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Government Support for the Digital Transformation of SMEs in India

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Abstract. The digital transformation of SMEs (small and medium enterprises) in India is crucial for boosting competitiveness, operational efficiency, and economic contribution. Also, it helps to address unemployment, regional disparities, and promotes sustainable growth of companies. However, SMEs face challenges like financial constraints, lack of digital skills, resistance to change, inadequate infrastructure, and cybersecurity issues. For example, over 70% struggle with funding, only 27% have trained personnel, and 35% face internet connectivity issues.

This study explores the impact of government initiatives like Digital India, CGTMSE (Credit Guarantee Fund Trust for Micro and Small Enterprises), Digital MSME Scheme, and the National Digital Literacy Mission in overcoming these barriers. These efforts have significantly increased broadband access and provided collateral-free credit to mlns of SMEs. Continuous enhancement of such programs is vital for driving sustainable economic growth in India.

Keywords: India, SMEs, digital transformation, barriers to digital transformation, role of government in digital transformation

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Государственная поддержка цифровой трансформации малых и средних предприятий в Индии

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Резюме. Цифровая трансформация малых и средних предприятий (МСП) в Индии критически важна для повышения конкурентоспособности и улучшения экономических результатов. Она также помогает решить проблемы безработицы и регионального неравенства. Однако МСП сталкиваются с финансовыми трудностями, нехваткой цифровых навыков, сопротивлением изменениям и проблемами кибербезопасности. Авторы анализируют влияние правительственных инициатив, таких как *Digital India, CGTMSE, Digital MSME Scheme* и *National Digital Literacy Mission*, на преодоление этих барьеров, что способствовало улучшению доступа к интернету и предоставлению беззалоговых кредитов, необходимых для устойчивого экономического роста в стране.

Ключевые слова: Индия, малые и средние предприятия, цифровая трансформация, барьеры цифровой трансформации, роль правительства в цифровой трансформации

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INTRODUCTION

As the global economy digitalizes, small and medium-sized enterprises (SMEs) must undergo digital transformation to enhance efficiency, customer experience, and innovation. This transformation, which involves

integrating digital technologies across all business areas, enables SMEs to streamline operations and remain competitive in both domestic and global market.

Currently, digital transformation of business is the main direction for increasing its efficiency, while for small businesses these processes are difficult to implement, since they occur in isolation, without using an integrated approach. The relevance of the article is associated with the need to identify problems and shortcomings in the functioning of the digital transformation mechanism of small businesses to formulate proposals and measures to eliminate them, theoretical justification of priority areas for the development of small businesses.

In the Indian economy, 96% of industrial units are small businesses. There are about 8 mln small and medium enterprises in India on a registered basis and an estimated 63 mln, including the non-registered ones. SMEs are vital to India's economy, employing around 120 mln people and significantly contributing to GDP, with a 29.2% share in 2021–2022, up from 27.2% the previous year. In 2023–2024, SMEs contributed 45.56% to India's total exports, with exports reaching $190 bln in 2022, underscoring their role in global trade. Despite these successes, the digital transformation of SMEs in India is essential for enhancing their competitiveness, efficiency, and economic contribution [1].

The digital transformation of Indian SMEs is essential not just for improving their competitiveness and efficiency, but also for addressing critical socio-economic issues such as economic disparity, unemployment, financial inclusion, and the rural-urban divide. India's economic development is uneven, with significant disparities between urban and rural areas. Only 30% of rural SMEs have reliable high-speed internet, compared to 75% of urban SMEs, exacerbating economic inequalities. Digital transformation can help rural SMEs access the same markets and resources as urban SMEs, contributing to balanced national development [2].

OBSTACLES OF DIGIT+AL TRANSFORMATION IN INDIA

Among the primary obstacles to digital transformation, SMEs face challenges such as financial constraints, a lack of digital skills, and inadequate digital infrastructure. Financial constraints remain a significant challenge, with around 60% of SMEs citing cost as a primary obstacle [3].

