

# Understanding UPI through User Experience: Insights from the Ground

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## I CONTEXT

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Nearly a decade after its launch, the Unified Payments Interface (UPI) has become the dominant rail for digital transactions in India, accounting for over 80% of all retail digital payments<sup>1</sup>. In FY 2024–25, it processed more than 185 billion transactions, averaging 509 million a day. To put that in perspective: India’s Immediate Payment Service (IMPS), a foundational system for instant interbank transfers that also underpins UPI, handles around 3% of UPI’s daily volume; Real Time Gross Settlement (RTGS), used for large-value transfers between banks and businesses, processes in a full day what UPI clears in minutes; and for every credit card swipe in the country, there are nearly 40 UPI payments<sup>2</sup>.

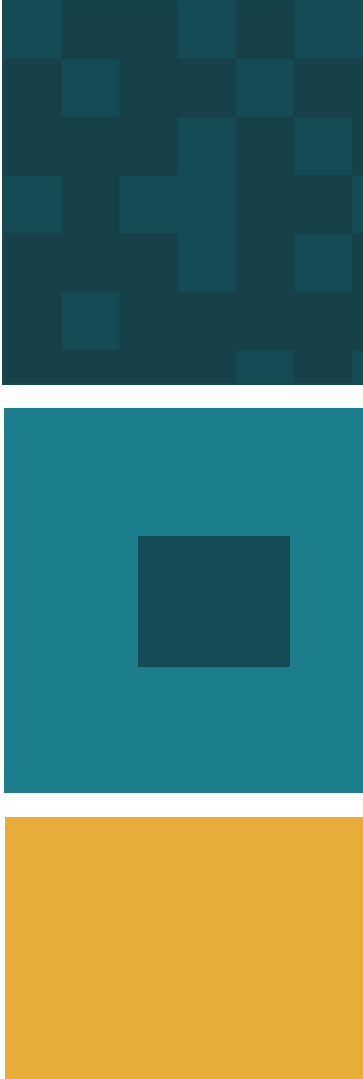
These figures underscore UPI’s extraordinary reach. However, as the platform becomes ubiquitous, they also raise a deeper question: What has this growth meant for digital financial inclusion in India? UPI was designed not just as a payment innovation, but as a digital public infrastructure (DPI) meant to expand access, reduce friction, and enable participation in the formal financial system. While thoughtful design and supportive policy have played a key role in driving its adoption, they don’t tell the whole story. Real-world usage is shaped just as much by social context and everyday constraints — factors that can blunt, redirect, or complicate even the most well-intentioned designs.

This study looks beyond headline metrics to understand how UPI is unfolding on the ground – what’s working, what’s not, and why – through the lens of users’ and merchants’ perceptions and experiences. How are different people, especially first-time users and retail micro-merchants, navigating the system in their daily lives? Where does UPI foster trust – perhaps the most important prerequisite for adoption at scale of any DPI – and ease, and where do users still encounter friction, hesitation, or gaps in support?

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1. Government of India Press Information Bureau (2025). India’s UPI Revolution. Available at: <https://www.pib.gov.in/PressNoteDetails.aspx?NotelD=154912&ModuleId=3>






2. Annual report of the RBI 2024-25 (Page 165). Available at: <https://www.rbi.org.in/Scripts/AnnualReportMainDisplay.aspx>



## II ASSESSMENT FRAMEWORK AND STUDY DESIGN

To capture this ground-level experience, the study applied a five-part assessment framework focused on the full user journey — before, during, and after a transaction. Here, *transaction* is used in an extended sense to include not just the moment of payment, but the broader experience: from becoming aware of UPI and gaining access, to the act of transacting, to what happens when issues arise afterward. Each stage is mapped to specific parameters:

### Three-Stage Assessment Framework

Non-Users		Personal Users & Merchants		
Pre-Transaction Experience		In-Transaction Experience		Post-Transaction Experience
				
<b>Awareness</b>	<b>Accessibility</b>	<b>Utility</b>	<b>Safety</b>	<b>Redress</b>
Understand whether stakeholders are aware of UPI	Enablers and barriers to accessing UPI, including device ownership and digital confidence.	Assess how UPI is used for day-to-day transactions Capture the tangible and perceived benefits (e.g., speed, convenience)	Evaluate confidence in transacting securely through UPI Focus on user perceptions of risk, especially amid rising scams	Assess experiences after completing a transaction Explore grievance reporting, escalation, and resolution outcomes

*Internally developed assessment framework*

A total of **4805 respondents** were surveyed across select districts of Bihar and Maharashtra - purposively selected to reflect different levels of digital maturity<sup>3</sup>. Within each state, one high-transacting and one low-transacting district were chosen using PhonePe per capita UPI transaction data (Q2 2024): Patna (high) and Nalanda (low) in Bihar; Nashik (high) and Ratnagiri (low) in Maharashtra. Both urban and rural areas were covered to capture diverse conditions.

The sample comprised:

- 3,283 UPI users (individuals who had used UPI at least once in the past three months)
- 780 non-users (no UPI use in the past three months)
- 743 merchants (small retail shopkeepers, mostly neighbourhood kirana and similar establishments, accepting UPI for business payments - hereinafter referred to as 'merchants')

Fieldwork was conducted between February and March 2025, using structured in-person surveys, Focus group discussions (FGDs), in-depth interviews (IDIs) with users and merchants and key informant interviews (KIIs) with banks, TPAPs, and regulators to inform study design, contextual framing, and interpretation.

