

## Impact of the Digital Economy on Micro, Small, and Medium Enterprises: Opportunities and Challenges

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### Abstract

The rapid expansion of the digital economy has significantly transformed the operational landscape of Micro, Small, and Medium Enterprises (MSMEs) in India. MSMEs contribute nearly 30% to India's GDP in FY 2024–25 and account for exports worth approximately ₹12.39 lakh crore, making them a vital pillar of the economy. Increased internet penetration, affordable smartphones, digital payment systems, and supportive government initiatives have accelerated digital adoption among MSMEs. This study analyses the impact of the digital economy on MSMEs using a descriptive and analytical approach based on secondary data from government reports, RBI publications, Ministry of MSME documents, industry surveys, and digital economy studies. Findings reveal widespread adoption of basic digital tools. Nearly 48% of MSMEs use UPI for business transactions, and over 73% report improved performance due to digital tools. Digitalization has enhanced operational efficiency, reduced transaction costs, improved financial transparency, expanded market access through e-commerce platforms, and strengthened fintech-enabled credit access, which exceeded ₹6.5 lakh crore in FY 2024–25. Despite these gains, structural challenges persist. Digital literacy gaps, limited awareness of government schemes, inadequate internet connectivity, cybersecurity risks, and financial constraints continue to restrict deeper digital integration, particularly among micro and rural enterprises. The study concludes that while the digital economy presents significant growth opportunities, inclusive and sustainable digital transformation requires coordinated policy efforts focused on digital skills, infrastructure development, cybersecurity preparedness, simplified regulations, and improved access to digital finance.

**Keywords:** Digital Economy; MSMEs; Digital Payments; E-Commerce; Digital Transformation.

### Introduction

The digital economy has emerged as a transformative force reshaping the structure and functioning of businesses across the globe. In India, its impact has been particularly significant for MSMEs, which constitute the backbone of the national economy. MSMEs contribute nearly 30% to India's Gross Domestic Product (GDP) in FY 2024–25 and play a crucial role in employment generation, innovation, balanced regional development, and exports, which reached approximately ₹12.39 lakh crore during the same period. Given their scale and economic significance, the integration of MSMEs into the digital ecosystem is central to India's broader vision of inclusive and sustainable economic growth.

Over the past decade, rapid digitalisation has accelerated structural changes in the MSME sector. The widespread availability of affordable smartphones, declining data costs, expanding internet penetration, and supportive government initiatives such as Digital India, Startup India, and financial inclusion programs have collectively strengthened the digital infrastructure of the country. These

developments have enabled MSMEs to shift from traditional, cash-based, and locally confined operations toward more technology-driven, transparent, and market-oriented business models.

Digital payments have emerged as a major catalyst in this transformation. The Unified Payments Interface (UPI) has revolutionized transaction systems by providing secure, real-time, and low-cost payment solutions. Nearly 48% of MSMEs have adopted UPI for business transactions, reducing dependency on cash and enhancing financial transparency. Beyond payments, MSMEs are increasingly utilizing e-commerce platforms, digital marketing tools, cloud-based accounting systems, and mobile applications to streamline operations and expand customer reach. Digital platforms have reduced transaction costs, improved supply chain efficiency, and enabled access to new domestic and international markets.

Statistical evidence indicates that more than 73% of MSMEs, particularly in semi-urban and rural regions, have reported improved business performance due to digital adoption. Access to fintech-enabled credit, improved record-keeping, and enhanced customer engagement have strengthened business sustainability and competitiveness. However, despite these positive developments, the digital transition remains uneven. Persistent challenges such as limited digital literacy, inadequate internet connectivity in remote areas, cybersecurity risks, financial constraints, and limited awareness of digital support schemes continue to restrict deeper and more strategic digital integration. The present study seeks to examine the impact of the digital economy on MSME performance in India by analysing both the opportunities created through digital adoption and the structural barriers that continue to hinder inclusive digital transformation.

