



Barriers To E-Commerce Adoption Among Msme's In Karnataka: An Empirical Secondary Analysis

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Abstract:

Micro, Small and Medium Enterprises (MSMEs) play a pivotal role in the economic development of India by contributing significantly to employment generation, industrial output, and exports. With the rapid expansion of digital technologies, e-commerce has emerged as a powerful tool for MSMEs to enhance market reach, operational efficiency, and competitiveness. Despite Karnataka being one of the technologically advanced states in India, the adoption of e-commerce among MSMEs remains limited and uneven. This study aims to analyze the major barriers hindering e-commerce adoption among MSMEs in Karnataka through an empirical secondary analysis. The study draws evidence from government reports, academic literature, industry surveys, and policy documents. The findings reveal that technological limitations, lack of digital skills, financial constraints, trust and security concerns, and regulatory complexities are the dominant barriers. The study concludes with policy recommendations to promote inclusive digital transformation among MSMEs in Karnataka.

Keywords: MSMEs, E-commerce Adoption, Digital Transformation, Barriers, Karnataka.

Introduction:

The digital revolution has transformed the way businesses operate globally. E-commerce has emerged as a key driver of economic growth, enabling firms to transcend geographical boundaries and access wider markets. In India, the MSME sector is regarded as the backbone of the economy, contributing nearly 30% to GDP and providing employment to millions.

Karnataka, known for its strong industrial base and leadership in information technology, offers immense potential for digital business expansion. However, despite favorable conditions, a large number of MSMEs in the state have not fully adopted e-commerce platforms. Many enterprises continue to rely on traditional business models, limiting their growth potential.

Understanding the barriers to e-commerce adoption is essential for designing effective policies and support mechanisms. Since large-scale primary data collection is often resource-intensive, this study adopts a secondary data-based empirical approach to analyze the existing evidence and identify critical challenges faced by MSMEs in Karnataka.

Research Methodology

Research Design

The study adopts a descriptive and analytical research design based on secondary data.

Sources of Data

Secondary data were collected from:

- Ministry of MSME (Government of India)
- Karnataka State Government policy documents
- NSSO and CMIE reports
- Academic journals and conference papers

Statement of the Problem

Although e-commerce offers numerous advantages such as cost reduction, improved customer reach, and enhanced competitiveness, MSMEs in Karnataka face several obstacles that prevent full-scale adoption. The gap between digital potential and actual usage raises important questions regarding infrastructure, skills, finance, and policy support. There is a need for a systematic analysis of these barriers based on existing empirical evidence.

Objectives of the Study

1. To examine the status of e-commerce adoption among MSMEs in Karnataka.
2. To identify and analyze key barriers to e-commerce adoption using secondary data.
3. To categorize barriers into technological, organizational, financial, and environmental dimensions.
4. To provide policy and managerial recommendations for improving e-commerce adoption.

Scope of the Study: The study focuses on MSMEs operating in Karnataka across manufacturing, trading, and service sectors. The analysis is limited to secondary data published between 2018 and 2025 to reflect recent developments in digital commerce and MSME policies.

Result and Discussion

- a) **Technological Barriers:** Technological barriers constitute one of the most significant challenges to e-commerce adoption among MSMEs in Karnataka. Although the state is recognized as a technological hub, especially with Bengaluru as the IT capital of India, this technological advancement is unevenly distributed. MSMEs located in semi-urban and rural areas continue to face problems such as unreliable internet connectivity, low broadband penetration, frequent power interruptions, and limited access to advanced digital infrastructure. Many MSMEs operate with outdated hardware and software systems that are incompatible with modern e-commerce platforms. The lack of secure payment gateways, integrated inventory management systems, and customer relationship management tools further restricts smooth online operations. Additionally, cybersecurity threats such as data breaches, hacking, and online fraud discourage MSMEs from adopting digital platforms due to fear of financial loss and reputational damage. These technological limitations reduce operational efficiency and lower confidence in adopting e-commerce as a sustainable business model.

Despite Karnataka's strong IT ecosystem, digital infrastructure remains uneven. MSMEs in rural and semi-urban regions face unreliable internet connectivity, making online transactions difficult. Many MSMEs lack access to secure payment gateways and integrated digital platforms. High costs of technology adoption further discourage digital investment.

- b) **Organizational Barriers:** Organizational barriers largely arise from internal constraints within MSMEs, particularly related to management capability and organizational culture. Most MSMEs in Karnataka are owner-managed enterprises, where strategic decisions depend heavily on the knowledge and attitude of the owner. Many owners lack awareness of the long-term benefits of e-commerce and perceive digital adoption as complex, risky, and unnecessary. Resistance to change is a prominent issue, as traditional business practices are deeply rooted and trusted. Moreover, MSMEs usually have a small workforce, making it

difficult to allocate dedicated personnel for managing online platforms, digital marketing, and customer engagement. Limited exposure to digital training and absence of a formal IT department further exacerbate the problem. The lack of strategic vision and digital leadership prevents MSMEs from integrating e-commerce into their core business processes, thereby restricting growth and innovation.