3. Mishra, D., Kedia, M., Reddy, A., Ramnath, K., & Manish, M. (2021). State of India's Digital Economy (SIDE) Report, 2024. Indian Council for Research on International Economic Relations (ICRIER). [https://icrier.org/pdf/State\\_of\\_India\\_Digital\\_Economy\\_Report\\_2024.pdf](https://icrier.org/pdf/State_of_India_Digital_Economy_Report_2024.pdf)

### III. KEY FINDINGS

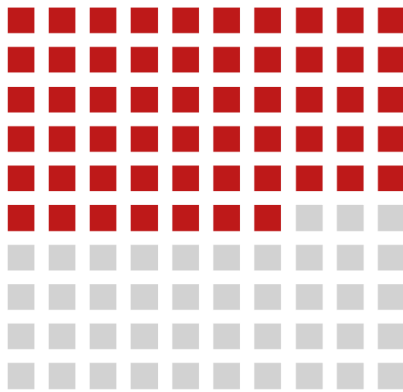
*Important note: All insights presented are drawn from a purposively designed sample study, intended to reflect diverse user contexts rather than provide nationally representative estimates. Findings should be read as directional evidence of patterns and experiences within this sample. Sub-sample insights (e.g., from non-users or merchants) are highlighted where relevant and should be interpreted in that context.*

#### A. Awareness and Access: Gaps in Reach and Readiness

##### 1. Barriers among surveyed non-users (n=780): Low awareness, limited digital ease, and lingering doubts

#### Why Some People Still Don't Use UPI

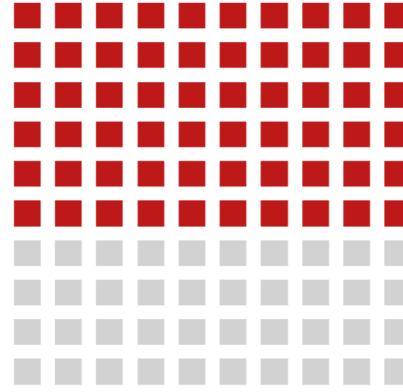
In our sample of non-users, 57% had never heard of UPI...



■ Not heard of UPI (57%)  
■ Heard of UPI (43%)

Based on a sub-sample of 780 UPI non-users

...of those aware, 60% used shared phones or lacked confidence navigating digital interfaces



■ Digitally Constrained (60%)  
■ Digitally Ready (40%)

Based on a sub-sample of 337 UPI non-users aware of UPI

Among those who were both aware and digitally ready, unfamiliarity or a lack of trust in digital payments were common reasons for non-use.

Note: Each square = 1% of sample

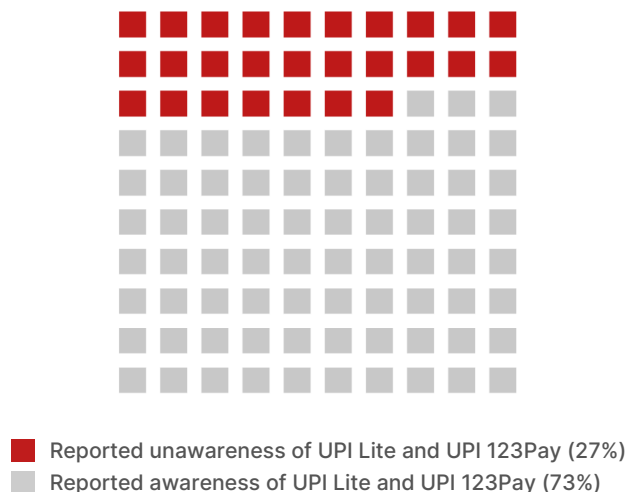
**Why this matters:** As UPI adoption nears saturation among digitally connected populations, the residual pool of non-users increasingly reflects deeper structural and social barriers, ranging from low awareness and shared device use to digital hesitation. These barriers reflect individual experiences captured in the survey sample. Ecosystem actors, however, emphasise that adoption, especially in rural regions, is also shaped by the onboarding pace of local banks and institutions, which is steadily progressing. Bridging this last-mile gap therefore requires not only targeted interventions like awareness campaigns and assisted models such as UPI Circle, but also continued ecosystem alignment to expand reach in underserved areas.

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## 2. Over a quarter of surveyed users (n=3283)<sup>4</sup> still don't know about the features built for inclusion: UPI Lite and 123 Pay<sup>5 6</sup>

### Degree of Awareness of UPI's Inclusion Features

27% of personal users reported unawareness of key features like UPI Lite and UPI 123Pay



Based on a sample of 3283 UPI users

Note: Each square = 1% of sample

**Why this matters:** These tools are designed to lower entry barriers, especially for users in low-connectivity environments or those with feature phones and no internet access but their low visibility risks rendering them ineffective at the margins. Making inclusion features discoverable and trusted is as critical as building them.

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4. UPI users are individuals who used UPI at least once in the past three months and had access to a feature or smartphone (shared or personal). All users surveyed were banked.

5. [UPI LITE](#) enables low-value transactions (below Rs. 200) using a refillable stored value in the NPCI Common Library (CL) within UPI apps. It allows users to make UPI payments without inputting their UPI PIN.

6. [UPI 123Pay](#) is an instant payment system designed for users with feature phones and users with limited or no internet connectivity to enable them to use UPI.