Given the limitations that SMEs face in finance, human resources, and expertise, a coordinated approach involving multiple stakeholders is essential to help SMEs navigate these challenges and capitalize on digital opportunities. Consulting firms, NGOs, NPOs, and government agencies play essential roles in supporting SMEs through strategic guidance, training, and financial resources [4].

Building on the challenges mentioned above, the Indian government has introduced several critical interventions aimed at addressing the financial and infrastructure obstacles SMEs face. These initiatives are crucial for tackling the priority areas identified in the digital transformation of Indian SMEs. According to various sources, the prioritized obstacles are explained below: financial constraints, lack of digital skills, inadequate digital infrastructure, cybersecurity risks, and cultural and organizational resistance.

Financial constraints are a significant barrier to the digital transformation of Indian SMEs. Many lack the capital to invest in expensive digital technologies. A 2023 report by Redseer Strategy Consultants highlights a $220 bln credit deficit in the digital SME sector, despite $53 bln being injected into the sector in 2022. A shortfall of $112 bln remains, limiting SMEs' ability to invest in digital tools [5]. Traditional lenders often hesitate to provide loans to SMEs due to perceived risks, exacerbating the funding challenge. In 2024, it was reported that 43% of formal SMEs in developing countries, including India, have unmet financing needs totaling nearly $4.1 trillion [6].

The fragmented nature of SMEs and their lack of financial transparency make it difficult for financial institutions to assess credit risk accurately. Many rely on informal funding sources, which are insufficient for substantial digital transformation [7]. These financial barriers slow the pace of digital adoption among Indian SMEs, despite the benefits of improved efficiency and market reach. Addressing these constraints through innovative financing and increased institutional support is essential for enabling SMEs to participate fully in the digital economy.

The COVID-19 pandemic intensified financial pressures on SMEs, increasing the demand for working capital by over $100 bln between 2020 and 2022. As of 2023, traditional financial institutions could only meet 30% of the total credit demand, leaving a significant financing gap that could exceed $112 bln in 2024 [8]. This gap highlights the urgent need for innovative financial solutions to support SMEs in their digital transformation and ensure their sustainability and growth in a digital economy.

Additional innovative financial solutions are also emerging, such as revenue-based financing and alternative funding platforms, which are beginning to gain traction in India. These options offer SMEs flexible repayment models that align with their cash flow, helping mitigate the high risk associated with digital investments [9].

The shortage of digital skills within SMEs remains a significant barrier to digital transformation. A 2023 report by the Confederation of Indian Industry (CII) revealed that only 29% of SMEs have adequately trained personnel for managing digital tools, a modest increase from 27% in 2020. A 2024 NASSCOM (National Association of Software and Service Companies) study found that 70% of SMEs still struggle to find and retain talent with necessary digital competencies, and 65% lack the resources to provide sufficient training, further exacerbating the skills gap [10]. This gap hampers SMEs' ability to implement new technologies, stalling their digital transformation and limiting competitiveness in the global market. Addressing this issue requires targeted initiatives, such as more accessible training programs, industry partnerships, and government incentives to support skill development.

Although digital infrastructure for SMEs in India has improved, significant gaps remain. The 2023 Digital Readiness Index showed that only 40% of SMEs have reliable internet access, up from 35% in 2020, but still insufficient for widespread digital transformation. In 2024, rural SMEs were found to be particularly disadvantaged, with only 28% having reliable high-speed internet compared to 55% of urban SMEs. This disparity hampers SMEs' ability to benefit from digital technologies, limiting their long-term growth, especially in less connected regions [11].

Inadequate digital infrastructure, particularly in rural and semi-urban areas, remains a major hurdle to the digital transformation of SMEs in India. Despite the efforts under the Digital India initiative, substantial gaps persist in both the quality and availability of digital infrastructure. As of 2023, only 40% of SMEs had access to reliable high-speed internet, a slight increase from 35% in 2020, yet still far from sufficient for widespread digital adoption [12].

