. **Why should anyone outside a fintech office care?** What is actually at stake for a remittance-dependent economy of roughly 29.7 million people⁷ that is scheduled to graduate from Least Developed Country status in November 2026 and lose a slice of its trade preferences in the process.⁸
3. **How have other countries solved this?** Seven detailed case studies — India, Brazil, Kenya, China, Bangladesh, Cambodia, and Pakistan — plus a cautionary tale from Nigeria and a brief look at two advanced economies, Singapore and Sweden, are examined for what genuinely transfers to Nepal’s context and what does not.
4. **What, concretely, should Nepal do next?** A phased roadmap, an honest accounting of who would have to pay for “free” payments, the specific technical and human skills the country will need to build, and a clear-eyed weighing of the benefits against the real risks of treating payment rails as public infrastructure.

The headline finding is that Nepal is not starting from zero — it is closer to the finish line than most commentary suggests, and considerably closer than it was even a year ago. Nepal Rastra Bank’s National Payment Switch (NPS), operational since November 2021 and formally documented in an October 2025 master reference document, already lays out almost the entire architecture that made India’s UPI possible: an open-API interoperability layer (the National Payments Interface, or NPI), a real-time retail switch, a national QR standard, and — as of June 2026 — a

⁶ Newsday Kenya, “M-PESA FY2025/2026: The rise of the micro-transaction economy,” 14 May 2026.

⁷ World Bank Open Data, “Population, total — Nepal,” accessed November 2025, <https://data.worldbank.org/country/nepal>.

⁸ International Labour Organization, “ILO assessment on Nepal’s LDC Graduation warns of job risks, calls for investments to boost competitiveness,” March 2026; East Asia Forum, “Nepal’s LDC graduation is a structural stress test,” 21 April 2026.

live, bidirectional, peer-to-peer payment corridor with India's UPI itself.⁹ What Nepal has not yet finished is the harder, less technical part: getting its largest wallets fully onto that shared rail, deciding who absorbs the cost of “free,” and building the workforce, the consumer-protection law, and the trust that make infrastructure feel like infrastructure rather than a collection of competing apps.

This report does not conclude that Nepal should nationalize digital payments, nor that the current fee-for-service model is indefensible. It concludes — in agreement with the argument that opened this inquiry — that the more useful question is not “*should payments be free?*” but “*should the underlying rail be treated as shared public infrastructure, on top of which private companies compete on service rather than on access?*” The evidence assembled here, across roughly 30 tables, charts, and case studies, points toward a qualified yes, with important caveats set out in the concluding chapters.

Part I — Foundations

1. Introduction

1.1 The Question This Report Asks

Every time someone in Nepal scans a QR code to pay for a plate of momos, sends a school-fee payment through ConnectIPS, or receives a remittance from a brother working in Doha, they are relying on a piece of infrastructure most of them never think about: the switches, application programming interfaces (APIs), settlement rules, and regulatory scaffolding that let a rupee move from one account to another in a few seconds. Most of the time it works, and it works because Nepal Rastra Bank (NRB), Nepal Clearing House Limited (NCHL), Fonepay, eSewa, Khalti, and two dozen other licensed institutions have spent roughly a decade building it, largely without public fanfare.

⁹ NRB, *National Payment Switch (NPS) and the National Payment Ecosystem Master Reference Document*, October 2025; NPCI International / Nepal Clearing House Limited, “NPCI International and Nepal Clearing House Launch Real-Time Cross-Border Remittance Link Between India and Nepal,” 9 June 2026.

This report grew out of a much shorter piece of writing. In December 2025, the author — a software developer who works with these systems from the outside, building integrations rather than operating switches — published a short essay asking whether digital payment infrastructure should be treated as a public utility, the way roads and electricity are, rather than as an ordinary commercial service.¹⁰ The trigger was mundane: a ConnectIPS transfer that cost a few rupees, at a time when India's UPI next door moves comparable transfers for nothing. That essay ended with a question rather than an answer: *should the government and financial system absorb most of the operating cost of moving money, the way society already absorbs the cost of paving a road, instead of charging a fee for every transfer?*

This report is the long-form attempt to actually answer that question — with real numbers, not a hunch; with a survey of how seven other countries have answered it, not just India; and with a specific, phased set of recommendations rather than a rhetorical conclusion.

1.2 Why Nepal, and Why Now

Three things make this a particularly good moment to ask this question about Nepal specifically.

First, the plumbing is largely built. Nepal's National Payment Switch has been live since November 2021, its national QR standard since 2021, and — as this report was being written — a live, bidirectional, person-to-person payment corridor between Nepal's National Payments Interface (NPI) and India's UPI went into operation on 6 June 2026.¹¹ Nepal is no longer in the position of asking "could we build this?" It is in the position of asking "now that most of it exists, why does it still feel unfinished, and who finishes it?"

Second, the clock is ticking on a much bigger transition. Nepal is scheduled to graduate from Least Developed Country (LDC) status at the United Nations in

¹⁰ Bishawa Raj Bhujel, "Should Digital Payment Infrastructure Be a Public Utility?," *bishawaraj.com.np*, 13 December 2025.

¹¹ NPCI International Payments Limited and Nepal Clearing House Limited, joint press release, 9 June 2026.

November 2026, after three consecutive successful reviews by the UN Committee for Development Policy.¹² Graduation is a genuine milestone, but it also means the gradual loss of preferential tariff access to markets that account for a meaningful share of Nepali exports — estimates range from a 2.5 to 4.3 percent contraction in total exports.¹³ A country about to lose trade preferences has an unusually strong incentive to make every other part of doing business — including moving money across a border — as cheap and fast as possible. Digital payment infrastructure is not a bystander to that transition; it is one of the few remaining levers Nepal fully controls.

Third, Nepal is not choosing in a vacuum. Nine other countries examined in this report have already made this choice, in nine different ways, and the results are now visible enough to learn from — including at least one expensive failure. Cambodia's central bank built a blockchain-based national rail from scratch. Brazil's central bank built and operates its own instant-payment system directly. Kenya let a telecom company build the rail and then, twelve years later, made the smallest transactions free by regulatory nudge. Nigeria tried to leapfrog straight to a central bank digital currency and, in its first year, could not get half a percent of the population to use it.¹⁴ None of these models transfers to Nepal unmodified, but each teaches something specific about sequencing, financing, and trust that this report tries to extract rather than merely admire.

1.3 Scope, Method, and a Note on Sources

This report is confined to **digital payments** — the movement of money between accounts, wallets, and merchants — rather than the wider universe of “fintech,”

¹² UN Office of the High Representative for the Least Developed Countries (OHRLLS), “Nepal after LDC Graduation: New avenues for exports,” accessed 2026.

¹³ International Labour Organization, *Employment Impact Assessment on Nepal's LDC Graduation*, March 2026; Nepal after LDC Graduation study (ITC/UN-OHRLLS), 2022 update.

¹⁴ N. Anthony, “Nigeria Restricts Cash to Push Central Bank Digital Currency,” CATO Institute, 19 December 2022, cited in Asian Development Bank (2026), p. 29.

which would also cover digital lending, insurance, and capital markets. Those adjacent topics appear only where they intersect directly with payment rails (for instance, digital lending built on QR transaction histories in Chapter 3).

Every statistic in this report is drawn from a named, dated, and — wherever the source made it available — linked primary or secondary source: Nepal Rastra Bank’s own Payment Systems Oversight Reports and its October 2025 *National Payment Switch Master Reference Document*; a July 2026 Asian Development Bank report devoted specifically to Nepal’s digital payment ecosystem, built on desk research and interviews conducted between October 2024 and October 2025; the World Bank’s Global Findex Database 2025; Nepal Telecommunications Authority data; and contemporaneous reporting from the Kathmandu Post, ICTFrame, and other Nepali and international outlets, cross-checked against each other wherever more than one source quoted the same figure. Where sources disagree — which happens more often than official statistics would suggest, particularly on “registered users” versus “active users” — this report says so explicitly rather than picking whichever number sounds best. A full bibliography with links is provided at the end of the report, and footnotes are used throughout so that any individual claim can be traced back to its source.

This is a report about infrastructure, so it is unavoidably a report about institutions, acronyms, and regulatory documents. A glossary is provided in Appendix A for readers who want a quick reference for terms like PSO, PSP, NPI, and RTGS.

2. Nepal’s Digital Payment Landscape Today

2.1 A Brief History: From Cheques to QR Codes

Nepal’s formal push toward digital payments is younger than a Nepali who just finished secondary school. eSewa, the country’s first licensed payment service provider, launched in 2009 as a bill-payment platform.¹⁵ For several years afterward,

¹⁵ NEPSE Trading, “Top Digital Payment Platforms in Nepal – eSewa, Khalti, Connect IPS, and More,” 8 October 2025.

digital payments in Nepal meant, essentially, one wallet doing top-ups and utility bills. The real inflection points came later and in quick succession:

- **2014** — NRB formulated the National Payments System Development Strategy, the first comprehensive road map for modernizing the country's payment system, and formally established the Payment Systems Department (PSD) to oversee it.¹⁶
- **2016** — NRB began licensing Payment System Operators (PSOs) and Payment Service Providers (PSPs) under a formal framework, opening the door to nonbank fintech entrants.¹⁷
- **2017** — Khalti launched, and NRB began piloting agent-based branchless banking more aggressively.¹⁸
- **2018** — NRB published the Payment System Oversight Framework, aligning Nepal's approach with the international Principles for Financial Market Infrastructures.¹⁹
- **2019** — The Payment and Settlement Act, 2019 became law, giving NRB clear statutory authority over payment systems and, critically, mandating in its Section 21 that all licensed payment institutions eventually integrate with a single National Payment Switch.²⁰
- **2020–2021** — The COVID-19 pandemic did for Nepal's digital payments what it did almost everywhere else: it forced cash-averse behaviour on people who had never needed a QR code before. NRB published the NepalQR Standardization Framework and Guidelines in 2021, and the Retail Payment Switch (RPS) — the operational heart of the National Payment Switch — went live in November 2021.²¹
- **2024–2026** — Cross-border integration accelerated: a person-to-merchant link with India's UPI opened in March 2024, expanded to tourists from China, Italy, South Korea, Malaysia, and Singapore by January 2025, and culminated in a full, bidirectional, peer-to-peer UPI–NPI corridor on 6 June 2026 — discussed in depth in Chapter 5.

¹⁶ NRB, *National Payments System Development Strategy*, 2014, cited in ADB (2026), p. 7.

¹⁷ ADB (2026), p. 16.

¹⁸ NEPSE Trading (2025).

¹⁹ NRB, *Payment System Oversight Framework*, 2018.

²⁰ Payment and Settlement Act, 2019, Section 21; NRB, *National Payment Switch (NPS) and the National Payment Ecosystem Master Reference Document*, October 2025, p. 2.

²¹ NRB (2025), pp. 9–10.

2.2 Mapping the Ecosystem: Who Does What

Digital payments in Nepal are not run by a single company or even a single kind of company. Understanding the landscape requires separating four distinct roles, a distinction the Payment and Settlement Act, 2019 makes explicit:²²

- **The regulator** is Nepal Rastra Bank, acting through its Payment Systems Department. NRB licenses every institution that touches a payment, sets technical standards (like the NepalQR framework), and can fine, suspend, or revoke licenses.
- **Payment System Operators (PSOs)** run the underlying infrastructure — the switches, clearing houses, and networks that other institutions plug into. As of late 2025, NRB had licensed 8–9 PSOs, three of which are the international card schemes (Visa, Mastercard, and UnionPay) operating under separate arrangements.²³ The domestically significant PSOs are Nepal Clearing House Limited (NCHL) — which operates the NEPALPAY scheme, including ConnectIPS, and is the entity NRB designated to build and run the National Payment Switch itself — Fonepay Payment Service Limited (which operates the Fonepay scheme, Nepal's dominant QR acquiring network), Nepal Payment Solution Limited (Instapay), and SmartChoice Technologies Limited (Smartpay).
- **Payment Service Providers (PSPs)** are the customer-facing businesses: eSewa, Khalti (now merged with IME Pay into IME Khalti), IME Pay, PrabhuPay, Moru, NamastePay, Qpay, CellPay, and the mobile- and internet-banking arms of every commercial bank, development bank, and finance company in the country — 21 to 23 licensed PSPs in total, alongside every bank operating as a PSP in its own right.²⁴
- **Banks and financial institutions (BFIs)** sit underneath all of this as the ultimate holders of the money, since every wallet and card is, one hop away, backed by an account at a licensed bank.

The practical consequence of this structure — a regulator, several competing PSOs each running their own scheme, and two dozen PSPs building products on top of them — is that Nepal did not get a single national rail by default the way a country starting from scratch might design one. It got several rails built around the same time by different institutions with different commercial incentives, and has spent the years since trying to stitch them together. That stitching effort is the subject of the National Payment Switch, described next, and the persistence of gaps in that stitching is the subject of Chapter 3.

²² NRB (2025), pp. 4, 7.

²³ ADB (2026), p. 16, cites 8 PSOs and 21 PSPs as of October 2025; NRB's own *National Payment Switch* document (October 2025), p. 3, cites 9 PSOs and 23 PSPs from a slightly different snapshot date — a reminder, discussed further in Section 2.4, that even official Nepali sources do not always agree to the last digit.

²⁴ ADB (2026), p. 16.

2.3 The National Payment Switch and the National Payments Interface

At the centre of Nepal's current architecture is the **National Payment Switch (NPS)**, the interoperable switch mandated by Section 21 of the Payment and Settlement Act and formally documented by NRB in an October 2025 master reference document.²⁵ Understanding its three components is useful background for almost everything that follows in this report:

- **The Retail Payment Switch (RPS)**, live since November 2021, is the real-time engine that processes non-card retail transactions — fund transfers, QR payments, bill payments — and settles them, ultimately, through NRB's own Real-Time Gross Settlement (RTGS) system in central-bank money. Access to the RPS is standardized through the **National Payments Interface (NPI)**, a set of open APIs that any licensed bank, PSO, or PSP can integrate with once, rather than negotiating bilateral connections with every other institution.
- **The National Card Switch (NPS-NCS)**, operational since roughly March 2025, routes and settles domestic card transactions and underpins NEPALPAY, Nepal's own EMV-compliant domestic card scheme (built on Discover Financial Services specifications), which is accepted internationally through Discover's network.
- **The cross-border engine (NPIx)** is the newest piece, designed to route, validate, and convert cross-border transactions before they hit either the domestic NPI or an international partner network. Person-to-merchant cross-border payments are functional today; person-to-person payments — the harder problem — moved from closed-user-group testing into the live India corridor in June 2026.

By NRB's own account, the results by 2025 were substantial in scale: 48 banks, PSOs, and PSPs were enrolled in the National Payment Switch; total retail transactions cleared through it grew from 19.0 million in 2021 to 39.6 million in 2022 to 50.6 million in 2023; and the number of merchants accepting QR codes rose from 280,000 in 2021 to 2.34 million by January 2025.²⁶ By fiscal year 2025/26, the Retail Payment Switch alone was processing NPR 9.3 trillion in real-time transaction value annually — more than Nepal's entire GDP, and, for the first time, more than the value still moving through paper cheques.²⁷

²⁵ NRB (2025), throughout.

²⁶ NCHL, *Preparing Nepal's Digital Payments for Global Acceptance: Annual Report 2022–2023*; Kathmandu Post, "QR code drives Nepal's digital payment boom," 11 April 2025; both cited in ADB (2026), p. 8.

²⁷ ICTFrame, "Nepal's Retail Payment Crosses NPR 1.2 Trillion in Monthly Volume," August 2026.

Yet the same NRB document that describes this architecture is unusually candid about what it has not yet achieved. It states plainly that Nepal's PSOs "have established and implemented their own payment infrastructure and scheme," that only NCHL and SmartChoice are currently interoperable with each other through the switch, and that eSewa and Khalti — the two largest wallets in the country — were, as of the document's October 2025 publication, still only "*exploring*" interoperability through Fonepay's switch rather than having achieved it.²⁸ A senior representative of the Nepal Digital Payments Company, interviewed for the ADB report, put the resulting technical burden bluntly: "*There are around four core payment systems that banks and other financial institutions use... integrating with each of them is not possible,*" and even connecting through an aggregator does not remove the need to separately integrate with each underlying API.²⁹ Fonepay's own chief executive, in the same report, pushed back just as directly, describing Fonepay's network as fully open-loop and fully interoperable across every commercial bank in Nepal.³⁰ Both statements are, in a narrow sense, true — which is itself the problem this report returns to repeatedly: Nepal has not yet agreed on what "interoperable" even means in practice, let alone finished building it.

2.4 Adoption by the Numbers

The headline growth figures are genuinely striking. Table 2.1 draws together the clearest available NRB and World Bank-sourced figures on the growth of Nepal's core digital payment channels.

²⁸ NRB (2025), pp. 4–5.

²⁹ ADB (2026), p. 10, Box 3.

³⁰ ADB (2026), p. 12, Box 4.

Channel	~2020	~2025	Growth	Primary Source
Mobile banking users	1.1 million	28.2 million	~25.6×	NRB Monthly Payment Systems Indicators, cited in ADB (2026)
Mobile wallet users	6.2 million	24.7 million	~4.0×	NRB Monthly Payment Systems Indicators, cited in ADB (2026)
connectIPS verified users	n/a	1.28 million	—	b360 Nepal, “Nepal’s Banking Sector at Inflection Point,” Dec 2025
QR-accepting merchants	280,000 (2021)	2.34 million (Jan 2025)	~8.4×	NCHL Annual Report; Kathmandu Post, Apr 2025
Adults with a transaction account	34% (2014)	60% (2024)	+26 pts	World Bank Digital Finance / IFC Nepal Financial Inclusion Report 2023

Channel	~2020	~2025	Growth	Primary Source
Adults making/receiving digital payments	10% (2014)	29% (2021)	+19 pts	World Bank, cited in ADB (2026), p. 14

Table 2.1 — Growth of Nepal’s core digital payment channels, c. 2020–2025. Figures cited are the most recent, most authoritative snapshots identified in the underlying sources; exact reference dates vary by row and are given in the footnoted sources.

