DEVELOPMENTAL REFORMS AND MSME PERFORMANCE: A STUDY OF OPERATIONAL EFFICIENCY IN WARANGAL DISTRICT

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ABSTRACT

Micro, Small, and Medium Enterprises (MSMEs) play a vital role in economic growth, employment generation, and regional development. This study examines the impact of developmental reforms on MSME performance, with a particular focus on the mediating role of operational efficiency in Warangal District. The study adopts a quantitative research approach and is based on primary data collected from 179 MSME units using a structured questionnaire. Key developmental reform factors such as financial access, digital transformation, infrastructural support, regulatory support, and human capital are incorporated into the conceptual framework. Confirmatory Factor Analysis (CFA) is used to validate the measurement model, and Structural Equation Modeling (SEM) is applied to test the hypothesized relationships. The findings reveal that developmental reforms have a significant positive impact on both operational efficiency and MSME performance. Furthermore, operational efficiency significantly mediates the relationship between developmental reforms and performance, indicating that reforms improve performance both directly and indirectly through enhanced efficiency. The study implies that policymakers should adopt an integrated approach to reforms by strengthening financial access, digital infrastructure, and skill development, while MSME practitioners should focus on improving operational efficiency to achieve sustainable growth and competitiveness.

Keywords: MSMEs, Developmental Reforms, Operational Efficiency, Performance, Structural Equation Modeling (SEM), Warangal District

INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) play a crucial role in the economic development of India, particularly in ensuring equitable, inclusive, and employment-oriented growth. In a country like India, where a large proportion of the population faces unemployment or underemployment, the MSME sector has emerged as a key driver of job creation and income generation. This sector addresses critical socio-economic challenges such as poverty and unemployment by providing large-scale employment opportunities with relatively low capital investment. It is recognized as the second-largest employer after agriculture and contributes significantly to industrial output, accounting for more than fifty percent of total industrial production in value terms. MSMEs hold a position of prominence in the Indian economy due to their inherent advantages, including low capital requirements, high employment generation capacity, decentralized industrial development, effective utilization of local resources, and the promotion of entrepreneurship. Over the decades, the sector has demonstrated higher growth rates compared to the overall industrial sector and has played a vital role in achieving industrial diversification. As emphasized by former Prime Minister Dr. Manmohan Singh, the success of employment generation in India is closely linked to the performance of the small-scale manufacturing sector.

In recent years, the Government of India has introduced several developmental reforms aimed at strengthening the MSME sector. These reforms focus on improving financial access, promoting digital transformation, enhancing infrastructural facilities, simplifying regulatory procedures, and developing human capital. While these initiatives are expected to improve the performance and competitiveness of MSMEs, their effectiveness largely depends on how they influence the internal functioning and efficiency of enterprises. In this context, operational efficiency emerges as a critical factor that determines how effectively MSMEs utilize available resources to achieve better performance outcomes. Improved operational efficiency can enhance productivity, reduce costs, and increase competitiveness, thereby translating the benefits of developmental reforms into measurable performance gains. However, there exists a gap in understanding how these reforms impact MSME performance through operational efficiency, particularly at the regional level.

Therefore, the present study, titled *"Developmental Reforms and MSME Performance: An Evaluation of Operational Efficiency in Warangal District,"* aims to examine the relationship between developmental reforms and MSME performance, with a specific focus on the mediating role of operational efficiency. By focusing on Warangal District, the study provides

a localized perspective on the effectiveness of policy interventions and offers insights for improving the sustainable growth and competitiveness of MSMEs.

REVIEW OF LITERATURE

Garg and Walia (2012) examine the contribution of MSMEs in post-reform India, emphasizing their role in employment, GDP, and exports. The study analytically highlights MSMEs as structural drivers of economic development and second only to agriculture in employment generation. It reflects that policy support directly influences MSME growth and operational performance. The study implies that strengthening MSME frameworks is essential for sustaining economic stability and reducing unemployment.

