

# Digital Public Infrastructure in India

## UPI

UPI is India's homegrown real-time mobile payments system. UPI was designed to enable interoperability between money custodians, payment rails and front-end payment applications.

At its core, UPI is a payments markup language that runs on a central switch operated by a bank-owned non-profit known as the National Payments Corporation of India (NPCI). In simple terms, there is one NPCI server which all the licensed banks are connected to. This server sends messages to and fro between all the banks, with NPCI as the middleman.

As an interoperable payment rail, UPI obviates the need to fund any kind of intermediary wallet as users can make real time payments directly in and out of their bank accounts, at essentially no cost. UPI also makes use of a separate UPI PIN as a means of second factor authentication, and a Virtual Payment Address (VPA) in addition to typical identifiers like bank account numbers or debit card CVV's making for a more flexible and secure payment experience when compared with alternatives.

In July 2020 the NPCI unveiled an extension to the UPI product mandate called 'UPI Autopay' that enabled the use of event-based triggers while setting up recurring payments like rental payments or subscription services. Any UPI-enabled payment app could now provide its users with the ability to ascribe standing instructions (time, day, regularity etc) for their recurring payments.

More recently, the NPCI announced the launch of a new digital payment mode on UPI called e-RUPI, which functions as an electronic voucher system that can be utilised by any mobile phone user in India. The goal of e-RUPI is to provide an improvement over existing prepaid payment modes. It is intended to be a single-use digital payment solution (represented by an SMS-string or QR code) that is specific to a person and purpose for use cases such as donations, gift vouchers or even Covid vaccine subsidies.

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## CoWin

The screenshot shows the official CoWIN website interface. At the top, there's a dark teal header with the Ministry of Health and Family Welfare logo, a language selection bar (A+, A, A-) with English selected, and a "REGISTER / SIGN IN" button. Below the header, the main navigation menu includes "ABHA(Health ID)", "DASHBOARD", "VERIFY CERTIFICATE", "FAQ", and "PARTNERS". The main content area has a teal background. It displays two key statistics: "TOTAL VACCINATION DOSES 2,20,67,47,871" with a "VIEW MORE" button, and "VACCINATIONS DONE TODAY 70". Below these stats, a large green banner reads "Get Vaccinated in 3 Easy Steps". Three white rectangular boxes follow, each representing a step: Step 1 shows a person booking an appointment on a smartphone; Step 2 shows a healthcare worker giving a vaccine; Step 3 shows a person downloading a certificate on a smartphone. Arrows indicate the flow from Step 1 to Step 2 to Step 3. At the bottom right of the main content area, there's a "Support For COVID-19" button with a phone icon.

Ministry of Health and Family Welfare

Co-WIN  
Winning Over Covid-19

A + A A - ENGLISH ▾

ABHA(Health ID) DASHBOARD VERIFY CERTIFICATE FAQ PARTNERS REGISTER / SIGN IN

TOTAL VACCINATION DOSES  
2,20,67,47,871

VACCINATIONS DONE TODAY  
70

Support For COVID-19

Get Vaccinated in 3 Easy Steps

Step 1

Book an Appointment on Co-WIN or Walk into any Vaccination Center

How to Book Your Appointment on Co-WIN?

