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The Digital Push for Indian MSMEs: Role of UPI and ONDC

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ABSTRACT

The Micro, Small and Medium Enterprises (MSME) sector is a crucial component of the Indian economy, making substantial contributions to employment, GDP, and exports. Nonetheless, it has consistently encountered inherent limitations, including restricted access to markets, capital, and technology. These holes will be filled by the use of Digital Public Infrastructure (DPI), especially the Unified Payments Interface (UPI) and the Open Network for Digital Commerce (ONDC). These will provide cheap, expandable, and compatible ways to access markets and finances. The study examines trends in DPI use among MSMEs, the expansion of digital transactions, access to finance via digital footprints, and enhancements in market reach and operational efficiency. A conceptual and statistical framework is utilized to analyze the relationship between DPI expansion and MSME performance metrics, including income, credit disbursement, and formalization rates. The findings indicate that whereas DPI substantially reduces entry barriers for MSMEs in the digital economy, the degree of its effect differs according to geography, sector, and levels of digital literacy. The research closes with policy proposals to enhance the DPI environment for inclusive and sustainable MSME advancement. This study examines the effects of UPI and ONDC on Micro, Small, and Medium Enterprises (MSMEs) in India, utilizing secondary data sourced from government reports, policy documents, industry white papers, RBI bulletins, and publications by NPCI, ONDC, NITI Aayog, and other reputable entities.

Keywords: Digital Public Infrastructure (DPI), Unified Payments Interface (UPI), Financial Inclusion

INTRODUCTION

The emergence of the Unified Payments Interface (UPI) has been essential in transforming India's digital financial landscape, providing an effective remedy to persistent challenges encountered by Micro, Small, and Medium Enterprises (MSMEs). Historically, India's payment systems depended on real currency and entailed protracted processes that constrained transaction efficiency and accessibility, adversely affecting small enterprises with inadequate financial infrastructure. Since its inception in 2016, UPI has facilitated equitable access to instantaneous, cost-effective digital payments, handling in excess of 590 billion transactions valued at Rs. 39.4 trillion in 2022 alone. This transition has been particularly revolutionary for the MSME sector, which accounts for over 30% of India's GDP, 40% of exports, and provides employment for over 110 million individuals. Despite their essential function in the economy, MSMEs have traditionally faced challenges related to finance limitations, market inaccessibility, and minimal digital integration. The Unified Payments Interface (UPI) facilitates the consolidation of bank accounts, optimizes merchant transactions, and operates dependably in remote locations, thereby allowing numerous Micro, Small, and Medium Enterprises (MSMEs) to embrace digital payments, establish transaction histories, and engage in formal credit and supply chains. Following the COVID-19 pandemic, which exacerbated the vulnerabilities of small businesses, UPI has emerged as not just a means of financial convenience but also as a driver for digital empowerment and economic resilience within India's MSME sector.

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In this setting, Digital Public Infrastructure (DPI) has arisen as a transformative initiative by the Indian government. DPI denotes essential digital platforms that offer open, interoperable, and citizen-focused services across several sectors. The Unified Payments Interface (UPI) and the Open Network for Digital Commerce (ONDC) are two of the most transformational components of Digital Public Infrastructure (DPI) for commercial activities in India. UPI has transformed digital payments, particularly for small enterprises, by facilitating immediate, cashless transactions, whereas ONDC seeks to democratize e-commerce by offering an open-source platform for buyers and sellers throughout India.

India's Digital Public Infrastructure (DPI) originated with the UIDAI and Aadhaar cards, then succeeded by the Unified Payments Interface (UPI). The DPI for Credit, encompassing the OCEN and the ULI, represents a recent development. It pledges to revolutionize access to financing, particularly for India's vast network of micro-enterprises, estimated at 73.4 million (Bhargava and Mahajan, 2025).

Collectively, these platforms has significant potential to empower MSMEs by diminishing transaction costs, augmenting market visibility, bolstering creditworthiness, and incorporating them into formal digital ecosystems. Nonetheless, despite the optimistic design of DPI, its actual influence on MSMEs is still inadequately studied, particularly on adoption trends, outcomes, and problems across various geographies and industries.

Objective:

1. To analyze the impact of DPI on market access, digital transactions, and formal credit for MSMEs .
2. To ascertain the potential and obstacles that MSMEs encounter in utilizing Digital Public Infrastructure (DPI) for business expansion, informed by current policy and empirical research.
3. To assess the efficacy of government-led Digital Public Infrastructure projects in facilitating the formalization and digital empowerment of Micro, Small, and Medium Enterprises (MSMEs).