## B. Utility: High Perceived Value, Broad Use, and Evolving Behaviours

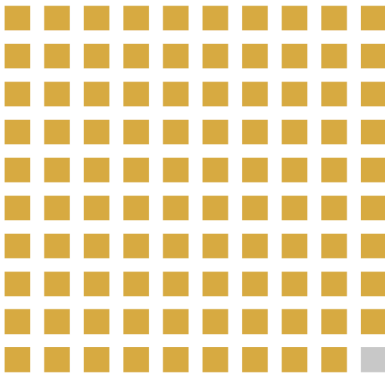
All findings below are based on a random sample of UPI users and merchants within selected geographies. While the locations and target groups were purposively chosen to explore UPI usage, individual respondents were randomly selected within these parameters.

### 1. Among surveyed users (n=3283), UPI is widely preferred but continues to coexist with cash

#### UPI is strongly preferred but not a replacement for cash

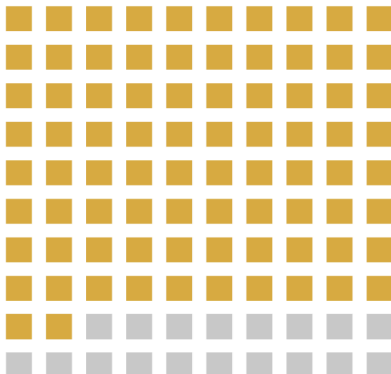
% of UPI users who responded to questions about their usage of UPI and whether they prefer it over other modes of payment

Most UPI personal users use UPI regularly...



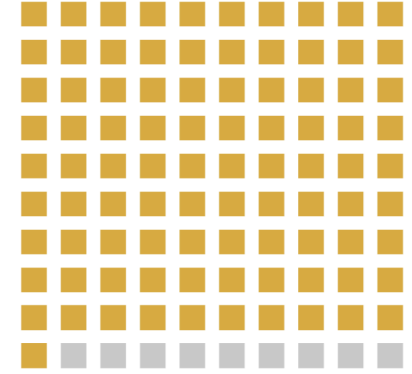
Use UPI regularly (99%)  
Do not use UPI regularly (1%)

...they largely prefer it over other methods...



Prefer UPI over other methods (82%)  
No preference over other methods (18%)

...yet most still use cash regularly



Use cash regularly (91%)  
Other (9%)

Based on a sample of 3283 UPI users

Note: Each square = 1% of sample

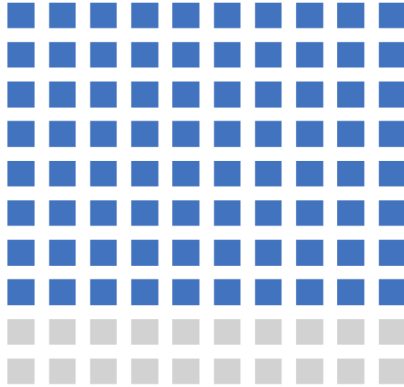
**Why this matters:** UPI is the preferred digital mode in our sample, but cash continues to serve essential functions even among banked users. In order to enhance the complementary nature of cash and digital payments, the system should emphasise its coexistence through sustained investment in cash-in/cash-out networks, in order to protect cash-digital fluidity and consumer autonomy.



## 2. UPI is widely used across both consumer (n=3283) and merchant (n=742) transactions

### UPI use is embedded across everyday and business payments

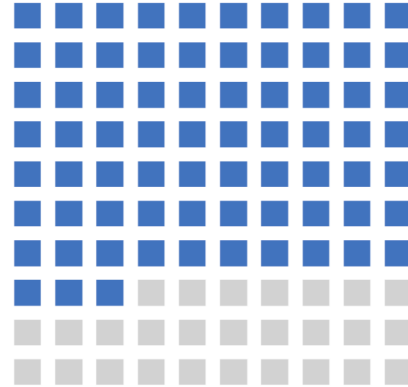
80% of users reported using UPI for at least three payment contexts including bill payments and online shopping...



- Used UPI for at least three payment contexts (80%)
- Used UPI for less than three payment contexts (20%)

Based on a sample of 3283 UPI users

...73% of UPI-accepting merchants used it for backend functions like supplier payments



- Used UPI for backend functions (73%)
- Did not use UPI for backend functions (27%)

Based on a sample of 3283 UPI users

Note: Each square = 1% of sample

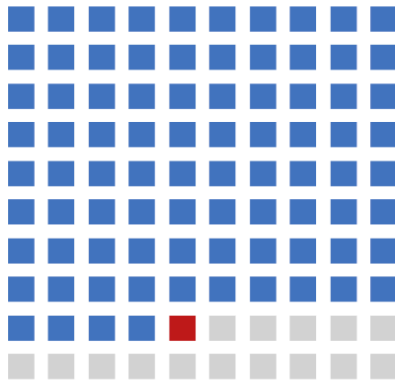
**Why this matters:** UPI's growing role in both personal and enterprise contexts signals its potential as infrastructure for more than just payments. As value chains digitise, this embeddedness can enable new forms of financial participation, from better cash flow management to digital traceability for micro-businesses.



### 3. Surveyed merchants (n=742) value UPI, but many struggle to onboard independently

#### Merchants Value UPI, But Many Struggle to Get Started

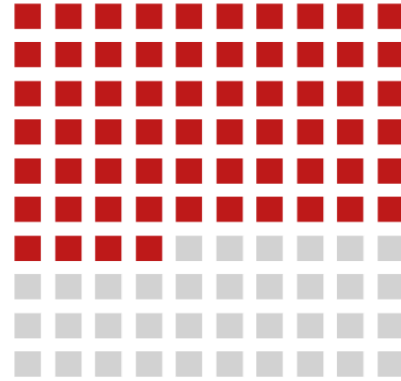
While 84% of merchants reported UPI's positive impact on their business...