The disparity between urban and rural SMEs is stark, with only 28% of rural SMEs having access to reliable high-speed internet compared to their urban counterparts. Fewer than 20% of rural SMEs utilize advanced tools like cloud computing or data analytics [13]. This infrastructure gap exacerbates the digital divide, limiting the ability of rural SMEs to fully participate in the digital economy and adopt technologies essential for competitiveness and global market access [11]. These challenges highlight the urgent need for a more comprehensive approach to expanding digital infrastructure, particularly in less connected regions, to enable all SMEs to fully leverage digital tools.

Cybersecurity is a critical concern for SMEs undergoing digital transformation. Lacking the resources and expertise of larger enterprises, SMEs are particularly vulnerable to cyber threats. In 2023, a PwC India survey found that 72% of SMEs identified cybersecurity as a major concern, up from 62% in 2019, reflecting their growing digital footprint and associated risks. The financial impact is significant, with the average cost of a data breach for an SME reaching ₹15 mln in 2023, up from ₹10 mln in 2020 [12]. The consequences of cyberattacks for SMEs include financial losses, reputational damage, and legal liabilities, which they are less equipped to recover from compared to larger corporations. Although initiatives like the National Cyber Security Policy and Cyber Swachhta Kendra are in place, their effectiveness is limited by the lack of awareness and implementation among SMEs [14].

Cultural and organizational resistance remains a significant barrier to the digital transformation of SMEs in India. This resistance stems from traditional business practices and a reluctance to embrace change, often due to fear of the unknown and a lack of understanding of digital benefits. A 2023 NASSCOM report revealed that 70% of SMEs resist digital transformation due to concerns about technological complexity and potential

disruptions. Additionally, 60% of SMEs lack a clear digital strategy, further hindering adoption. This resistance significantly slows digital adoption, with Deloitte's 2023 Digital Readiness Index showing that SMEs resistant to change are 40% less likely to implement digital tools effectively. A 2024 PwC study also found that SMEs adhering to traditional practices were 35% less likely to pursue digital initiatives compared to more innovative firms. Overcoming this barrier requires a cultural shift toward innovation, continuous learning, and strategic digital integration [15].

Government efforts to support the digital transformation of SMEs in India have been significantly hampered by bureaucratic inefficiencies and complex application processes. For instance, in 2023, only 35% of SMEs that applied for assistance through programs like the Digital India initiative and the Digital MSME Scheme received full benefits. These inefficiencies stem from cumbersome approval procedures, limited clarity on eligibility criteria, and inadequate communication between government bodies and SMEs. These issues are particularly problematic for smaller businesses that lack the resources to navigate the complex regulatory landscape [16]. A report by the Ministry of MSME (2023) noted that despite increased funding, only about 60% of the budget for the Digital MSME Scheme was utilized due to procedural delays and bureaucratic bottlenecks.

Rural SMEs face an even steeper challenge, as many are not aware of these schemes or lack the digital infrastructure to take full advantage of the benefits. This gap in program awareness and infrastructure disproportionately affects rural SMEs, exacerbating the digital divide [17]. Additionally, administrative delays slow the disbursement of crucial funds, further limiting the reach and effectiveness of these programs.

The World Bank emphasized the need for streamlined processes, better communication, and targeted outreach to ensure that all SMEs, especially those in underserved regions, can benefit from government interventions[1]. To make these initiatives more effective, simplifying application processes and improving outreach are essential steps for bridging the gap and accelerating the digital transformation of Indian SMEs. The effectiveness of government interventions in supporting SME digital transformation in India remains a concern, particularly due to gaps between policy design and implementation. Bureaucratic delays and inefficiencies often hinder the impact of programs like Digital India, especially in rural areas where SMEs face significant barriers such as poor internet connectivity and limited access to reliable electricity. Additionally, financial constraints and cybersecurity risks further complicate digital adoption. Despite schemes like the Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE), many SMEs are hesitant to take on loans due to the risks associated with digital investments [18].

Cybersecurity concerns are also growing, with many SMEs lacking the resources to implement adequate protections. This has been exacerbated by the growing digital footprint of SMEs, as cyberattacks continue to rise. These challenges highlight the need for continuous refinement of government policies to ensure they effectively support SMEs in their digital transformation journey [11]. However, the effectiveness of these government interventions continues to be hampered by several challenges, including bureaucratic inefficiencies, regional disparities, and a lack of widespread awareness among SMEs [19].

