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# Impact of Digital Literacy on Payment Platform Adoption: A Comparative Study of India's UPI and the UAE's IPP

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## ABSTRACT

*This study examines how digital literacy shapes the adoption of instant digital payment systems by comparing India's Unified Payments Interface (UPI) and the UAE's Instant Payment Platform (IPP, branded as Aani). Using a qualitative comparative case study design, the paper synthesizes secondary evidence from official institutional sources, global datasets, and published research for the period 2016–2025. Findings indicate that UPI's rapid scale-up is supported by increasing access to bank accounts and mobile connectivity, strong network effects, and user-facing designs that reduce transaction complexity. In contrast, although the UAE has high digital infrastructure and smartphone penetration, IPP adoption remains uneven across population segments, particularly among low-income and migrant workers, where language, onboarding frictions, and financial access constraints reduce perceived ease of use. The study contributes to digital finance literature by showing that digital literacy enables adoption only when complemented by inclusive product design and targeted policy outreach.*

**Keywords:** Adoption, Digital divide, Digital literacy, Instant payments, UPI

## 1. Introduction

Over the past few years, digital payments have become extremely popular, and they have surged globally as multiple economies have started to transition to cashless systems. With this growth, users have become heavily reliant on digital systems to manage their daily financial tasks.

Digital literacy is the ability to securely access, understand, and share information using digital devices, communication technologies, and networks. This matters in finance as users won't be able to trust systems like UPI or IPP if they lack abilities such as transferring money safely, using mobile banking apps, and managing private information like account details. If individuals lack these abilities, the adoption of digital payments becomes limited.

  

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Even though there has been plenty of global progress, adoption doesn't take place everywhere. In India, the adoption of digital payments has been rapid compared to the UAE, where low-income workers and migrant communities adopt at a slower rate. These differences tend to highlight how digital literacy has a profound impact on the rate of adoption. The Technology Acceptance Model, the Diffusion of Innovations Theory are the theoretical frameworks that highlight how several factors can shape a user's decision linked to literacy.

**Research Question:**

*How does digital literacy influence the adoption of UPI in India compared to the IPP system in the UAE?*

**Objectives:** (i) compare digital literacy conditions relevant to adoption; (ii) identify drivers and barriers to adoption; and (iii) evaluate how literacy interacts with product design and policy to shape uptake across groups.

The paper is structured as follows: Section 2 reviews the conceptual framework; Section 3 describes the methodology and data; Section 4 presents comparative findings; Section 5 discusses implications; and Section 6 concludes with limitations and directions for future research.

## 2. Case Background

### 2.1 India: Unified Payments Interface (UPI)

Unified Payments Interface (UPI) was launched in 2016, and it was introduced by the National Payments Corporation of India. It facilitates the quick transfer of money between different bank accounts. QR codes are often used to execute these payments, but Virtual Payment Addresses can also be used. Secure pins are used to verify each transaction, which means that only authorised users can complete it. This helps maintain online safety. UPI is compatible with several apps and banks, which gives users multiple choices in terms of choosing which platform they wish to use to make a payment. Such platforms include PhonePE or Google Pay. Some critical key designs are that transaction costs are either low or zero, and payments can take place through QR codes and UPI 123PAY, which assists users who have feature phones. (*UPI | Unified Payments Interface, Development, Use, Working, Benefits, & Safety | Britannica Money*, 2016)

  

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**Key stakeholders:**

**Government:** They conduct several awareness campaigns, encourage the use of digital payments through advertisements, and they also provide regulations to make it safe and secure while also helping in the development of the UPI framework.

**Private sector:** Many banks and fintech companies tend to run digital literacy campaigns that also help spread awareness about digital transactions. This prevents information gaps and ensures that individuals are getting accurate information about UPI. They also provide safe security systems along with excellent customer service.

**Fintech apps:** Apps like PhonePe and Google Pay have features that make the user interface simple and easy to use. They also ensure that there is a smooth onboarding. (*UPI | Unified Payments Interface, Development, Use, Working, Benefits, & Safety | Britannica Money*, 2016)

**2.2 UAE: Instant Payment Platform (IPP/Aani)**

The UAE's IPP was branded as Aani. It was originally launched by Al Etihad Payments in 2023. (*Al Etihad Payments Launches Aani: An Instant Payments Platform for Digital Transactions in the UAE*, 2023) It operates under the Central Bank of the UAE as a part of the country's digitalisation plan. Users can transfer money using phone numbers or email addresses between different bank accounts, which would reduce the additional time spent on entering all account information. Instant transactions are possible person-to-person (P2P) and person-to-merchant (P2M). There are high data protection and security, which makes these transactions safe across several banks. (*Aani - Etihad Payments*, 2019)

**Key stakeholders:**

Government: They fully monitor and regulate the Aani/IPP platform, they ensure that digital transactions take place in a secure environment, and they develop the infrastructure in such a way, making it accessible to different population segments.

