

India's DPI journey: From local innovations to global solutions

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In the age of rapid technological advancement, nations are racing to digitize their infrastructures, aiming to offer their citizens more efficient, transparent, and inclusive services. Among these nations, India stands out as a beacon, having developed a robust and comprehensive Digital Public Infrastructure (DPI) that has been endorsed by multiple countries and international organizations, such as the International Monetary Fund and most recently the G20.

India's DPI journey is a testament to the transformative power of technology. By prioritizing inclusivity and ensuring that the digital infrastructure is accessible to all, irrespective of socio-economic backgrounds, India has made significant strides in bridging the digital divide. This commitment to inclusivity ensures that the benefits of digitization permeate all layers of society, from bustling urban centres to the remotest of villages.

Global Recognition and the G20 New Delhi Declaration

India's DPI achievements have garnered international attention. The G20 New Delhi declaration, ratified by global leaders during the G20 Summit applauded India's initiative to establish and oversee a Global Digital Public Infrastructure. This virtual DPI repository will be a collaborative space, with contributions voluntarily shared by G20 member nations. This is the first time that the term digital public infrastructure received a global stamp of approval and the credit for this lies entirely with India's presidency.

G20 nations recognised the importance of promoting open-source software, open Application Programming Interfaces (API) and the standards that support them, including open standards, to enable different DPI systems to communicate, with cross-border interoperability as a long-term goal. The importance of enabling cross-border data flows and data free flow with trust, while respecting applicable legal frameworks was also agreed upon.

The foundation and design of India's DPI is anchored in these very values of transparency, safety, and security and is now being adopted globally. It is built upon the tenets of accountability, open standards, collaboration, and interoperability, ensuring no consumer is tied down to a single vendor. Through DPI, India has broadened options for consumers, spurred entrepreneurial spirit, fostered competitive environments, reduced reliance on specific service providers, enriched the lives of its citizens, and curated equitable opportunities for businesses in the economy.

The Evolution of Aadhaar and its Impact

Central to India's digital transformation is Aadhaar, envisioned as a cutting-edge digital ID that offers cloud-based authentication services. This revolutionary ID system seamlessly integrates into various service transactions, from opening bank accounts and obtaining mobile SIMs to receiving rations. Its cloud-based nature ensures that identity verification is efficient and reliable.

Building on the success of Aadhaar, India introduced complementary digital products like the Digital Locker, electronic KYC (eKYC), and on-demand digital signature (e-Sign). Furthermore,

the Direct Benefit Transfers (DBT) initiative was launched, leading to significant government savings. By directly depositing subsidies into bank accounts, issues like the black marketing of commodities, exemplified by LPG cylinders, were effectively addressed.

Recognizing the potential of such a system, the International Institute of Information Technology in Bengaluru introduced the Modular Open Source Identity Platform (MOSIP) five years ago. This platform was designed to assist other nations in establishing systems akin to Aadhaar. To date, over ten countries, ranging from Sri Lanka to Sierra Leone, have embarked on MOSIP projects.

When the pandemic hit, India's digital response was swift. The National Health Stack emerged, under which several critical tools were developed. The globally acclaimed CoWin platform and the Aarogya Setu app were among these innovations. Additionally, the government envisioned and rolled out features like National Health Electronic Registries, a National Health Analytics Platform, Digital Health IDs, Health Data Dictionaries, and an enhanced supply chain management system for pharmaceuticals.

Balancing Public and Private Interests

When it comes to digital system development, two predominant models emerge: entirely government-driven or wholly private. While the former might suffer from quality and maintenance challenges, the latter can lead to monopolistic practices. India's DPI strikes a harmonious balance. It identifies frameworks consisting of essential services and components best managed by public authorities. By developing open protocols, shared platforms, and fostering policies, an interoperable ecosystem is nurtured within which the private sector can constantly innovate.

Innovative Digital Solutions for Governance and Commerce

The Indian government, not stopping at health, also introduced innovative platforms like the Government e-Marketplace (GeM) to digitize the procurement processes of governmental bodies. The National Single Window System was another initiative, designed to streamline approvals based on business needs.

Recognizing the potential of e-commerce, the government has also been proactive in reshaping its landscape. The Centre's ambitious Open Network for Digital Commerce (ONDC) aims to employ open protocols to amplify e-commerce adoption in India. This initiative is especially focused on integrating smaller merchants into the burgeoning e-commerce sector.

Unprecedented Financial Inclusion

In a world where 4 billion citizens don't have digital identities, 1.5 billion citizens remain unbanked and 133 countries don't have digital payments, rich lessons can be drawn from India's model. India's rapid achievement of financial inclusion targets in just six years, a feat that would have taken nearly five decades otherwise, is a testament to the nation's robust digital payment infrastructure and the resilience of its people. With an impressive 80% financial inclusion rate and savings of USD 33 billion through the Direct Benefit Transfer (DBT) system, India's progress in this domain is nothing short of remarkable. As the pandemic hit, the adaptability and resilience of every country's social welfare system were put through a test. While countries like Germany struggled with issues of ID verification taking up to 18

months, India's JAM trinity led to one of the biggest social benefit distribution plans across the world. Many western countries attempted to deliver physical cash via post to citizens during COVID-19. In the US, 9 million income-eligible Americans did not receive their first cash transfers until October 2020. During the COVID-19 pandemic, India was far ahead of the curve. The Government of India transferred USD 3.9 billion (INR 282 billion) to 318 million beneficiaries two weeks after announcing the PMGKY program all thanks to digital identification linked to bank accounts. In India, where many households are overseen by women, a financial package was introduced during the pandemic. Under this, approximately 191 million women Jan Dhan account holders were given ₹500 each directly in their accounts. Out of the total funds distributed, USD 1.8 billion was allocated for the first payment of the PM-KISAN scheme. Through this initiative, around 74 million of the identified 80 million beneficiaries received ₹2,000 directly in their accounts.

Digital Payments Juggernaut

India's digital payment transactions now surpass the combined digital payments of four major Western economies: the US, UK, Germany, and France. This achievement can be attributed to India's paperless, presence-less, and cashless solutions, with ubiquitous QR codes connecting millions of people in an instant payment system that has revolutionized Indian commerce. From a simple cup of tea to gold jewellery, Indian citizens can make small and large payments seamlessly using UPI through multiple apps. The volume of digital transactions in India dwarfs anything seen in the West, bringing large numbers of Indians into the formal economy, and making business easier. India's leadership in digital financial inclusion practices is a shining example for the Western world to follow, with even France now adopting UPI.

The Convergence of AI with DPI

Artificial intelligence is the next frontier for India's digital revolution. DPI is now interfacing with the power of AI to turbocharge its ethos of creating an equitable marketplace. While most online content is in English, India is home to a rich diversity of languages, with 22 official ones and over 1,700 additional languages and dialects. The Bhashini initiative aims to address this linguistic chasm with cutting-edge technology. This government-backed platform offers AI and NLP tools to Indian MSMEs, startups, and innovators. As a result, developers can provide comprehensive internet and digital services in various Indian languages. Jugalbandi, powered by ChatGPT, acts as a refined translator, seamlessly transitioning between local languages and English. This pioneering effort is set to democratize digital access, benefiting a vast populace, highlighting just one facet of the impending digital revolution.

India's DPI serves as a shining example of how technology, when used judiciously and inclusively, can transform a nation. As the world grapples with challenges ranging from climate change to socio-economic disparities, digital public infrastructure emerges as a potent tool in crafting solutions. India's model offers a blueprint for other nations to adapt and adopt. In this interconnected digital age, India's DPI is a significant step towards realizing a shared global future.

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