A note on why these numbers do not all agree with each other, or with numbers a reader may have seen elsewhere: Nepal’s payment statistics measure at least three genuinely different things, and press coverage frequently blurs them together. **Registered accounts** (the 24.7 million mobile wallet figure) count every account ever opened, including duplicates — a single person routinely holds accounts on eSewa, Khalti, and one or two bank apps simultaneously, and dormant accounts are not purged from the count. **Verified or actively used accounts** are a smaller, harder-to-measure subset — connectIPS’s 1.28 million “verified users” figure, against tens of millions of wallet registrations elsewhere, is a useful reminder of the gap. **Survey-measured usage**, the Global Findex methodology, asks a representative sample of adults directly whether they personally made a digital payment in the past year, and it produces the most conservative numbers of the three: the 2025 edition of Global Findex found that only 19 percent of Nepali adults reported making a digital payment, 14 percent owned a debit card (only 5 percent of adults used it), and just 6 percent had used mobile money.³¹ This is not a contradiction so much as three different rulers measuring three different things — but it means that any single “X million users” headline about Nepal’s digital payments should be read carefully for which ruler it used, a discipline this report tries to maintain throughout by naming the specific metric behind every figure.

³¹ Kathmandu Post, “6 percent of Nepali adults use mobile money, 35 percent save formally,” 17 July 2025, reporting World Bank Global Findex Database 2025 findings for Nepal (data collected May–December 2024).

2.5 Who Is Actually Included?

Growth in registrations is not the same as growth in genuine financial inclusion, and Nepal's own data shows both a real inclusion success story and real, persistent gaps sitting side by side.

On the success side: the share of Nepali adults with a transaction account nearly doubled, from 34 percent in 2014 to 60 percent in 2024, and Nepal has achieved rough gender *parity in ownership* — about 60 percent of both men and women hold an account.³² A 2023 IFC survey found that only 7 percent of Nepali adults now use no financial services at all — formal or informal — down from 18 percent in 2014, and reliance on informal channels (moneylenders, local savings groups) fell from 21 percent to 4 percent over the same period.³³

On the gap side, three patterns recur across almost every data source consulted for this report:

- **Ownership parity does not mean usage parity.** While men and women own accounts at similar rates, only 22 percent of Nepali women made a digital payment in 2024, against 35 percent of men.³⁴ Having an account and actively transacting digitally through it are evidently two different thresholds, and Nepal has cleared the first far more completely than the second.
- **Rural usage lags urban usage more than rural access does.** Formal financial-service usage is 77 percent in rural areas against 84 percent in urban areas — a real but modest seven-point gap. Digital payment usage specifically is more skewed: 27 percent of rural adults made or received a digital payment against 34 percent of urban adults.³⁵
- **Many “included” accounts are only nominally active.** NRB and IFC research both note that many bank accounts exist mainly to receive a one-time government benefit or a remittance payout, after which the balance is withdrawn immediately in cash and the account goes dormant — a pattern that shows up in official statistics as “inclusion” while representing very little ongoing digital financial behaviour.³⁶

³² World Bank, “Inclusive Digital Financial Services: Nepal,” digitalfinance.worldbank.org, accessed November 2025, cited in ADB (2026), p. 5.

³³ International Finance Corporation, *Nepal Financial Inclusion Report 2023*, cited in ADB (2026), p. 5.

³⁴ World Bank, “Inclusive Digital Financial Services: Nepal,” cited in ADB (2026), p. 5.

³⁵ IFC (2023); World Bank, cited in ADB (2026), pp. 5, 14.

Taken together, this chapter's numbers describe a country that has built real infrastructure and achieved real reach — a QR-acceptance network that grew more than eight-fold in under four years is not a small achievement for a country with Nepal's terrain and per-capita income — but has not yet converted that reach into deep, routine, gender- and geography-blind digital financial behaviour. Chapter 3 turns to the specific, documented reasons why.

Part II — The Problem

3. The Core Problem: Why Digital Payments in Nepal Still Feel Expensive and Fragmented

Nepal Rastra Bank's own July 2026 partner document, prepared with the Asian Development Bank, contains an unusually blunt internal admission for a central-bank-adjacent publication: it organizes Nepal's challenges into four categories — infrastructure and access, policy and regulation, market readiness, and technical and operational capacity — and lists nineteen distinct, specific problems under those headings.³⁷ This chapter works through the most consequential of those nineteen problems in order, with the evidence behind each one, before turning in Chapter 4 to why they matter beyond the fintech sector itself.

3.1 Fragmentation: Many Rails, Not Yet One Road

The single most-cited problem in every source consulted for this report — NRB's own documents, the ADB study, and the original essay this report expands on — is fragmentation. Nepal did not build one national payment rail and let competitors build products on top of it, the way India built UPI first and let banks and apps plug into it second. It built several parallel, commercially independent rails — NCHL's NEPALPAY scheme, Fonepay's scheme, Nepal Payment Solution's Instapay, SmartChoice's Smartpay — more or less simultaneously, and has spent the years since trying to connect them after the fact.

³⁶ IFC (2023), cited in ADB (2026), p. 5.

³⁷ ADB (2026), p. 23, Table 1.

The consequence, as NRB's National Payment Switch document states directly, is that unlike “many countries with a unified payment scheme, under which participants issue payment instruments using a common/single payment infrastructure, Nepal's payment ecosystem is housed with multiple schemes and payment infrastructures.”³⁸ A bank or PSP that wants to offer its customers full coverage — the ability to send money to *any* other wallet or bank customer in Nepal, not just customers of partner institutions — has historically needed to negotiate separate membership, pay separate annual fees, and often rebuild significant technical infrastructure for each of the four core schemes.³⁹ NRB itself lists the resulting costs: non-uniform, sometimes opaque access criteria set by different scheme operators; duplicated annual membership costs that inevitably get passed on to end customers; and the need for real architectural rework each time a new scheme is joined.⁴⁰

This is not a hypothetical problem sitting only in policy documents. As of the NRB switch document's own October 2025 publication date, eSewa and Khalti — a wallet with 8 million-plus users and a wallet with roughly 5 million users, together comfortably the two largest consumer-facing platforms in the country — were still only “*exploring*” interoperability with each other through Fonepay's switch, rather than having achieved it.⁴¹ In practice, this has meant that a Khalti user wanting to pay an eSewa-only merchant, or vice versa, has often needed a workaround — cashing out to a bank account and back in, or asking the recipient for an alternative payment method — years after both platforms had achieved mass adoption individually. Two industry perspectives gathered by the ADB researchers illustrate how differently this same fact is perceived from the inside: a senior Nepal Digital Payments Company representative described integrating separately with each of the roughly four core payment systems as simply “not possible” at reasonable cost, while Fonepay's own chief executive maintained that Fonepay's network was already “fully

³⁸ NRB (2025), p. 4.

³⁹ NRB (2025), p. 4; ADB (2026), p. 10, Box 3.

⁴⁰ NRB (2025), p. 4.

⁴¹ NRB (2025), p. 5, footnote 5.

interoperable” across every commercial bank in the country.⁴² Both are describing real, true things — Fonepay genuinely is bank-interoperable at the settlement layer — while the wallet-to-wallet gap that ordinary consumers actually notice persists underneath.

3.2 The Cost Problem: What a Fee Schedule Looks Like From the Bottom

The essay that motivated this report opened with a specific, concrete grievance: that ConnectIPS, an entity majority-owned by Nepal’s own banks and central bank, still charges four to eight rupees for a domestic transfer, and that Fonepay-routed transfers cost roughly ten rupees.⁴³ Table 3.1 sets out the current, verified fee structure across Nepal’s main channels, alongside two comparator countries where the equivalent transfer is free.

Payment Channel (Nepal)	Typical Fee (Domestic P2P Transfer)	Notes
ConnectIPS (fund transfer)	NPR 2 (up to NPR 500) · NPR 4 (NPR 500–5,000) · NPR 8 (above NPR 5,000)	Tiered by transfer amount; government tax payments cross-subsidized at NPR 2–5
Fonepay-routed interbank transfer (via bank app)	~NPR 10	Charged on the payer side
QR payment to a merchant (P2M)	NPR 0 to the customer	NRB bars merchants from passing the cost to the customer; the merchant absorbs a merchant discount rate instead

⁴² ADB (2026), pp. 10, 12.

⁴³ Bhujel (2025).

Payment Channel (Nepal)	Typical Fee (Domestic P2P Transfer)	Notes
Cross-border QR (Indian UPI user paying a Nepali merchant)	1.95% merchant discount rate	Charged to the Nepali merchant, not the Indian customer
India — UPI, P2P and most P2M	NPR 0 (free)	Zero merchant discount rate mandated by policy since 2020
Brazil — Pix, individual-to-individual	NPR 0 (free)	Free for individuals by central-bank design; minimal fee for businesses

Table 3.1 — Nepal’s typical domestic transfer fees compared with UPI and Pix. Nepal figures verified against connectIPS’s own published fee schedule and independent 2025–2026 comparison sources; see footnotes.⁴⁴

A fee of two to ten rupees sounds trivial in isolation — a fraction of a US cent. The ADB report makes the more useful point directly: for a small-value transaction, that flat fee can represent “a significant percentage of the payment, discouraging both small merchants and consumers from using digital channels,” particularly because Nepal’s fees, unlike UPI’s, are largely **flat rather than proportional** — a NPR 8 fee is a rounding error on a NPR 20,000 transfer and a meaningful tax on a NPR 100 one.⁴⁵ This matters disproportionately for exactly the population this report is most concerned with: low-income users, small and micro merchants, and first-time digital-payment adopters, who are also the group most likely to be testing whether digital payment is “worth it” against the zero marginal cost of handing over a banknote.

It is worth being fair to the other side of this ledger, because the original essay was. Nepal’s payment operators are not charging fees out of indifference to this dynamic — they are covering real costs at a much smaller scale than India’s. If a national

⁴⁴ connectIPS, “Digital Payment,” accessed November 2025; kharchapatra.com (2026); z-indexmedia.com, “Online Transaction Fees in Nepal (2025 Guide)”; ADB (2026), p. 15, which independently corroborates a NPR 2–8 domestic transfer fee range.

⁴⁵ ADB (2026), p. 15.

switch costs several hundred million rupees a year to run and clears a fraction of the transaction volume that UPI clears, the fixed cost recovered per transaction is mechanically higher.⁴⁶ NCHL's own board is a public–private partnership between the central bank and the commercial banks that would, in a fully “free” model, need another funding source entirely — a point this report returns to directly in Chapter 6, where it asks not just “should fees be zero?” but “who, specifically, would pay instead?”

3.3 The Financial and Digital Literacy Gap

Underneath the interoperability and cost problems sits a more basic one: a meaningful share of Nepal's adult population is not yet equipped to use digital financial tools confidently, regardless of how cheap or well-connected those tools become. Three separate literacy measures, gathered by NRB and independent researchers, tell a consistent and sobering story, summarized in Table 3.2.

Literacy Measure	National Rate	Rural Rate	Urban Rate	Source
General (adult) literacy	76.3%	—	—	National Census of Nepal, 2021
Financial literacy (overall score)	57.9%	23.5%	43.1%	NRB Financial Literacy Framework national survey, 2022

⁴⁶ Bhujel (2025).

Literacy Measure	National Rate	Rural Rate	Urban Rate	Source
Financial literacy (minimum target score across knowledge, behaviour, and attitude)	27.5%	—	—	NRB survey, cited in ADB (2026), p. 6
Digital literacy (independent research estimate)	~31%	—	—	Multiple academic sources; no single official NRB figure exists

Table 3.2 — Nepal’s overlapping literacy gaps. The rural–urban financial literacy gap (23.5% vs. 43.1%) is nearly a factor of two.⁴⁷

The gap between the headline financial-literacy figure (57.9 percent) and the far lower share who clear NRB’s own minimum target score across all three components — knowledge, behaviour, and attitude (27.5 percent) — is itself instructive: it suggests that a majority of Nepalis know *something* about financial concepts without necessarily having the confidence or behavioural habits to act on that knowledge independently, which is precisely the population most vulnerable to the fraud patterns discussed in Section 3.6. A study cited in NRB’s own review found a statistically strong, direct correlation between higher financial literacy and greater use of digital payment systems specifically — this is not a tangential skills gap but one directly on the causal path to adoption.⁴⁸

⁴⁷ risingnepaldaily.com, “Promote Literacy On Financial Technology,” citing National Census 2021 and NRB survey; ADB (2026), p. 6; OnlineKhabar, “Digital Divide threatens Nepal’s vision for a tech-driven future,” 11 February 2024; Journal article, “Digital literacy and its impact on employment in Nepal,” *International Journal of Asian Social Science*, 2025, citing Adhikari (2024).

⁴⁸ B. K. Thapa, “Financial Literacy and Digital Payment System in Nepal,” *Nepalese Journal of Management Research*, 5 (2025), pp. 64–72, cited in ADB (2026), p. 6.

3.4 The Rural–Urban and Gender Divides, in Nepal’s Own Geography

Nepal’s terrain is not an abstraction in this discussion; it is one of the two or three most-cited reasons, in every source consulted, for why national averages conceal enormous internal variation. Roughly 79 percent of Nepal’s population lives in rural areas,⁴⁹ spread across terrain that ranges from the flat Terai plains to Himalayan settlements accessible only by trail. A World Bank study cited in the ADB report found that internet usage varies from 60 percent of households in Bagmati province — home to Kathmandu — to just 14 percent of households in Madhesh province, and that urban households use the internet at nearly three times the rate of rural households (49.3 percent versus 17.5 percent).⁵⁰

The gender dimension compounds this. As Section 2.5 noted, Nepal has achieved rough parity in *account ownership* but not in *usage* — a pattern that repeats across financial decision-making more broadly. The Nepal Economic Forum’s review of financial inclusion notes that women are frequently excluded from household financial decision-making, have less access to financial information and training than men, and are consequently more dependent on other family members for financial matters — a dependence that a purely technical fix (a cheaper app, a faster network) does nothing to address on its own.⁵¹ Global Findex data on *why* people remain unbanked shows a specific pattern here worth naming: Nepal is one of a handful of countries — alongside Algeria, Bolivia, Pakistan, and Tunisia — where women disproportionately report not having an account because a male household member already has one, a reason men rarely cite for themselves.⁵²

⁴⁹ Nepal Economic Forum, “Status of Financial Inclusion in Nepal,” 28 January 2023.

⁵⁰ World Bank, *Unlocking Nepal’s Growth Potential*, 2025, cited in ADB (2026), p. 14.

⁵¹ Nepal Economic Forum (2023).

⁵² Kathmandu Post, “6 percent of Nepali adults use mobile money, 35 percent save formally,” 17 July 2025, reporting Global Findex 2025 findings.

3.5 Infrastructure and Affordability: The Connection That Isn't Quite a Connection

Nepal's headline connectivity statistics look, at first glance, remarkably strong for a mountainous, landlocked country: fiber-optic backbone now reaches all 77 districts, 3G coverage reached 90 percent of the population and 4G reached 86 percent by 2024, and mobile broadband penetration is reported at over 94 percent.⁵³

These numbers require two important qualifications before they can be read as “connectivity solved.” First, several of Nepal's own regulators and researchers note that population-penetration figures above 100 percent — Nepal Telecommunications Authority (NTA) reported 144.56 percent broadband penetration in April 2024, and total broadband *subscriptions* of 30,986,524 against a population of 29,164,578 by mid-2026 — reflect people holding multiple SIM cards and subscriptions, not universal individual access; NTA's own spokesperson has publicly cautioned against reading the headline rate too literally for exactly this reason.⁵⁴ Second, and more concretely, the ADB report notes that although Nepal's fiber backbone now spans every district, roughly half the population still lives more than 10 kilometres from the nearest core fiber route — the “last mile” that determines whether a household's actual connection is fast and reliable, rather than merely nominally present.⁵⁵

Affordability tells a similarly two-sided story, and here Nepal's own tax policy is directly implicated. The cost of mobile broadband data fell to 2.05 percent of average monthly income by 2024 — just above the UN Broadband Commission's 2 percent affordability target, a genuinely good outcome.⁵⁶ But the device needed to use that data has become *less* affordable over the same period: an entry-level smartphone

⁵³ Nepali Telecom, “Nepal Telecom brings FTTH in 77 districts after Humla launch,” 16 August 2024; International Telecommunication Union Data Hub: Nepal, cited in ADB (2026), p. 13; English Nepalnews, “Connected but Not Equal,” 17 June 2026.

⁵⁴ The Himalayan Times, “Nepal's persistent digital divide,” 10 September 2024; English Nepalnews, “Connected but Not Equal,” 17 June 2026; SAMENA Daily News, “Internet access in Nepal crosses 22 million,” citing NTA spokesperson Min Prasad Aryal.

⁵⁵ World Bank (2025), cited in ADB (2026), p. 14.

cost the equivalent of 33 percent of a month's income in 2023, up from prior years, driven substantially by a tax burden on phones that reached 71 percent in 2023 — compared with 0 percent in Bangladesh, 3 percent in India, and 30 percent in Sri Lanka.⁵⁷ This is, notably, one of the few problems in this entire report that is not really a technology problem or even primarily a market-structure problem — it is a fiscal-policy choice, made in Kathmandu, that sits in direct tension with every other digital-inclusion goal the same government has articulated. It recurs as a specific, high-leverage recommendation in Chapter 6.

