# From Protocol to Partnership: India's Digital Public Infrastructure and the Rise of Protocol Diplomacy

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## Introduction

In the early 2000s, India's international digital image revolved around software outsourcing, export of skilled talent, and IT services. But by the 2020s, the narrative had shifted. India is no longer merely exporting services, it is exporting protocols: modular, open-source digital architectures that deliver identity, payments, data exchange, and trust at a population scale.

This new form of diplomacy, rooted in Digital Public Infrastructure (DPI), represents a shift from economic service provision to norm-setting and institutional model-building. India's DPI model diverges from proprietary Western platforms or state-driven Chinese alternatives by offering technological sovereignty without dependence, especially to countries in the Global South.[1]

India's approach amounts to a form of "digital non-alignment"—not choosing sides in the emerging tech Cold War but instead providing adaptable, rights-aware, and open architectures.[2] This is the essence of **protocol diplomacy**: diplomacy not through data dominance, but through institutional interoperability and trust-based infrastructures.

## What is Protocol Diplomacy?

Protocol diplomacy reframes how states engage in digital cooperation by sharing governance logic and open infrastructure blueprints. DPI is not a plug-and-play SaaS (Software as a Service) product. Instead, it is a framework of modular public goods: identity systems, payment rails, and data-sharing protocols, designed for adaptability, transparency, and sovereign implementation.

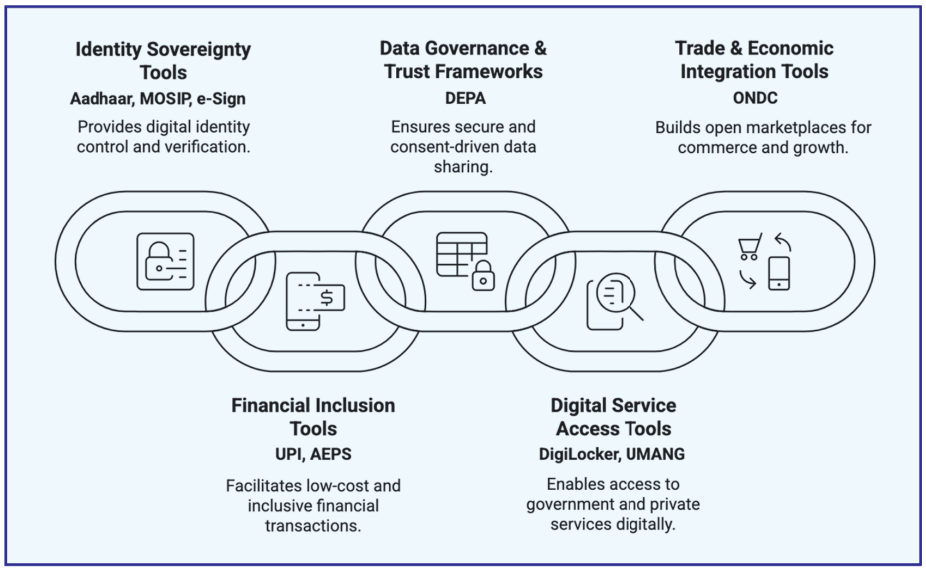
This model enables countries to govern digital architecture on their own terms. Instead of vendor lock-in, DPI offers reusable codebases, public Application Programming Interface (APIs), and open standards that can be locally owned and governed. It creates a "global digital commons" rooted in trust, not extraction.[3] DPI is open by design, meaning that any nation can adopt, modify, and deploy components without compromising its legal or governance autonomy.[4]

Protocol diplomacy thus represents a soft power shift. It allows India and potentially others to lead not through control, but through a shared digital architecture that others can govern themselves.

### India Stack: Scaling Trust at Billion Scale

India Stack is the most mature expression of DPI protocol diplomacy in practice. Unlike conceptual frameworks, the Stack is fully operational and scaled to over a billion users. It provides real-world evidence of how modular, interoperable systems can deliver public services at unprecedented scope. Its components include:

- **Aadhaar** (biometric ID),
- **UPI** (Unified Payments Interface: real-time digital payments),
- **DigiLocker** (cloud-based document verification),
- **DEPA** (Data Empowerment and Protection Architecture: data consent and sharing),
- **MOSIP** (Modular Open Source Identity Platform: open-source ID for export),
- **ONDC** (Open Network for Digital Commerce, a federated e-commerce network),
- **e-Sign** (Aadhaar-based electronic signature service),
- **AEPS** (Aadhaar Enabled Payment System: bank transactions using Aadhaar authentication),
- **UMANG** (Unified Mobile Application for New-age Governance: single mobile app for government services).




India Stack Framework (Source: Author).

Together, these tools form a layered digital foundation, allowing both public and private actors to deliver identity, payments, and data services securely and at low cost. For instance, as of mid-2024, Aadhaar covers 1.4+ billion individuals; UPI processes over 11 billion monthly transactions; DigiLocker hosts more than 6 billion documents.[4]

India Stack exemplifies how technological sovereignty can coexist with open innovation. It enables real-time delivery of welfare, access to banking, and public verification services, all without ceding infrastructure control to private monopolies.[5]

By separating infrastructure from application, India Stack empowers governments to govern, while letting markets innovate. This balance makes it globally relevant, especially to countries in the Global South seeking digital independence.