Private sector: Aani is integrated in the banks and fintech companies, the user interface is straightforward, and they run several campaigns to spread awareness about IPP.

Banks: Along with supporting customers, they also promote digital payments for different businesses, regardless of their size. (*AaniApp | NBQ | NBQ*, 2025)

  

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## 3. Conceptual framework:

### 3.1 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) uses two factors to explain digital payment adoption: perceived ease of use and perceived usefulness. Users tend to adapt to a system if they find it safe, useful, and easy to interpret. Based on this research, it is henceforth proven that individuals who have higher literacy rates are easily able to understand banking apps and confidently proceed with transactions. *(Chauhan & Pandey, 2025)*

### 3.2 Diffusion of Innovations (DOI)

The Diffusion of Innovations (DOI) theory demonstrates how a population adopts new technology. Some important key factors that are related to payment systems are complexity (how difficult the system is to learn), network effects, and observability. These elements contribute to why adoption rates increase at a slow rate and how they are influenced by different social groups. *(Halton, 2023)*

### 3.3 Digital Divide Framework

The Digital Divide framework emphasises the baseline issue of inequality in terms of who has access to devices, internet connectivity, and digital literacy. To adapt to digital payments, it is essential to have a bank account, a smartphone, and basic literacy to use these platforms. This theory/framework aids in the identification of the groups which are most likely to be excluded and why literacy gaps affect the adoption rates in the UAE and India. *(Sanders & Scanlon, 2021)*

## 4. Methodology and Data

### 4.1 Research Design

This study uses a qualitative comparative case study design to analyse how digital literacy conditions shape adoption outcomes in two national instant payment systems: India's UPI and the UAE's IPP (Aani). The comparison covers 2016–2025, allowing analysis from UPI's launch through recent platform growth and early IPP diffusion.

### 4.2 Data Sources

The study draws on secondary evidence from: NPCI and Government of India publications for UPI; World Bank Global Findex (2021); Central Bank of the UAE and Al Etihad Payments releases for Aani; and connectivity reports (e.g., GSMA and DataReportal), supported by published academic research.

  

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### 4.3 Indicators and Comparative Logic

To maintain cross-case consistency, adoption is examined using: (i) transaction volume/value where reported, (ii) merchant acceptance/coverage, and (iii) user participation indicators (e.g., registered users where available). Digital literacy conditions are proxied through: (i) bank account ownership and internet use, (ii) smartphone/mobile connectivity measures, and (iii) incidence of digital payments where available. Indicators are used to support thematic interpretation rather than causal estimation.

### 4.4 Limitations

The study relies on secondary sources and does not include primary user-level surveys or interviews. UAE-specific comparability is constrained by differences in public reporting formats and the availability of standardised digital payment incidence measures.

## 5. Comparative Findings:

### 5.1 India (UPI): Adoption and Digital Literacy Proxies

**Adoption indicators:**

Annual transaction value for UPI in FY 2023-2024 was INR 200 trillion. See PIB/NPCI summaries and Grant Thornton Bharat. (*DFS Drives Expansion of Digital Payments in India and Abroad*, 2023)

Annual transaction volume processed on UPI in FY 2023-2024 was 131.16 billion. The source for this: Government/NPCI data reported by the Press Information Bureau (PIB). (*DFS Drives Expansion of Digital Payments in India and Abroad*, 2023)

Latest activity - indicator of continuous growth: October 2025 UPI monthly volume was 20,700.92 million transactions, and the value was ₹27,27,790.68 crore. This was based on the NPCI product statistics, and it can be used as a snapshot of the current activity. (*National Payments Corporation of India (NPCI) - Enabling Digital Payments in India*, 2025)

**Digital literacy proxies:**

Bank account ownership: According to Global Findex, account ownership has drastically increased in India over the past 10 years (access to an account allows UPI use). 78% of Indians had a bank account by 2021. The source: World Bank country summary. *(Klapper et al., 2021)*

Smartphone connectivity: According to GSMA reports, 78% mobile connections have been reported in India relative to its population in January 2024. Based on annual reports, India had

  

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over 825 million broadband phone users in 2023. This tends to highlight how there is a widespread usage of mobile internet connectivity, but it also showcases the gaps in certain groups' smartphone ownership. *(India, 2023)*

Percentage of adults who made or received digital payments: According to the Global Findex country brief, in 2021, 35% of Indians had used an account to make or receive digital payments. *(Klapper et al., 2021)*

**5.2 UAE (IPP/Aani): Adoption and Digital Literacy Proxies**

Adoption indicators:

Merchant coverage: Based on the AEP press release and Gulf News reports, from 2024-2025, there were around 80,000 merchants that were onboarded, and 57 licensed financial institutions were connected. This data is more about the platform coverage indicators. *(2025)*