Step 2

Get Your Vaccination Safely at the Time of Your Appointment

Dos And Don'ts For Getting Vaccinated

Step 3

Download Your Vaccination Certificate from Co-WIN and Wait for Dose #2

Download Your Vaccine Certificate

Source: CoWin website on 31/10/2023

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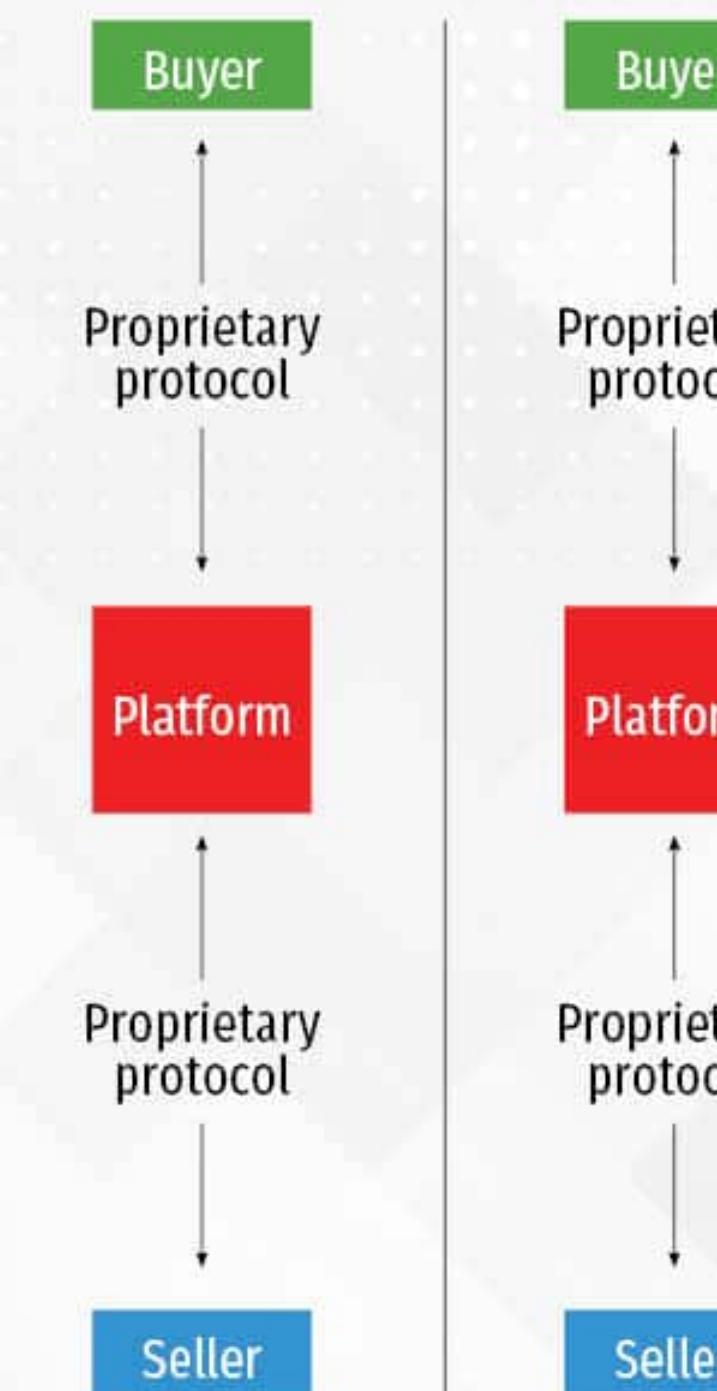
## Open Network for Digital Commerce (ONDC)

Launched in 2021  
Eco-system for e-commerce

"In India, more than 12 million sellers earn their livelihood by selling or reselling products and services. However, only 15,000 of these sellers (0.125% of the total) have enabled e-commerce. E-retail has been out of reach for the majority of sellers, especially from small towns and rural areas. ONDC recognises the unique opportunity to increase e-retail penetration from the existing 4.3% to its maximum potential in India. Our mission is to dramatically increase e-commerce penetration in the country by enabling population-scale inclusion of all types and sizes of sellers." (<https://ondc.org/about-ondc/>)