A significant proportion of MSME owners lack digital literacy and awareness of e-commerce benefits. Many enterprises operate with a small workforce, limiting their ability to allocate resources for digital training. Resistance to change and fear of technology failure are common behavioral barriers.

- c) **Financial Barriers:** Financial constraints are a critical deterrent to e-commerce adoption among MSMEs. The initial investment required for developing an e-commerce website, integrating digital payment systems, adopting cybersecurity measures, and managing online logistics is perceived as high by small enterprises. Many MSMEs operate on thin profit margins and prioritize immediate operational expenses over long-term digital investments. Access to finance remains limited, as traditional lending institutions often hesitate to provide loans specifically for digital transformation due to lack of collateral and perceived risk. Even government schemes aimed at supporting digitalization are not adequately utilized due to lack of awareness or complex application procedures. Additionally, ongoing costs such as website maintenance, online advertising, platform commissions, and logistics expenses further discourage MSMEs from sustaining e-commerce operations. This financial insecurity leads MSMEs to delay or completely avoid adopting online business models.
- E-commerce adoption involves costs related to website development, online marketing, logistics integration, and cybersecurity. MSMEs often perceive these costs as high relative to uncertain returns. Limited access to credit for digital investments further aggravates the problem.
- d) **Skill and Knowledge Barriers:** A major barrier to e-commerce adoption is the lack of digital skills and technological knowledge among MSME owners and employees. Many entrepreneurs are unfamiliar with e-commerce operations such as online order processing, digital marketing, search engine optimization, social media engagement, and data analytics. The absence of trained manpower capable of managing online platforms results in poor execution and ineffective utilization of digital tools. Training programs on e-commerce and digital business management are either inaccessible or inadequately tailored to the needs of MSMEs, particularly in regional languages. Furthermore, fear of making mistakes in online transactions and lack of confidence in using technology discourage experimentation. The digital divide between tech-savvy urban enterprises and traditional rural MSMEs further widens the adoption gap, limiting inclusive digital growth in Karnataka.
- e) **Regulatory and Policy Barriers:** Regulatory and policy-related challenges significantly affect e-commerce adoption among MSMEs. Compliance with Goods and Services Tax (GST), e-invoicing, digital record-keeping, and online consumer protection laws is often perceived as complex and burdensome. Frequent changes in tax regulations and lack of clarity regarding e-commerce-specific compliance requirements create uncertainty among MSME owners. Many enterprises lack professional guidance to navigate regulatory frameworks, leading to fear of penalties and legal complications. Additionally, interstate e-commerce transactions involve multiple regulatory requirements, increasing compliance costs and administrative workload. Although government policies promote digital adoption, gaps in implementation and awareness limit their effectiveness. This regulatory complexity acts as a psychological and operational barrier, discouraging MSMEs from expanding into online markets.

- f) **Trust and Security Barriers:** Trust and security concerns play a crucial role in shaping MSMEs' willingness to adopt e-commerce. Fear of online payment fraud, data theft, identity misuse, and cyberattacks reduces confidence in digital transactions. Many MSMEs have limited knowledge of cybersecurity measures and lack access to affordable security solutions. Concerns regarding customer trust also persist, as enterprises worry about online disputes, return fraud, fake reviews, and delayed payments from platforms. The absence of strong grievance redressal mechanisms and limited legal awareness further intensify these concerns. As trust is fundamental to business transactions, uncertainty regarding digital security creates reluctance among MSMEs to shift from familiar offline models to online platforms.
- g) **Market and Competitive Barriers:** Market-related barriers arise from intense competition in the online marketplace. MSMEs often perceive e-commerce platforms as being dominated by large firms with greater financial resources, advanced technology, and strong brand recognition. Competing with large sellers on price, delivery speed, and promotional offers becomes challenging for small enterprises. High commission fees charged by e-commerce platforms reduce profit margins, making online selling less attractive. Additionally, logistics challenges such as last-mile delivery, returns management, and inventory coordination further complicate e-commerce operations. These competitive pressures discourage MSMEs from entering or sustaining participation in digital markets.
- h) **Cultural and Behavioral Barriers:** Cultural and behavioral factors also influence e-commerce adoption. Many MSMEs prefer face-to-face transactions due to established trust and personal relationships with customers. The traditional mindset values physical inspection of goods and direct negotiation, which contrasts with the impersonal nature of online transactions. Fear of technology failure and uncertainty regarding customer behavior in digital environments reinforce resistance. These cultural preferences slow down the pace of digital transformation, particularly among older entrepreneurs and family-run businesses.