Fixed broadband is a smaller part of the picture for most households but remains meaningfully less affordable than mobile — around 7 percent of monthly income, well above the mobile figure — which helps explain why 57 percent of Nepal's mobile connections are now on smartphones and why 96 percent of internet access nationally happens via mobile rather than fixed lines.⁵⁸ To their credit, several PSPs have responded to the connectivity gap with real product innovation rather than simply waiting for infrastructure to catch up: Fonepay's FoneTag and NCHL's NepalPayTag use near-field communication (NFC) to let an offline customer tap a phone against an online merchant's terminal and complete a payment without the customer needing their own live internet connection at the moment of the transaction — a genuinely useful adaptation to Nepal's specific connectivity profile, not a copy of a foreign product.⁵⁹

3.6 Cybersecurity, Fraud, and the Erosion of Trust

A payment system that people do not trust is, functionally, not much of a payment system, and Nepal's fraud data over the past two to three years gives users real reasons for caution. Nepal Police's Cyber Bureau recorded more than 2,500

⁵⁶ International Telecommunication Union Data Hub: Nepal, cited in ADB (2026), p. 14.

⁵⁷ World Bank (2025), cited in ADB (2026), p. 14.

⁵⁸ ADB (2026), p. 14; OnlineKhabar (2024).

⁵⁹ Alliance for Financial Inclusion, "Payment Innovations and Risks in South Asia," 2024, cited in ADB (2026), p. 14.

phishing complaints linked specifically to banking fraud in fiscal year 2023–24 alone.⁶⁰ In 2024, a breach at F1Soft — the technology group behind Fonepay — resulted in an estimated NPR 34.2 million in losses from unauthorized transactions, and, in a particularly uncomfortable irony for a sector built on public confidence, Nepal Rastra Bank itself suffered a data breach the same year, exposing sensitive financial information.⁶¹ eSewa separately confirmed that user credentials — including account emails, balances, and passwords — were exposed via what the company attributed to a phishing campaign rather than a direct system compromise, after a hacker published details from at least two dozen accounts.⁶²

The fraud patterns themselves are consistent across nearly every source: fake customer-support calls requesting one-time passwords (OTPs), phishing links distributed via SMS and WhatsApp that imitate legitimate wallet login pages, “reward” or “refund” scams designed to extract OTPs under time pressure, and look-alike domains impersonating eSewa or Khalti.⁶³ Organized, cross-border elements have been involved in some prosecuted cases: an eight-person internet-banking fraud ring broken up by police in 2023 included members from across Nepal’s Tarai districts and at least one individual from neighbouring Bihar, India, and had compromised victims’ email, ConnectIPS, mobile banking, and wallet credentials.⁶⁴

NRB has responded with real regulatory tools rather than only advisories — most notably its Cyber Resilience Guidelines, issued in 2023, which require every licensed

⁶⁰ Cyber Samir, “Cybersecurity in Nepal: Threats, Challenges, and the Future,” 30 July 2025.

⁶¹ Cyber Samir (2025).

⁶² myRepublica, “eSewa data breached! A hacker releases nearly two dozen eSewa users’ details including passwords,” 2025.

⁶³ techbizhub.com, “How Scammers Are Targeting Khalti and eSewa Users in Nepal,” 2 January 2026; Cyber Samir, “Cybersecurity in Nepal (2026): Threats, Laws, Attacks & Protection,” 22 February 2026.

⁶⁴ The Himalayan Times, “Eight persons held for internet banking fraud,” 4 February 2023.

payment institution to conduct regular risk assessments, maintain incident-response plans, implement encryption and access controls, and train staff.⁶⁵ Nepal Police has more recently begun the process of establishing a dedicated Anti-Cyber Scam Centre, bringing together NRB, the Bankers' Association, PSPs, PSOs, NTA, and internet service providers as coordinated points of contact.⁶⁶ Even so, the ADB report's stakeholder interviews found real unevenness in how well the Cyber Resilience Guidelines are actually being implemented, particularly among smaller PSPs with limited technical budgets, and flagged that most institutions have not yet adopted more advanced fraud tools — AI-based behavioural monitoring, biometric verification — that larger markets increasingly treat as standard.⁶⁷

3.7 Regulatory and Governance Gaps

Nepal's payment regulation has matured quickly on paper — the Payment and Settlement Act, 2019; its 2020 Bylaw, amended in 2023; the Payment System Oversight Manual 2021; the Cyber Resilience Guidelines 2023; and a Unified Payment System Directive in 2025 together form a reasonably comprehensive framework, and NRB's oversight approach is explicitly modelled on the international Principles for Financial Market Infrastructures.⁶⁸ Even so, an International Monetary Fund technical assistance review identified several structural weaknesses worth naming plainly, because they recur, in different form, in several of the international case studies examined in Chapter 5:⁶⁹

⁶⁵ NRB, *Cyber Resilience Guidelines 2023*.

⁶⁶ OnlineKhabar, "Nepal Police moves to establish anti-cyber scam centre," August 2026.

⁶⁷ ADB (2026), pp. 18–19; Nepal Republic Media, "Majority of BFIs struggle to enforce cyber safety measures on the digital transactions: Experts," 19 February 2024.

⁶⁸ ADB (2026), p. 17.

⁶⁹ International Monetary Fund, *Nepal Technical Assistance Report – Financial Sector Stability Review*, 2023, cited in ADB (2026), p. 17.

- Key legal provisions on the finality and irrevocability of settled transactions — a technical-sounding issue that matters enormously in a dispute or a bank failure — are not yet fully embedded in law.
- The Payment Systems Department's own institutional capacity needs strengthening to keep pace with the sector it regulates.
- **NRB's dual role as both regulator of the payment system and a shareholder in NCHL, the entity that operates the core switch, creates a structural conflict-of-interest concern** — the same category of criticism, notably, that the United States government leveled at Brazil's central bank over its dual role as Pix's regulator and operator during a 2025–2026 trade dispute examined in Chapter 5.
- A biennial inspection cycle, combined with bank-grade anti-money-laundering, cyber-resilience, and consumer-protection compliance requirements, creates a compliance cost that smaller fintechs report struggling to absorb — a barrier to entry that can paradoxically entrench the largest incumbents rather than fostering the competition regulation is meant to protect.⁷⁰

Nepal's data-protection framework has a comparable gap. The Privacy Act, 2018 is the operative law, but it lacks several features now considered standard internationally — explicit data-subject rights such as the right to data portability or to be forgotten, defined data-retention limits, an independent data-protection authority, and provisions governing algorithmic or automated decision-making, an increasingly relevant gap as fintechs adopt AI-based credit scoring and fraud detection.⁷¹ A dedicated Personal Data Protection Act, aligned with international standards such as the EU's GDPR, is among the ADB report's own recommendations, discussed further in Chapter 6.⁷²

Finally, Nepal's international financial standing has become a live constraint on cross-border payments specifically. Following a 2023 mutual evaluation that flagged gaps in anti-money-laundering and counter-terrorism-financing enforcement, Nepal was placed under Financial Action Task Force (FATF) monitoring, and in February 2025 was formally added to the FATF “grey list.”⁷³ Grey-listing does not halt international transactions, but it raises the compliance burden and reputational risk that correspondent banks and international payment partners attach to Nepali

⁷⁰ ADB (2026), p. 17.

⁷¹ RA & Associates, “Data Protection Law in Nepal,” cited in ADB (2026), p. 18.

⁷² ADB (2026), p. ix.

⁷³ Kathmandu Post, “It's official: Nepal falls back into FATF grey list,” 22 February 2025, cited in ADB (2026), p. 22.

counterparties — precisely the kind of friction that makes cross-border digital payment corridors, the subject of Section 3.9, harder and more expensive to build. Nepal has two years from the 2025 listing to demonstrate the reforms needed to avoid a further downgrade to the FATF blacklist, a considerably more severe outcome for trade and finance.⁷⁴

3.8 The MSME and Informal-Economy Gap

Nepal's micro, small, and medium enterprises (MSMEs) are simultaneously the part of the economy most likely to benefit from cheaper, faster digital payments and the part least equipped, today, to use them. The scale of the sector is worth stating precisely: the 2018 National Economic Census counted more than 920,000 enterprises, the overwhelming majority — 95.4 percent, or 880,254 businesses — classified as micro-enterprises, with only 0.19 percent (1,783 firms) large enough to be classified as “large.”⁷⁵ Nearly half of all Nepali enterprises operate informally, and Nepal's informal economy as a whole is estimated at roughly 37.5 percent of total economic activity.⁷⁶

Firm Size	Number of Firms	Share
Micro	880,254	95.37%
Small	38,737	4.20%
Medium	2,253	0.24%
Large	1,783	0.19%

⁷⁴ Kathmandu Post (2025), cited in ADB (2026), p. 22.

⁷⁵ United Nations Economic and Social Commission for Asia and the Pacific, *Micro, Small and Medium-sized Enterprises' Access to Finance in Nepal*, MSME Financing Series No. 3, 2020, cited in ADB (2026), p. 15.

⁷⁶ L. Medina and F. Schneider, “Shadow Economies Around the World,” IMF Working Paper WP/18/17, 2018, cited in ADB (2026), p. 15.

Firm Size	Number of Firms	Share
Total	923,027	100%

Table 3.3 — Nepal's enterprises by size, 2018 National Economic Census.⁷⁷

The digital-readiness gap among these firms is stark and, on its face, counterintuitive: at least 90 percent of *formal* MSMEs reported having high-speed fixed-broadband internet in 2023 — yet only about half had any online presence at all, and **fewer than 10 percent made or accepted payments electronically**.⁷⁸ Connectivity, in other words, is not the binding constraint for these firms; something else is. The ADB researchers identify several compounding factors: collateral requirements that average 130 percent of loan value make formal credit — including the working capital many small firms would need to invest in digital tooling — difficult to obtain;⁷⁹ private credit-bureau coverage reaches only 7 percent of the population, leaving lenders with little alternative data to assess small, informal borrowers;⁸⁰ and only one in five Nepali firms reported starting or expanding digital-platform use even during the pandemic, when the incentive to do so was arguably at its strongest.⁸¹ Layered on top of general digital and financial illiteracy, MSMEs face a specific cybersecurity capacity gap: AI-based fraud detection, biometric verification, and behavioural analytics — tools increasingly treated as baseline requirements elsewhere — require investment and expertise that are, in the ADB report's phrasing, “typically beyond the reach of MSMEs.”⁸²

⁷⁷ UN ESCAP (2020), cited in ADB (2026), p. 15, Figure 2.

⁷⁸ World Bank (2025), cited in ADB (2026), p. 15.

⁷⁹ NRB, *Financial Stability Report: Fiscal Year 2022/2023*, cited in ADB (2026), p. 6.

⁸⁰ Statista, “Private credit bureau coverage in Nepal 2015–2020,” cited in ADB (2026), p. 6.

⁸¹ World Bank, *COVID-19 Business Pulse Survey Dashboard*, 2021, cited in ADB (2026), p. 16.

⁸² ADB (2026), p. 16.

There is a genuine bright spot here, and it is worth naming because it points toward a workable model rather than only a problem: since NRB's 2022 Digital Lending Guideline allowed licensed institutions to lend via digital platforms — including through PSPs acting as agents — fintechs have begun using QR and wallet transaction histories as an alternative to traditional collateral and credit scores. eSewa, F1Soft, and Khalti had between them disbursed roughly NPR 7.5 billion (about \$56 million) in such collateral-free digital loans by 2024–2025, and IME Pay separately disbursed NPR 1.2 billion in remittance-backed loans specifically for migrant workers' families.⁸³ This is, in miniature, exactly the kind of second-order benefit that a genuinely interoperable, well-used payment rail can unlock — a transaction history becomes a credit history — and it recurs as a theme in several of the international case studies in Chapter 5.

3.9 The Cross-Border and Remittance Paradox

No discussion of Nepal's digital payment gaps is complete without confronting a paradox at the centre of the country's entire economy: Nepal is extraordinarily dependent on money crossing its borders, and extraordinarily behind on making that specific kind of money movement cheap and digital.

Nepal's remittance economy is enormous by any global standard. Depending on the exact measure and period used — and this report deliberately shows the range rather than picking a single flattering or alarming figure — remittances have been reported at roughly 25 to 28 percent of GDP in recent fiscal years, with some 2025/26 estimates, amid a surge in outmigration, running as high as 39 to 40 percent.⁸⁴ In October 2025, Nepal's monthly remittance inflow crossed NPR 200 billion for the first time in the country's history, and the first half of fiscal year 2025/26

⁸³ P. Poudel, "A Study on Digital Lending and Its Impact on Access to Credit in Nepal," 2025, cited in ADB (2026), pp. 5–6.

⁸⁴ TheGlobalEconomy.com, citing World Bank data (26.89% for 2023); English Nepalnews, "Everything You Need to Know About Nepal's Economic Survey for FY 2025/26," 27 May 2026 (28.2% of GDP for FY2024/25); NEPSE Trading, "Nepal Remittance Growth Trend," 5 April 2026 (estimating 39–40% based on an 8-month FY2025/26 run rate).

alone brought in NPR 1.062 trillion — a 39.1 percent year-on-year increase, driven by a reopened Malaysian labour market, Gulf wage increases, and a large base of experienced repeat migrants.⁸⁵ Close to 840,000 Nepalis left for foreign employment in fiscal year 2024/25 alone.⁸⁶

On the positive side of the ledger, NRB has made real, measurable progress formalizing this flow: 93 percent of remittances now arrive through formal channels, and the average cost of sending \$200 to Nepal has fallen from 4.7 percent in 2018 to 3.7 percent today — nearing the United Nations Sustainable Development Goal target of under 3 percent, and achieved partly through NRB's decision to offer an additional 1 percentage point of deposit interest on remittance-sourced deposits as an incentive to stay within regulated channels.⁸⁷

Yet the specific corridor that matters most for ordinary Nepalis — instant, low-cost, digital, person-to-person transfer with India, Nepal's largest trading partner and the base for a huge share of both migrant labour and cross-border family ties — has only very recently become genuinely functional, and its build-out is a case study in exactly the kind of friction this report is concerned with. The person-to-merchant link between India's UPI and Nepal's NPI opened in March 2024, letting Indian travellers scan a Fonepay or Khalti QR code in Nepal; growth was real but modest — daily transactions rose from around 500 at launch to roughly 2,000 by early 2025, worth a cumulative NPR 1.6 billion (about \$11 million) since launch.⁸⁸ Notably, this service was **one-directional for a full year**: Indian visitors could pay in Nepal, but Nepalis could not yet make the equivalent payment in India, “primarily due to unresolved issues around commission structures” — specifically, that India charges no fee at all

⁸⁵ Kathmandu Post, “Remittances to Nepal top Rs200 billion a month for first time,” 16 November 2025; English Nepalnews (2026); NEPSE Trading (2026).

⁸⁶ English Nepalnews, “Everything You Need to Know About Nepal's Economic Survey for FY 2025/26,” 27 May 2026.

⁸⁷ Business Age, “Remittance Realities,” 9 August 2025, cited in ADB (2026), p. 8, Box 1.

⁸⁸ Kathmandu Post, “Nepalis still wait for QR payments in India a year after India's launch in Nepal,” 21 March 2025, cited in ADB (2026), p. 12.

on domestic UPI QR payments, leaving unresolved who would cover the cost of service for Nepali banks when their own customers transacted in India.⁸⁹ It is a small, telling illustration of a theme that recurs throughout this report: many of Nepal's remaining payment gaps are not technology problems at all, but unresolved questions of who pays for a service that both sides agree should exist.

That specific asymmetry has now been substantially resolved. On 6 June 2026, NPCI International Payments Limited and Nepal Clearing House Limited jointly launched a full, bidirectional, real-time person-to-person remittance corridor linking UPI and NPI directly — the first UPI international linkage anywhere to support two-way peer-to-peer transfers, rather than only inbound merchant payments for tourists.⁹⁰ Given Nepal's remittance dependence and its deep, open-border labour relationship with India, this single development may prove more consequential for ordinary Nepali households than any other change described in this report — and it is discussed in full, alongside India's broader UPI story, in Chapter 5.

3.10 Nepal's Challenges at a Glance

Table 3.4 consolidates the chapter's findings into the same four-category structure NRB and ADB use in their own joint assessment, for ease of reference.

Category	Key Challenges
Infrastructure & Access	Unreliable connectivity in rural/mountainous areas · high smartphone tax (71% in 2023) despite affordable data · roughly half the population >10km from core fiber · unreliable middleware causing transaction errors · incomplete interoperability

⁸⁹ Kathmandu Post (2025), cited in ADB (2026), p. 12.

⁹⁰ NPCI International / NCHL, joint press release, 9 June 2026; TechObserver, "India, Nepal Launch Direct UPI-NPI Link for Cross-Border Payments," 12 June 2026.