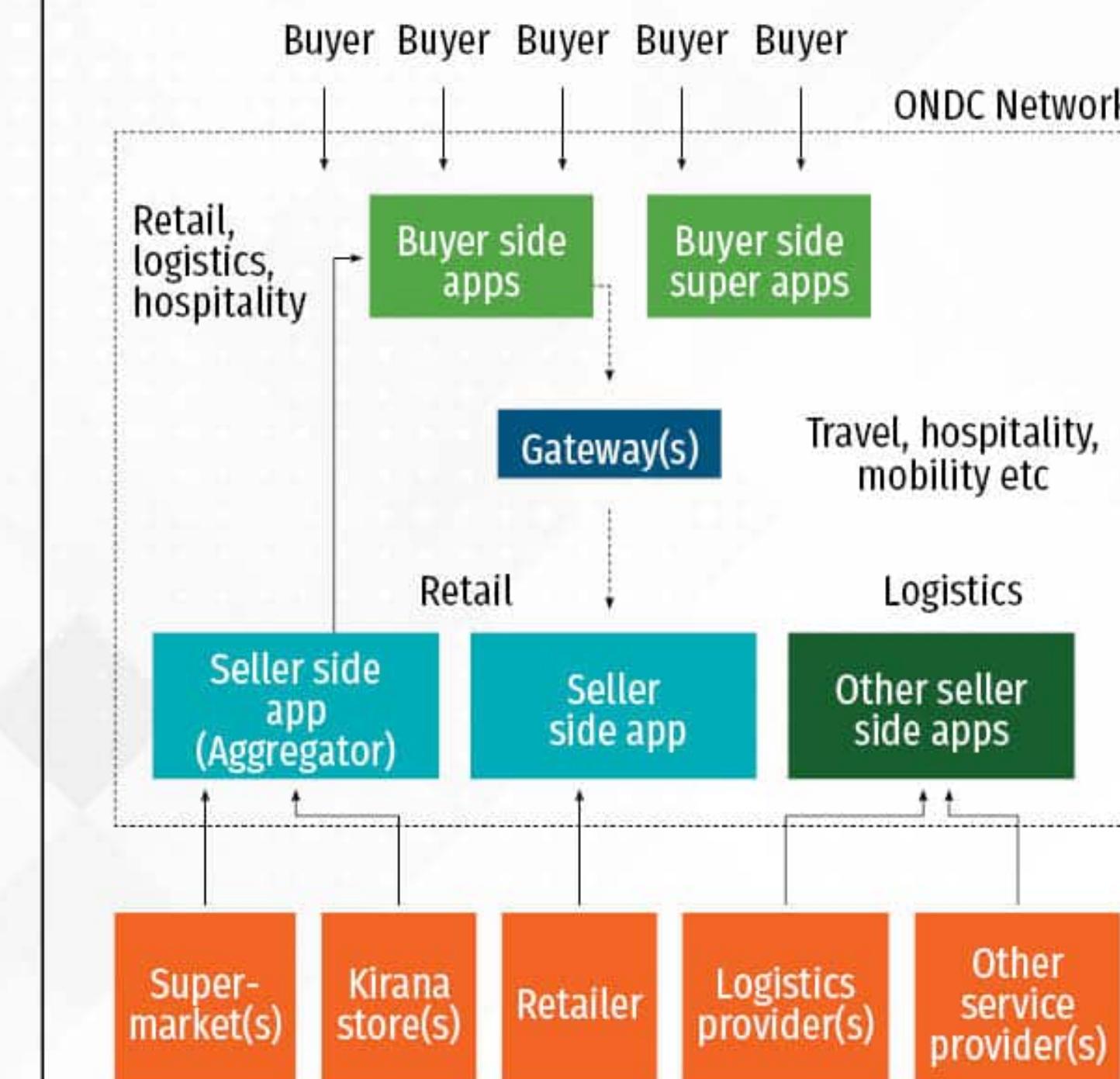
# HOW INDIA'S OPEN E-COMMERCE NETWORK MODEL PLANS TO DISRUPT PLATFORM POWER

Closed loop model of e-commerce



Closed loop platforms have unilateral pricing power for goods sold, logistics, and financial services in the transaction flow

Open network model of e-commerce



Modularity across levels of transaction in open network to increase competition and bring down pricing power



Source: Moneycontrol

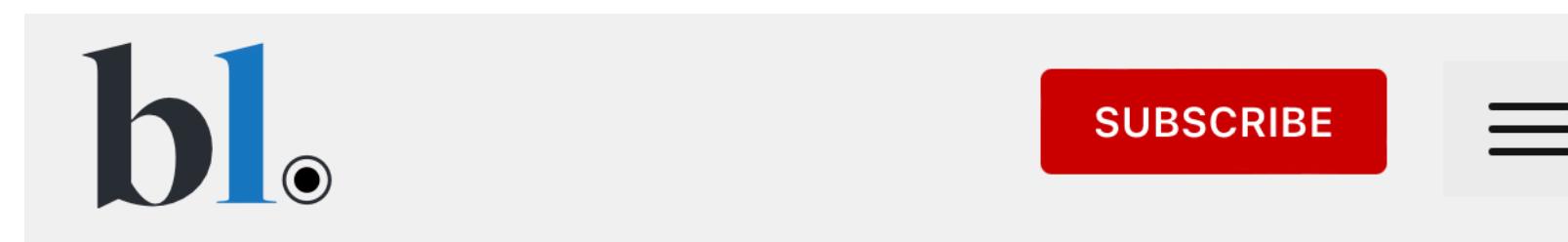
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## India Stack

- India Stack is a set of open APIs and digital public goods that aim to unlock the economic primitives of identity, data, and payments at population scale.
- The components of this collection are owned and maintained by different agencies. Aadhaar products such as e-KYC are owned by the Unique ID Authority of India. eSign is a technology specification which is maintained by the Ministry of Communications and Information Technology. Digilocker is owned by the Ministry of Electronics and Information Technology. UPI is owned by the National Payments Corporation of India. The Account Aggregator framework is regulated by RBI and its technology standards and owned by ReBIT.
- The principles, technologies, and functionality of India Stack can be applied in any country. None of the systems which comprise India Stack require any proprietary technology or intellectual property which would preclude their implementation in any other country.