Lopez-Perez et al. (2017) analyze the impact of corporate social responsibility (CSR) on SME performance using PLS-based modeling. The study establishes that CSR significantly enhances brand reputation and financial outcomes, with firm size acting as a moderating factor. It analytically demonstrates that strategic CSR adoption strengthens both tangible and intangible performance metrics. The findings suggest that integrating CSR into business strategy improves competitiveness and long-term sustainability.

Matthews et al. (2017) explore organizational learning through process improvement activities in SMEs using case study analysis. The study highlights that continuous improvement practices foster both individual and organizational learning. It analytically establishes that management support is a critical enabler of sustained operational efficiency. The findings imply that integrating learning mechanisms with operational processes enhances long-term SME performance.

Rassool and Dissanayake (2019) investigate the role of digital transformation in improving SME competitiveness in resource-constrained environments. The study identifies key challenges such as limited resources and market pressures while emphasizing the strategic importance of digitalization. It analytically shows that digital adoption reshapes business models and enhances operational efficiency. The study suggests that overcoming implementation barriers is essential for achieving competitive advantage.

Bhat and Singh (2020) analyze MSMEs as drivers of inclusive growth, focusing on employment generation and regional development. The study highlights their role in utilizing local resources and supporting marginalized communities. It analytically demonstrates that MSMEs contribute significantly to reducing socio-economic disparities. The findings imply

that strengthening MSME ecosystems is crucial for balanced and inclusive economic development.

Zutshi et al. (2021) examine the impact of COVID-19 on SMEs through a systematic review of crisis-related challenges. The study identifies financial instability, operational disruptions, and technological gaps as key issues. It analytically emphasizes the need for resilience, innovation, and collaboration in uncertain environments. The findings suggest that adaptive strategies are critical for ensuring SME survival and continuity.

Saad et al. (2021) review business resilience in SMEs and highlight fragmentation in theoretical and empirical approaches. The study identifies inconsistencies in definitions, measurements, and influencing factors of resilience. It analytically points out the lack of focused research in developing economies. The findings suggest the need for stronger frameworks to enhance SME adaptability and long-term sustainability.

Huang and Liu (2022) focus on improving inventory management using IoT and Artificial Neural Networks. The study demonstrates how real-time tracking and intelligent algorithms reduce spoilage and improve efficiency. It analytically shows the integration of technology as a key driver of operational optimization. The findings imply that digital tools significantly enhance decision-making and customer satisfaction.

Farida and Setiawan (2022) examine the role of business strategies in achieving competitive advantage with performance and innovation as mediators. The study establishes that strategic planning positively influences SME competitiveness. It analytically highlights that innovation strengthens the strategy–performance relationship. The findings suggest that SMEs must integrate strategy and innovation for sustained growth.

Suresh et al. (2023) analyze the contribution of MSMEs to industrial development in Andhra Pradesh. The study highlights their role in increasing investment, employment, and Gross Value Added. It analytically demonstrates that MSMEs act as key drivers of regional economic growth. The findings imply that policy support enhances industrial expansion and economic sustainability.

Ramu (2023) examines MSMEs in the manufacturing sector with a focus on innovation and digital transformation. The study highlights their flexibility and contribution to exports and employment. It analytically identifies challenges such as financial constraints and regulatory

barriers. The findings suggest that digital integration and policy support are essential for sustained manufacturing growth.

Setiawan et al. (2023) investigate Total Productive Maintenance (TPM) in SMEs and its impact on efficiency. The study finds that TPM reduces downtime and improves product quality. It analytically highlights that implementation challenges include lack of expertise and resistance to change. The findings imply that structured approaches and management support are crucial for successful TPM adoption.

Ahmadov et al. (2023) explore SMEs' transition to a circular economy using a multi-level framework. The study identifies micro, meso, and macro-level factors influencing adoption. It analytically highlights resource constraints and lack of expertise as major barriers. The findings suggest that coordinated policy and stakeholder support are essential for sustainable transition.

Babber and Mittal (2023) analyze the impact of leanness, agility, and innovation on MSME performance using SEM analysis. The study finds that these factors significantly enhance sustainability and competitiveness. It analytically demonstrates the importance of integrating efficiency with flexibility. The findings suggest that adopting these approaches improves long-term organizational performance.