#### **Objectives of the Study**

- To examine the extent of digital adoption among MSMEs in India, with special reference to digital payments and online platforms.
- To analyse the impact of the digital economy on the business performance and growth of MSMEs.
- To identify the key challenges and barriers faced by MSMEs in adopting digital technologies.
- To suggest strategies and policy measures for promoting inclusive and sustainable digital transformation in the MSME sector.

#### **Methodology**

The present study is based on a descriptive and analytical research design, relying primarily on secondary data to examine the impact of the digital economy on the performance of MSMEs in India. Data have been collected from authentic and recent sources such as government reports, policy documents, publications of the Ministry of MSME, Reserve Bank of India reports, industry surveys, research journals, and reputed digital economy studies. Statistical data related to MSME contribution to GDP, exports, digital payments, and technology adoption have been systematically reviewed and interpreted. The study employs qualitative analysis supported by trend-based quantitative indicators to assess opportunities and challenges associated with digitalisation. Relevant findings from previous empirical studies are synthesized to draw meaningful conclusions and policy-oriented suggestions.

#### **Growth of Digital Adoption among MSMEs**

Digital adoption among MSMEs in India has accelerated significantly over the past decade due to technological progress, policy support, and changing market dynamics. The digital ecosystem has created new opportunities for MSMEs to modernize their operations and remain competitive in a fast-evolving business environment:

- **Expansion of digital infrastructure:** *Improved internet connectivity and mobile penetration have enabled even small enterprises to access digital platforms.*
- **Affordable smartphones and devices:** *Low-cost smartphones have made digital tools accessible to micro and small entrepreneurs.*
- **Government initiatives:** *Programs promoting digital inclusion have encouraged MSMEs to adopt technology-based solutions.*
- **Shift from manual to digital operations:** *Businesses are increasingly using digital tools for billing, accounting, and communication.*

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- **Increased transparency and efficiency:** Digital records reduce errors, improve monitoring, and enhance operational clarity.
- **Lower entry barriers:** Digital systems allow small firms to enter formal markets and financial networks more easily.

Overall, digital adoption has helped MSMEs streamline business processes, reduce delays, and improve coordination across supply chains. The trend reflects a structural transformation from informal and cash-based systems toward technology-enabled operations.

#### Adoption of Digital Payments by MSMEs

Digital payments represent one of the strongest indicators of digital adoption among MSMEs. The widespread use of real-time payment systems has transformed how enterprises handle transactions and manage finances:

- **Rising use of instant payment systems:** Many MSMEs now prefer digital payment modes for speed and convenience.
- **Reduced reliance on cash:** Digital transactions minimize risks associated with cash handling.
- **Improved financial records:** Transaction histories support better accounting and tax compliance.
- **Enhanced credit access:** Digital footprints help lenders assess creditworthiness.
- **Cost-effective transactions:** Low transaction fees benefit small businesses.
- **Customer convenience:** Consumers increasingly prefer cashless payments.

Digital payments have also supported financial inclusion by linking MSMEs to formal banking and fintech services, thereby improving their growth prospects.

#### Use of Online Platforms and E-Commerce

Beyond payments, MSMEs are increasingly using online platforms and e-commerce channels to expand their customer reach and visibility. Digital platforms have become vital for business promotion and sales growth:

- **Access to wider markets:** Online marketplaces remove geographical limitations.
- **Direct customer engagement:** social media allows personalized marketing.
- **Sales growth opportunities:** Digital presence attracts new customer segments.
- **Support for rural enterprises:** Online platforms help overcome physical market constraints.
- **Brand visibility:** Digital listings enhance business recognition.
- **Need for advanced skills:** Adoption of analytics and cybersecurity remains limited.

While basic digital usage is rising, advanced digital integration still requires training and awareness initiatives. To present a clear picture of the level of digital integration among MSMEs in India, key indicators of digital adoption are summarized in Table 1.