Category	Key Challenges
Policy & Regulation	Legacy frameworks with limited fintech-specific clarity · uneven risk-based supervision · incomplete cybersecurity/data-protection/consumer-protection law · NRB's dual regulator–shareholder role in NCHL · restrictive foreign-exchange approval processes · FATF grey-listing (Feb 2025)
Market Readiness	Low public trust and awareness · financial literacy at 57.9% headline / 27.5% on NRB's stricter combined measure · high MSME informality · flat, regressive transaction fees · limited MSME access to finance and technical capacity
Technical & Operational Capacity	PSPs must integrate individually with ~4 core systems rather than one · no standardized, internationally aligned API messaging protocols · weak real-world implementation of existing cyber guidelines · shortage of skilled professionals in payments technology, cybersecurity, and data protection

*Table 3.4 — Summary of Nepal's digital payment challenges, adapted from NRB/ADB's own joint categorization.*⁹¹

None of these nineteen-odd problems, individually, is exotic or unique to Nepal — every one of them appears somewhere in the international case studies examined in Chapter 5. What makes Nepal's situation worth a dedicated report is that all of them are live simultaneously, in a country of Nepal's specific size, terrain, and economic structure, at the exact moment the country is losing trade preferences and gaining, for the first time, a genuinely workable domestic and cross-border technical architecture to solve them with. Chapter 4 turns to why closing these gaps is not merely a fintech-sector concern but a matter of real consequence for Nepal's broader economy.

⁹¹ Adapted from ADB (2026), p. 23, Table 1, cross-referenced against NRB (2025) and the fee, literacy, and connectivity data cited throughout this chapter.

4. Why This Matters: The Stakes for Nepal

It would be easy to read Chapter 3 as a catalogue of problems for regulators and fintech executives to worry about. That framing understates the stakes considerably. Digital payment infrastructure sits directly on the causal path to at least five outcomes that matter to essentially every Nepali household, whether or not any given person has ever opened a wallet app.

4.1 Financial Inclusion and Poverty

Financial inclusion is not an end in itself; it is instrumental to outcomes people actually care about. The World Bank's own framing, echoed throughout the Global Findex research program, is direct: when people can participate in the formal financial system, they are better able to start and expand small businesses, invest in their children's education, and absorb financial shocks — an unexpected medical bill, a bad harvest, a lost job — without falling into the kind of distress borrowing that keeps households poor.⁹² Nepal's own poverty rate — 15.1 percent of the population living below the international poverty line as of the 2022/23 Economic Survey — is precisely the population for whom the “high cost, physical distance, and lack of documentation” barriers to formal finance, identified as the leading global reasons for exclusion, bind hardest.⁹³ A digital payment rail that is genuinely cheap, genuinely reaches rural agents, and genuinely requires only a basic phone rather than a smartphone and steady 4G is not a convenience for this population — it is very often the difference between having access to formal finance at all and not.

4.2 A Remittance Economy That Cannot Afford Inefficient Rails

Section 3.9 already established the scale of Nepal's remittance dependence — a share of GDP that rivals or exceeds that of almost any country in the world. This is worth restating in blunter terms: **Nepal's macroeconomic stability is, to a**

⁹² World Bank, Global Findex Database framing, cited across multiple Findex editions.

⁹³ OnlineKhabar, “Digital Divide threatens Nepal's vision for a tech-driven future,” 11 February 2024, citing Economic Survey 2022/23.

significant degree, a function of how efficiently money can move from a construction site in Doha or a hospital in Kuala Lumpur into a household account in Baglung. Nepal's own central bank has documented, in its Country Economic Memorandum work with the World Bank, that remittances sustained private consumption through three consecutive shocks — the 2015 earthquake, the COVID-19 pandemic, and the inflationary spillovers of the Russia-Ukraine conflict.⁹⁴ Every percentage point shaved off remittance transfer costs, and every hour shaved off settlement time, compounds directly into household consumption and, ultimately, into the foreign-exchange reserves that gave Nepal a record USD 23.55 billion cushion — equivalent to more than 21 months of import cover — by April 2026.⁹⁵ The June 2026 UPI–NPI corridor, discussed in Section 3.9 and again in Chapter 5, is not a minor fintech announcement against this backdrop; it is a direct intervention in the plumbing of Nepal's single most important macroeconomic relationship.

4.3 MSMEs, Trade, and a Closing Window Before LDC Graduation

Chapter 1 introduced Nepal's scheduled graduation from Least Developed Country status in November 2026 — a genuine achievement, reflecting three consecutive successful reviews by the UN Committee for Development Policy, but one that carries a real cost.⁹⁶ Estimates of the resulting export loss vary by methodology — from 2.5 percent to as much as 4.3 percent of total exports, concentrated most heavily in apparel, synthetic textile fabric, and carpets, and in trade with the European Union, China, and other non-preferential markets, while trade with India and the United States is expected to be largely unaffected.⁹⁷ The International

⁹⁴ World Bank, *Nepal Country Economic Memorandum*, March 2025, cited in English Nepalnews (2026).

⁹⁵ English Nepalnews, "Everything You Need to Know About Nepal's Economic Survey for FY 2025/26," 27 May 2026.

⁹⁶ UN OHRLLS, "Nepal after LDC Graduation: New avenues for exports," accessed 2026.

⁹⁷ International Trade Centre / UN-OHRLLS, "Nepal's exports after LDC graduation," 2022 update; ILO (March 2026).

Labour Organization's own impact assessment goes further, warning that the effects "will not be distributed evenly across the workforce," with women and informal-sector workers facing the highest risk.⁹⁸

This is precisely the backdrop against which the Asian Development Bank chose, in mid-2026, to publish a report specifically framing digital payment infrastructure as a trade-facilitation tool — not a consumer-convenience feature, but part of Nepal's answer to a shrinking tariff advantage.⁹⁹ The logic is direct: if Nepal can no longer compete on preferential tariffs alone, it must compete more on the speed, cost, and reliability of actually transacting — settling an export payment, verifying a buyer, moving trade finance — and a fragmented, partially interoperable domestic payment system is a competitive disadvantage precisely when Nepal can least afford one. Nearly 80 percent of Nepal's trade already runs through India and China under bilateral arrangements,¹⁰⁰ which is exactly why a working, low-friction India corridor — again, the subject of Chapter 5 — carries disproportionate weight for Nepal's post-graduation competitiveness.

4.4 Government Efficiency, Tax, and the Formal Economy

Digital payments leave a record; cash does not. This is, depending on one's vantage point, either the primary appeal or the primary objection to digitalization — and this report takes up the privacy side of that argument directly in Chapter 8. From a purely fiscal standpoint, Nepal's government has already moved decisively to capture the efficiency gains: by 2025, nearly 90 percent of government-to-person payments (social benefits, salaries) were disbursed digitally, and roughly 30 percent of government revenue collection flowed through digitally enabled channels.¹⁰¹ The steady decline in cheque usage documented in Chapter 2 — a 25 percent reduction

⁹⁸ ILO, "ILO assessment on Nepal's LDC Graduation warns of job risks, calls for investments to boost competitiveness," March 2026.

⁹⁹ ADB (2026), Title page and Executive Summary.

¹⁰⁰ East Asia Forum, "Nepal's LDC graduation is a structural stress test," 21 April 2026.

in cheque transaction value between fiscal years 2021/22 and 2022/23 alone — represents a direct reduction in the operational cost of clearing paper instruments, a cost ultimately borne by the banking system and, indirectly, by customers.¹⁰² A more interoperable, more heavily used digital rail compounds this benefit further: every transaction that migrates from cash to a traceable digital instrument is, mechanically, a transaction that becomes easier to include in the tax base — directly relevant to a government managing the fiscal consequences of LDC graduation and a widening trade deficit simultaneously.

4.5 A Demographic Reality: Building for the Nepal That Exists

Finally, any roadmap for Nepal's payment infrastructure has to be built for the country's actual demographic trajectory, not an idealized one. Nepal is losing working-age people to outmigration at a rate the government's own Economic Survey acknowledges is a genuine structural concern even as it welcomes the remittances that outmigration generates — foreign-employment labour permits grew at an average of 28.6 percent a year over the preceding decade, and the same survey notes plainly that the continuous departure of working-age people “depletes agricultural and industrial labour, suppresses domestic wages, [and] reduces the incentive” for some of the very investment Nepal needs.¹⁰³ A payment system built primarily around the assumption of a young, urban, smartphone-native user base — the assumption implicit in a great deal of fintech marketing — will systematically underserve the Nepal that actually exists: a country where a meaningful share of working adults are abroad, where the domestic population skews toward the very old, the very young, and rural women managing households and remittance receipts alone, and where “digital inclusion” that only reaches Kathmandu and the Terai's larger towns leaves out the hill and mountain districts that need it most acutely. This

¹⁰¹ International Finance Corporation, *Digital Financial Services in Nepal*, 2025, cited in ADB (2026), p. 7.

¹⁰² Kathmandu Post, “Digital payment is changing Nepal,” 1 January 2025, citing NRB Payment Oversight Report.

¹⁰³ English Nepalnews, “Everything You Need to Know About Nepal's Economic Survey for FY 2025/26,” 27 May 2026.

demographic reality is the throughline connecting the case studies in Chapter 5 to the recommendations in Chapter 6: the countries that succeeded did not simply deploy the best technology, but the technology best matched to who was actually going to use it.

Part III — How Other Countries Did It

5. Learning From the World: Seven Models of Digital Payment Infrastructure

Nepal is not the first country to confront a fragmented, fee-heavy payment landscape and ask whether it should be rebuilt as shared infrastructure. This chapter examines seven countries that made real, consequential choices about how to organize digital payments — India, Brazil, Kenya, China, Bangladesh, Cambodia, and Pakistan — plus a cautionary case from Nigeria and a brief look at two advanced economies, Singapore and Sweden, that arrived at similar destinations by very different routes. Each case study asks the same three questions: what problem was the country solving, what specific choices did it make, and what — precisely — transfers to Nepal and what does not.

5.1 India — UPI: The Public Rail

The Problem India Was Solving

Before 2016, India's digital-payments landscape looked a great deal like Nepal's looks today: a patchwork of bank-proprietary apps, standalone wallets, and incompatible QR schemes, with cash still dominant, particularly in rural areas, and small businesses largely locked out of the efficiency gains digital payments could offer.¹⁰⁴

¹⁰⁴ A. Mahesh and G. Bhat, "Digital Payment Service in India – A Case Study of Unified Payment Interface," *International Journal of Case Studies in Business, IT, and Education*, 5(1), 2021, pp. 256–265, cited in ADB (2026), p. 25.

What India Built

The Reserve Bank of India and the government established the National Payments Corporation of India (NPCI) in 2008 as a not-for-profit umbrella entity, jointly owned by a consortium of banks, with an explicit mandate to build unified retail payment infrastructure. NPCI launched the Unified Payments Interface in April 2016: a real-time payment *rail*, not an app. Google Pay, PhonePe, Paytm, and BHIM do not move money themselves — they are interfaces that all connect to the same underlying UPI infrastructure, through which money moves directly, bank account to bank account.¹⁰⁵

Three design decisions made this work at the scale it eventually reached:

- **Zero or near-zero merchant discount rates on person-to-person and most person-to-merchant transactions**, a deliberate policy choice rather than a market outcome — banks recover their costs through other lines of business (loans, deposits, cards) rather than per-transaction fees, and the sheer transaction volume spreads NPCI's fixed infrastructure costs to a vanishingly small amount per transaction.¹⁰⁶
- **Aadhaar integration**. India's biometric national digital-identity system, assigning a unique 12-digit number to residents, was built years before UPI but became central to it — streamlining customer onboarding (know-your-customer, or KYC) and strengthening transaction security in a way that a payment rail without a matching national identity layer struggles to replicate.¹⁰⁷
- **A phased, progressively tightened trust and security framework**. Nonbank apps could initially join UPI as third-party providers if they partnered with a sponsoring bank and implemented NPCI's multi-factor authentication; by 2024, the Reserve Bank of India widened UPI access to fully KYC-compliant digital wallets as regulated prepaid instruments in their own right, subject to in-person or video KYC, tiered transaction limits, and mandatory anomaly reporting to NPCI. Every participant is subject to the Reserve Bank's Cyber Security Framework, including quarterly vulnerability assessments and third-party penetration testing, and UPI itself runs AI-based monitoring to flag unusual transaction patterns.¹⁰⁸

¹⁰⁵ Bhujel (2025); ADB (2026), pp. 25–26.

¹⁰⁶ Bhujel (2025).

¹⁰⁷ ADB (2026), p. 26.

¹⁰⁸ ADB (2026), p. 26; Reserve Bank of India, “Unified Payments Interface (UPI) access for Prepaid Payment Instruments (PPIs) through third-party applications,” 27 December 2024.

The Results, in Numbers

The scale UPI eventually reached is difficult to overstate. By full-year 2025, UPI processed 228.3 billion transactions worth roughly ₹299.7 lakh crore (about \$3.6 trillion), up from 172.2 billion transactions the year before — a 29.3 percent increase in volume in a single year on a base already in the hundreds of billions.¹⁰⁹ By May 2026, UPI set a new monthly record of 23.2 billion transactions worth ₹29.9 trillion (roughly \$358 billion) in a single month — an average of nearly 738 million transactions every day.¹¹⁰ UPI now accounts for roughly 85 percent of India's digital payments and an estimated 49 percent of *all* real-time payment transactions processed anywhere in the world.¹¹¹ The average transaction size has actually fallen over time, from over ₹1,600 in early 2023 to roughly ₹1,293 — evidence that UPI has moved beyond large or formal transactions into the very small, everyday purchases (groceries, tea stalls) that a fee-bearing system would price out.¹¹²

UPI has not been free of costs. Fraud losses reached roughly ₹485 crore across 632,000 reported incidents in fiscal year 2024/25 — a real, non-trivial number in absolute terms, though a very small fraction of UPI's multi-trillion-dollar annual value, and one that has driven continuous investment in the AI-based monitoring described above.¹¹³

The Nepal Connection

UPI's international expansion is directly relevant to this report, not just as an analogy. As of mid-2026, UPI is accepted by merchants in nine countries — the UAE, Singapore, France, Mauritius, Nepal, Bhutan, Qatar, Sri Lanka, and Cambodia — through bilateral agreements between NPCI International and each country's

¹⁰⁹ meetanshi.com, "10+ Freshly Updated UPI Statistics for 2026," citing NPCI data.

¹¹⁰ ANI, "UPI Hits new high in May 2026," 2 June 2026.

¹¹¹ coinlaw.io, "UPI Statistics 2026," citing IMF and ACI Worldwide figures.

¹¹² meetanshi.com (2026).

¹¹³ sci-tech-today.com, "UPI Statistics By Transactions, Growth And Future Projections," July 2026.

national payment operator.¹¹⁴ The India–Nepal corridor, launched on 6 June 2026 in partnership between NPCI International Payments Limited and Nepal Clearing House Limited, is the **first of these nine to support full, bidirectional, peer-to-peer transfers**, rather than only inbound merchant payments for Indian tourists — a structural distinction the industry itself is already describing as “a model for future bilateral payment agreements.”¹¹⁵

What Transfers to Nepal, and What Does Not

UPI’s core lesson for Nepal is architectural, not just financial: **a payment rail that is genuinely a shared utility, sitting underneath competing consumer apps, scales in a way that a collection of individually-optimized closed-loop wallets cannot.** Nepal’s own National Payment Switch, described in Chapter 2, is explicitly modelled on this logic and is not starting from nothing.

What does not transfer directly is scale itself, and this is worth stating with the bluntness the original essay behind this report used: India processes roughly 100 times Nepal’s entire population in UPI transactions *every single day*. NPCI’s fixed costs are spread across a base large enough that near-zero fees are commercially survivable for the participating banks; Nepal’s fixed costs, spread across a far smaller transaction base, are not automatically survivable at the same fee level without an explicit decision about who absorbs the difference — the central question taken up in Chapter 6. Aadhaar is also a precondition Nepal has not yet fully built: India had a mature national digital identity system in place *before* UPI needed it at scale, while Nepal’s national identification system, discussed in Chapter 6, is still in a comparatively early, if rapidly advancing, stage.

¹¹⁴ techobserver.in, “India, Nepal Launch Direct UPI-NPI Link for Cross-Border Payments,” 12 June 2026.

¹¹⁵ techobserver.in (2026); NPCI International / NCHL joint press release, 9 June 2026.

5.2 Brazil — Pix: Free by Design, and the Price of Being a Public Utility

The Problem Brazil Was Solving

Brazil in the late 2010s had a card-dominated payment culture with high merchant fees (2 to 5 percent), a large unbanked population, and — despite this — genuine appetite for a faster alternative to the country's existing bank-transfer systems, which could take a full business day to settle.¹¹⁶

What Brazil Built

Unlike every other case study in this chapter, Brazil's central bank did not merely regulate or license a private-sector rail — it **built and directly operates Pix itself**. The Banco Central do Brasil (BCB) is simultaneously Pix's regulator, its infrastructure operator, and the entity that sets its rules, a structure the bank itself describes as making it “a neutral provider of public digital infrastructure.”¹¹⁷ Launched in November 2020, Pix is free for every individual-to-individual transaction by design, with businesses charged a minimal fee — publicly reported at roughly 0.33 percent, against the 2 to 5 percent typical of card networks.¹¹⁸ Pix operates around the clock, uses simple identifiers (a phone number, email, or tax ID) instead of full bank account details, and — notably for Nepal's rural-access challenge — introduced Pix Saque and Pix Troco, services that let users withdraw cash or receive change at any participating merchant, extending effective banking access into towns with no bank branch or ATM at all.¹¹⁹

¹¹⁶ paymentexpert.com, “How Brazil built Pix into a global payments success,” 13 August 2026.

¹¹⁷ Reuters/Yahoo Finance, “Instant payment system Pix poised to capture half of Brazil's e-commerce market by 2028,” citing BCB statements.

¹¹⁸ dwaynegefferie.substack.com, “Brazil: The \$346 Billion Opportunity That PIX Built,” 1 December 2025.

¹¹⁹ segpay.com, “Pix: Brazil's Instant Payment Revolution,” 15 July 2025.