- Largely Positive (84%)
- Largely Negative (1%)
- No Impact (15%)

Based on a sample of 742 UPI-accepting merchants

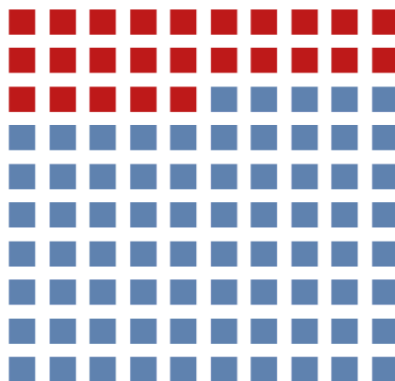
...over half needed help with onboarding...



- Needed help with onboarding (64%)
- Didn't need help with onboarding (36%)

Based on a sample of 742 UPI-accepting merchants

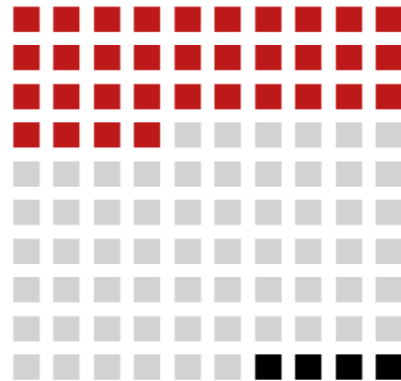
...and of the 1 in 4 merchants who were unregistered...



- Unregistered (25%)
- Registered (75%)

Based on a sample of 742 UPI-accepting merchants

...one-third didn't know onboarding...



- Didn't know how to register (34%)
- Didn't find it necessary for business (62%)
- No support or assistance offered to help register (4%)

Based on a sample of 742 UPI-accepting merchants

Note: Each square = 1% of sample

**Why this matters:** UPI's benefits are clear to most merchants who adopt it, but getting started remains a hurdle, particularly for first-time digital users. Lowering this entry barrier requires simplified onboarding flows and embedded help within apps and platforms, not just outreach campaigns. While part of this complexity reflects necessary compliance checks by banks, the challenge for policy and design is how to make those processes less intimidating for small merchants.

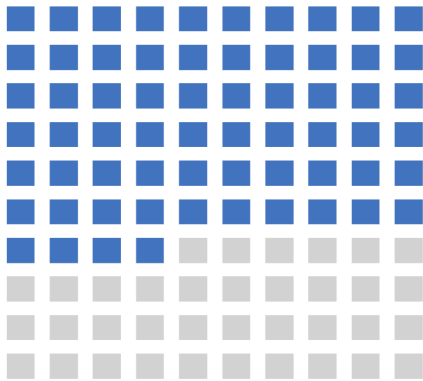
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#### 4. UPI is perceived to enable more organised payments and improved financial visibility among those surveyed

a) Most surveyed users (n=2678) and merchants (n=742) appreciate UPI's transaction traceability<sup>7</sup>.

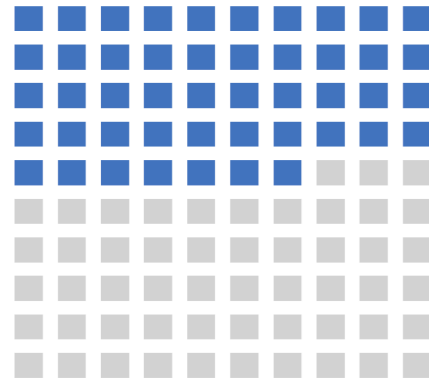
##### Transaction Visibility is Valued By Both Users and Merchants

64% of users who prefer UPI cite real-time updates and payment tracking as a key reason



*Based on a sample of 2678 UPI users who prefer UPI over other modes of payment (multi-select question)*

47% of UPI-accepting merchants say UPI helps them track transactions effectively



*Based on a sample of 742 UPI-accepting merchants who selected transaction tracking as one of the benefits of UPI (multi-select question)*

Note: Each square = 1% of sample

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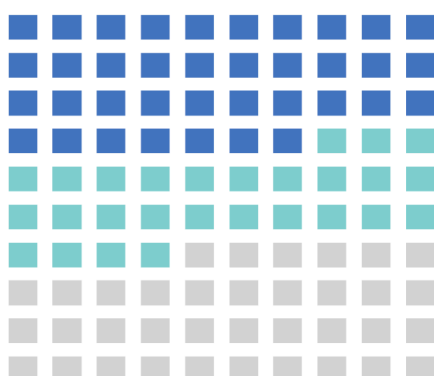
7. Merchant insights are drawn from the experiences of retail micro-merchants in our sample, nearly half of whom ran local grocery/kirana stores. Around 78% reported monthly business incomes below ₹50,000. Medium-sized merchants, who may weigh transaction traceability differently due to tax or compliance considerations, were not a significant part of the sample.

b) Surveyed merchants (n=742) associate UPI with better money management and improved visibility of their transactions to potential lenders.

### Impact and Benefits of UPI Adoption on Merchants' Businesses

% of UPI-using merchants responding to the Q:  
 "Since you started using UPI, how have your payment/financial habits changed?"