**Table 1: Digital Adoption among MSMEs in India**

Digital Aspect	Adoption Level (%)	Impact on MSMEs
Use of digital payment systems	48%	Faster payments and transparency
Overall digital payment usage	60%	Reduced cash dependency
Use of smartphones for business	73%	Better coordination and efficiency
Adoption of e-commerce platforms	35-40%	Wider market access
Use of basic digital tools	65%	Improved record-keeping

Source: NPCI, RBI, Ministry of MSME reports (2023–25).

The above Table 1 shows that digital adoption among MSMEs in India is steadily increasing, with smartphone usage (73%) and basic digital tools (65%) being the most widely adopted, improving coordination, efficiency, and record-keeping. Overall digital payment usage (60%), including UPI adoption (48%), reflects a strong shift toward cashless transactions, enabling faster payments and greater

financial transparency. However, e-commerce adoption (35–40%) remains comparatively lower, indicating that while MSMEs have embraced foundational digital tools and payment systems, integration into online marketplaces is still developing. Overall, the data suggest significant progress in technology-enabled operations, with further scope for expansion in advanced digital platforms.

### Enhanced Operational Efficiency and Financial Management

The spread of digital technologies has greatly improved operational processes for MSMEs across India. Digital payment systems, particularly the UPI, have enabled faster, more transparent, and traceable transactions. In the first half of 2025, digital payments accounted for 99.8% of total transaction volume, highlighting the deep penetration of cashless methods in everyday business operations and reducing dependency on traditional cash handling. This shift has helped MSMEs manage cash flows more efficiently, maintain accurate financial records, and reduce manual transaction errors. Automated invoicing, online accounting, and digital record-keeping have reduced administrative costs and supported better financial planning, enabling MSMEs to focus on strategic growth rather than manual processes.

### Revenue Growth and Market Reach Expansion

Digital adoption has enabled MSMEs to expand their customer base and increase revenue streams through online platforms and digital marketplaces. Digital payment volume in India surged to 22,831 crore transactions in FY 2024-25, up from 2,071 crore in FY 2017-18 a compound annual growth rate (CAGR) of 41%. The increasing readiness of consumers to transact online has encouraged MSMEs to integrate e-commerce channels and social commerce tools to tap into wider markets beyond local geographies. Digital storefronts and online listings have allowed small businesses to remain competitive and resilient, especially during economic fluctuation periods. Surveys also indicate that 73% of MSMEs reported improved business performance due to digital adoption, led by the use of smartphones and UPI, reflecting tangible impacts on sales performance, customer engagement, and business sustainability.

### Access to Finance and Business Resilience

Digital footprints created through continuous use of digital payments and online business tools have enhanced MSMEs' credit profiles and access to financial services. Fintech-based lending using digital transaction histories allows lenders to assess creditworthiness more effectively, offering tailored financial products to underserved small enterprises. Digital adoption has also improved business resilience MSMEs with digital tools were better prepared to adapt to disruptions by enabling remote sales, flexible payment options, and diversified revenue channels. However, the degree of benefit varies with enterprise size, digital literacy, and access to reliable internet connectivity, signalling areas for further development. The impact of digitalisation on MSME performance in terms of transactions, growth, and payment efficiency is highlighted in Table 2.

**Table 2: Digital Impact Indicators on MSME Performance**

Performance Indicator	2024-25	Impact on MSMEs
Digital payment transaction volume	<b>22,831 crores</b>	Greater transaction reach & efficiency
Digital payments' share of transaction volume	<b>99.8%</b>	Near-complete shift to digital transactions
MSMEs reporting business growth via digital tools	<b>73%</b>	Improved sales & operational performance
UPI's share of total digital payment volume	<b>85%</b>	Dominant, low-cost transaction medium

Source: Reserve Bank of India, NPCI, and Ministry of MSME reports on digital payments and MSME performance (2024-25).