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## India Stack



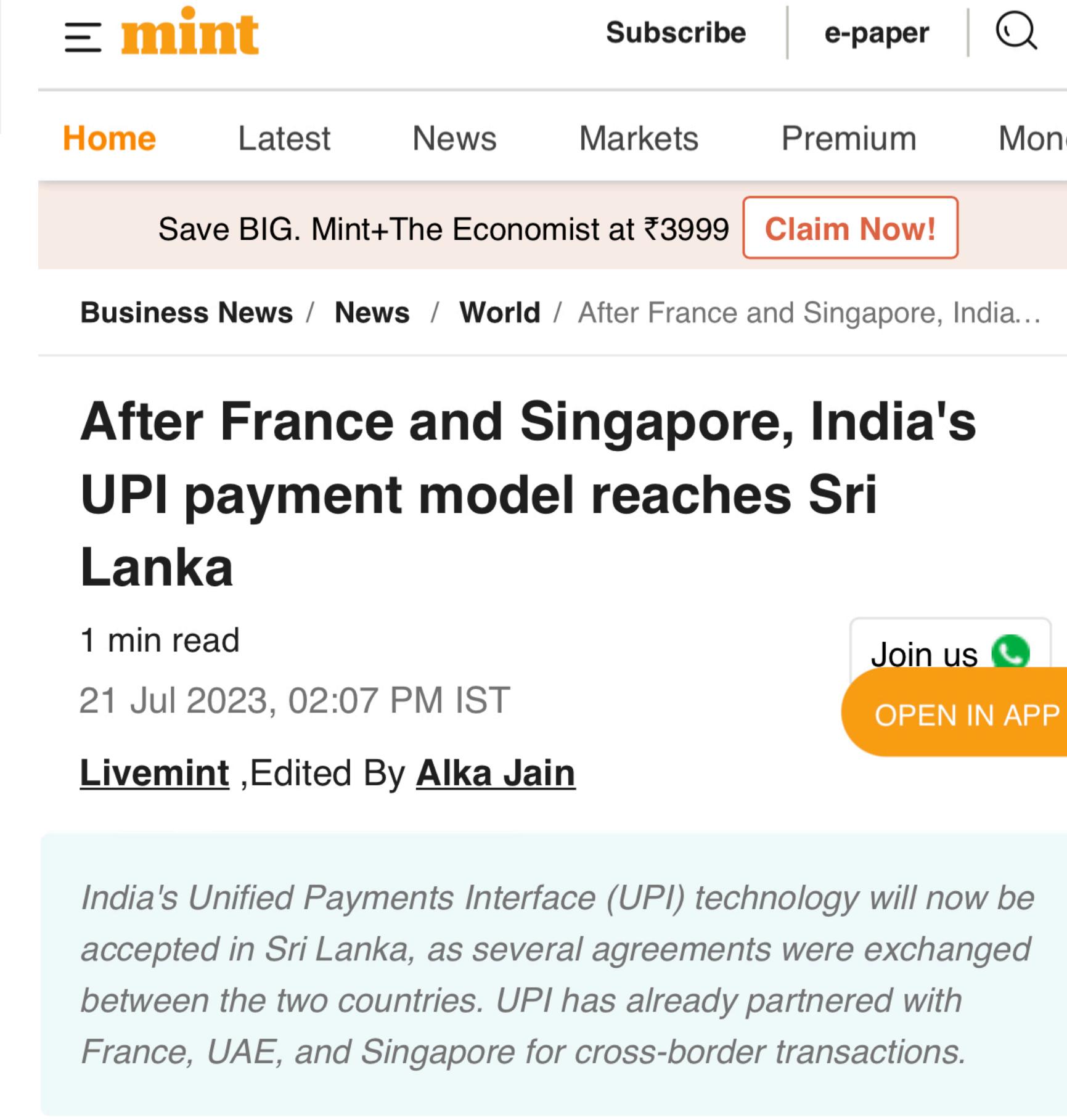
The Bl. news website header features the 'bl.' logo in a large serif font, a red 'SUBSCRIBE' button, and a three-line menu icon.

News

**India enters MoUs with 8 countries to offer them Digital Stack, DPI at no cost**

Our Bureau | Updated - September 05, 2023 at 04:32 PM.