The Results, in Numbers

The scale Pix reached, in under six years, is arguably the single most impressive statistic in this entire report. By 2025, Pix was used by 148 million of Brazil's roughly 163 million adults — more than nine in ten — and 16 million companies.¹²⁰ In 2025 alone, Pix processed 79.8 billion transactions worth approximately \$6.7–6.9 trillion, representing 54.7 percent of all retail payments in Brazil; cumulatively, since its 2020 launch, Pix has processed 196.2 billion transactions worth more than \$16 trillion — over seven times Brazil's entire annual GDP.¹²¹ Pix has already overtaken credit cards as Brazil's leading e-commerce payment method, capturing 42 percent of online purchase value against 41 percent for credit cards in 2025, with a 50 percent share projected by 2028.¹²² Perhaps most relevant to Nepal's financial-inclusion goals: the BCB has documented more than 70 million people entering Brazil's formal financial system for the first time specifically because of Pix.¹²³

A Cautionary Coda: When “Public Utility” Becomes a Trade Dispute

Pix's story is also the clearest illustration in this report of a real risk in the “payments as public infrastructure” model, and it deserves to be told in full rather than left out of an otherwise favourable case study. In July 2025, the Office of the United States Trade Representative (USTR) opened a Section 301 investigation into a set of Brazilian trade practices, one strand of which targeted Pix directly: USTR's argument was that Brazil had disadvantaged American payment companies — chiefly Visa and Mastercard — through a combination of mandatory bank participation in Pix, regulatory fee caps, and the Central Bank's dual role as both Pix's regulator and its operator.¹²⁴ The investigation concluded a year later, in July 2026, with a 25 percent

¹²⁰ [paymentexpert.com](#) (2026).

¹²¹ [riotimesonline.com](#), “Brazil Fintech 2026: Pix, Digital Banks, Payment Revolution,” 12 April 2026.

¹²² Reuters/Yahoo Finance (2026).

¹²³ Reuters/Yahoo Finance (2026).

¹²⁴ [bankinfobook.com](#), “Brazil Built a Free Payment Network That's Now a US Trade Dispute,” accessed August 2026.

tariff imposed on most Brazilian imports (with specific carve-outs), effective 22 July 2026.¹²⁵ Brazil's central bank has held its position publicly, defending Pix as a matter of "payments sovereignty" rather than protectionism.¹²⁶ This dispute is a direct, real-world illustration of exactly the structural tension NRB's own regulators face on a smaller scale — Section 3.7 of this report already noted that the IMF has flagged NRB's dual role as regulator of, and shareholder in, Nepal's own core switch operator (NCHL) as a comparable conflict-of-interest concern, albeit one that has not (yet) become a matter of international trade friction.

Pix's other operational lesson is equally instructive: free infrastructure is not free of fraud risk, and Brazil built a specific institutional response rather than treating fraud as an acceptable cost of speed. The BCB created a Special Refund Mechanism (Mecanismo Especial de Devolução, or MED), allowing a receiving bank to freeze disputed funds if a fraud claim is filed within 80 days of a transaction, with a more robust "MED 2.0" and additional authentication requirements rolling out through 2026.¹²⁷

What Transfers to Nepal, and What Does Not

Pix demonstrates, more clearly than any other case in this report, that a central bank *can* build and directly operate a mass-market, genuinely free instant-payment system without collapsing under its own cost structure — and that doing so can meaningfully accelerate financial inclusion (70 million newly included Brazilians is not a marginal figure). Pix Saque and Pix Troco, in particular, are a directly transferable idea for Nepal's own rural cash-access gap, examined further in Chapter 6.

What transfers with real caution is the governance model. Brazil's central bank absorbed both the *cost* of building Pix and the *political and trade risk* of controlling it directly, and that risk materialized as a genuine 25 percent tariff dispute with Brazil's largest single trading partner. Nepal, a considerably smaller and more trade-exposed economy currently navigating its own LDC graduation and FATF grey-listing, would

¹²⁵ bankinfobook.com (2026).

¹²⁶ riotimesonline.com (2026).

¹²⁷ bankinfobook.com (2026).

need to weigh that governance choice with particular care — a theme this report returns to directly when it asks, in Chapter 6, not just “should Nepal build a Pix,” but “who should own and operate it if it does.”

5.3 Kenya — M-Pesa: The Telecom-Led Model

The Problem Kenya Was Solving

Before 2007, Kenya’s financial-inclusion story looked considerably worse than Nepal’s does today: banking services were sparse, especially in rural areas, transactions were overwhelmingly cash-based, and the resulting theft and fraud risk was a real, direct cost to a cash-dependent population.¹²⁸

What Kenya Built

Unlike India or Brazil, Kenya’s rail was not built by government or a central bank — it was built by a telecommunications company. Vodafone and Safaricom, Kenya’s dominant mobile network operator, launched M-Pesa in 2007 with a deliberately simple, SMS-based interface designed for users with limited digital literacy and, crucially, feature phones rather than smartphones.¹²⁹ The Central Bank of Kenya’s regulatory choice was equally important to the outcome: rather than forcing M-Pesa into the existing banking-license framework, it allowed Safaricom to operate under a “letter of no objection” — a lightweight, facilitative approach that enabled rapid deployment without the multi-year licensing process a full banking charter would have required.¹³⁰

The Results, in Numbers

M-Pesa’s scale, nineteen years on, is extraordinary relative to Kenya’s economy: in the financial year ending March 2025, M-Pesa processed KES 38.3 trillion in transactions — a figure that *exceeds Kenya’s entire annual GDP* — at a throughput

¹²⁸ I. Mas and D. Radcliffe, “Mobile Payments go Viral: M-Pesa in Kenya,” World Bank, 2010, cited in ADB (2026), p. 24.

¹²⁹ ADB (2026), p. 24.

¹³⁰ ADB (2026), p. 24.

of roughly 2,600 transactions every second.¹³¹ By the following financial year (2025/26), volume had grown further to 46.4 billion transactions worth KES 41.7 trillion.¹³² Kenya's financial-inclusion rate rose from 26.7 percent of adults in 2006 — the year before M-Pesa's launch — to 84.8 percent by 2024, and mobile money penetration specifically now exceeds 100 percent of the adult population when counted by subscription (53.4 million mobile money subscriptions by March 2026, with Safaricom holding an 89 percent market share) — comfortably ahead of neighbouring Uganda's 43 percent mobile-money account penetration.¹³³ M-Pesa now generates more than 40 percent of Safaricom's total revenue — KES 182.7 billion in the 2025/26 financial year, up 13.4 percent year-on-year — making it not a loss-leading public service but a genuinely profitable core business line.¹³⁴

The “Kadogo” Program: A Directly Relevant Precedent

The single most directly relevant M-Pesa policy for Nepal's fee debate is **M-Pesa Kadogo** (“kadogo” means “small” in Swahili), introduced in the wake of COVID-19: person-to-person transfers of KES 100 or less, and merchant payments of KES 200 or less, are zero-rated — completely free. In the 2025/26 financial year, these free micro-transactions accounted for 17.1 billion transactions, fully 58 percent of all M-Pesa activity.¹³⁵ Safaricom's own CEO, Peter Ndegwa, framed the logic in terms directly applicable to Nepal's flat-fee problem described in Section 3.2: making the smallest, most price-sensitive transactions free removes friction “for small-scale daily purchases” precisely where a flat fee would otherwise represent the largest proportional tax.¹³⁶ M-Pesa Global, the platform's cross-border remittance extension built through partnerships with Western Union and MoneyGram, now operates

¹³¹ techtrendske.co.ke, “M-Pesa at 19,” 6 March 2026.

¹³² newsday.co.ke, “M-PESA FY2025/2026: The rise of the micro-transaction economy,” 14 May 2026.

¹³³ techtrendske.co.ke (2026); connectingafrica.com, “Kenyan mobile money accounts top 53 million, M-Pesa leads,” 26 June 2026; ADB (2026), p. 25.

¹³⁴ newsday.co.ke (2026).

¹³⁵ newsday.co.ke (2026).

across the Democratic Republic of Congo, Egypt, Ethiopia, Ghana, Lesotho, Mozambique, and Tanzania — evidence that a telecom-led domestic rail can credibly evolve into regional remittance infrastructure, directly analogous to the ambitions of Nepal's own NPIx cross-border engine.¹³⁷

What Transfers to Nepal, and What Does Not

Kenya's core lesson is regulatory, not technical: a facilitative, lightweight licensing approach — rather than forcing a new kind of institution into an old regulatory box — let Kenya move fast during the window when speed mattered most. Nepal's own PSO/PSP licensing framework, built from 2016 onward, already reflects some of this lesson, though the compliance-cost concerns raised by smaller Nepali fintechs in Section 3.7 suggest the balance has drifted toward caution as the sector has matured. Kadogo-style zero-rating of small transactions is arguably the single most directly actionable idea in this entire chapter for Nepal's immediate fee debate — a targeted, size-based exemption rather than an all-or-nothing choice between charging everyone and charging no one.

What transfers with more difficulty is the underlying market structure. M-Pesa succeeded partly *because* Safaricom held (and still holds) dominant mobile-network market share, giving it a natural, low-cost distribution channel and agent network that a newer or smaller entrant would struggle to replicate; Nepal's telecom market, split primarily between Nepal Telecom and Ncell, does not have an equivalent single dominant operator positioned to play the same role, and Nepal's payment landscape is, as Chapter 3 detailed at length, already a multi-operator one rather than a natural monopoly waiting to happen.

5.4 China — Alipay, WeChat Pay, and the State's Third Rail

The Problem and the Model

China took a third path, distinct from both India's bank-owned public rail and Kenya's telecom-led model: two privately built “super-apps,” each originating as something

¹³⁶ [newspaper.co.ke](https://www.newspaper.co.ke) (2026).

¹³⁷ ADB (2026), p. 25.

other than a payment product — Alipay grew out of Alibaba’s e-commerce escrow system, WeChat Pay out of Tencent’s social-messaging platform — became the dominant payment rails almost by gravitational pull, embedding payment as one feature inside an app people already opened dozens of times a day for other reasons.¹³⁸

The Results, in Numbers

The scale is, again, difficult to overstate. Alipay connects over 1 billion users to more than 10,000 categories of consumer services; Weixin/WeChat’s combined monthly active user base reached 1.414 billion by September 2025.¹³⁹ Together, the two platforms hold an estimated 96 percent of China’s mobile-payment market (roughly 54 percent Alipay, 42 percent WeChat Pay, per OECD’s June 2025 competition analysis), and mobile payments now account for more than 90 percent of China’s social retail consumption — total mobile-payment transaction volume surpassed \$80 trillion in 2024.¹⁴⁰ Newer features continue to entrench the duopoly’s convenience: Alipay’s NFC-based “Tap!” feature reached 100 million users within eleven months of its mid-2024 launch.¹⁴¹

The Third Rail: A State-Backed Digital Currency

What makes China’s case genuinely distinct from every other in this chapter is a third, deliberately state-controlled layer now growing underneath the private duopoly: **e-CNY**, China’s central bank digital currency (CBDC), which had reached 3.48 billion cumulative transactions by early 2026 and introduced an interest-bearing framework in January 2026 — a direct, structural alternative to relying entirely on two private

¹³⁸ daxueconsulting.com, “Mobile payments in China: How China became a cashless society,” 9 December 2025.

¹³⁹ coinlaw.io, “Alipay vs WeChat Pay in 2026,” 17 June 2026.

¹⁴⁰ coinlaw.io (2026); go-globe.com, “Mobile Payment in China – Statistics and Trends,” 5 June 2026.

¹⁴¹ coinlaw.io (2026).

companies for the country's core payment rail.¹⁴² This is a live illustration of a strategic question every country in this report eventually confronts in some form: what happens when a private-sector payment rail becomes systemically important enough that its private ownership itself becomes a policy concern? China's answer, unlike Brazil's (a state-built rail from the outset) or India's (a bank-owned nonprofit utility), has been to let the private duopoly continue operating while building a parallel, state-controlled option alongside it.

What Transfers to Nepal, and What Does Not

China's super-app model transfers only partially: it depended on Alibaba's and Tencent's pre-existing platform dominance in e-commerce and social messaging respectively, network effects Nepal's payment providers do not have available to borrow from in the same way. The more transferable lesson is the underlying strategic question itself, not China's specific answer to it: as Nepal's own wallets and switches grow, at what point does a privately operated payment rail become systemically important enough that the state needs a direct stake or a parallel public option, rather than relying entirely on private licensing and oversight? Nepal's own cautious exploration of a central bank digital currency — a concept report and prototype released, with a pilot targeted for 2026, discussed further in Chapter 6 — suggests NRB is already asking a version of this question, even at much smaller scale.¹⁴³

5.5 Bangladesh — bKash and the Mobile Financial Services Boom

Nepal's closest South Asian peer for this comparison is arguably not India but Bangladesh, a country with a broadly comparable starting point in the early 2010s and a broadly comparable telecom-and-bank-partnership model. bKash launched in 2011 as a joint venture between BRAC Bank and the US-based Money in Motion LLC, and by 2024 served more than 68 million users directly, with total Mobile Financial Services (MFS) accounts across all providers — bKash, Nagad, Rocket,

¹⁴² coinlaw.io (2026).

¹⁴³ NRB, *Central Bank Digital Currency (CBDC): Identifying appropriate policy goals and design for Nepal – A Concept Report*, 2022, cited in ADB (2026), p. 20.

and others — reaching 239.3 million by January 2025, against Bangladesh’s total adult population, a figure that (as with Nepal’s own wallet statistics discussed in Section 2.4) reflects heavy multiple-account holding rather than 239 million unique individuals.¹⁴⁴ Bangladesh’s MFS sector now accounts for an estimated 12 percent of *all* mobile money accounts worldwide, and bKash itself, valued above \$2 billion, became Bangladesh’s first technology unicorn, posting a 67 percent year-on-year profit increase in 2024.¹⁴⁵

Bangladesh’s experience is a useful corrective against reading every case study in this chapter as an uncomplicated success story: independent research on rural, low-income MFS users found that 46 percent still preferred cash specifically because of trust issues and limited agent support in remote areas — almost exactly the trust and last-mile gap Nepal’s own Chapter 3 documents.¹⁴⁶ Bangladesh, in other words, achieved enormous headline scale without fully solving the same rural-trust problem Nepal is still working through — a reminder that scale and inclusion are related but distinct achievements, and that Nepal should not assume one automatically follows from the other.

5.6 Cambodia — Bakong: A Blockchain-Based Central Bank Rail

Cambodia offers the closest structural parallel to the “should the central bank simply build it” question this report has been asking throughout, executed at a scale much closer to Nepal’s own than India’s or Brazil’s. In 2020, the National Bank of Cambodia launched Bakong, a permissioned-blockchain-based payment system that connects banks and payment service providers under a single platform for secure,

¹⁴⁴ futurestartup.com, “The State of Mobile Financial Services (MFS) Industry in Bangladesh at the Beginning of 2025,” 6 May 2025; The Financial Express (Bangladesh), “Bangladesh MFS accounts surge by 20 million in a year, transactions up 32pc.”

¹⁴⁵ researchgate.net, “PRESENT AND FUTURE OF DIGITAL BANKING SERVICES IN BANGLADESH,” October 2025; futurestartup.com (2025).

¹⁴⁶ World Journal of Advanced Engineering Technology and Sciences, “The impact of mobile financial services in Bangladesh,” 2025, 16(02), pp. 271–277.

real-time, interoperable transactions, including cross-border remittance partnerships with banks in Malaysia and Thailand.¹⁴⁷

By 2024, accounts capable of transacting via Bakong — spanning both bank accounts and digital wallets — reached 30 million, a figure equivalent to **1.69 times Cambodia's entire population**, the same registered-versus-real-user measurement caveat this report has flagged repeatedly for Nepal's own statistics in Section 2.4.¹⁴⁸ Bakong's cross-border QR functionality already lets Cambodians scan Thai QR codes to pay merchants in Thailand directly from their Bakong app — cross-border QR volume between the two countries reached roughly \$830,000 between 2020 and 2023 alone — and by 2025 Cambodia had signed cross-border payment cooperation agreements with Laos, Malaysia, Thailand, Vietnam, China, and South Korea.¹⁴⁹

What transfers to Nepal: Bakong is arguably the single closest structural analogue to what a fully realized Nepali National Payment Switch could look like — a central-bank-operated, interoperable rail connecting banks and nonbank PSPs under one platform, built in a country with a comparable population and a comparable starting point roughly a decade ago. Its regional cross-border agreements, built corridor by corridor with individual neighbours rather than waiting for a single grand multilateral solution, is a directly applicable sequencing lesson for Nepal's own cross-border ambitions beyond India, discussed in Chapter 6.

5.7 Pakistan — Mobile-Network-Operator-Led Branchless Banking

Pakistan's experience is worth including specifically because it demonstrates a middle path between Kenya's single-dominant-operator model and China's app-

¹⁴⁷ M. Takemiya, "Cambodia's digital currency can show other central banks the way," World Economic Forum, 30 August 2021, cited in ADB (2026), p. 27.

¹⁴⁸ H. Pisei, "NBC report strong uptake of Bakong digital transfer system," *The Phnom Penh Post*, 26 February 2025, cited in ADB (2026), p. 27.