Enhancing Access to Digital Transactions: UPI's Transformative Role:

One of the most important developments in India's digital payment infrastructure is the Unified Payments Interface (UPI), which was created by the National Payments Corporation of India (NPCI) and overseen by the Reserve Bank of India (RBI). Since its inception in 2016, UPI has emerged as a fundamental component of India's paperless economy, providing a real-time, compatible with one another, and mobile-centric platform for instantaneous payment transfers through bank accounts. A nalyzing the UPI concept, assessing its importance, investigating its growth in response to the pandemic, along with the challenges faced by UPI applications. The remarkable advancement in the digital payment sector is underscored by the extraordinary expansion of UPI applications in India post-2020, their role in digitalization, the emergence of fintech enterprises and startups, and the monthly achievement of two billion transactions. UPI applications enhance economic transparency, bolstering national legitimacy and attracting investments. Despite the growing adoption of UPI across several business sectors, the payment mechanism must ensure the establishment of adequate infrastructure. Jayaram Narayana (2021) Dhivya M, Nithin J, et al. (2023) India's UPI has transformed payment systems, fostering a cashless economy with ecological and societal advantages. It has enhanced lives via technological adoption, generated FinTech employment, and positioned India as a paradigm for instantaneous payments. Prime Minister Modi advocated for UPI at the G20, emphasizing its capacity to empower other countries. This paper examines the trajectory of UPI, focusing on its distinctive characteristic.

Exponential Increase in Transactions:

UPI has exhibited remarkable development, increasing from 0.92 billion transactions in FY 2017–18 to over 100 billion transactions in FY 2023–24, indicating both user demand and merchant/MSME adoption (NPCI, 2024).

The cumulative value of UPI transactions in FY 2023–24 exceeded Rs.180 lakh crore (~$2.2 trillion), indicating enhanced trust and utilization, including for high-value and B2B payments.

Over 35 million merchants, including several MSMEs, already accept UPI using QR codes, which are cost-free to manufacture and simple to deploy, particularly for unregistered or informal small enterprises. For Micro, Small, and Medium Enterprises, UPI has demonstrated itself as a cost-effective, high-impact facilitator of financial inclusion and operational efficiency:

- ***Cash flow efficiency:*** Real-time payments mitigate working capital deficiencies, enabling firms to receive consumer payments instantaneously.
- ***Reduction in transaction costs:*** UPI eradicates expenses linked to card transactions, cash management, or bank NEFT/RTGS fees—particularly significant for micro-enterprises.
- ***Record-keeping:*** UPI autonomously produces digital transaction records that facilitate inventory management, tax preparation, and auditing.

Furthermore, the government's zero-MDR (Merchant Discount Rate) policy for UPI has guaranteed that MSMEs incur no supplementary expenses for taking digital payments, hence promoting adoption at the grassroots level. As per SIDBI (2023), MSMEs with active digital payment histories have a 35–50% higher likelihood of securing loan approvals, particularly within the micro and nano categories that do not possess formal income documentation or collateral.

Conceptual Framework:

The fundamental framework that makes it possible for everyone to have safe, scalable, and inclusive access to basic services like identity, payments, and data exchange is known as digital public infrastructure, or DPI. The core of India's Digital Payment Infrastructure (DPI) is the Unified Payments Interface (UPI)—an innovative, instantaneous digital payment system created by the National Payments Corporation of India (NPCI), which is essential for facilitating monetary transactions and promoting digital financial inclusion. India Stack, acknowledged as an innovative type of Digital Public Infrastructure (DPI), has markedly improved the three essential aspects of financial inclusion—access, usage, and quality. India Stack is a layered and interoperable platform consisting of government-supported Application Programming Interfaces (APIs) that enable third-party developers to construct apps utilizing public digital infrastructure. These APIs facilitate secure and consent-driven access to identification systems (e.g., Aadhaar), payment infrastructures (e.g., UPI), and digital data repositories (e.g., DigiLocker and Account Aggregator) (Sharan, 2023).

DPI is envisioned as an ecosystem that enables three interrelated flows: the flow of individuals (via digital identity platforms such as Aadhaar and Udyam Registration), the flow of capital (facilitated by UPI and its variants like UPI Lite and UPI 123Pay), and the flow of data (through DigiLocker, GSTN, and the Account Aggregator framework). These flows are not only facilitated by technology but are also regulated by a public-interest framework that fosters transparency, interoperability, and trust.

In this framework, UPI is pivotal in revolutionizing transactions for consumers and small enterprises. It facilitates effortless among peers and direct to consumers payments, diminishing dependence on cash and establishing a digital transaction history for users, especially MSMEs. UPI functions as both a transactional instrument and a data source, contributing to the larger DPI ecosystem to enhance credit evaluation, tax compliance, and company formalization.

The concept emphasizes India's DPI model as a hybrid governance system, wherein the government establishes the basic digital infrastructure (such as UPI protocols and public API access) while permitting private entities to innovate at the periphery. This method differs from entirely state-owned or Big Tech-controlled systems and guarantees that platforms like UPI remain accessible, economical, and inclusive, especially for marginalized populations such as micro-enterprises and rural entrepreneurs.