Rekunenko et al. (2024) examine the role of key performance indicators (KPIs) in improving operational efficiency. The study finds that productivity, cost, and quality KPIs enhance firm performance. It analytically highlights the moderating role of firm size and market conditions. The findings imply that effective KPI management strengthens competitive positioning.

Opoku et al. (2024) analyze digital transformation trends and challenges in SMEs. The study finds that SMEs rely on basic technologies while facing barriers in adopting advanced tools. It analytically highlights financial and skill constraints as major limitations. The findings suggest that targeted policy and capacity building are essential for digital advancement.

Jamwal et al. (2025) investigate Industry 4.0 adoption in SMEs and its impact on sustainability. The study identifies organizational readiness and policy support as key enablers. It analytically highlights the importance of managerial commitment in digital transformation. The findings suggest that strategic alignment is crucial for achieving sustainable growth.

Nayeem et al. (2025) examine determinants of digital transformation in Indian SMEs. The study identifies organizational capability, technology readiness, and financial factors as key drivers. It analytically highlights barriers such as resistance to change and limited resources. The findings imply that infrastructure and skill development are essential for digital adoption.

Sagala and Őri (2025) develop a framework for SME digital transformation focusing on resilience and adaptability. The study identifies leadership, collaboration, and dynamic capabilities as key enablers. It analytically highlights the need for flexibility in uncertain environments. The findings suggest that integrating theory with practice enhances transformation outcomes.

Achmad and Wiratmadja (2025) examine the role of knowledge management in promoting green innovation. The study finds that knowledge integration enhances innovation and competitiveness. It analytically highlights that innovation capability does not significantly moderate this relationship. The findings suggest that sustainability strategies must be knowledge-driven.

Dewi et al. (2025) analyze market orientation factors and their impact on MSME performance with AI as a moderator. The study finds that customer and competitor orientation improve performance. It analytically highlights the limited moderating effect of AI due to early adoption stages. The findings suggest gradual AI integration for enhanced efficiency.

Yo and Ellitan (2025) examine Enterprise Risk Management (ERM) in MSMEs using qualitative analysis. The study finds that ERM improves risk handling and adaptability. It analytically highlights its importance in post-pandemic environments. The findings suggest that structured risk management enhances resilience and competitiveness.

Wang et al. (2025) investigate service innovation using a resource-based view framework. The study finds that innovation improves intellectual property and competitive advantage. It analytically highlights the mediating role of continuous innovation. The findings suggest that aligning innovation with protection strategies ensures sustainability.

Subranta et al. (2026) explore financial management strategies for MSMEs under economic uncertainty. The study highlights cost control, digital innovation, and business model adaptation. It analytically shows that financial discipline improves resilience and efficiency.

The findings suggest that integrated financial strategies are essential for long-term sustainability.

STATEMENT OF THE PROBLEM

The MSME sector in India is widely recognized as the backbone of industrial development; however, a significant gap exists between the intended outcomes of national developmental reforms—such as the MSMED Act, 2006 and post-pandemic recovery measures—and the actual operational efficiency achieved by firms at the district level (Garg & Walia, 2012; Suresh et al., 2023). In a regional context like Warangal District, MSMEs experience a clear performance–implementation gap, where despite the availability of local resources and labor-intensive opportunities, firms continue to face issues such as low productivity, high machine downtime, and inefficient resource utilization (Bhat & Singh, 2020; Setiawan et al., 2023). Moreover, although policy initiatives emphasize digital transformation and manufacturing growth, many local enterprises struggle with financial constraints, limited access to advanced technologies such as IoT, and the absence of structured operational practices like Total Productive Maintenance (Ramu, 2023; Huang & Liu, 2022). In the absence of a localized assessment of how these reforms translate into measurable improvements in operational efficiency, MSMEs in Warangal risk stagnation and may fail to fully leverage their regional advantages for sustainable industrial development.