Indicators of transaction growth: Al Etihad payments have reported monthly growth, for example, monthly increase of transactions at 27% and a 30% growth in transaction value in early 2025, per the AEP statement, which summarises the early adoption momentum. *(2025)*

Around 1.5 million people had registered for Aani since it was launched in February 2025. This was reported by Al Etihad Payments. *(2025)*

**Digital literacy proxies:**

Internet use: In the UAE, there are around 9.4-9.5 million users on the internet, and there is roughly 99% penetration on the internet (Freedom House, national data, from 2023 - 2024. This suggests that most of the population in the United Arab Emirates has access to the internet. (*United Arab Emirates: Freedom on the Net 2024 Country Report | Freedom House*, 2024)

Smartphone penetration: According to GSMA and DataReportal calculations, around 200% of the UAE population uses mobile connections, and 219% smartphone connections were discovered in January 2024. This confirms the fact that there is a high smartphone availability in the UAE and several people use multiple SIMs. (The, 2024)

Percentage of adults who made digital payments: The Global Findex statistic from 2021 for high-income economics is around 95% receiving or making any digital payments. This implies that highly developed economies have almost universal digital payment incidence. These high-income benchmarks tend to show that the UAE's population has high rates of digital payments, even if the Findex figure isn't specific to the UAE.

  

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**Table 1. Cross-case comparison of platform scale indicators**

| Metric | India (UPI) | Period | Source | UAE (Aani/IPP) | Period | Source |
|---|---|---|---|---|---|---|
| Launch year and operator | 2016; NPCI | 2016 | (*UPI \| Unified Payments Interface, Development, Use, Working, Benefits, & Safety \| Britannica Money*, 2016) | 2023; Al Etihad Payments under CBUAE | 2023 | Al Etihad payments |
| Annual transactions | More than 250 billion | 2024 | 2025 | N/A early stage | 2023 | Al Etihad payments |
| Active users (if available) | 491 million | 2025 | The times of India | 1.5 million | 2025 | Al Etihad payments |
| Merchant acceptance | 65 million merchants | 2025 | The times of India | 80,000 merchants | 2025 | Al Etihad payments |

## 6. Discussion and Policy Implications

### 6.1 Interpreting results using TAM, DOI, and Digital Divide

The se findings show the disparities in digital payment adoption between the UAE and India, using the Technology Acceptance Model, the Digital Divide frameworks, and the Diffusion of Innovations theory.

Based on the Technology Acceptance Model, UPI tends to score highly on its perceived usefulness and perceived ease of use. Users think that UPI is extremely intuitive as it has

  

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extensive digital literacy and is very familiar with smartphones. Its usefulness is demonstrated using features such as QR payments and instant transfers. *("The Impact of Perceived Usefulness, Ease of Use, and Facilitating Conditions on Consumer Adoption of UPI Platform - a Structural Equation Model Approach," 2024)* On the other hand, digital skills in UAE are high but ease of use isn't stable. Many workers who are either migrants or have low incomes tend to face language barriers and unfamiliarity with the banking apps. This reduced the perceived ease of use and makes adoption limited. *(Ali, 2025)*

The Diffusion of Innovations theory explains the major disparity in the adoption speed. In the UAE, Aani is relatively new, and the traditional card-based payments are still widely used. Diffusion is slower in the UAE since the innovation hasn't reached the same level of visibility. While in India, strong network effects were produced by the widespread use of peers using it and QR codes. (*National Payments Corporation of India (NPCI) - Enabling Digital Payments in India*, 2025)

The Digital Divide shows who is excluded from digital payments and why that happens. In India, most of the older population and some of the rural users continue to not find comfort in digital transactions due to low confidence and low digital literacy. This happens even if smartphone access has increased. *(Klapper et al., 2021)* This gap is also extremely severe in the UAE as some low-income workers face difficulties with the languages, don't necessarily understand the concept of bank account ownerships, even if the digital infrastructure is highly advanced. This further demonstrates how it is crucial to understand digital literacy to implement digital payments successfully.

**6.2 Implications for India and UAE:**

The adoption of digital payment methods in the UAE and India is highly influenced by digital literacy. There is a rapid adoption of UPI in India, which has only been possible due to the growing digital skills and the friendly design. The strong network services also allow people to use digital payments effortlessly. Despite the high level of digital literacy in the United Arab Emirates, adoption of Aani isn't stationary as there are several inclusion barriers which tend to affect some of the groups. This highlights the idea that to achieve universal adoption, it is fundamental that digital literacy is indeed supported by accessible systems along with inclusive policies. If these literacy gaps are acknowledged by firms, they can improve the safety features. Since people find it challenging to trust digital payments, it is essential that industries realise the major constraints so they can incorporate certain features which make digital payment systems available to all. Most of these insights can be used by policymakers to establish more financial inclusion initiatives along with awareness campaigns, which would explicitly target the low-

  

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income migrants. This reinforces the idea that financial inclusion, policymakers, and several firms/businesses are majorly impacted.