GOVERNMENT SUPPORT OF SMEs

These obstacles have shaped the framework for various government interventions, designed to remove barriers to digital adoption and enable SMEs to participate fully in the digital economy. The following section explores how government programs and policies are addressing these priorities to facilitate the digital transformation of Indian SMEs. To address these issues, the government has implemented various policies and programs to support the digital transformation of SMEs (see *table*).

The *table* highlights key government policies aimed at fostering SME growth through digital transformation, ranking them based on their effectiveness in driving growth, digital adoption, and financial

[1] An Evaluation of World Bank Group Support to Jobs and Labor Market Reform through International Development Association Financing. https://policycommons.net/artifacts/3527906/an-evaluation-of-world-bank-group-support-to-jobs-and-labor-market-reform-through-international-development-association-financing-approach-paper-march-2-2023/4328742/ (accessed 28.07.2024)

sustainability. The Digital MSME Scheme stands out for its significant impact, benefiting over 1 mln SMEs by 2023, with a 20% boost in efficiency and a 30% reduction in IT costs, facilitating cloud and AI adoption [20].

Table. **Key Government Policies Supporting Digital Transformation of SMEs in India (2015–2024)**

Year	Policies	Actions	Results	Details
2015	Digital India initiative	Government launched a national program to enhance digital infrastructure, increase broadband penetration, and offer digital services to citizens and businesses.	Digital infrastructure saw significant improvements with over 888 mln broadband users by 2023, helping SMEs adopt digital tools more effectively.	The number of SMEs adopting digital tools increased by 40% between 2018–2023, enabling them to better participate in the digital economy, contributing 45.5% to India's exports by 2023[2].
2016	Startup India Initiative	Aimed at fostering entrepreneurship by providing funding support, easing compliance regulations, and offering tax benefits.	Over 50,000 startups were registered by 2023, with 60% of these being SMEs, contributing to a 10% increase in job creation in the sector.	Startup India helped SMEs access ₹14,565 crore (approx. $1.8 bln) in funds by 2023, spurring innovation and growth in key sectors like technology and manufacturing[3].
2019	Pradhan Mantri MUDRA Yojana (PMMY)	Provided micro-loans to small businesses and non-corporate entities through Mudra Banks to improve financial inclusion.	Disbursed over ₹15 lakh crore (approx. $1.81 bln) by 2023, reaching 68 mln beneficiaries, creating over 12 mln jobs in the SME sector.	PMMY contributed to a 25% increase in SME registrations, especially in the informal sector, providing essential financial support to micro-entrepreneurs[4].
2024	Digital MSME 2.0 Scheme	Focused on equipping SMEs with AI-based solutions, cloud computing, and digital tools to enhance productivity and competitiveness.	Expected to increase SME digital engagement by 50% by 2026, resulting in a 25% improvement in operational efficiency.	This scheme offers subsidies and low-cost tech tools to over 1 mln SMEs, accelerating digital integration across industries[5].
2024	Green MSME Initiative	Promotes sustainable business practices by providing financial support and guidance for adopting green technologies.	Expected to reduce SME carbon emissions by 20% by 2025 while improving their access to global markets focused on sustainability.	SMEs adopting green technologies saw a 10% reduction in energy costs and expanded their market share in environmentally conscious markets[6].

Based on Ministry of MSME. https://msme.gov.in (accessed 09.08.2024); MeitY. https://digitalindia.gov.in (accessed 26.07.2024); Startup India. https://www.startupindia.gov.in (accessed 12.08.2024); Mudra Report. https://mudra.org.in (accessed 12.07.2024)

The Startup India Initiative also plays a pivotal role, helping incorporate over 92,000 startups by 2023, increasing SME formation by 45% through tax exemptions and financial support. The PM MUDRA Yojana (PMMY) contributed $1.81 bln in financing, though its impact is smaller due to slower uptake [21]. Policies like the Green MSME Initiative have limited immediate effects, focusing on niche areas like sustainability and traditional crafts, with fewer beneficiaries so far [22]. The most impactful policies focus on financial support and digital adoption, while others are still maturing in their broader impact.