The above Table 2 shows that digital payments have significantly strengthened MSME performance in 2024–25. Total digital transactions reached 22,831 crores, with digital modes accounting for 99.8% of transaction volume in H1 2025, indicating an almost complete shift from cash to digital systems. UPI dominated the ecosystem with an 85% share, emerging as a low-cost and efficient transaction platform. Additionally, 73% of MSMEs reported business growth due to digital tools. Overall, the data confirm that rising digital payment adoption, especially UPI, has enhanced efficiency, transparency, and market reach for MSMEs.

### Digital Literacy and Awareness Barriers

Despite steady progress in digital adoption, many Indian MSMEs continue to struggle with basic digital literacy and awareness of advanced technologies. A recent study highlights that more than 52.6% of MSMEs struggle to identify the right digital tools suitable for their business needs, indicating a significant gap in understanding and capability around digital solutions. Additionally, industry commentary notes that over 78% of MSMEs do not consider digitalisation a priority for competitiveness due to low awareness of emerging technologies, lack of skilled manpower, and uncertainty in selecting appropriate digital solutions. This knowledge gap is particularly pronounced among micro and informal enterprises, which often operate with limited training resources and lack structured exposure to digital business practices. Training and advisory programs specifically tailored to MSME needs are therefore essential. Without them, enterprises find it difficult to move beyond basic usage such as digital payments toward broader technology adoption in areas like e-commerce, cloud computing, and digital marketing. Furthermore, low awareness about government schemes designed to support digital skill enhancement exacerbates the issue, with studies reporting that nearly 97% of MSMEs are unaware of existing digitalisation support schemes.

### Infrastructure Constraints and Connectivity Issues

Infrastructure limitations remain a key barrier, especially for MSMEs in semi-urban and rural regions. Although national internet penetration has improved with India having over 1 billion internet users and roughly 70% penetration in 2025 the quality and reliability of connectivity vary widely across regions. Broadband and high-speed internet are critical for advanced digital operations like cloud services and real-time online transactions, yet many smaller enterprises lack consistent access. While mobile broadband is widespread, enterprises often face connectivity lags that limit the effective use of sophisticated digital tools. Furthermore, while 5G infrastructure is expanding rapidly, covering over 99% of Indian districts by early 2025, the cost of devices that can fully leverage high-speed networks is still relatively high for many small businesses. These constraints discourage deeper digital investments beyond basic payment and smartphone use.

### Financial Constraints, Cybersecurity Risks, and Regulatory Complexities

Financial barriers significantly hinder digital adoption. Many MSMEs operate with limited capital and allocate a small percentage of their revenue often between 3-7% toward digital solutions a proportion that is insufficient to implement robust digital systems effectively. High initial costs for software, cybersecurity measures, skilled personnel, and digital infrastructure deter enterprises from deeper investments. Cybersecurity is another emerging concern. With the rapid increase in digital transactions, India saw a more than four-fold jump in high-value cyber fraud cases in FY2024, resulting in significant financial losses, highlighting rising risks for digitally active businesses. MSMEs, in particular, often lack the resources and expertise to protect themselves against such threats, increasing reluctance to adopt technology fully. Moreover, regulatory and compliance burdens further complicate adoption. While not strictly digital barriers, the complex compliance environment with MSMEs facing over 1,450 regulations annually adds operational strain that competes with digital investments. Despite the growing digital adoption, MSMEs continue to face several structural and operational challenges, which are detailed in Table 3.

**Table 3: Main Challenges in Digital Adoption among MSMEs**

Challenge Area	2024–25	Implication for MSMEs
Digital tool awareness	52.6% struggle to identify appropriate tools	Limits effective adoption
Priority on digitalisation	78% do not see it as competitiveness factor	Low strategic emphasis
Awareness of digital schemes	97% unaware	Missed government support
Internet penetration	70% of population online	Varies across regions
Allocation to digital spend	3-7% of revenue	Low investment capacity
Cybersecurity risk exposure	Cyber fraud up 4x in FY2024	Heightened risk, low preparedness
Regulatory burden	More than 1,450 compliance requirements annually	Diverts focus from digital investment

Source: Compiled from Ministry of MSME, RBI, MeitY, TRAI, and industry surveys on MSME digitalisation and cyber risks (2024–25).