RESEARCH GAP

Despite extensive literature on MSME growth and development, there exists a clear geographical and contextual gap in studies focusing specifically on the operational efficiency of MSMEs in Warangal District following recent developmental reforms. Most existing research emphasizes national-level trends or general frameworks of resilience, with limited attention to how regional firms adopt and implement operational strategies such as leanness and agility in practice (Babber & Mittal, 2023; Saad et al., 2021). Additionally, while digital transformation and Industry 4.0 are widely recognized as drivers of competitiveness, there remains a methodological gap in understanding the localized constraints related to technological readiness and financial preparedness that hinder MSMEs from adopting advanced digital solutions (Nayeem et al., 2025; Opoku et al., 2024). Furthermore, there is a lack of empirical studies linking key performance indicators (KPIs) with the effectiveness of policy interventions at the regional level, making it difficult to determine whether performance improvements stem from internal capabilities or external policy support

(Rekunenko et al., 2024). This study aims to bridge these gaps by providing a localized, efficiency-oriented analysis of MSMEs within the socio-economic context of Warangal District.

OBJECTIVES

1. To identify the key developmental reforms influencing MSMEs in Warangal District.
2. To examine the mediating effect of operational efficiency on the relationship between developmental reforms and MSME performance.

HYPOTHESIS

Hypothesis for Objective 2 :

Null Hypothesis (H0): Operational efficiency does not mediate the relationship between developmental reforms and MSME performance.

Alternative Hypothesis (H1): Operational efficiency significantly mediates the relationship between developmental reforms and MSME performance.

RESEARCH METHODOLOGY

Research Design:

The study adopts a quantitative research approach to examine the impact of developmental reforms on MSME performance, with operational efficiency acting as a mediating variable in the context of Warangal District. The research follows a descriptive and explanatory design. The descriptive component identifies key developmental reforms influencing MSMEs, while the explanatory component examines causal relationships among developmental factors, operational efficiency, and performance using Structural Equation Modeling (SEM).

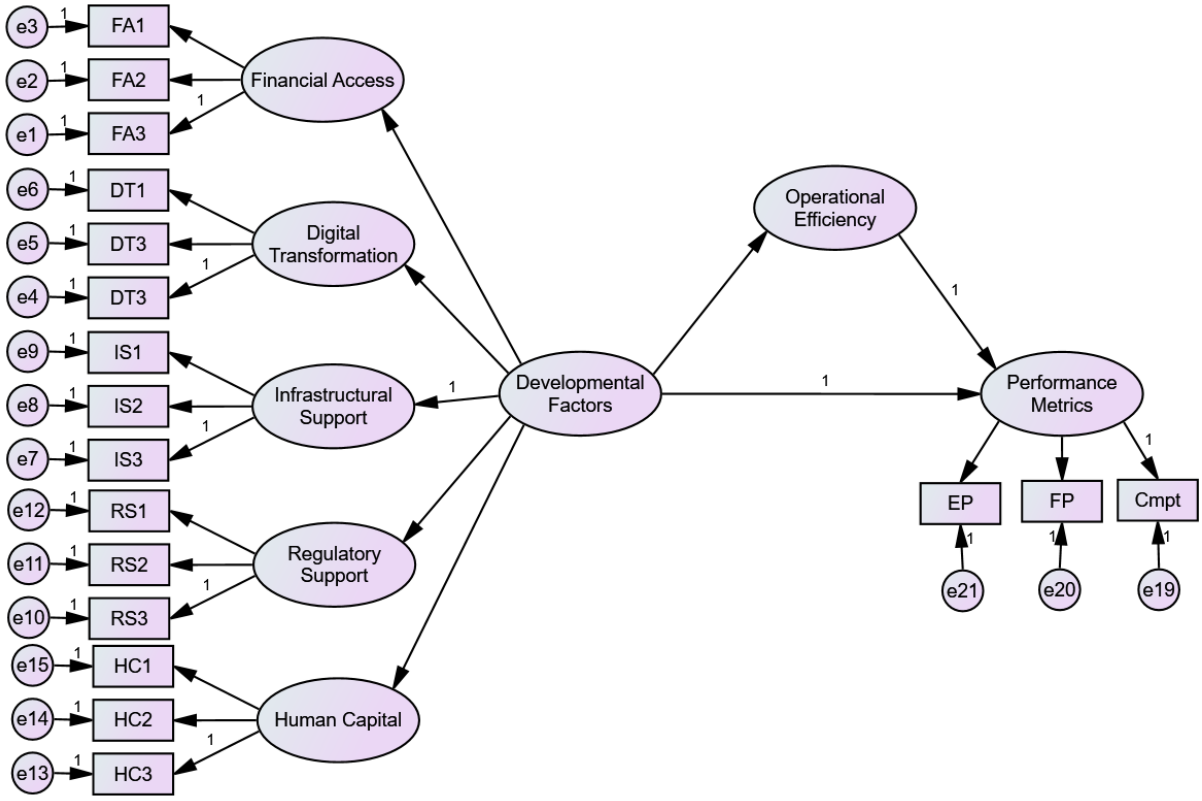
Data Collection:

The study is based on primary data collected through a structured questionnaire administered to MSME owners/managers in Warangal District. The instrument uses a 5-point Likert scale ranging from “Strongly Disagree” to “Strongly Agree” to capture respondent perceptions. The questionnaire items were developed based on established literature and validated through expert review to ensure content relevance and clarity.

Sampling Technique and Sample Size:

A convenience sampling technique was employed due to the accessibility of respondents and practical constraints in reaching MSME units across the study area. While this approach facilitates efficient data collection, it may limit the generalizability of the findings beyond the selected sample, and this limitation is acknowledged in the study. However, efforts were made to include respondents from diverse MSME categories to improve representativeness. The final sample size consists of 179 MSME units. The adequacy of the sample size is supported by statistical guidelines, as suggested by Krejcie and Morgan (1970), and meets the minimum requirements for SEM analysis, ensuring reliable and stable parameter estimation.

Figure – 1 Conceptual Framework



The conceptual framework of the study is designed to examine how developmental reforms influence MSME performance through the mediating role of operational efficiency. In this model, **developmental factors**—comprising financial access, digital transformation, infrastructural support, regulatory support, and human capital—are treated as exogenous constructs that collectively represent the reform environment affecting MSMEs. These factors are expected to directly enhance **operational efficiency**, which reflects improvements in productivity, cost management, and process effectiveness. Prior studies highlight that access to finance, supportive policies, and infrastructure significantly contribute to MSME growth

and efficiency (Garg & Walia, 2012; Bhat & Singh, 2020; Ramu, 2023). Similarly, digital transformation and technological adoption have been found to strengthen operational capabilities and organizational resilience (Nayeem et al., 2025; Sagala & Őri, 2025; Opoku et al., 2024).

Further, the framework posits that **operational efficiency acts as a mediating variable** between developmental reforms and **performance metrics**, such as profitability, market expansion, and competitiveness. This implies that reforms do not influence performance directly alone but also indirectly by improving internal efficiency. Empirical evidence suggests that efficient operations enhance firm performance and competitive advantage (Farida & Setiawan, 2022; Rekunenko et al., 2024). Additionally, the model incorporates a direct path from developmental factors to performance, acknowledging that some reforms may have immediate effects on business outcomes (Zutshi et al., 2021; Ahmadov et al., 2023). Thus, the framework provides a comprehensive structure to evaluate both direct and indirect relationships, offering a holistic understanding of how policy-driven reforms translate into improved MSME performance in the context of Warangal District.

Measurement of Variables

All constructs are measured using multiple indicators adapted from prior studies. Reliability is tested using **Cronbach's Alpha**, and validity is assessed through **Confirmatory Factor Analysis (CFA)**.

STATISTICAL TOOLS AND TECHNIQUES

To analyze the data and test the proposed conceptual framework, the study employs advanced statistical techniques using IBM SPSS AMOS.

Reliability Analysis (Cronbach's Alpha): Reliability analysis is conducted to assess the internal consistency of the measurement scale. Cronbach's Alpha coefficient is used to determine the extent to which items within each construct are correlated and measure the same underlying concept. A value of 0.70 or above is considered acceptable, indicating that the scale is reliable for further analysis.