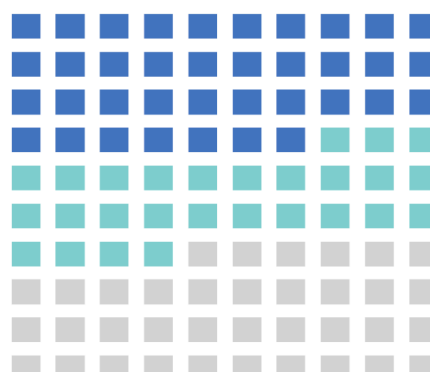
Among merchants, a third cited making more digital payments and a quarter had begun separating their accounts...



- Make more payments digitally than before (37%)
- Began separating business and personal accounts (27%)
- Other/No change/Not sure (36%)

*Based on a sample of 742 UPI-accepting merchants asked about the single most important financial change as a result of UPI*

...and 15% of users linked UPI to greater lender visibility and credit access



- Gained visibility with lenders (15%)
- Other benefits (81%)
- No benefits (4%)

*Based on a sample of 742 UPI-accepting merchants asked about the benefits of UPI (multiple answers accepted)*

Note: Each square = 1% of sample

**Why this matters:** For many merchants, digital payments are becoming a means of self-documentation: a trail that enables tracking, budgeting, and in some cases to demonstrate creditworthiness<sup>8</sup>. But without clear norms on data use and recognition of informal transaction trails, this emerging value could remain fragmented or be misused.

8. A recent report by SIDBI, "Understanding Indian MSME Sector: Progress and Challenges" found that nearly 12% of micro-enterprises still rely on informal sources of credit. Nearly 35% of micro-enterprises remain unregistered due to lack of awareness and fear of scrutiny. As a result, they find it difficult to access formal credit.

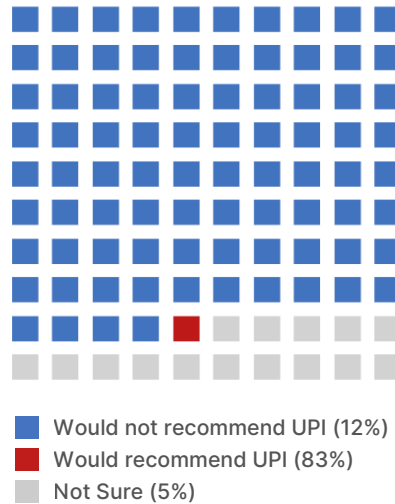
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## 5. Emerging user and merchant concerns

a) Few surveyed merchants (n=742) remain hesitant due to reliability and security concerns<sup>9</sup>

### Merchants' Willingness to Recommend UPI

12% of merchants would not recommend UPI, citing concerns around server downtimes, scams, and poor connectivity



Based on a sample of 742 UPI-accepting merchants.

Note: Each square = 1% of sample. "Downtime" here refers to user-perceived service unavailability and does not indicate any confirmed source of technical failure (e.g., UPI switch vs. issuing/acquiring bank systems/application providers).

**Why this matters:** As merchants rely more on UPI, **trust in consistent performance** becomes essential. Reliability is a core enabler of long-term confidence.

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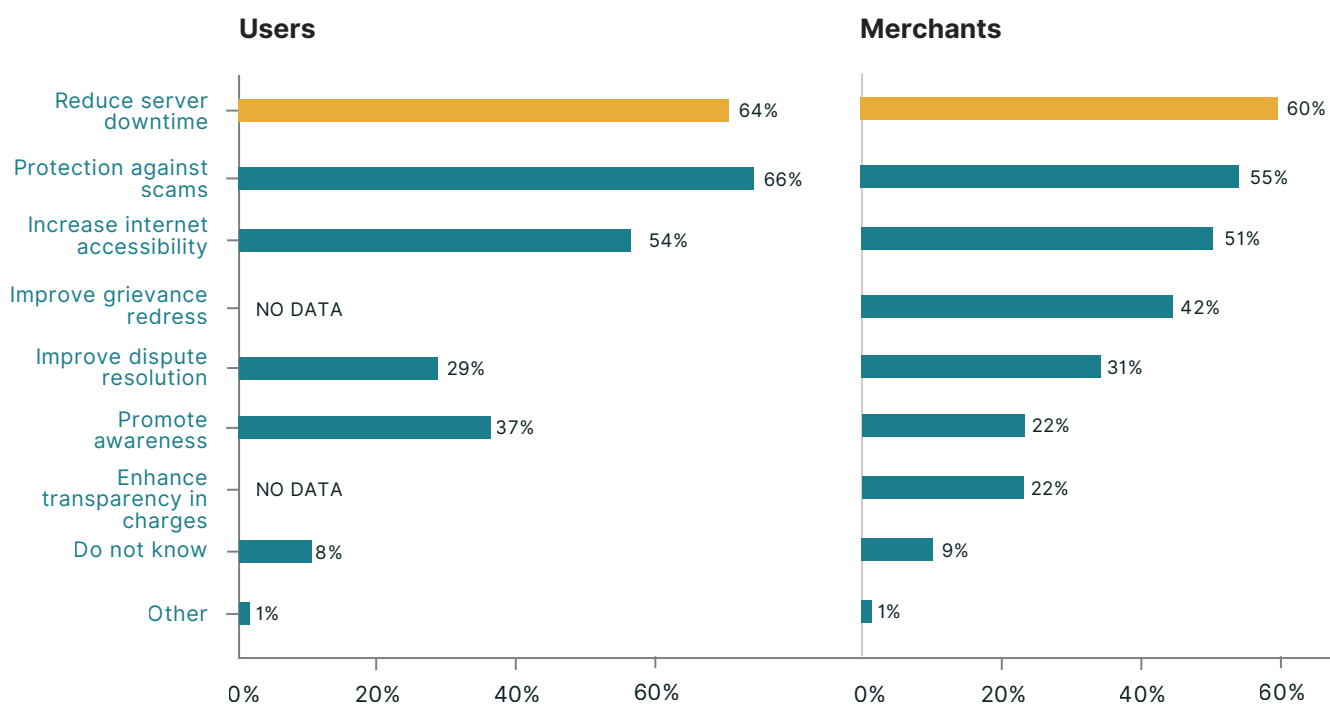
9. Findings based on a sample of UPI-accepting merchants, self-reporting their perceptions on platform reliability. Responses reflect sentiment, not verified system data.