Findings of the Study

1. The study finds that digital infrastructure across Karnataka is uneven, with MSMEs in rural and semi-urban areas facing unreliable internet connectivity and power supply, which significantly restricts e-commerce adoption.
2. Most MSMEs lack technological readiness, as they continue to depend on manual processes and traditional business systems that are incompatible with e-commerce platforms.
3. Limited digital skills and inadequate technological knowledge among MSME owners and employees emerge as a major barrier to effective e-commerce adoption.
4. Financial constraints and high perceived costs of website development, digital marketing, payment gateway integration, and cybersecurity discourage MSMEs from investing in e-commerce.
5. Access to institutional finance for digital transformation remains limited, making it difficult for MSMEs to adopt and sustain online business operations.
6. A strong resistance to change and preference for traditional face-to-face business models slows down the adoption of e-commerce, especially among family-owned and owner-managed enterprises.
7. Regulatory and compliance complexities related to GST, e-invoicing, and online consumer protection laws create fear and uncertainty among MSMEs, reducing their willingness to engage in e-commerce.
8. Trust and cybersecurity concerns, including fear of online payment fraud, data breaches, and cyberattacks, significantly affect MSMEs' confidence in digital transactions.
9. MSMEs face intense competition from large online sellers on e-commerce platforms, making it difficult to compete on pricing, visibility, and delivery efficiency.
10. High commission charges and platform fees reduce profit margins, making e-commerce less financially attractive for small enterprises.
11. Logistics and supply chain challenges such as last-mile delivery, high return rates, and inventory management issues increase operational complexity for MSMEs.

12. Limited awareness about government digitalization schemes and support programs prevents MSMEs from utilizing available financial and technical assistance.
13. Urban-based MSMEs show relatively higher levels of e-commerce adoption compared to rural MSMEs, highlighting a clear digital divide within the state.
14. The combined effect of technological, financial, organizational, regulatory, and cultural barriers creates a strong deterrent to sustained e-commerce adoption.
15. The findings indicate that addressing a single barrier in isolation is insufficient; a comprehensive and integrated policy approach is necessary to improve e-commerce adoption among MSMEs in Karnataka.

Policy Implications and Recommendations:

- The government should strengthen digital infrastructure by expanding high-speed internet connectivity and ensuring reliable power supply in rural and semi-urban MSME clusters.
- Targeted digital literacy and e-commerce skill development programs should be introduced for MSME owners and employees, with training delivered in regional languages.
- Dedicated financial support such as low-interest loans, subsidies, and grants should be provided specifically for MSME digital transformation and e-commerce adoption.
- Tax incentives and financial relief should be offered for investments in websites, digital marketing, cybersecurity tools, and online payment systems.
- Regulatory and compliance procedures related to GST, e-invoicing, and online transactions should be simplified to reduce compliance burden on MSMEs.
- Affordable cybersecurity solutions and training on digital security best practices should be made available to build trust in online transactions.
- Strong grievance redressal mechanisms should be developed to protect MSMEs from online fraud, payment delays, and platform disputes.
- E-commerce platforms should be encouraged to support MSME onboarding through technical assistance, reduced commission fees, and promotional support.
- A centralized digital portal should be created to provide information on government schemes, incentives, and training programs for MSMEs.
- Regular outreach and awareness campaigns should be conducted through industry associations and chambers of commerce.
- Mentorship programs and peer learning networks should be promoted to encourage a digital mindset and reduce resistance to change.
- A coordinated and integrated policy framework involving government, financial institutions, industry bodies, and e-commerce platforms should be implemented to ensure sustainable e-commerce adoption among MSMEs.

Conclusion

Overall, the study finds that e-commerce adoption among MSMEs in Karnataka is constrained by a combination of technological inadequacies, limited managerial readiness, financial constraints, skill gaps, regulatory complexity, trust issues, competitive pressures, and cultural resistance. These barriers are interconnected and mutually reinforcing, indicating that isolated policy interventions may not be sufficient. A comprehensive and integrated approach is required to address these challenges and promote sustainable e-commerce adoption among MSMEs.

The study concludes that while Karnataka offers a favorable ecosystem for digital business, MSMEs face multiple barriers to e-commerce adoption. Addressing technological gaps, improving digital skills, enhancing financial access, and simplifying regulatory processes are essential for accelerating adoption. With targeted policy support and capacity building, e-commerce can become a transformative growth engine for MSMEs in Karnataka.

Effective e-commerce adoption among MSMEs in Karnataka requires not only technological advancement but also supportive policies, financial incentives, skill development, and trust-building mechanisms. By addressing the identified barriers through coordinated and inclusive policy measures, Karnataka can enable MSMEs to leverage e-commerce as a driver of sustainable growth, competitiveness, and economic resilience.

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