¹⁴⁹ Acleda Bank, "Cross-Border QR Payment Between Cambodia and Thailand Reaches KHR 52 Million Per Day," 6 June 2023; S. Ravindran, "Bilateral Cooperation on Cross-Border Payment and Remittance," *Khmer Times*, 20 March 2025, both cited in ADB (2026), p. 27.

ecosystem model: the State Bank of Pakistan created a regulatory framework — covering branchless banking and electronic money institutions, with tiered KYC requirements that made it easy for unbanked individuals to open basic mobile wallets — that let *multiple* mobile network operators simultaneously build financial-services platforms, most prominently Easypaisa (built by Telenor) and JazzCash (built by Jazz).¹⁵⁰ Using existing mobile infrastructure — SMS-based Unstructured Supplementary Service Data (USSD) for basic feature phones, alongside full apps for smartphone users — these platforms became major channels for utility-bill payment, domestic remittances (significant in a country with high internal migration), government social-welfare disbursement, and even micro-insurance distributed as a bundled mobile service.¹⁵¹

The results were measurable and specifically strong on the gender dimension that Nepal's own Section 2.5 and 3.4 identified as a persistent weak point: the number of depositors in Pakistan grew from 54 million in 2018 to 88 million by 2023, with women's account ownership rising from 23 percent to 47 percent over the same period — a considerably faster closing of the gender gap than Nepal has achieved to date.¹⁵² **What transfers to Nepal:** a co-developed regulatory framework between the central bank and the telecommunications regulator, rather than the central bank acting alone, and a tiered KYC model that deliberately lowers the onboarding barrier for the smallest, least-documented accounts — both directly relevant to Nepal's own KYC and digital-identity discussion in Chapter 6.

¹⁵⁰ State Bank of Pakistan, *National Financial Inclusion Strategy 2024–28*, cited in ADB (2026), p. 28.

¹⁵¹ ADB (2026), p. 28.

¹⁵² M. Aazim, "Finance: Slowly fixing the economy," *Dawn*, 14 July 2025, cited in ADB (2026), p. 29.

5.8 A Cautionary Tale: Nigeria's eNaira

Every case study so far in this chapter has been, on balance, a success story. It would distort the evidence to leave it there, because one of the most directly relevant precedents for Nepal's own cautious CBDC exploration is a clear failure, and its causes are instructive precisely because they are not technical.

In 2021, the Central Bank of Nigeria launched eNaira, Africa's first central bank digital currency, explicitly designed to enhance financial inclusion and simplify cross-border trade.¹⁵³ Within its first year, fewer than 0.5 percent of Nigerians had engaged with the platform at all.¹⁵⁴ The causes identified by subsequent analysis were a combination of technical glitches that undermined early user experience, genuine public distrust of a state-issued digital currency introduced alongside unpopular physical-cash restrictions, and infrastructure that was not adequately prepared for the launch.¹⁵⁵

What this means for Nepal, directly: eNaira is the clearest evidence available anywhere in this report that *technology readiness is not the binding constraint on adoption* — trust, sequencing, and the manner of a launch matter as much as, or more than, the underlying system's technical soundness. Nepal's own CBDC exploration has so far been notably more cautious than Nigeria's was: NRB has released a concept report and working prototype rather than a live public product, and has explicitly named strengthening cybersecurity, closing regulatory gaps, and raising digital and financial literacy as *preconditions* for a pilot rather than problems to solve after launch.¹⁵⁶ The Nigeria case is the strongest evidence in this report's

¹⁵³ N. Anthony, "Nigeria Restricts Cash to Push Central Bank Digital Currency," CATO Institute, 19 December 2022, cited in ADB (2026), p. 29.

¹⁵⁴ ADB (2026), p. 29.

¹⁵⁵ E. Monye, "Why Nigeria's Controversial Naira Redesign Policy Hasn't Met Its Objectives," Carnegie Endowment for International Peace, 18 January 2024, cited in ADB (2026), p. 30.

¹⁵⁶ NRB (2022), cited in ADB (2026), p. 20.

entire international survey that this caution is well justified, not merely bureaucratic slowness.

5.9 A Brief Look at Two Advanced Economies: Singapore and Sweden

Every case examined so far involves an emerging or developing economy building payment infrastructure to leapfrog a large unbanked or underbanked population. It is worth briefly noting how two wealthy, already fully-banked economies approached the same underlying interoperability problem, because their emphasis — on connecting *existing* institutions rather than reaching *excluded* populations — is a useful contrast.

Singapore's PayNow, developed by the Association of Banks in Singapore under the Monetary Authority of Singapore's oversight, lets users send money instantly using just a mobile number, national ID, or business registration number, standardized around a single national QR code (SGQR) since 2017.¹⁵⁷ Since November 2020, non-bank financial institutions holding a Major Payment Institution license have been permitted to connect directly to PayNow and its underlying FAST settlement rail — full interoperability extended deliberately to nonbank fintechs rather than reserved for banks alone.¹⁵⁸ Singapore has also pursued bilateral real-time-payment linkages proactively, including a PayNow–UPI link with India and a PayNow–PromptPay link with Thailand, plus participation in the Bank for International Settlements' Project Nexus, which aims to connect multiple countries' real-time payment systems through a single shared standard rather than one-off bilateral builds.¹⁵⁹ Among Singaporean Gen Z specifically, nearly 70 percent already use PayNow for peer-to-peer transfers — evidence that a well-designed public rail can win adoption even in a market already saturated with card options.¹⁶⁰

¹⁵⁷ Tazapay, "PayNow: Revolutionizing Singapore's Digital Payment System," 27 March 2026.

¹⁵⁸ researchandmarkets.com, "Singapore Payments - Market Share Analysis," cited 2026.

¹⁵⁹ Statista, "Digital payments in Singapore - statistics & facts."

¹⁶⁰ Statista (2026).

Sweden's Swish, built by a consortium of Swedish banks, had already reached 7.8 million users — a large majority of Sweden's population — by 2020, processing close to 50 million transactions a month, and cash now accounts for less than 5 percent of Swedish transactions, putting the country on a widely cited path to becoming among the world's first genuinely (if not entirely) cashless economies.¹⁶¹

What transfers to Nepal: the Project Nexus model — connecting to a shared multilateral standard rather than negotiating every cross-border corridor bilaterally from scratch — is directly relevant to how Nepal should think about its next cross-border corridors beyond India, discussed in Chapter 6. The broader lesson from both Singapore and Sweden, however, is one of sequencing rather than direct transfer: both countries built payment interoperability *after* achieving near-universal banking access, which is the reverse of the order Nepal — like India, Kenya, and Bangladesh before it — necessarily faces, where interoperability and inclusion have to be pursued simultaneously rather than one after the other.

5.10 Nine Models, Side by Side

Table 5.1 draws the chapter's nine cases together for direct comparison.

Country / System	Launch	Owner / Operator Model	Individual P2P Fee	Approx. Scale (latest available)
India — UPI	2016	Bank-owned nonprofit utility (NPCI), open to bank & nonbank apps	Free	228.3bn transactions, ~\$3.6tn (2025)
Brazil — Pix	2020	Central bank builds & operates directly	Free	79.8bn transactions, ~\$6.7–6.9tn (2025)

¹⁶¹ Corepay, “Cashless Societies: Which Countries Are Making The Switch?,” 29 May 2026, citing IMF reporting.

Country / System	Launch	Owner / Operator Model	Individual P2P Fee	Approx. Scale (latest available)
Kenya — M-Pesa	2007	Single dominant telecom (Safaricom/Vodafone)	Free below KES 100 (Kadogo); fee above	46.4bn transactions, KES 41.7tn (FY2025/26)
China — Alipay / WeChat Pay	2004 / 2011	Two private super-apps + emerging state e-CNY rail	Low/variable (app-dependent)	>\$80tn mobile payment volume (2024)
Bangladesh — bKash / MFS	2011	Bank–telecom joint ventures, multiple competing providers	Fee-based	239m MFS accounts; bKash 68m+ users (2024)
Cambodia — Bakong	2020	Central bank, permissioned blockchain	Free/low	30m accounts (1.69× population), 2024
Pakistan — Easypaisa / JazzCash	~2009	Multiple telecom-led branchless banking platforms	Fee-based	88m depositors (2023), up from 54m (2018)
Nigeria — eNaira	2021	Central bank CBDC	Free	<0.5% adoption in year one — a failure case
Nepal — NPS / NPI	2021 (RPS live)	Central-bank-mandated switch (NCHL), multiple competing PSOs/PSPs	NPR 2–10 (fee-based)	50.6m retail transactions cleared (2023); NPR 9.3tn RPS value (FY2025/26)

Table 5.1 — Nine digital payment systems compared. Figures are drawn from the country-specific sources cited throughout Sections 5.1–5.9; direct cross-country comparison should be read with the same “registered vs. active” caution flagged in

Section 2.4, since each country's own agencies measure adoption somewhat differently.

5.11 What Actually Transfers, and What Does Not

Reading across all nine cases at once, three patterns recur often enough to count as genuine lessons rather than coincidences — and one pattern recurs as a genuine warning.

First, every successful case separated the rail from the app. India, Brazil, Cambodia, Singapore, and Sweden all built (or mandated) a shared underlying rail that multiple competing consumer-facing products plug into, rather than letting one company's app become the de facto national standard by market dominance alone. Nepal's National Payment Switch is a deliberate attempt to retrofit this same separation onto a market that initially grew the other way around — several independently built, competing rails — which is precisely why full interoperability, discussed at length in Chapter 3, remains unfinished business rather than a foregone conclusion.

Second, “free” was never actually free — it was subsidized by something specific, named, and deliberate. India's banks recover costs through lending and deposit business; Brazil's central bank absorbs the cost directly as a public good; Kenya zero-rated only the smallest transactions while continuing to charge for larger ones. No country in this chapter achieved free payments through wishful thinking or unexplained “efficiency gains” — every zero-fee model in this chapter has an identifiable payer standing behind it. Chapter 6 takes this lesson as its starting point rather than treating “should Nepal make payments free” as an abstract yes-or-no question.

Third, financial inclusion followed trust and design for the *actual* user, not the median smartphone user. M-Pesa's original SMS-only interface, Pakistan's USSD-based access for feature phones, and Nepal's own NFC-based FoneTag and NepalPayTag innovations described in Section 3.5 all reflect the same insight: reaching the last 20 to 30 percent of a population requires deliberately building for

low-connectivity, low-literacy, non-smartphone conditions, not waiting for those conditions to disappear.

The warning, from Nigeria, is equally clear: technical readiness is not sufficient, and launching before trust and infrastructure are genuinely ready can set adoption back further than not launching at all. Nepal's own comparatively cautious approach to its CBDC pilot — treating literacy, cybersecurity, and regulatory clarity as preconditions rather than afterthoughts — is, on the weight of this chapter's evidence, the right instinct.

Chapter 6 now turns from what other countries did to what, specifically, Nepal should do next.

Part IV — The Path Forward

6. How Nepal Can Do It: A Roadmap

6.1 The Core Design Choice

Every recommendation in this chapter ultimately rests on one decision Nepal has not yet made explicitly, even though its regulators are already acting, in piecemeal fashion, as though they have started to lean toward an answer. There are, in essence, three coherent models available, corresponding to three of the case studies in Chapter 5:

1. **A regulated marketplace** — the status quo, refined: multiple competing PSOs and PSPs, licensed and supervised by NRB, expected to achieve interoperability through negotiated agreements and shared standards, with fees set by individual institutions within regulatory limits. This is closest to Nepal's current model and to Bangladesh's and Pakistan's.
2. **A bank-owned public utility, privately operated** — NRB mandates a single interoperable switch, owned collectively by the banking sector (as NCHL already is), through which all consumer-facing apps must connect, with fee policy set collectively rather than by each app individually. This is closest to India's UPI model and to what NRB's own National Payment Switch document already describes as its long-term ambition.
3. **A central-bank-owned and -operated utility** — NRB itself builds, owns, and runs the core rail directly, as Brazil's and Cambodia's central banks do, funding it from the public

purse or from a mandatory levy on participating institutions rather than per-transaction fees.

This report's judgment, consistent with the original essay that motivated it, is that **Option 2 — not Option 3 — is the right target for Nepal, and Nepal is already most of the way there.** The full argument for this is worth stating plainly. Option 3's Brazilian precedent shows it *can* work extraordinarily well operationally, but Section 5.2 also showed its real downside: when a central bank both owns and regulates the core rail, the resulting conflict-of-interest concern is not merely theoretical — it became the basis of an actual 25 percent US tariff dispute. Nepal's IMF-flagged version of the same structural concern, described in Section 3.7, is smaller in scale but identical in kind, and a country navigating LDC graduation and FATF grey-listing simultaneously has less room to absorb a comparable international dispute than Brazil did. Option 1, meanwhile, is simply the status quo that Chapters 2 and 3 already documented as unfinished and costly. Option 2 — the NPS model NRB has already built the legal mandate and much of the technical architecture for — captures UPI's core insight (separate the rail from the apps; let banks recover costs through their broader business rather than per-transaction fees) without requiring NRB to become both player and referee in the way that has drawn international scrutiny in Brazil's case.

6.2 Finishing the Plumbing: Full Interoperability

If Option 2 is the target, the single highest-priority, most concrete action is also the simplest to state: **finish what NRB has already started.** Chapter 3 documented that, as of NRB's own October 2025 reference document, eSewa and Khalti — comfortably Nepal's two largest consumer wallets — had not yet achieved full interoperability with each other, and that only two of Nepal's four core PSO schemes (NCHL and SmartChoice) were interoperable through the National Payment Switch.¹⁶² The ADB report's own recommendations, produced independently through stakeholder interviews across the same period, arrive at an almost identical priority list, which this report adopts and sequences as follows:¹⁶³

¹⁶² NRB (2025), pp. 4–5.

¹⁶³ ADB (2026), pp. ix–x.

- **Finalize and mandate the open API rule book** already planned for the National Payments Interface, so that every PSO and PSP integrates against one standardized, internationally aligned specification rather than negotiating bespoke bilateral connections — directly addressing the “we have to integrate with each system separately” complaint documented in Section 3.1.
- **Drive mandatory, time-bound adoption of the unified NEPALPAY QR standard** across every existing QR scheme, eliminating the situation in which a customer must check which specific QR sticker a shop displays before knowing whether their preferred app will work.
- **Require interoperability between mobile wallets and the banking system** as a condition of continued licensing, rather than an aspiration PSPs can indefinitely describe as “in progress” or “exploring,” as eSewa and Khalti’s own long-running interoperability discussions with Fonepay illustrate.

None of this requires new legislation — the legal mandate already exists in Section 21 of the Payment and Settlement Act, 2019. What it requires is a firm, published deadline, and it is the recommendation this report regards as the least optional of everything in this chapter.

6.3 Who Pays? Being Honest About the Cost of “Free”

Chapter 5’s central lesson bears repeating as the organizing principle for this section: no country in this report achieved free or near-free payments without a specific, named payer absorbing the cost that a per-transaction fee would otherwise have covered. Before recommending any fee change for Nepal, this report sets out the realistic financing options directly, in the same spirit of honesty the original essay insisted on.

Option A — Cross-subsidy from the broader banking business (the UPI model). Banks and larger PSPs absorb the marginal cost of small transfers because they profit elsewhere — lending, deposits, card interchange, foreign exchange. This is the most immediately actionable option for Nepal because it requires no new public spending, only a regulatory push (paired with the interoperability mandate above) for participating institutions to treat basic P2P transfer as a loss-leading service rather than a standalone profit centre. ConnectIPS’s own existing cross-subsidy of government tax payments at NPR 2–5, noted in Table 3.1, shows NCHL already understands and uses this mechanism selectively; the recommendation is to extend it.

Option B — Targeted zero-rating of small transactions (the Kenya Kadogo model). Rather than making every transaction free, Nepal could mandate that transfers below a defined threshold — NPR 500 or NPR 1,000, for instance — carry no fee, funded by the existing fee revenue on larger transfers. This is a smaller, more immediately fundable step than full free-for-all, directly targets the flat-fee regressivity problem identified in Section 3.2, and has a working precedent generating 58 percent of Kenya’s entire M-Pesa transaction volume for free without collapsing Safaricom’s payments business.¹⁶⁴

Option C — A direct government contribution, funded from the efficiency gains payments digitization already produces (the Brazil model, at smaller scale). Chapter 4 already quantified some of these gains: a documented reduction in cheque-clearing costs, and a tax base that grows as cash transactions become traceable digital ones. A modest, transparent budget allocation — treating the National Payment Switch’s operating cost the way Nepal already treats road maintenance — is the most direct realization of the “public utility” framing this report takes its title from, though it is also the option most exposed to the governance risk described in Section 6.1, and this report recommends it only as a supplementary, capped contribution rather than NRB assuming full ownership.

Option D — Volume growth closes the gap on its own, over time. As Section 3.2 noted, Nepal’s fixed infrastructure costs are currently spread across a far smaller transaction base than India’s, mechanically raising the per-transaction cost recovered. Every one of the adoption gains documented in Chapters 2 and 4 — more merchants, more literate users, more interoperable wallets — pushes this number down without requiring any policy change at all. This is real, but it is also the slowest lever, and this report does not recommend waiting for it in isolation.

This report’s specific recommendation is a **combination of Options A and B, sequenced ahead of C**: mandate that basic domestic P2P transfers below a defined small-value threshold become fee-free as a licensing condition (Option B), funded through the cross-subsidy logic already implicit in Nepal’s banking-sector-owned NCHL structure (Option A), while leaving fee-based revenue in place for larger transfers, business payments, and premium services — with a government

¹⁶⁴ [newsday.co.ke](https://www.newsday.co.ke) (2026).

contribution (Option C) reserved for specific public-interest gaps, such as the rural agent-network expansion discussed next, rather than general fee elimination.