b) Surveyed users (n=3283) and merchants (n=742) identify service disruptions as a top area for improvement.

60% of surveyed merchants and 64% of surveyed users said transaction failures and ecosystem downtime<sup>10</sup> were their top concern.

### Most Sought UPI Improvements

% of users and merchants suggesting improvements to UPI, based on responses to the question: 'What changes would you suggest to improve UPI?'



Based on a sample of 3283 UPI users and 742 UPI-accepting merchants.

Note: "Downtime" here refers to user-perceived service unavailability and does not indicate any confirmed source of technical failure (e.g., UPI switch vs. issuing/acquiring bank systems/application providers).

**Why this matters:** As adoption deepens, personal users and merchants increasingly prioritise consistency over novelty. But sustaining this reliability at scale requires not just technical upgrades but a viable economic model for ongoing infrastructure investment across the ecosystem<sup>11</sup>.

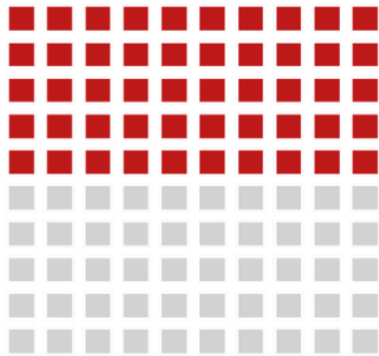
10. Downtime does not attribute the source of such disruptions, which may arise at different points in the transaction chain, including acquiring or issuing banks, the UPI switch, or application providers. It does not specify whether issues originate at banks, the UPI switch, or app providers.

11. Uptime is closely monitored both internally and by RBI, with even bank-level disruptions under constant watch. Currently Technical Declines are below 0.50%, reflecting significant improvements across the ecosystem.

## C. Safety Perceptions: Simplicity Aids Adoption, but Calls for Safeguards

### 1. Frictionless design is UPI's biggest strength, but can be targeted by bad actors (users: n = 3282, non-users: n = 742)<sup>12</sup>

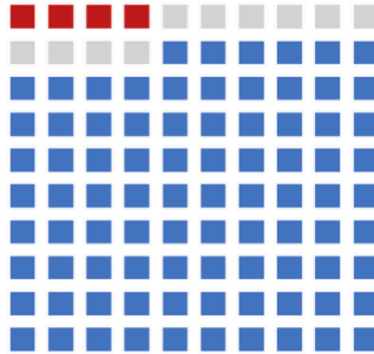
Nearly half of users had received suspicious UPI-related messages...



- Received suspicious UPI-related messages (49.5%)
- Never received suspicious UPI-related messages (50.5%)

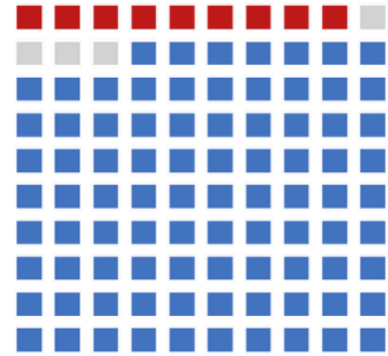
Based on a sample of 3283 UPI users

...4% of personal users and 9% of UPI-accepting merchants had experienced monetary loss



- Users experiencing losses due to authorised-but-unintended transactions (4%)
- I have not personally, but know someone who has experienced it (10%)
- Users not reporting such losses (86%)

Based on a sample of 3283 UPI users



- Merchants experiencing losses due to authorised-but-unintended transactions (9%)
- I have not personally, but know someone who has experienced it (4%)
- Merchants not reporting such losses (87%)

Based on a sample of 742 UPI-accepting merchants

Note: Each square = 1% of sample. Authorised-but-unintended transactions included user errors, social engineering scams, deceptive requests.

**Why this matters:** UPI's speed and mobile-linked convenience are core to its appeal—but these same features are also being exploited by bad actors who rely on quick user responses and limited reaction time to pressure users into acting without caution. As usage grows, protecting users will require both stronger in-app safeguards and greater digital awareness.

12. Findings based on a sample of UPI users and merchants, self-reporting experience of suspicious messages or losses. Results reflect perceptions, not verified transaction data.