## 7. Conclusion

This research examined how digital literacy influences the adoption of digital payments in two countries that have digital payment systems, the UAE and India. In India, digital literacy has been rapidly rising, which further helps support the adoption of UPI as it allows people to understand how to confidently make digital payments and helps them trust the system.

Other factors, such as the use of QR codes, free to low merchant fees and government promotion after demonetisation, also further contributed to this effect.

Digital literacy tends to be higher in the UAE, which means that these basic skills are not the primary constraint on adoption. There are other barriers, such as the heavy reliance on card payments, some access issues faced by the low-income workers, the language barriers and many other factors. This makes adoption slow despite the sophisticated infrastructure.

From a policy standpoint, it is essential that India continues to offer incentives for small firms while also expanding the targeted digital literacy programmes for all users. In the UAE, initiatives must focus on strengthening outreach to the migrant workers and simplifying onboarding. This allows users to have more inclusive access to Aani.

The study is limited by reliance on secondary data and the availability of comparable public metrics for the UAE. Future research should incorporate primary data to measure user-level literacy, trust, and onboarding barriers across subgroups.

## Bibliography

[1] **Aani – Etihad Payments.** (2019). *Aani instant payments service.* Al Etihad Payments. https://aep.ae/en/services/aani/

[2] **Aani App.** (2025). *Aani digital payments service.* National Bank of Umm Al Qaiwain. https://nbq.ae/about-us/ways-of-banking/payment/aaniapp

*[3] Al Etihad Payments. (2023). Al Etihad Payments launches Aani: An instant payments platform for digital transactions in the UAE.* https://aep.ae/en/news-media/press-releasesarticles/al-etihad-payments-launches-aani-an-instant-payments-platform-for-digital-transactions-in-the-uae/

[4] **Al Etihad Payments.** (2025). *UAE instant payments platform Aani signs up 1.5 million users.*

  

ISSN: 2455-8834

Volume:11, Issue:01 "January 2026"

https://aep.ae/en/news-media/press-releasesarticles/uae-instant-payments-platform-aani-signs-up-15-million-users/

[5] **Ali, S. M.** (2025, June 4). Why financial literacy efforts must be inclusive to benefit Gulf migrant workers. *The National*. https://www.thenationalnews.com/business/money/2025/06/04/financial-literacy-blue-collar-workers/

[6] **Chauhan, M., & Pandey, A.** (2025). Urban Rajasthan and the shift to digital finance: A behavioral analysis. *International Journal of Environmental Sciences*, 1576–1577.

[7] **Department of Financial Services (DFS).** (2023). *DFS drives expansion of digital payments in India and abroad.* Press Information Bureau, Government of India. https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=2057013

[8] **Encyclopedia Britannica.** (2016). *Unified Payments Interface (UPI). Britannica Money.* https://www.britannica.com/money/Unified-Payments-Interface-UPI

[9] **Freedom House.** (2024). *United Arab Emirates: Freedom on the Net 2024.* https://freedomhouse.org/country/united-arab-emirates/freedom-net/2024

[10] **Halton, C.** (2023). Diffusion of innovations theory: Definition and examples. *Investopedia.* https://www.investopedia.com/terms/d/diffusion-of-innovations-theory.asp

[11] **Klapper, L., Singer, D., Ansar, S., & World Bank.** (2021). *Global Findex Database 2021: Country brief – India.* World Bank. https://thedocs.worldbank.org/en/doc/0e271c416d4afa3237cf3a6226884d3b-0430062023/original/Findex2021-IndiaCountryBrief-DRAFT-2-03-23.pdf

[12] **National Payments Corporation of India (NPCI).** (2025). *UPI product statistics.* https://www.npci.org.in/product/upi/product-statistics

[13] **Sanders, C. K., & Scanlon, E.** (2021). The digital divide is a human rights issue: Advancing social inclusion through social work advocacy. *Journal of Human Rights and Social Work*, 6(2), 130–143. https://doi.org/10.1007/s41134-020-00147-9

[14] **The Impact of Perceived Usefulness, Ease of Use, and Facilitating Conditions on Consumer Adoption of UPI Platform – A Structural Equation Model Approach.** (2024). *Journal of Informatics Education and Research.* https://doi.org/10.52783/jier.v4i3.1603

  

ISSN: 2455-8834

Volume:11, Issue:01 "January 2026"

[15] **DataReportal.** (2023, February 13). *Digital 2023: India.* https://datareportal.com/reports/digital-2023-india

[16] **DataReportal.** (2024, February 21). *Digital 2024: United Arab Emirates.* https://datareportal.com/reports/digital-2024-united-arab-emirates

  