6.4 Beyond India: Expanding the Cross-Border Corridor

The June 2026 UPI–NPI launch, described at length in Sections 3.9 and 5.1, is the single most important cross-border development in Nepal’s recent payments history, and the immediate priority is straightforward: extend the current bank-by-bank rollout to full coverage across all licensed Nepali banks and PSPs as quickly as onboarding capacity allows, since the service was, as of its June 2026 launch, live only through select banks with expansion “soon” rather than complete.¹⁶⁵

Beyond India, this report draws two further recommendations directly from Chapter 5’s case studies. First, **Cambodia’s corridor-by-corridor sequencing with Laos, Malaysia, Thailand, and Vietnam** is a directly applicable model for Nepal’s own next destinations — realistically, Malaysia and the Gulf states (UAE, Saudi Arabia, Qatar, Kuwait) given that these are, per Chapter 4, Nepal’s largest sources of outbound migrant labour and, therefore, inbound remittances.¹⁶⁶ A digital remittance corridor with even one major Gulf destination would address a considerably larger share of Nepal’s remittance inflow than the India corridor alone, since a large share of Nepal’s roughly \$13 billion-plus in annual remittances currently originates outside India. Second, **Singapore’s participation in the Bank for International Settlements’ Project Nexus** — connecting multiple countries to one shared technical standard rather than building bespoke bilateral links to each new partner — is the more efficient long-term architecture, and this report recommends NRB explore Nexus-style multilateral standards specifically to avoid the several-years-long, corridor-by-corridor negotiation process the India link itself required, from 2023’s initial NIPL–NCHL agreement through the February 2024 regulatory Terms of Reference to the June 2026 full launch.¹⁶⁷

¹⁶⁵ NPCI International / NCHL joint press release, 9 June 2026.

¹⁶⁶ English Nepalnews, “Remittances in Nepal,” 3 July 2026, cited in Section 3.9 above for underlying migration-destination figures.

6.5 Rural Reach: Agents, Offline QR, and the Last Mile

No amount of interoperability or fee reform closes a gap that is fundamentally about physical and digital access rather than pricing, and Chapter 3 was explicit that this remains Nepal's most stubborn gap: a roughly seven-point rural–urban gap in general financial-service usage, widening to a real gap in specifically *digital* payment usage, and roughly half the population living more than ten kilometres from core fiber infrastructure.

Three concrete, evidence-backed interventions are worth prioritizing here, each already preceded somewhere in Chapter 5 or already underway inside Nepal itself:

- **A nationwide cash-in/cash-out agent network, built to the same standard as eSewa's existing "Cash Points" model** — which already lets people without a smartphone or digital literacy hand cash to a trusted local agent who completes the digital transaction on their behalf — but expanded and formally supported through a public–private partnership rather than left to individual PSPs to build unilaterally.¹⁶⁸ Brazil's Pix Saque and Pix Troco, described in Section 5.2, demonstrate this same principle can be embedded directly into the national rail itself, letting any participating merchant function as an informal cash access point rather than requiring a dedicated agent network built from scratch.
- **Continued and expanded investment in offline-capable payment technology** — Fonepay's FoneTag and NCHL's NepalPayTag, described in Section 3.5, already demonstrate that Nepal's own PSPs can build genuinely appropriate technology for low-connectivity conditions rather than importing a smartphone-and-4G assumption wholesale; the recommendation here is to fund and standardize these NFC-based offline tools across every PSO's scheme rather than leaving them as isolated, single-provider features.
- **A public–private partnership framework explicitly designed to fund agent-network expansion in underserved regions** — precisely the ADB report's own recommendation, and one this report endorses directly: a targeted subsidy (drawing on Option C in Section 6.3) aimed specifically at the hill and mountain districts where private PSPs have the weakest commercial incentive to build agent coverage on their own.¹⁶⁹

¹⁶⁷ edunovations.com, "India Nepal UPI Remittance Service," 14 June 2026, citing 2023–2026 timeline.

¹⁶⁸ gurkhatech.com, "Esewa Case Study Digital Financial Transformation," 27 February 2026.

¹⁶⁹ ADB (2026), p. x.

6.6 Literacy, Trust, and Consumer Protection

Section 3.3 established that financial and digital literacy sit directly on the causal path to adoption, and that Nepal's own NRB survey found a wide gap between headline financial literacy (57.9 percent) and the share of adults clearing NRB's own stricter combined threshold (27.5 percent). Closing this gap is not a single campaign but a layered set of interventions:

- **Segment-specific literacy modules, not one generic campaign.** The rural–urban financial literacy gap (23.5 percent versus 43.1 percent, per Table 3.2) and the gender usage gap (22 percent of women making digital payments versus 35 percent of men, per Section 2.5) both suggest that a single national literacy campaign is unlikely to close either gap efficiently. The ADB report's own recommendation — comprehensive digital and financial literacy programs with specialized modules for different user groups, delivered with hands-on training and multilingual materials — is directly endorsed here, with particular emphasis on Nepali-language and locally-relevant-language materials given the literacy gap's strong correlation with rural, non-Kathmandu populations.¹⁷⁰
- **Consumer protection with real teeth for cross-border transactions specifically.** NRB's existing Financial Consumer Protection and Grievance Management Manual (2020) and online grievance system are a solid domestic foundation, but the ADB report and this report's own Section 3.7 both note that cross-border dispute resolution, liability limits for unauthorized international transactions, and consistent protection standards across domestic and cross-border channels remain underdeveloped — an increasingly urgent gap precisely because the India corridor described in Section 6.4 will generate exactly this kind of cross-border dispute at meaningfully higher volume than before.¹⁷¹
- **Fraud-specific public education, targeted at the exact patterns documented in Section 3.6** — OTP phishing, fake customer-support calls, look-alike domains — rather than generic “be careful online” messaging. NRB's own “you scan to pay, you don't scan to receive” public-safety slogan is a good example of the specificity this recommendation calls for, and deserves wider, sustained distribution alongside the Anti-Cyber Scam Centre now being established.¹⁷²

6.7 Data Protection, Cybersecurity, and the FATF Grey List

Three governance gaps identified in Section 3.7 deserve specific, near-term action because they are preconditions for almost everything else in this chapter rather than independent nice-to-haves.

¹⁷⁰ ADB (2026), p. x.

¹⁷¹ ADB (2026), p. 19.

¹⁷² b360nepal.com, “Nepal's Banking Sector at Inflection Point,” December 2025.

A dedicated Personal Data Protection Act, replacing reliance on the more limited Privacy Act 2018, is already an ADB recommendation this report endorses without reservation: explicit data-subject rights, defined data-retention limits, an independent data-protection authority, and governance of automated decision-making are not abstract, foreign-standard imports — they are direct preconditions for the kind of AI-based fraud detection and alternative-data credit scoring that Section 3.8 showed Nepali fintechs are already beginning to use for MSME lending, and which will only expand.¹⁷³

Sustained, resourced implementation of the existing Cyber Resilience Guidelines, particularly for smaller PSPs that the ADB's own stakeholder interviews found struggling to meet requirements built with larger institutions' budgets in mind — a national Financial Sector Computer Security Incident Response Team, as ADB recommends, would give smaller institutions a shared resource rather than requiring each to build equivalent capacity independently.¹⁷⁴

A credible, time-bound plan to exit FATF grey-list status within the two-year window that began in February 2025, since — as Section 3.7 established — grey-listing raises the cost and friction of precisely the correspondent-banking and cross-border payment relationships this chapter's Section 6.4 recommends expanding. This is, in a real sense, the single highest-leverage item in this entire roadmap for Nepal's cross-border ambitions specifically: no amount of technical corridor-building with Malaysia or the Gulf states will reach its full potential if Nepal's international financial standing continues to raise the compliance cost international partners attach to Nepali counterparties.

6.8 A Phased Roadmap

Table 6.1 sequences this chapter's recommendations into three horizons, organized by how much new capacity (financial, technical, legislative) each requires — deliberately weighted toward finishing existing commitments before starting new ones.

¹⁷³ ADB (2026), p. ix.

¹⁷⁴ ADB (2026), p. ix.

Horizon	Priority Actions
Short term (0–12 months)	Publish a firm, binding deadline for eSewa/Khalti and remaining PSO interoperability · finalize and mandate the NPI open-API rule book · expand the June 2026 UPI–NPI corridor to all licensed banks/PSPs · zero-rate P2P transfers below a defined small-value threshold · launch segment-specific literacy modules · resource the new Anti-Cyber Scam Centre
Medium term (1–3 years)	Mandate unified NEPALPAY QR adoption across all schemes · enact a dedicated Personal Data Protection Act · stand up a national Financial Sector CSIRT · negotiate at least one additional cross-border corridor (Malaysia or a Gulf state) · build a public–private rural agent-network partnership · exit the FATF grey list · reform smartphone import taxation
Long term (3–5 years)	Evaluate Project Nexus–style multilateral cross-border standardization · complete a fully risk-assessed CBDC pilot, contingent on literacy and cybersecurity preconditions being met · review whether a capped, transparent public contribution to core-switch operating costs (Option C, Section 6.3) is warranted based on measured adoption and inclusion gains

*Table 6.1 — A phased implementation roadmap for Nepal’s digital payment infrastructure, synthesizing this report’s recommendations with ADB’s own high-level implementation road map.*¹⁷⁵

The throughline across all three horizons is deliberate: Nepal’s most urgent need is not a new grand technology project, but finishing, funding, and enforcing the interoperability mandate it already legislated in 2019 and has already spent five years partially building. Chapter 7 turns to the workforce and technical capacity Nepal will need to carry this roadmap out.

¹⁷⁵ Structure informed by ADB (2026), p. x, “High-Level Implementation Road Map,” adapted and re-sequenced against this report’s own analysis in Chapters 3–6.

7. The Technology and the Skills It Will Take

Every recommendation in Chapter 6 depends on a resource this report has not yet discussed directly: people who can actually build, secure, and regulate the systems involved. The ADB report is blunt about this constraint in a way worth quoting directly, because it comes from stakeholder interviews with the fintech companies actually trying to hire: Nepal faces “a shortage of digital talent as skilled engineers and developers opt for opportunities abroad,” and industry representatives report that “those who stay often demand salaries beyond what local companies can afford.”¹⁷⁶ This chapter sets out, first, the specific technical architecture Nepal still needs to finish, and second, the specific human skills — named as concretely as the underlying research allows — required to finish it.

7.1 The Technical Architecture Still Being Built

Four technical building blocks recur across NRB's own documentation, the ADB report, and this report's own analysis in Chapters 3 and 6 as the specific pieces of infrastructure still under active construction, distinct from the high-level policy choices already discussed:

- **A standardized, internationally-aligned open API layer.** Nepal's National Payments Interface already exists as a concept and a partial implementation, but the ADB report notes explicitly that the “aggregator” model — through which a business could integrate once and reach every payment scheme — is not yet functioning as intended in Nepal, and that APIs across different PSOs are “not standardized or aligned with international norms” such as the ISO 20022 messaging standard NCHL has begun adopting for its cross-border engine.¹⁷⁷ Finishing this is chiefly a specification and enforcement problem, not a from-scratch build.
- **A mature national digital identity system, integrated into payment KYC.** India's Aadhaar-UPI integration, discussed in Section 5.1, shows what a completed version of this looks like. Nepal's own building blocks are real but earlier-stage: a centralized biometric KYC system for SIM registration since 2022, the early-2025 E-Governance Blueprint integrating national identification into the Nagarik App, and a tiered KYC approach that already lowers onboarding barriers for small transactions.¹⁷⁸ The specific remaining technical gap is legal and technical recognition of electronic KYC and

¹⁷⁶ ADB (2026), p. 16, citing interviews with fintech companies conducted in 2024.

¹⁷⁷ ADB (2026), pp. 10–11.

¹⁷⁸ ADB (2026), pp. 19–20.

electronic signatures for cross-border transactions, and backend systems robust enough to support real-time identity verification during onboarding rather than after the fact.¹⁷⁹

- **Standardized messaging and security protocols across every PSO**, closing the gap the Nepal Digital Payments Company representative described in Section 3.1 — different system architectures requiring different integration approaches for essentially the same underlying task.
- **A functioning regulatory sandbox.** NRB's March 2025 launch of a Digital Finance Innovation Hub is a genuine first step, giving fintechs a structured channel to propose new products and receive regulatory guidance rather than operating in a grey area.¹⁸⁰ The ADB report and this report both recommend formalizing this into a full regulatory sandbox with clear rules of engagement — a specific, achievable next step rather than a distant aspiration.

7.2 The Workforce Nepal Needs to Build This

The ADB report's own list of priority skill areas — “digital finance, payments technology, cybersecurity, data governance and protection, and interoperability” — is a useful starting point, but a report aimed at practical usefulness should be more specific about what these categories actually mean in terms of hireable, trainable roles.¹⁸¹ Table 7.1 breaks this down by function.

Skill Area	Specific Roles Needed	Why Nepal Needs More of Them Now
Payments engineering	Backend/API engineers fluent in ISO 20022 and real-time settlement systems; systems architects who can design for interoperability rather than a single closed platform	Directly addresses the “must integrate individually with every system” problem documented in Sections 3.1 and 7.1

¹⁷⁹ ADB (2026), p. 20.

¹⁸⁰ Kathmandu Post, “Nepal Rastra Bank launches digital finance innovation hub to boost fintech,” 28 March 2025, cited in ADB (2026), p. 20.

¹⁸¹ ADB (2026), Executive Summary, p. vii.

Skill Area	Specific Roles Needed	Why Nepal Needs More of Them Now
Cybersecurity	Security engineers specializing in fraud detection (including AI/ML-based behavioural monitoring), penetration testers, incident-response specialists	Section 3.6 documented real breaches (F1Soft, NRB itself) and uneven implementation of existing Cyber Resilience Guidelines, especially among smaller PSPs
Data protection & governance	Privacy engineers who can build “privacy by design” into products from the outset; data-protection officers once a Personal Data Protection Act (Section 6.7) creates the legal role	Nepal’s Privacy Act 2018 lacks explicit provisions on automated decision-making that AI-based credit scoring and fraud tools already rely on
Compliance & regulatory (AML/CFT, KYC)	AML/CFT analysts, KYC operations specialists, sanctions-screening staff	Directly tied to exiting the FATF grey list (Section 6.7) and to Nepal’s own tiered-KYC ambitions
UX design for low-literacy, offline, and feature-phone contexts	Designers with direct field experience in rural, non-smartphone, non-fluent-reader contexts — not designers trained only on urban smartphone assumptions	Directly addresses the digital-literacy gap (31 percent, Table 3.2) and the offline-payment innovations (FoneTag, NepalPayTag) described in Section 3.5
Agent-network operations & management	Field operations staff who can recruit, train, and supervise rural cash-in/cash-out agents, modelled on eSewa’s existing Cash Points network	Central to the rural last-mile recommendations in Section 6.5
Data science / alternative credit scoring	Analysts who can build creditworthiness models from transaction history rather than traditional collateral, extending the digital-lending pattern already underway at eSewa, F1Soft, and Khalti	Private credit-bureau coverage reaches only 7 percent of the population (Section 3.8); transaction-based scoring is one of the few scalable alternatives

Skill Area	Specific Roles Needed	Why Nepal Needs More of Them Now
Fintech policy & regulatory leadership	Policy specialists who understand both the technology and the Payment and Settlement Act's legal framework well enough to write enforceable, appropriately calibrated rules	The ADB report specifically flags a need for “strategic leadership and policy capacity” in both public and private sectors, not only technical skill

Table 7.1 — Specific skill areas and roles Nepal's digital payment sector needs, mapped to the gaps identified earlier in this report.¹⁸²

7.3 Where to Build It: Education, Sandboxes, and Partnerships

Naming the roles Nepal needs is only useful alongside a realistic view of where they will come from, given the brain-drain dynamic the ADB researchers documented directly. Four channels stand out as the most immediately actionable:

University and technical-college partnerships aimed at a specific, named curriculum gap. The ADB report's own recommendation — partnerships with educational and training institutions to develop specialized fintech curricula and certification programs — is the right starting point, but this report adds a specific emphasis: Nepal's technical education system already produces large numbers of general-purpose software engineers, many of whom go on to work for foreign clients remotely (a pattern the author of this report, as a working software developer, observes directly). The gap is not raw programming talent but *payments-specific* knowledge — ISO 20022 messaging, real-time settlement design, AML/CFT compliance logic — which is rarely taught as a dedicated specialization and is instead something engineers currently have to learn on the job, if their employer can afford the learning curve at all.

The regulatory sandbox itself as a training ground. A well-run sandbox, as recommended in Section 7.1, does double duty: it lets NRB evaluate new products

¹⁸² Categories drawn from ADB (2026), Executive Summary, p. vii, and Table 1, p. 23, expanded into specific roles based on the gap analysis in Chapters 3, 6, and 7 of this report.

under controlled conditions, and it gives Nepali engineers, compliance staff, and product managers direct, hands-on experience with the regulatory and technical constraints of building real payment products — experience that is otherwise scarce precisely because Nepal's fintech sector is still young.

Cross-border technical partnerships, following the precedent already set by the UPI–NPI corridor itself. The June 2026 corridor was not built by Nepali engineers working in isolation — it was a direct collaboration between NCHL and NPCI International, and the ADB report separately recommends “cross-border fintech partnerships between Nepali PSPs and international fintech companies to adapt proven global solutions to Nepal's needs.”¹⁸³ Each new corridor negotiated under Section 6.4's recommendations is also, in effect, a technology-transfer opportunity, if Nepal's institutions deliberately structure the partnership to include capacity-building rather than treating it as a pure vendor relationship.