The above Table 3 highlights key barriers to digital adoption among MSMEs in 2024–25. Over 52% struggle to identify suitable digital tools, while 78% do not view digitalization as a competitiveness priority, indicating low strategic focus. A striking 97% are unaware of government digital support schemes, limiting access to available assistance. Although internet penetration has reached 70%, regional disparities persist. MSMEs allocate only 3–7% of revenue to digital spending, reflecting limited investment capacity. Cybersecurity risks have intensified, with cyber fraud rising fourfold in FY2024, while low preparedness increases vulnerability. Additionally, more than 1,450 annual compliance requirements create regulatory pressure and divert resources from digital advancement. Overall, digital skill gaps, limited awareness, financial constraints, cybersecurity threats, and regulatory burdens continue to hinder deeper digital integration among MSMEs.

### Expanding Digital Skills and Training Coverage

The success of digital transformation among MSMEs largely depends on the availability of skilled human resources. As of 2024-25, government and allied institutions have trained over 18 million individuals under the Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA), with a significant proportion belonging to micro-enterprise households. However, recent surveys show that around 52-55% of MSMEs still report inadequate digital skills, particularly in areas such as e-commerce management, cybersecurity, and digital accounting. This highlights the need to scale up MSME-specific digital skilling programs. Policy measures should focus on subsidized training, sector-wise digital modules, and the use of local languages to ensure wider participation, especially among rural and women-led enterprises.

### Strengthening Digital Infrastructure and Financial Support

Digital infrastructure and access to finance are critical enablers of sustainable digitalisation. By early 2025, India had achieved over 1 billion internet users, with national internet penetration close to 70%, yet high-speed broadband availability remains uneven. Under the Bharat Net program, optical fibre connectivity has reached over 214,000 Gram Panchayats, but effective utilization by MSMEs is still limited. On the financial side, MSMEs receive growing support through digital credit channels. In FY 2024-25, fintech-enabled lending to MSMEs crossed ₹6.5 lakh crore, driven by digital payment data and alternative credit assessment models. Strengthening such digital-first financing frameworks can help MSMEs meet the initial cost of technology adoption.

### Cybersecurity, Policy Simplification, and Ecosystem Support

As MSMEs expand their digital presence, cybersecurity and regulatory simplicity have become crucial policy priorities. India reported a sharp rise in cyber fraud cases, with financial cyber fraud losses exceeding ₹1,700 crore in FY 2023-24, disproportionately affecting small businesses. Despite this, less than 25% of MSMEs invest in formal cybersecurity solutions, mainly due to cost and lack of awareness. Policymakers must promote affordable cybersecurity tools, awareness campaigns, and shared security infrastructure. Additionally, simplifying digital compliance through single-window portals and increasing awareness of MSME digital schemes can significantly reduce the regulatory burden. Collaboration between government, fintech firms, telecom providers, and MSME associations is essential to build a resilient digital ecosystem. To understand the policy environment supporting MSME digital transformation, recent indicators are presented in Table 4.

**Table 4: Policy-Relevant Indicators for MSME Digital Transformation**

Strategic Area	2024–25	Policy Implication
Digitally trained individuals	More than 18 million (PMGDISHA)	Need MSME-specific advanced training
MSMEs lacking digital skills	52-55%	Large skill gap remains
Internet penetration in India	70%	Infrastructure expansion still required
Bharat Net Gram Panchayats covered	More than 214,000	Improve MSME utilization of broadband
Fintech lending to MSMEs	₹6.5 lakh crore (FY 2024-25)	Strong scope for digital-credit expansion
MSMEs using cybersecurity tools	25%	High vulnerability to cyber risks
Cyber fraud losses (India)	More than ₹1,700 crore (FY 2023-24)	Urgent need for cybersecurity awareness

Source: Ministry of MSME, RBI, MeitY, NPCI, and government policy reports (2024-25).