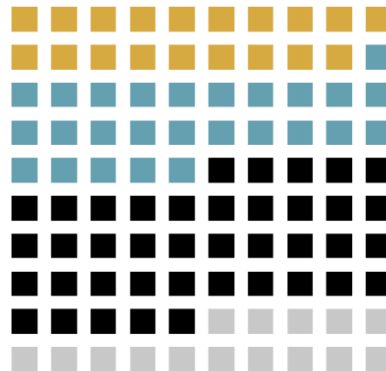
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## D. Redressal: Gaps in Awareness and Resolution Pathways

### 1. Most users (n=3283) do not know what steps to take when a transaction goes wrong

#### High uncertainty among personal users regarding redressal

% of UPI users responding to the question,  
"Do you feel you have clear information on what to do if something goes wrong with a UPI transaction?"



- Yes, I know exactly what steps to take (19%)
- Somewhat, but I am unsure about some steps (26%)
- No, I have no clear guidance (40%)
- I haven't faced any issues with UPI (15%)

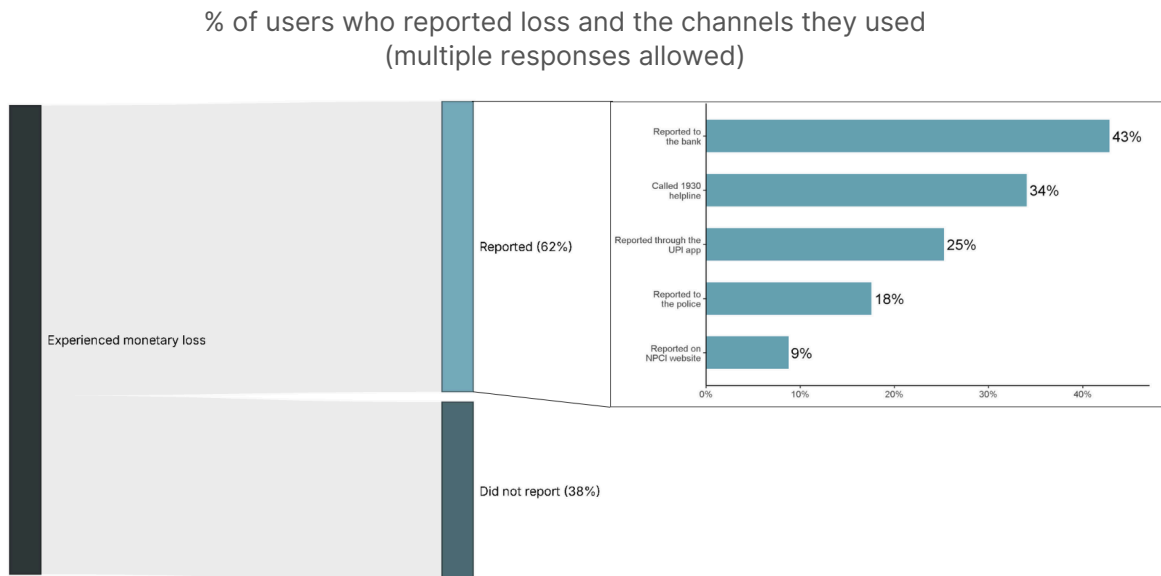
Based on a sample of 3283 UPI users.

Note: Each square = 1% of sample

**Why this matters:** Low awareness of grievance channels across the wider user base, and limited reporting among those who did experience issues (although based on a very small sub-sample), points to redressal as a weak link. Difficulty in knowing where to turn, or having to try multiple avenues, can weaken confidence in the system's dependability. Strengthening visibility and responsiveness of grievance pathways will be key to ensuring users feel protected when things go wrong.

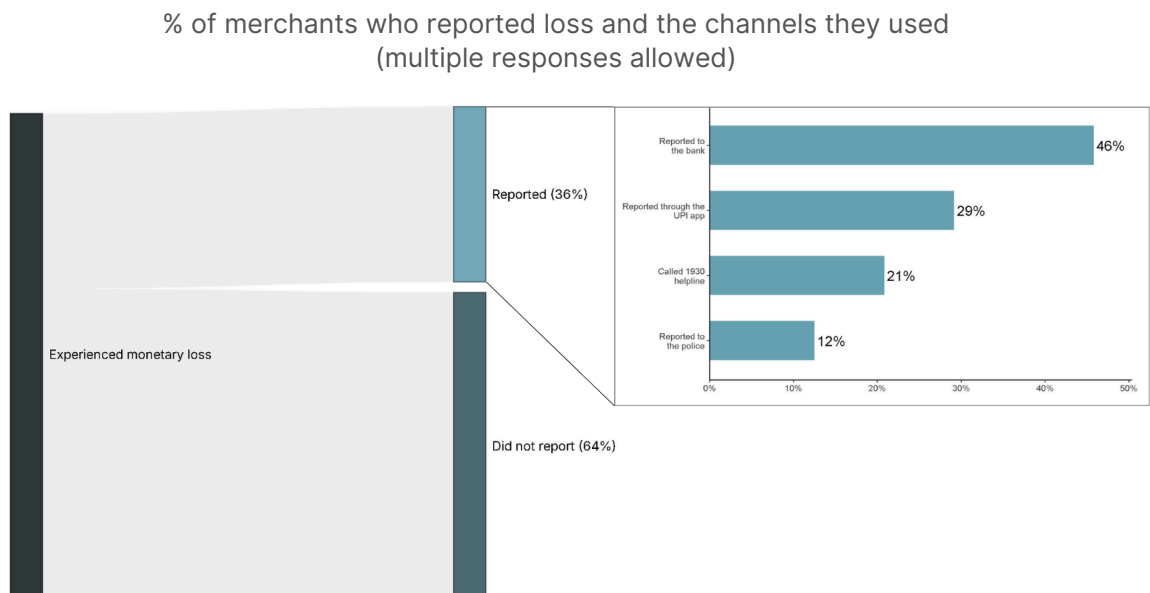
## 2. When Money Is Lost, Few Report (users: n = 147, merchants: n = 66)

### Reporting of monetary loss by personal users and the redress channels used



Based on a sub-sample of 147 UPI users who have experienced a monetary loss.