Policy Recommendations:

Based on the empirical findings, the following policy recommendations are proposed to enhance the effectiveness and reach of Digital Public Infrastructure (DPI) for MSMEs in India:

1. **Simplify Onboarding for ONDC and UPI**
   - Design a single-window digital onboarding interface for MSMEs integrating GST, UDYAM, and PAN credentials.
   - Offer free or subsidized onboarding support through district industries centers (DICs) and Common Service Centres (CSCs).
2. **Promote DPI Awareness and Digital Literacy**
   - Launch localized, vernacular campaigns on DPI benefits.
   - Introduce digital upskilling modules for MSME entrepreneurs under PMKVY and other skill schemes.
   - Collaborate with NGOs and industry chambers for grassroots-level digital

Table 1 : DPI Ecosystem for MSMEs in India: A Strategic Overview

DPI Component	Government Initiative	Function	How It Empowers MSMEs	Lead Agency
Digital Identity	Aadhaar, e-KYC, Udyam Registration	Verifiable digital ID for individuals and businesses	Enables paperless onboarding, legal recognition, and KYC	UIDAI, Ministry of MSME
Digital Payments	UPI, UPI Lite, UPI 123Pay	Real-time, interoperable, zero-cost digital payments	Boosts customer trust, reduces cash handling, creates credit trail	NPCI, RBI
Digital Commerce	ONDC	Open protocol for buying/selling across platforms	Increases discoverability, cuts platform dependency and fees	DPIIT, ONDC
Data Empowerment	DigiLocker, e-Sign, Account Aggregator	Consent-based digital document storage and sharing	Easy document access, secure data sharing, faster loan approvals	MeitY, RBI
Financial Access	Credit Guarantee, PSL norms, CGTMSE	Incentivized, collateral-free credit via digital footprints	Enables microloans, working capital access through digital history	SIDBI, RBI, Public Sector Banks
Formalization Tools	Udyam, e-SHRAM, GSTN	Unified compliance and registration systems	Integrates MSMEs into formal economy, improves policy access	Ministry of Labour, GST Council
Digital Skilling	Digital Saksham, PMKVY 4.0	Digital training in payments, marketing, e-commerce	Builds capacity for adoption and sustainability	SIDBI, NSDC
Grievance & Advisory	CHAMPIONS Portal	Central helpdesk and advisory portal for MSMEs	Solves tech issues, promotes DPI schemes	Ministry of MSME
Logistics & Supply	National Logistics Policy, ULIP	Unified digital logistics ecosystem	Reduces costs, improves inventory and delivery efficiency	MoCI, DPIIT
Data Protection	Digital Personal Data Protection Act 2023	Secure, consent-based data governance framework	Protects MSMEs from data misuse, builds trust in DPI	MeitY

workshops.

3. **Strengthen Access to Credit via Digital Footprints**
   - Recognize UPI/ONDC transaction histories as alternative credit scoring tools.
   - Encourage public sector banks and NBFCs to integrate Account Aggregator framework for MSMEs with thin credit files.
   - Incentivize fintech platforms to lend based on DPI transaction data.
4. **Infrastructure Support in Tier 2/3 Locations**
   - Improve last-mile internet and mobile connectivity in industrial clusters.
   - Set up DPI facilitation centers to offer tech support, grievance redressal, and DPI integration services.
5. **Policy Incentives and DPI Usage Subsidies**
   - Offer tax rebates or GST credits for MSMEs using verified DPI-enabled platforms.
   - Provide digital transaction subsidies for small enterprises in their early adoption phase.
6. **Enhance Data Privacy and Security**
   - Ensure robust implementation of the Digital Personal Data Protection Act (2023) in DPI systems.
   - Build secure, consent-based data-sharing frameworks especially for financial transactions and business metadata.
7. **Continuous DPI Monitoring and Feedback Loop**
   - Establish a real-time DPI dashboard for MSME analytics at the Ministry of MSME.
   - Periodically publish performance reports on ONDC and UPI penetration in MSME segments.

Conclusion:

The advent of the Unified Payments Interface (UPI) as part of India's broader Digital Public Infrastructure (DPI) has profoundly transformed the way Micro, Small, and Medium Enterprises (MSMEs) operate within the financial and digital ecosystems. Backed by the National Payments Corporation of India (NPCI) and robust government support, UPI has emerged as a game-changing tool that empowers small businesses to participate more actively and equitably in the formal economy.

Through instant, secure, and cost-free digital transactions, UPI has significantly strengthened financial inclusion by bringing previously unbanked and underbanked enterprises into the digital fold. It has enhanced operational transparency by generating real-time digital records, thereby facilitating easier compliance and better financial planning. Importantly, the data generated through UPI transactions has opened new avenues for MSMEs to access formal credit, with fintech and traditional lenders now increasingly relying on digital transaction histories to assess creditworthiness. Moreover, UPI has played a critical role in democratizing digital commerce, especially for rural and micro-enterprises, by removing entry barriers and enabling seamless customer interactions regardless of geographical constraints. In essence, UPI is not merely a payment tool but a foundational component of India's inclusive growth strategy—paving the way for a more resilient, transparent, and opportunity-rich ecosystem for MSMEs. Its continued evolution, supported by complementary DPI components like Aadhaar, Account Aggregators, and ONDC, holds immense potential for driving long-term economic empowerment and digital transformation at the grassroots level.

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