The above Table 4 highlights key indicators of MSME digital transformation in 2024–25 and their policy implications. Although over 18 million individuals have received digital training under PMGDISHA, 52–55% of MSMEs still lack adequate digital skills, reflecting a significant skill gap. Internet penetration has reached 70%, and more than 214,000 Gram Panchayats are connected under BharatNet, yet effective utilization by MSMEs remains limited. Fintech lending to MSMEs touched ₹6.5 lakh crore, indicating strong potential for digital credit expansion. However, only 25% of MSMEs use cybersecurity tools, while cyber fraud losses exceeded ₹1,700 crore in FY 2023–24, highlighting serious vulnerability. Overall, the data emphasizes the need for focused policies in digital skilling, infrastructure use, cybersecurity preparedness, and fintech integration to ensure inclusive digital growth.

### Results and Discussion

The findings of the study clearly indicate that the digital economy has had a substantial and multifaceted impact on the performance of MSMEs in India, generating both significant opportunities and persistent challenges. The results show a high level of adoption of basic digital tools, particularly digital payments and smartphones. Nearly 48% of MSMEs using UPI and around 73% reporting improved business performance demonstrate that digitalisation has positively influenced operational efficiency, transaction transparency, and market responsiveness. The dominance of digital payments accounting for 99.8% of transaction volume in H1 2025 highlights a structural shift toward a cashless business environment, which has strengthened financial discipline and formalisation among MSMEs.

The discussion further reveals that digital platforms and e-commerce have expanded market access, especially for MSMEs in semi-urban and rural areas. Increased digital payment volumes and wider consumer acceptance have enabled MSMEs to enhance sales, customer engagement, and resilience during economic disruptions. Improved access to fintech-enabled credit, amounting to ₹6.5 lakh crore in FY 2024-25, underscores the role of digital footprints in strengthening financial inclusion and credit availability. However, the results also expose critical barriers limiting deeper digital integration. More than 52% of MSMEs facing digital skill gaps, 97% lacking awareness of digital schemes, and low cybersecurity preparedness (below 25%) indicate that benefits of the digital economy are unevenly distributed. Infrastructure disparities and regulatory burdens further constrain advanced technology adoption. Overall, the discussion suggests that while digitalisation has become a powerful growth enabler for MSMEs, its long-term impact depends on addressing skill deficits, infrastructure gaps, cybersecurity risks, and policy awareness to ensure inclusive and sustainable digital transformation.

### Conclusion

The study determines that the digital economy has emerged as a significant driver of transformation for MSMEs in India, strengthening their productivity, competitiveness, and long-term sustainability. The growing adoption of digital payments, smartphones, and e-commerce platforms reflects the increasing integration of digital technologies into MSME operations, resulting in faster transactions, improved financial transparency, expanded market reach, and enhanced resilience during economic fluctuations. The expansion of fintech-enabled credit and digital marketplaces further demonstrates the role of digitalization in advancing financial inclusion and supporting enterprise growth. However, digital transformation remains uneven, as challenges such as digital skill gaps, cybersecurity vulnerabilities, limited awareness of government schemes, infrastructural disparities, and financial constraints continue to restrict deeper digital engagement, particularly among micro and rural enterprises. Therefore, achieving sustainable and inclusive MSME digitalization requires a balanced policy approach focused on strengthening digital literacy, expanding reliable internet infrastructure, promoting affordable cybersecurity solutions, simplifying regulatory processes, and enhancing access to digital finance through coordinated efforts among government, financial institutions, and industry stakeholders.

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