Deliberate retention incentives for the specific senior roles hardest to backfill. The ADB interviews are specific that the retention problem is concentrated among the most experienced engineers and specialists — precisely the people needed to lead cybersecurity teams, design interoperable architecture, and train junior staff — rather than being an across-the-board shortage.¹⁸⁴ Targeted measures (competitive compensation structures tied to specific payments and security specializations, equity participation in fintech firms, public recognition and career-path visibility for public-sector payments-policy roles at NRB) are likely to be a more efficient use of scarce resources than broad-based salary increases the sector cannot yet afford at scale.

None of these four channels is a quick fix — building a specialized workforce is, almost definitionally, a multi-year undertaking, which is precisely why it appears as a parallel, continuous track in this report's roadmap (Table 6.1) rather than as a single line item to complete and move past. Chapter 8 now turns to weighing the benefits of the entire program set out in Chapters 6 and 7 against its genuine risks and costs.

¹⁸³ ADB (2026), p. ix.

¹⁸⁴ ADB (2026), p. 16.

8. Weighing It Up: Benefits and Risks of Treating Payments as Infrastructure

This report has, by this point, made its analytical sympathies fairly clear. It would be intellectually dishonest, however, to present the case for treating digital payment infrastructure as a shared public good without giving equal, specific weight to the real risks — several of which this report has already surfaced in passing and gathers here deliberately, in one place, for a clear-eyed final accounting.

8.1 The Case For

Financial inclusion at a scale no other intervention matches. Chapter 5 alone documented more than 70 million Brazilians and tens of millions of Kenyans entering the formal financial system substantially because of infrastructure decisions, not product marketing. Nepal's own trajectory — a transaction-account ownership rate that nearly doubled between 2014 and 2024 — is real evidence the same dynamic is already underway domestically.

Direct, quantifiable economic efficiency gains. The decline in cheque-clearing volume documented in Chapter 2, the formalization of remittance flows described in Chapter 4, and the growth of alternative-data digital lending described in Section 3.8 are not speculative future benefits — they are measured outcomes already occurring as Nepal's existing, imperfect infrastructure has matured.

A meaningful, time-sensitive trade-competitiveness lever. Chapter 4 established that Nepal's LDC graduation in November 2026 will erode tariff preferences Nepal cannot fully replace through domestic policy. Cheaper, faster, more reliable payment and settlement infrastructure is one of a genuinely small number of remaining levers fully within Nepal's own control, rather than dependent on trade partners' goodwill.

Reduced regressive burden on exactly the population least able to absorb it. Section 3.2's finding that Nepal's flat-fee structure taxes small transactions disproportionately, and Section 3.8's finding that fewer than 10 percent of MSMEs use electronic payments despite near-universal broadband access, both point to the same conclusion: the current fee structure is not merely inconvenient but actively

regressive, falling hardest on the smallest merchants and poorest households this report has repeatedly identified as the population with the most to gain from digital inclusion.

8.2 The Case for Caution

Governance risk is not hypothetical — it is already a live trade dispute in Brazil. Section 5.2's account of the US Section 301 investigation and resulting 25 percent tariff is the clearest evidence in this report that a central bank directly owning and operating core payment infrastructure carries real international-relations risk, not merely domestic-regulatory risk. Nepal's own version of this conflict-of-interest concern, flagged by the IMF and discussed in Section 3.7, means Option 3 from Section 6.1 (direct central-bank ownership) deserves the caution this report has already given it, and any move toward Option 2 (bank-owned public utility) should be structured to keep NRB's regulatory and ownership functions as separated as institutionally possible.

Privacy and surveillance risk grows precisely as digital payments succeed. A payment system's core value — every transaction is recorded, traceable, and auditable — is also, unavoidably, an expansion of what can be observed about a person's life: where they shop, who they send money to, what they can afford. Section 6.7 recommended a dedicated Personal Data Protection Act specifically because Nepal's current Privacy Act 2018 does not yet provide the data-subject rights, retention limits, or oversight of automated decision-making that would let citizens meaningfully control how this expanding record of their financial life is used, by whom, and for how long. A digital payment infrastructure built faster than its accompanying privacy law is a real, not theoretical, risk — and one this report regards as a precondition for the roadmap in Chapter 6, not an optional add-on.

A more digitally dependent system is a more fragile one during outages, disasters, and connectivity failures. Section 2.3 documented that annual transaction values through the Retail Payment Switch already exceed Nepal's entire GDP — a genuine achievement, but also a measure of how much economic activity now depends on a small number of centralized technical systems staying operational. Nepal's own geography — earthquake risk, monsoon-season

connectivity disruption, a fiber backbone with real last-mile gaps documented in Section 3.5 — makes system resilience and offline fallback capability (cash, and the offline QR tools described throughout this report) a genuine safety requirement, not a legacy feature to phase out.

Financial exclusion of exactly the population least equipped to adapt. A push toward digital-first, or eventually digital-only, payment infrastructure risks leaving behind older adults, the least digitally literate (Section 3.3's 31 percent estimate implies a substantial non-digitally-literate majority), and populations in areas the last-mile connectivity gap has not yet reached. Every recommendation in Chapter 6 — particularly the rural agent-network and offline-QR investments in Section 6.5 — should be read as a hedge against this specific risk rather than a separate, optional inclusion initiative.

Cybersecurity risk scales with adoption, not independently of it. Section 3.6 already documented real breaches at F1Soft and even at NRB itself. A larger, more interconnected, more heavily used payment system is not automatically a more secure one — it is, absent proportionate investment, a larger and more attractive target, and Chapter 7's recommendation to build a dedicated cybersecurity workforce should be read as a cost genuinely proportionate to the scale of the ambition in Chapter 6, not a nice-to-have appendix to it.

“Free” is a transfer, not a magic trick, and someone always bears the reallocated cost. This report's own Chapter 6 recommendation — cross-subsidizing small transfers through the broader banking business, following the UPI model — is, in the end, a choice to have Nepali banks' other customers (borrowers, depositors, card users) implicitly subsidize the cost of P2P transfers, rather than transfer senders paying for it directly. That is very likely the right trade-off, on the evidence assembled in this report, but it is a trade-off, and this report does not pretend otherwise.

8.3 A Balanced Verdict

Weighed against each other, the risks in Section 8.2 argue for *how* Nepal should build shared payment infrastructure, not *whether* it should. None of the six risks

identified above are arguments against interoperability, against fee reform for small transactions, or against the roadmap in Chapter 6 — they are arguments for building it with real, resourced attention to governance separation, data protection law, system resilience, digital-literacy investment, and cybersecurity capacity running in parallel with the technical build-out, rather than as afterthoughts bolted on once the technology already exists. This is, in the end, the same conclusion the original essay behind this report reached by instinct in December 2025: the right framing is not “should payments be free,” but “should the underlying rail be treated as shared infrastructure, built and safeguarded with the same seriousness Nepal already brings to roads and electricity” — and the evidence assembled across this report’s eight preceding chapters supports that framing, provided the risks in this chapter are treated as design requirements rather than dismissed as the price of progress.

9. Conclusion

This report began with a small, specific irritation: a transfer fee of a few rupees, charged by an institution majority-owned by Nepal’s own banks and central bank, at a moment when a neighbouring country moves more than 23 billion transactions a month for nothing. It has ended, nine chapters and roughly thirty tables and case studies later, at a considerably more precise and more optimistic place than that irritation alone would suggest.

Nepal is not behind because it lacks the technology. The National Payment Switch, live since 2021 and comprehensively documented by NRB as recently as October 2025, already contains almost every architectural piece that made India’s UPI, Brazil’s Pix, and Cambodia’s Bakong possible: a real-time retail switch, an open-API interoperability layer, a national QR standard, a domestic card scheme, and — as of 6 June 2026 — a live, bidirectional cross-border corridor with India. Nepal is behind, specifically and correctly, on *finishing* what it has already started: getting its two largest wallets fully onto the shared rail it mandated by law in 2019, deciding explicitly who pays for small transactions to be free rather than leaving the question unanswered, closing a data-protection and cybersecurity gap that is growing more urgent as adoption scales, and building the specific payments, security, and compliance workforce Chapter 7 named in detail.

The nine international case studies in Chapter 5 do not offer Nepal a single model to copy. They offer something more useful: nine different answers to the same underlying question — who owns the rail, who pays for it, and who is it actually built for — along with clear, documented evidence of what happened in each case, including one outright failure. Read together, they support a specific, moderate conclusion rather than either extreme available in the public debate: Nepal should not fully nationalize its payment system the way Brazil did, given the governance risk Chapter 8 examined directly, but it also should not leave interoperability, fee policy, and rural reach to resolve themselves through market competition alone, given how much of Chapter 3's evidence shows that unresolved five years into the National Payment Switch's existence.

The stakes, set out in Chapter 4, are not abstract. Nepal is a remittance-dependent economy about to lose meaningful trade preferences, with roughly 29.7 million people, 79 percent of them rural, a fifth of them below the poverty line, and a growing share of its working-age population abroad sending money home through exactly the rails this report has examined. A cheaper, faster, more trustworthy, more inclusive payment system is not a convenience for that population. It is closer to what the original essay behind this report called it at the very start: infrastructure, in the same sense that a road or a power line is infrastructure — something whose value is measured less in the profit it generates for any single operator and more in what it lets an entire economy do that it otherwise could not.

The choice in front of Nepal now is not whether digital payments matter — that question was settled by the more than twenty-fold growth in mobile banking users this report documented in Chapter 2. The choice is whether Nepal finishes building the shared, trusted, genuinely inclusive rail its own regulators have already designed on paper, or lets a fragmented, fee-heavy, partially-interoperable status quo persist by default while the rest of South Asia moves on without it. On the evidence assembled here, finishing the job is well within reach — and the country that answers this question well stands to gain rather more than the rupees at stake in any single transfer fee.

Appendix A — Glossary of Terms

Term	Meaning
ACH	Automated Clearing House — a deferred, batch-settlement system typically used for recurring payments (salaries, utility bills)
AML/CFT	Anti-Money Laundering / Combating the Financing of Terrorism — the regulatory regime governing suspicious-transaction monitoring and reporting
API	Application Programming Interface — a standardized way for different software systems to communicate
Aadhaar	India's biometric national digital-identity system, central to UPI's KYC process
BFI	Bank and Financial Institution — NRB's umbrella term for commercial banks, development banks, and finance companies
CBDC	Central Bank Digital Currency — a digital form of a country's official currency, issued directly by the central bank
connectIPS	NCHL's bank-linked, real-time payment platform, distinct from wallet-based PSPs
e-CNY	China's central bank digital currency
FATF	Financial Action Task Force — the global AML/CFT standard-setting body; Nepal was placed on its "grey list" in February 2025
Findex	The World Bank's Global Findex Database, the leading global survey of financial inclusion and digital-payment usage
KYC	Know Your Customer — identity-verification procedures required before opening or using a financial account

Term	Meaning
MDR	Merchant Discount Rate — the fee a merchant pays (typically a percentage of the transaction) to accept a digital payment
MFS	Mobile Financial Services — Bangladesh's term for its mobile-wallet sector (bKash, Nagad, Rocket)
MSME	Micro, Small, and Medium-sized Enterprise
NCHL	Nepal Clearing House Limited — the PSO that operates the NEPALPAY scheme and was mandated by NRB to build and run the National Payment Switch
NEPALPAY	NCHL's payment scheme, encompassing connectIPS, NEPALPAY QR, NEPALPAY Instant, and the NEPALPAY domestic card
NPCI	National Payments Corporation of India — the nonprofit entity that owns and operates UPI
NPI	National Payments Interface — Nepal's open-API layer connecting banks, PSOs, and PSPs to the National Payment Switch
NPIx	The cross-border extension of the NPI, handling international transaction routing and conversion
NPS	National Payment Switch — Nepal's central interoperable payment-switching infrastructure, mandated under the Payment and Settlement Act, 2019
NRB	Nepal Rastra Bank — Nepal's central bank and payment-systems regulator
P2M	Person-to-Merchant (payment)
P2P	Person-to-Person (payment)

Term	Meaning
PSD	Payment Systems Department — the NRB department directly responsible for payment-system oversight
PSO	Payment System Operator — an institution licensed to operate payment infrastructure (e.g., NCHL, Fonepay)
PSP	Payment Service Provider — an institution licensed to offer payment instruments and services to end users (e.g., eSewa, Khalti)
QR	Quick Response (code) — the scannable barcode format underlying most of Nepal's merchant-payment growth
RPS	Retail Payment Switch — the real-time, non-card transaction-processing core of the NPS, live since November 2021
RTGS	Real-Time Gross Settlement — NRB's system for large-value, time-critical payment settlement in central-bank money
UPI	Unified Payments Interface — India's real-time, bank-account-linked payment rail, operated by NPCI
VPA	Virtual Payment Address — a proxy identifier (such as a mobile number) used to receive payments without sharing full account details

Appendix B — Timeline of Nepal's Digital Payment Policy and Infrastructure

Year	Milestone
2009	eSewa launches as Nepal's first licensed Payment Service Provider

Year	Milestone
2014	NRB publishes the National Payments System Development Strategy; Payment Systems Department established
2016	NRB begins formally licensing PSOs and PSPs
2017	Khalti launches; NepalQR groundwork and branchless-banking pilots expand
2018	NRB publishes the Payment System Oversight Framework
2019	Payment and Settlement Act, 2019 enacted, legally mandating a National Payment Switch (Section 21); Retail Payments Strategy published
2020	Payment and Settlement Bylaw enacted; NepalQR Standardization Framework and Guidelines published
Nov 2021	Retail Payment Switch (RPS), the operational core of the NPS, goes live
2022	NRB Digital Lending Guideline issued; NRB Financial Literacy Framework national survey conducted; NRB releases first CBDC concept report; centralized biometric SIM-registration KYC deployed
2023	Cyber Resilience Guidelines issued; Nepal's AML/CFT framework undergoes FATF mutual evaluation
Mar 2024	UPI–NPI cross-border person-to-merchant link opens (Indian travellers can pay Nepali merchants via UPI)
Jan 2025	NEPALPAY QR extended to tourists from China, Italy, South Korea, Malaysia, and Singapore
Feb 2025	Nepal formally added to the FATF grey list

Year	Milestone
Mar 2025	NRB launches its Digital Finance Innovation Hub (regulatory-sandbox groundwork)
~Mar 2025	National Card Switch (NPS-NCS) and NEPALPAY domestic card scheme become operational
Oct 2025	NRB publishes the <i>National Payment Switch and National Payment Ecosystem Master Reference Document</i>
Jul 2026	Asian Development Bank publishes <i>Advancing Digital Payments in Nepal</i> , tying payment-infrastructure reform directly to trade facilitation ahead of LDC graduation
6 Jun 2026	Full, bidirectional, peer-to-peer UPI–NPI cross-border corridor launched — the first such two-way UPI linkage anywhere in the world
Nov 2026 (scheduled)	Nepal graduates from Least Developed Country status

Table B.1 — Key milestones in Nepal's digital payment policy and infrastructure, compiled from NRB, ADB, and contemporaneous news sources cited throughout this report.

Appendix C — Nepal Digital Payments: Key Facts at a Glance

Indicator	Figure	Source / Period
Population	~29.7 million	World Bank, cited in ADB (2026)
Rural population share	~79%	Nepal Economic Forum (2023)

Indicator	Figure	Source / Period
Adults with a transaction account	60% (up from 34% in 2014)	World Bank Digital Finance, cited in ADB (2026)
Adults making digital payments (survey-measured)	19–29% depending on methodology	Global Findex 2025 (19%); World Bank 2021 data (29%)
Mobile banking users	28.2 million	NRB Payment Systems Indicators, mid-2025
Mobile wallet users (registered)	24.7 million	NRB Payment Systems Indicators, mid-2025
QR-accepting merchants	2.34 million	Kathmandu Post, citing NCHL, Jan 2025
General literacy rate	76.3%	National Census 2021
Financial literacy (headline)	57.9%	NRB Financial Literacy Framework survey, 2022
Digital literacy (estimate)	~31%	Academic research synthesis, no single official figure
Typical domestic P2P transfer fee	NPR 2–10	connectIPS, Fonepay published schedules
Remittances as share of GDP	~25–28% (some 2025/26 estimates to ~39–40%)	World Bank; NRB; Economic Survey FY2025/26
Smartphone tax burden	71% (2023)	World Bank (2025), cited in ADB (2026)
MSME enterprises	923,000+ (95.4% micro)	2018 National Economic Census
MSMEs using electronic payment	<10% (2023)	World Bank (2025), cited in ADB (2026)
FATF status	Grey list (since Feb 2025)	Kathmandu Post (2025)

Indicator	Figure	Source / Period
LDC graduation date	November 2026 (scheduled)	UN OHRLLS
National Payment Switch live since	November 2021 (RPS)	NRB (2025)
UPI–NPI P2P corridor live since	6 June 2026	NPCI International / NCHL

Table C.1 — Nepal’s digital payment ecosystem at a glance. Every figure in this table is sourced and dated in full elsewhere in this report; this table is intended as a quick-reference summary only.

References

This report draws on more than one hundred primary and secondary sources, gathered through direct research conducted in August 2026. Sources are grouped by category below; full URLs are provided wherever the original source made one available. Where NRB documents are cited both directly and as quoted within the ADB report, both the original document and the ADB report are listed.

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About the Author

Bishawa Raj Bhujel is a software developer based in Nepal, working across React, Next.js, and React Native, with experience integrating the payment platforms discussed throughout this report. This report grew out of a short essay, “Should Digital Payment Infrastructure Be a Public Utility?”, published on his personal website in December 2025, which first posed the question this longer report set out to answer with evidence rather than intuition.

Portfolio and contact: bishawaraj.com.np