[2] Source: MeitY, 2023. https://digitalindia.gov.in (accessed 26.07.2024)
[3] Startup India, 2023. https://www.startupindia.gov.in (accessed 14.08.2024)
[4] Mudra Report, 2023. https://mudra.org.in (accessed 12.07.2024)
[5] Ministry of MSME. 2024. https://msme.gov.in (accessed 19.08.2024)
[6] Ibid.

CASE STUDY ANALYSIS

1. Digital transformation journey of Saral Designs

Saral Designs, a Mumbai-based SME, is a prime example of how small enterprises in India can leverage digital technologies to create a transformative impact in underserved markets. Founded in 2015, the company designs and manufactures affordable, decentralized sanitary napkin machines, enabling localized production of sanitary pads. Despite its small size, Saral Designs recognized early on that digital transformation was key to scaling operations, enhancing efficiency, and expanding its market reach.

In 2022, Saral Designs embarked on a comprehensive digital transformation strategy, strongly supported by government initiatives such as the Digital India initiative and the Digital MSME Scheme. The company's adoption of a cloud-based inventory management system was facilitated by the Digital MSME Scheme, which provides subsidies and technical assistance to SMEs adopting cloud technologies. This shift allowed Saral Designs to track raw materials and finished products in real-time, reducing inventory costs by 15% and minimizing stockouts, addressing a major financial constraint faced by many SMEs [20].

The Pradhan Mantri Kaushal Vikas Yojana (PMKVY) and the National Digital Literacy Mission (NDLM) were instrumental in addressing the digital skills gap within the organization. Saral Designs used these programs to upskill its workforce, improving digital literacy and operational capabilities. As a result, the company saw a 30% improvement in operational efficiency by mid-2023, driven by better integration of digital tools and technologies [23].

In terms of market expansion, Saral Designs implemented a robust digital marketing strategy supported by the Government e-Marketplace (GeM) platform and social media outreach. By leveraging GeM, Saral Designs was able to secure government contracts, significantly expanding its customer base. Additionally, by utilizing social media and e-commerce platforms, the company bridged the urban-rural market gap, resulting in a 25% increase in online sales by 2023. However, regional disparities in internet connectivity, especially in rural areas, presented challenges, highlighting the critical role of the Digital India initiative in enhancing digital infrastructure [24].

The company also faced challenges related to cybersecurity as its digital footprint expanded. To mitigate risks, Saral Designs implemented cybersecurity protocols supported by the National Cyber Security Policy (NCSP). These government initiatives provided SMEs with tools to safeguard against cyber threats, contributing to a 25% reduction in cyberattacks targeting Saral Designs by late 2023 [25].

By 2024, Saral Designs had achieved remarkable growth in production capacity, increasing it by 40%, allowing the company to meet the rising demand for affordable sanitary products in rural India. This expansion was further supported by financial initiatives like the Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE), which provided collateral-free loans, easing the financial burden of digital investments. The company's financial investment in digital technologies and employee training also led to a 20% reduction in production costs, making their products more affordable and accessible, particularly in underserved rural markets.

In recognition of its pioneering role in digital transformation, Saral Designs received the National MSME Award for Excellence in Digital Transformation in 2023. This award underscored the critical role that digital tools and government support play in driving the growth and sustainability of SMEs in India.

2. Digital transformation journey of Happay

Happay, a Bangalore-based fintech startup founded in 2012, offers a comprehensive expense management solution that simplifies business expense reporting, compliance, and reimbursement processes. Initially, the company grew rapidly, but as it scaled, Happay faced challenges typical of many SMEs, including rising IT infrastructure costs, limited scalability, and operational inefficiencies. To overcome these barriers, Happay leveraged various government initiatives, including the Digital MSME Scheme, which provided technical and financial assistance to help the company transition to a cloud-based infrastructure.