India has entered into eight memorandums of understandings with countries such as Armenia, Sierra Leone, Suriname, Antigua, Barbados, Trinidad and Tobago, Papua New Guinea and Mauritius, offering them the India Stack and digital public infrastructure (DPI) at no cost and with open-source access



The mint news article header includes the 'mint' logo, a 'Subscribe' button, an 'e-paper' button, and a search icon. The main headline is 'After France and Singapore, India's UPI payment model reaches Sri Lanka'. Below it, there's a snippet: 'India's Unified Payments Interface (UPI) technology will now be accepted in Sri Lanka, as several agreements were exchanged between the two countries. UPI has already partnered with France, UAE, and Singapore for cross-border transactions.'

 A Singapore Government Agency Website [How to identify](#) ▾



Monetary Authority  
of Singapore



Home / News / Media Releases / 2023 / **Launch of Real-time Payments between Singapore and India**

Media Releases

Published Date: 21 February 2023

**Launch of Real-time Payments between Singapore and India**

Singapore, 21 February 2023...The Monetary Authority of Singapore (MAS) and the Reserve Bank of India (RBI) today launched the linkage between Singapore's PayNow and India's Unified Payments Interface (UPI). This will enable customers of participating financial institutions in Singapore and India <sup>[1]</sup> to send and receive funds between bank accounts or e-wallets across the two countries in real-time. They can do this using

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## Concerns and Challenges

≡ bt Business Today



News / TECHNOLOGY / News / Data Breach of 81.5 crore

Indians: Hacker allegedly leaks Aadhaar, passport, personal details on dark web

## Data Breach of 81.5 crore Indians: Hacker allegedly leaks Aadhaar, passport, personal details on dark web

A US-based cybersecurity agency called Resecurity has posted extensive details about the data breach

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## Concerns and Challenges



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HOME / NEWS / INDIA » 'AADHAAR DATA PROTECTED BY 13 FEET HIGH...'

## 'Aadhaar Data Protected by 13 Feet High, 5 Feet Thick Walls': Attorney General To SC

- News18.com
- Last Updated: March 22, 2018, 07:30 IST

Arguing that the scheme was a "serious effort to end corruption" and not a fly-by night scheme to score brownie points, the top government lawyer said that all the details including biometric data, are being kept at a complex in Manesar, near Delhi.

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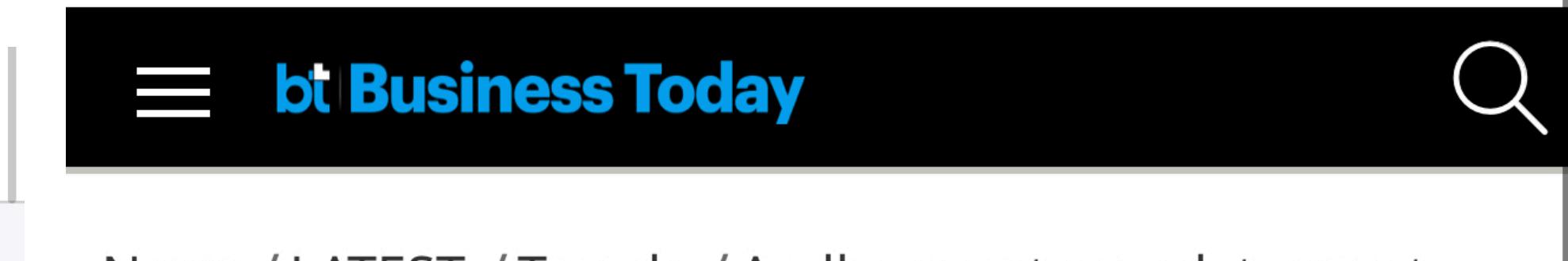
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Home / Technology / News / Aadhaar scam: Government issues s...

### Aadhaar scam: Government issues strict warning about fake emails or WhatsApp messages

**Aadhaar scam:** The Indian government has raised a red flag for Aadhaar users, alerting them to a surge in fraudulent activities. The Unique Identification Authority of India (UIDAI), through its official presence on a popular social media platform (formerly known as Twitter), has taken proactive steps to inform users about the risks of falling victim to scams.



bt Business Today

Search

News / LATEST / Trends / Aadhaar not mandatory yet organisations pose it as a mandatory document

### Aadhaar not mandatory yet organisations pose it as a mandatory document

While Aadhaar is a preferred KYC document for opening bank accounts, the majority of bank executive calls it a mandatory document and ask for a photocopy of the same. The same goes for obtaining a mobile SIM.