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## Digital Transformation in Small and Medium Enterprises: Trends and Challenges with Special References to Tumkur City

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### ABSTRACT

Digital transformation has become a pivotal factor for the growth and sustainability of Small and Medium Enterprises (SME's) worldwide. This paper explores the trends and challenges of digital transformation specifically within SME's located in Tumkur city, a rapidly developing industrial hub in Karnataka, India. The study highlights how SME's in Tumkur are adopting emerging digital technologies such as cloud computing, artificial intelligence (AI), the Internet of Things (IoT), and data analytic to enhance operational efficiency, improve customer engagement, and drive innovation. These advancements align with the broader state-level initiatives under programs like SME Connect '25, which are designed to support Industry 4.0 adoption among SME's by providing technological training, infrastructure support, and market expansion opportunities. Despite the promising potential of digital transformation, SME's in Tumkur face several significant challenges that impede their progress. Financial constraints, lack of skilled digital talent, resistance to organizational change, and difficulties with integrating new digital tools into existing business models present formidable barriers. Additionally, heightened cyber-security risks pose ongoing concerns as these businesses increase their digital footprint. This paper also discusses how these challenges mirror the global struggles faced by SME's, emphasizing the need for tailored support



and strategic planning. The research synthesizes insights from recent literature and local case studies to provide a comprehensive understanding of the digital transformation landscape in Tumkur SME sector. It underscores the necessity for a balanced approach that leverages state support and cultivates internal capabilities within SME's to successfully navigate the digital transition. The findings from this study aim to inform policymakers, business leaders, and technology providers about the crucial factors driving digital adoption and the specific obstacles that must be addressed to foster a resilient and competitive SME ecosystem in Tumkur

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## 1.1 INTRODUCTION

Digital transformation encompasses the integration of digital technology into all areas of a business, fundamentally changing how it operates and delivers value to customers. For traditional retail businesses, this means adopting digital tools and strategies to enhance customer experiences, streamline operations, and stay competitive in a rapidly evolving market. This study aims to explore the impact of digital transformation on commerce and industry, with a particular focus on the challenges and opportunities that arise from this shift. By examining the effects of digital transformation on commerce and industry, this research seeks to provide valuable insights for business owners, policymakers and stakeholders who are navigating the complexities of the digital landscape. Through this exploration, we will gain a deeper understanding of how digital transformation is reshaping the industry and what it means for the future of traditional industry.

## 1.2 REVIEW OF LITERATURE

**Srivastava, R., & Srivastava, R. (2023). Exploring the impact of digital transformation on small and medium-sized enterprises (SMEs) in India: Opportunities and challenges.** The study results stress the importance of digital adoption for SMEs and suggest that government maintain their commitment to digital transformation. For India's SMEs sector to maintain development and competitiveness, investments in digital infrastructure and digital proficiency among its employees are essential.

**Sharma, R., & Gupta, A. (2024). Unlocking digital growth: overcoming barriers to digital transformation for Indian food SMEs.**



The above research focus to implement and sustain digital transformation effectively, three fundamental elements are crucial: internet availability, financial resource and employee training. It offers an innovative approaches to the practitioners and managers to adopt digital transformation of Indian food SMEs.

**Kumar Yash (2025). Digital Transformation and Its Impact on Small and Medium Enterprises(SMEs) in India:A Post-Covid Analysis.**

The research emphasizes that digital transformation is no longer optional for SMEs -its essential for long-term competitiveness,innovation and inclusive economic development in a digital-first global economy.

**Hande ,Vikram Ramachandra (2024). A study of Digital Transformation in Small and Medium Enterprises through Business Analytic.**

The study focused on SMEs digital transformation through Analytic to adopt digital change. Analytic support to take data-based decisions and reduces the risks and technology will change every sector of Indian economy and creates new jobs. This thesis provide knowledge and influence SMEs manger to implement digital transformation in their companies.

**Sudhakar R.M. (2017). Study on Opportunities ,challenges and Cost Effective information Technology Practices for Small and Medium Sized Enterprises.**

Present research centers on understanding the role of Information Technology in Small and Medium Enterprises SMEs play a significant role in the Nations growth in multiple ways and prominent being contribution to Country's GDP and Employment SMEs face various challenges and for the SMEs to flourish in their business they need various support systems and IT is seen as one of the major tool which can support SMEs to face the challenge and to excel newline.

**Amiri ,Mdoe Amiri(2024). Impact of digital Marketing Adoption on the Performance of Small and Medium Enterprises.**

The primary objective and overarching aim of this rigorous investigation is to systematically identify, thoroughly analyze, and critically assess the crucial factors that significantly influence the processes and decisions related to the adoption of various digital marketing practices by SMEs operating within this geographical locale. In addition to this, the study also endeavors to explore and elucidate the mediating



effects that digital marketing innovation, alongside strategic digital plan implementation, exerts on the intricate relationship that exists between the adoption of digital marketing practices and the overall performance outcomes of these enterprises.