Bivariate Correlation Analysis: Bivariate correlation is used to examine the degree and direction of association between pairs of variables. The study employs Pearson's correlation coefficient (r) to measure the strength of linear relationships among developmental reforms, operational efficiency, and MSME performance. The values of *r* range from -1 to +1, where

values closer to +1 indicate a strong positive relationship, values closer to -1 indicate a strong negative relationship, and values around 0 indicate no relationship. This analysis provides preliminary insights into relationships before conducting advanced multivariate analysis.

Confirmatory Factor Analysis (CFA): CFA is applied to validate the measurement model and to examine the relationship between observed variables and their respective latent constructs. It helps in assessing construct validity, including convergent and discriminant validity. Factor loadings greater than 0.50 are considered acceptable, ensuring that the indicators adequately represent their constructs.

Structural Equation Modeling (SEM): SEM is employed to test the hypothesized relationships among developmental reforms, operational efficiency, and MSME performance. It enables simultaneous estimation of multiple relationships between dependent and independent variables. The structural model evaluates both direct and indirect effects, providing a comprehensive understanding of causal linkages. Model fit is assessed using indices such as CFI, GFI, RMSEA, and Chi-square values.

Mediation Analysis (Indirect Effect Testing): Mediation analysis is conducted to examine whether operational efficiency acts as a mediating variable between developmental reforms and MSME performance. The indirect effect is tested using SEM techniques, and significance is determined through bootstrapping methods, which provide more robust estimates of mediation effects.

Results And Discussion

To address the objective, *"to identify the key developmental reforms influencing MSMEs in Warangal District,"* the study employs **Confirmatory Factor Analysis (CFA)** to validate the underlying factor structure and identify the significant dimensions of developmental reforms. The conceptual framework of the study comprises key development reforms factors such as financial access, digital transformation, infrastructural support, regulatory support, and human capital, which collectively represent developmental reforms. CFA is used to confirm whether the observed variables adequately load onto these predefined constructs, thereby ensuring the validity and reliability of the conceptual framework before proceeding to further analysis.

Table – 1 CFA Model fitness Index

Model fit Index	CMIN	DF	P	GFI	AGFI	CFI	RMSEA

Value	187.805	80	0	0.959	0.989	0.996	0.037

Source: Primary Data

Table represents the model fit indices indicate that the proposed model demonstrates an excellent fit to the data. The Chi-square value (CMIN = 187.805) with 80 degrees of freedom is statistically significant (p = 0), which is common in larger samples and does not necessarily indicate poor fit. The goodness-of-fit indices, including GFI (0.959) and AGFI (0.989), exceed the recommended threshold of 0.90, indicating a strong model fit. Similarly, the Comparative Fit Index (CFI = 0.996) is well above the acceptable level of 0.90, suggesting an excellent fit between the hypothesized model and the observed data. Furthermore, the RMSEA value (0.037) is below the threshold of 0.08, indicating a close fit of the model. Overall, these indices collectively confirm that the measurement model is well-fitted and suitable for further structural analysis.