### Reporting of monetary losses by merchants and the redress channels used



Based on a sub-sample of 66 UPI-accepting merchants who have experienced a monetary loss

**Why this matters:** Although based on a small sub-sample, these insights highlight how redressal pathways are experienced by affected users. Difficulty in knowing where to turn, or having to try multiple avenues, can create frustration and weaken confidence in the system's dependability. While not a measure of trust itself, reporting behaviour is an important part of how users assess reliability.

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## IV. POLICY IMPLICATIONS FOR UPI'S NEXT PHASE

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The findings from the study suggest that UPI has become deeply embedded in the daily financial lives of a wide range of users, not just as a tool for convenience, but increasingly as a system with business, behavioural, and credit implications. At the same time, the study highlights several systemic gaps that are not simply user-level frictions but signs of broader institutional and infrastructural challenges. These issues may not be immediately visible in top-line metrics, but they carry important signals for UPI's long-term sustainability, trustworthiness, and inclusive potential.

As UPI becomes a foundational layer of India's financial system, the imperative is no longer just about driving adoption. It is about governing at scale, protecting trust, and building resilience for the future. Three cross-cutting implications emerge:



### **A. Infrastructure Sustainability Requires Forward-Looking Investment and Shared Stewardship**

UPI's frictionless architecture has enabled remarkable growth, but as transaction volumes rise, sustaining backend reliability will be critical. Service disruption was the most frequently cited areas for improvement, reported by 63% of users and 60% of merchants.

While ecosystem players have made important technical upgrades, the current zero-cost model lacks a stable funding stream for ongoing infrastructure expansion, and government subsidies have not fully kept pace with transaction growth. In the absence of clear commercial incentives, some actors may increasingly explore monetisation strategies such as data-driven services, raising concerns around user privacy and alignment with welfare goals.

As UPI scales further, policymakers will need to weigh how best to finance the infrastructure that underpins it, whether through sustained public investment, revised incentive structures, or a combination of both. Preserving its open and inclusive character will require a viable long-term funding model and shared institutional responsibility. Without this, there is a risk of underinvestment or increasing dependence on a few dominant and well-resourced players.



### **B. Safety and Accountability Must Be Shared Across the System**

Most reported monetary losses stemmed not from technical failures, but from scams or unintended authorisations often driven by social engineering or interface confusion. Features that enable UPI's convenience such as real-time transfers, minimal friction, and the use of mobile numbers as identifiers, can also make users more vulnerable, especially those unfamiliar with digital systems.

Sustaining trust at scale will require a dual approach: strengthening financial and digital literacy efforts while embedding systemic protections that reduce the burden on individual users. This includes consistent in-app risk prompts, stronger backend fraud detection, and better data sharing and coordination among banks, TPAPs, NPCI, and enforcement agencies.



### **C. Strengthening Grievance Redressal and Institutional Accountability**

Grievance resolution remains a key friction point. Among those surveyed, many were unclear about where or how to report issues, and some affected users didn't report them at all. Those who did often navigated multiple touchpoints, banks, apps, and NPCI before finding a resolution.

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Improving accountability will require a more seamless and visible redressal experience. A unified complaint system, embedded in all UPI apps and supported by a standard backend routing mechanism, could streamline issue resolution. NPCI's Unified Dispute and Issue Resolution (UDIR) platform offers a strong foundation, but greater visibility and uptake across the ecosystem are needed to ensure consistency in service standards and user experience.



## **D. Unlocking the Next Layer of Utility**

UPI is increasingly used for more than payments. Users and merchants highlighted its role in tracking transactions, managing business expenses, and even improving credit access through financial visibility. These emerging use cases open new pathways for financial empowerment.

To support this evolution, regulators can encourage value-added services atop UPI through regulatory sandboxes and innovation frameworks. However, enabling innovation must go hand-in-hand with robust data governance. India's Account Aggregator (AA) model provides a strong blueprint for operationalising transparency, consent, and fiduciary responsibility.



## **E. Expanding Inclusion Through Targeted Outreach and Support**

A steady rise in adoption is ongoing. To some extent, this reflects ecosystem alignment in progress. Rural and semi-urban populations with lower levels of adoption are primarily served by co-operative and regional rural banks. As an increasing number of these institutions are being actively onboarded on the UPI ecosystem, adoption is rising among these populations.

Besides ecosystem alignment, adoption can also be increased through interventions that tackle the individual-level barriers to adoption reported by non-users. Among surveyed non-users, many were either unaware of UPI or hesitant due to fears of making mistakes or lack of familiarity. For the former, tools like UPI123Pay, which enable payments on feature phones without the internet, can bridge access gaps. For the latter, peer-led initiatives such as UPI Circle, local-language content, and simplified user guides can build trust and confidence.

To fine-tune these efforts, anonymised, disaggregated UPI usage data by geography, gender, age, and device type should be made available to policymakers and researchers. Such data can inform smarter, more inclusive adoption strategies.