### 1.3 RESEARCH GAP

The review of earlier studies indicates that much of the research has emphasized on role of digitalization and consumer behaviour shifts in shaping traditional industries ,especially SME's, by outlining their challenges and opportunities. However addressing these aspects in the Tumkur District are lacking. This gap highlights the relevance of understanding the present study.

### 1.4 STATEMENT OF THE PROBLEM

SME's especially in regions like Tumkur, face significant barriers in adopting digital transformation due to limited financial resources, insufficient technical skills and resistance to organizational change. Despite the growing necessity for digital tools to remain competitive,many SME's struggle with the effective integration of technology into their daily operations. This gap not only hampers business growth and efficiency but also limits their ability to compete in modern markets. As a result, there is an urgent need to identify the key **trends, understand the specific challenges, and purpose actionable solutions to enable successful digital transformation in SME's.**

### 1.5 RESEARCH OBJECTIVES

1. To analyze the current trends in digital transformation adoption among SME's, with a focus on emerging technologies.
2. To identify the key challenges and barriers faced by SME's in Tumkur city during their digital transformation.
3. To assess the impact of digital transformation on the operational efficiency, competitiveness, and growth potential of SME's in Tumkur city.

### 1.6 SCOPE OF THE STUDY

The scope of this study on digital transformation in Small and Medium Enterprises (SME's) with reference to Tumkur city includes a comprehensive analysis of the integration of digital technologies across various sectors within SME's. The study focuses on how digital transformation enhances



operational efficiency, customer engagement, and market access for SME's in Tumkur. It examines both emerging technological trends such as cloud computing, AI, IoT, and data analytic and the strategic approaches SME's adopt to leverage these technologies. The research specifically investigates the challenges and barriers faced by SME's in Tumkur during their digital transformation journeys, including financial limitations, lack of technical expertise, resistance to change, and cybersecurity risks. It also explores the role of local and state-level support initiatives designed to facilitate digital adoption. The study covers only SME's currently operating in Tumkur city, aiming to provide localized insights relevant to this industrial region. It uses qualitative data from recent literature and case studies to understand how digital transformation impacts business sustainability, growth, and competitiveness. However, the study does not extensively analyze the cost implications of digital transformation initiatives. Overall, the scope encompasses technological, organizational, and strategic dimensions of digital transformation pertinent to Tumkur SME ecosystem, aiming to offer actionable recommendations for stakeholders to foster successful digital transitions and sustained development.

## 1.7 DATA ANALYSIS AND INTERPRETATION

**Table -1.1 TYPES OF SMEs.**

Particulars	Frequency	Percentage
Grocery/Kirana Store	21	30
Clothing & Footwear	16	22.85
Electronics & Appliances	9	12.85
Furniture & Home Decor	6	08.57
Pharmacy/Chemist	10	14.30
Other	8	11.43
Total	70	100

Source: Primary Data

The table provides a classification of Small and Medium Enterprises (SMEs) surveyed for the study. Among the different categories, Grocery & Retail Stores account for the highest share, with 30% of the respondents, indicating the dominance of traditional retail businesses in the region. This is followed by Clothing & Apparel enterprises (22.85%), which highlights the growing demand for lifestyle and fashion-related businesses among SMEs. The Electronics & Appliances sector contributes 12.85%, reflecting the role of technology-related businesses in urban and semi-urban consumer markets. Pharmacy and Chemist



outlets (11.43%) form a significant portion as well, suggesting the essential nature of healthcare-related SMEs. Furniture & Home Decor businesses constitute the smallest category (8.57%), possibly due to lower frequency of consumer purchases in this sector. Interestingly, 14.3% of respondents fall under ‘Other’ categories, which could include service-oriented SMEs, small manufacturing units, or digital startups. This indicates a degree of diversification beyond the traditional retail and product-based SMEs.

Generally, the data reveals that while traditional sectors such as grocery, retail, and clothing remain dominant, there is an emerging representation of modern business types such as electronics, healthcare, and diversified services. This distribution provides insight into the structure of SMEs in the study area and sets the foundation for examining the impact of digital transformation across different sectors.

**Table-1.2 Digital Payment Methods**

Digital Payment Methods	Frequency	Percentage
UPI (PhonePe, Google pay,etc)	46	65.67
Mobile wallets (Paytm, Amazon pay)	17	23.88
Debit/Credit Cards	4	5.97
Internet Banking	1	1.49
Cash only	2	2.99
Total	70	100

Source: Primary Data

The data indicates a strong preference for UPI-based transactions (65.67%), making it the most widely adopted digital payment method among SMEs. This dominance reflects the widespread penetration of instant, low-cost, and user-friendly UPI platforms such as Google Pay and PhonePe, which have transformed India’s digital payment ecosystem. The second most popular method is Mobile Wallets (23.38%), which continue to be relevant but are increasingly overshadowed by UPI due to interoperability and ease of use. Debit/Credit Card usage stands at 5.97%, suggesting that while card payments remain available, they are less preferred compared to mobile-first solutions. Internet Banking (1.49%) has minimal adoption, possibly due to its relative complexity and lack of convenience for day-to-day retail transactions. Interestingly, Cash-only transactions (2.99%) still persist, underlining that despite digital adoption, a small section of SMEs and customers continue to rely on traditional payment methods.