**Diplomacy in Action: DPI in G20**

India's Group of Twenty (G20) Presidency in 2023 brought DPI to the centre of international digital diplomacy. The G20 New Delhi Leaders' Declaration endorsed a voluntary, non-binding framework recognising DPI as an enabler of inclusive innovation and service delivery. In addition, India launched the Global Digital Public Infrastructure Repository — a collaborative platform providing open access to DPI standards, reference documents, and implementation case studies.[6]

Importantly, this diplomatic push extended beyond declarations. India hosted the G20 Digital Economy Ministers' Meeting, where 20 countries and 6 international organisations, including the Organisation for Economic Co-operation and Development (OECD), World Bank, United Nations Development Programme (UNDP), and United Nations Educational, Scientific and Cultural Organisation (UNESCO), endorsed the One Future Alliance (OFA) initiative. The alliance aims to support Global South nations by offering technical assistance, funding mechanisms, and knowledge-sharing to help them adopt DPI on their own terms. India also launched the India–UNDP DPI Repository as a cooperative tool to promote open-source adoption globally.

India's DPI diplomacy actively supports the achievement of Sustainable Development Goals (SDGs), facilitating low-cost and large-scale access to finance, healthcare, social protection, and digital identity.[7] Countries, such as the Philippines, Ethiopia, Morocco, Sierra Leone, and Sri Lanka, have signed memorandums of understanding to implement DPI components like MOSIP, UPI, and DigiLocker. Kotschwar and Colter (2024) also note India's emerging digital partnerships with the African Continental Free Trade Area (AfCFTA) and bilateral engagements with the UAE and France, signaling the formation of a "trust coalition" around shared digital infrastructure.[3]

In this context, DPI is more than just a toolkit; it is a geostrategic offering. By exporting open digital architectures instead of proprietary platforms, India empowers other nations to shape their own digital futures. This shift reframes multilateral tech governance not as a battle for platform dominance, but as a shared effort to build sovereign, interoperable digital ecosystems.

**Digital Sovereignty or Digital Dependency? Debating DPI Diplomacy**

India's DPI diplomacy claims to empower digital sovereignty. However, a valid concern remains: Could it create dependency on Indian architectures by simply replacing one centre of influence with another?

Indeed, DPI systems, while open-source, embed certain assumptions: centralised identity (Aadhaar), biometric verification, and state-led design. These design choices may not fit countries with decentralised or privacy-focused legal traditions.[5]

However, the flexibility of implementation matters. DPI is not a product, but a reference architecture. Countries using MOSIP retain full control over data standards, storage, and governance. India's model is "government as rails, market as engine": the state builds neutral infrastructure, but the layers above are sovereign and contextual.[1]

DPI reduces exposure to Big Tech's extraction logic providing countries with national control over core digital layers, while fostering private innovation atop them.[7]

The debate is not over whether DPI creates influence (any export of norms does) but whether it does so transparently, inclusively, and without lock-in. So far, protocol diplomacy has offered choice, not coercion — a meaningful distinction in a world fractured by digital asymmetries.

Over the coming decades, protocol diplomacy could reshape the geopolitical map of technology by redistributing influence from a small number of platform-owning powers to a broader coalition of nations co-developing open digital infrastructure. As more countries adopt modular DPI frameworks, global norms around data governance, privacy, and interoperability may shift toward multilateral consensus rather than unilateral standard-setting. This could weaken the dominance of proprietary ecosystems from

the United States and China, fostering a multipolar digital order in which technical standards emerge from collaborative governance bodies. At the same time, protocol diplomacy could create new spheres of influence around leading DPI exporters, meaning India's current leadership position may evolve into a long-term role as a convenor of digital governance alliances. Whether this results in equitable power-sharing or the emergence of new dependencies will depend on sustained inclusivity, transparency, and capacity-building within adopting countries.

**Conclusion: Protocol Diplomacy and the Future of Multilateral Tech Governance**

India's experiment with DPI has transformed a domestic governance innovation into a tool of international influence. Protocol diplomacy reframes the foundations of digital cooperation: moving away from proprietary control and toward shared stewardship of open, interoperable systems. In doing so, it shifts the source of soft power from dominance over platforms to the ability to convene, coordinate, and co-create standards.

This model matters because it challenges the binary choice between the corporate-led, extractive architectures of the West and the centralised, state-driven systems of the East. Instead, it offers a framework in which nations can retain sovereignty while benefiting from global interoperability — a form of digital multilateralism grounded in technical openness and political inclusivity. India's leadership here lies not only in the technical maturity of its DPI components, but in the diplomatic skill of translating them into globally relevant governance tools.

The rapid uptake of MOSIP, UPI, and DigiLocker in diverse political and economic contexts suggests that digital sovereignty does not require technological isolation. On the contrary, shared protocols can serve as a foundation for new "trust coalitions," where norms are negotiated collaboratively and infrastructure is co-owned by the states that use it. This opens the possibility of a multipolar digital order, in which power flows not from control over users' data, but from the capacity to enable secure, equitable, and adaptable participation in the global digital economy.

The opportunity is clear: governments, international organisations, and private innovators must work together to ensure that protocol diplomacy becomes a permanent pillar of global governance. This means investing in open, modular infrastructure; building capacity to adapt such systems to local needs; and creating governance forums where all stakeholders, not just early adopters, have an equal voice. The choice is stark: either accept a fragmented digital future defined by competing proprietary silos, or commit to a shared digital commons built on trust, openness, and cooperation.

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