The Digital MSME Scheme, launched by the Ministry of Micro, Small, and Medium Enterprises (MSME), played a pivotal role in Happay's transformation. This scheme was designed to encourage MSMEs to adopt Information and Communication Technology (ICT) by offering subsidies and technical support for cloud services. Happay took advantage of this program in 2022 to migrate from traditional on-premises IT systems to cloud computing. As a result, the company reduced its IT infrastructure costs by 30%, a significant saving that allowed it to allocate resources more effectively for growth and innovation.

Additionally, the Startup India Initiative provided critical tax benefits and compliance ease, which contributed to Happay's early-stage growth and allowed it to focus on expanding its services without the burden of excessive regulatory requirements. This support was vital in ensuring that Happay could maintain a competitive edge in the fintech sector while scaling its business to meet the demands of a rapidly growing customer base [25].

Through the cloud adoption facilitated by the Digital MSME Scheme, Happay achieved greater scalability and operational efficiency. The flexibility of cloud infrastructure allowed the company to adjust its resources to meet fluctuating customer demands, which was crucial as Happay expanded into new markets across India and internationally. By 2023, this scalability had driven a 40% increase in customer acquisition [17].

The Government e-Marketplace (GeM) platform also provided Happay with opportunities to secure government contracts, further expanding its customer base. By participating in this platform, Happay was able to offer its fintech solutions to government agencies, increasing its market penetration.

Furthermore, the Emergency Credit Line Guarantee Scheme (ECLGS), extended during the COVID-19 pandemic, provided financial support to ensure that Happay could continue its operations without disruption during the economic downturn. The ECLGS helped the company maintain liquidity and continue its digital transformation journey despite the challenges posed by the pandemic [26].

As the company transitioned to a cloud-based infrastructure, cybersecurity became a significant concern. To address these risks, Happay implemented robust cybersecurity measures supported by the National Cyber Security Policy (NCSP) and Cyber Swachhta Kendra, government initiatives that provide cybersecurity tools and frameworks specifically designed for MSMEs. These measures helped safeguard sensitive financial data, enhancing customer trust and ensuring compliance with stringent data protection regulations [27].

Happay also invested in staff training to effectively manage the new cloud-based systems, with support from the Pradhan Mantri Kaushal Vikas Yojana (PMKVY), which offers skill development programs to improve digital literacy among workers. By mid-2023, these efforts resulted in a 25% reduction in service delivery times, further boosting customer satisfaction and operational efficiency [28].

Happay's successful digital transformation, supported by various government initiatives, has had a substantial impact on the company's growth. By 2024, Happay reported a 40% increase in customer acquisition, driven largely by the scalability and efficiency of its cloud-based infrastructure. Additionally, the company reduced its IT infrastructure costs by 30%, significantly improving its profit margins and ensuring long-term sustainability.

The case of Happay illustrates how government policies such as the Digital MSME Scheme, Startup India Initiative, and ECLGS can support MSMEs in overcoming financial constraints, enhancing operational efficiency, and ensuring data security. Happay's ability to leverage cloud computing, coupled with government-backed cybersecurity and skill development initiatives, has positioned it as a leader in the fintech space, serving as a model for other MSMEs in India.

CONCLUSION

The digital transformation of SMEs in India is complex yet full of potential. The challenges in digital transformation are not unique to India but are shared globally, particularly in developing economies. However, India's proactive government policies offer a model for other nations. Looking ahead, it is crucial for the Indian government to continue refining its policies to meet the evolving needs of SMEs. This includes bridging the digital divide, enhancing digital literacy, and strengthening cybersecurity frameworks. Reducing bureaucratic barriers and raising awareness among SMEs about available resources are also essential steps. Digital transformation is more than just a technological upgrade; it is a strategic necessity that drives

competitiveness and growth. The collaboration between government initiatives and SME strategies will be key to their success. By supporting SMEs through targeted government interventions and fostering digital innovation, India can ensure its SMEs are equipped to compete globally. The future of Indian SMEs lies in their ability to fully embrace digital transformation, with continued government support making this vision achievable.

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