Collectively, the findings highlight that digital transformation in payments is heavily driven by UPI, followed by mobile wallets, with other methods playing a marginal role. This trend signifies a shift from cash to mobile-first digital solutions, reinforcing India's movement towards a cashless economy.

**Table -1.3, FACTORS INFLUENCING DIGITAL TOOLS ADOPTION**

<b>Particulars</b>	<b>Frequency</b>	<b>Percentage</b>
Customer Demand	21	29.85
Competitive Pressure	21	29.85
Cost Reduction	21	29.85
Govt.Schemes(Digital India)	7	10.45
Other	0	0.00
Total	70	100

Source: Primary Data

The table shows that three major factors—customer demand, competitive pressure, and cost reduction—are equally significant drivers of digital transformation among SMEs, each accounting for 29.85% of responses. This indicates that SMEs are adopting digital practices not just for operational efficiency, but also to remain competitive and to meet the evolving expectations of their customer base. Interestingly, government schemes such as Digital India contribute 10.45%, which suggests that while policy initiatives provide an enabling environment, SMEs are primarily motivated by market-driven forces rather than external interventions. The absence of responses under 'Other' factors highlights that most SMEs recognize digital transformation as a necessity tied to customer-centric strategies, competitive sustainability, and cost management, with government support playing only a supplementary role.

In Aggregate, this data reinforces that the push for digital transformation in SMEs is primarily market-led rather than policy-driven, aligning with broader trends of customer empowerment and industry competitiveness.

**Table -1.4, THE BIGGEST CHALLENGES IN DIGITAL ADOPTION**

<b>Particular</b>	<b>Frequency</b>	<b>Percentage</b>
High cost of tools	7	8.96
Lack of Technical knowledge	15	19.40



Poor internet Connectivity	26	38.81
Customer Resistance to change	10	14.93
Security concerns(Fraud/Scams)	12	17.91
Total	70	100

Source: Primary Data

The table highlights the key barriers faced by SMEs in adopting digital transformation. The most significant challenge is poor internet connectivity (38.81%), which reflects infrastructural gaps that hinder smooth digital operations, especially in semi-urban and rural contexts. Without stable internet, SMEs find it difficult to implement or consistently use digital platforms. The second major issue is lack of technical knowledge (19.40%), suggesting that many SME owners and employees still struggle with digital literacy and require adequate training or awareness programs to effectively adopt new technologies. Security concerns (17.91%), including fraud and scams, also play a major role, as fear of cyber threats discourages businesses from fully embracing digital payments and platforms. Customer resistance to change (14.93%) further highlights a behavioral challenge, as some customers remain hesitant to move away from traditional payment and business practices. Interestingly, high cost of tools (8.96%) is reported as the least significant barrier. This indicates that affordability may not be as critical an obstacle compared to knowledge gaps, trust issues, and infrastructure challenges.

Overall, the analysis suggests that while SMEs are open to digital transformation, structural issues (like connectivity), capacity building (skills and awareness), and trust (security concerns, customer acceptance) must be addressed to accelerate adoption.

### 1.8 CONCLUSION

The Analysis of the digital transformation among SMEs in Tumkur City provides important insights into their current landscape. The composition of SMEs is still dominated by traditional businesses such as grocery and apparel, yet the presence of electronics, healthcare, and diversified enterprises indicates emerging opportunities for digital adoption. In terms of digital payment practices, the overwhelming reliance on UPI highlights a shift towards mobile-first solutions, while the limited use of cards and internet banking reflects changing customer preferences for speed and simplicity. At the same time, barriers to adoption remain significant, with poor internet connectivity and lack of technical knowledge emerging as the most pressing challenges. Security concerns and customer resistance further demonstrate that both infrastructural and behavioral factors must be addressed for sustained transformation. Despite



these barriers, SMEs are motivated by strong market-driven forces—customer demand, competitive pressure, and cost reduction—while government schemes serve as supportive but secondary enablers.

Comprehensively, the findings suggest that digital transformation in SMEs is primarily a market-led phenomenon, driven by customer expectations and competitive necessity, but its success depends on improving infrastructure, enhancing digital literacy, and building trust. For Tumkur SMEs, **this transformation is not merely an option but a strategic imperative for growth, resilience, and long-term sustainability in the digital economy.**

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