Figure 2: Path diagram of Confirmatory Factor analysis

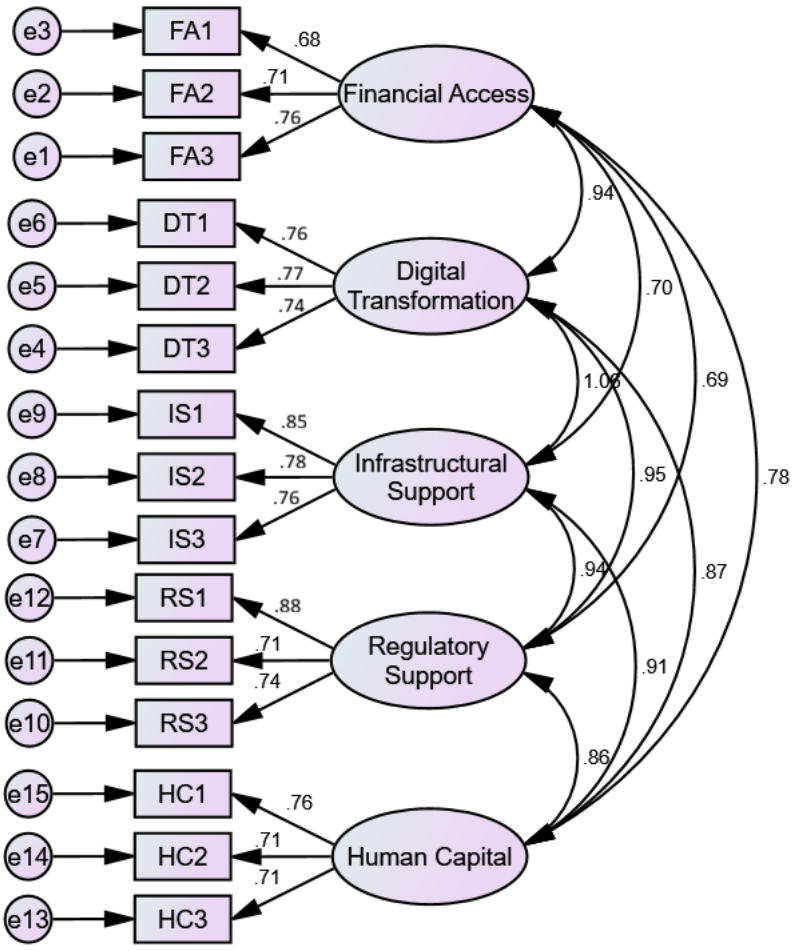


Table 2: Correlation

			Correlation Estimate
Financial Access	<-->	Digital Transformation	0.935
Financial Access	<-->	Infrastructural Support	0.698
Financial Access	<-->	Regulatory Support	0.690
Financial Access	<-->	Human Capital	0.780
Digital Transformation	<-->	Infrastructural Support	0.956
Digital Transformation	<-->	Regulatory Support	0.955
Digital Transformation	<-->	Human Capital	0.868
Infrastructural Support	<-->	Regulatory Support	0.936
Infrastructural Support	<-->	Human Capital	0.912
Regulatory Support	<-->	Human Capital	0.859

Source: Primary Data

Table illustrates the correlation results indicate a strong and positive relationship among all the developmental reform constructs, suggesting a high degree of interdependence between them. Financial Access shows strong correlations with Digital Transformation (0.935), Human Capital (0.780), Infrastructural Support (0.698), and Regulatory Support (0.690), indicating that improved access to finance is closely associated with advancements in these areas. Digital Transformation exhibits very high correlations with Infrastructural Support (0.956) and Regulatory Support (0.955), highlighting that technological adoption is strongly supported by infrastructure and regulatory frameworks. Similarly, Infrastructural Support and Regulatory Support are highly correlated (0.936), reflecting their complementary role in facilitating MSME development. Human Capital also shows strong associations with all other constructs, particularly with Infrastructural Support (0.912) and Digital Transformation (0.868). Overall, the high correlation coefficients (most above 0.80) suggest strong relationships among variables, but they may also indicate potential multicollinearity, implying that these constructs are closely linked components of broader developmental reforms influencing MSMEs.

Table 3: Standardized loading factor

			Estimate
CGTMSE collateral-free credit is easier to access.	<---	Financial Access	0.683

Government subsidies are disbursed on time.	<---	Financial Access	0.709
Equity funding is available for scaling	<---	Financial Access	0.756
GeM/E-commerce increased sales reach.	<---	Digital Transformation	0.757
Digital payments improved cash flow tracking.	<---	Digital Transformation	0.773
Online grievance portals resolve issues faster.	<---	Digital Transformation	0.741
Power supply reliability has improved operations.	<---	Infrastructural Support	0.853
Industrial cluster proximity is beneficial.	<---	Infrastructural Support	0.781
Transport and logistics are adequate.	<---	Infrastructural Support	0.759
Udyam Registration simplified business identity.	<---	Regulatory Support	0.74
GST improved supply chain transparency.	<---	Regulatory Support	0.712
Licensing (TS-iPASS) is faster.	<---	Regulatory Support	0.477
Skill programs improved worker productivity.	<---	Human Capital	0.713
Entrepreneurship workshops improved management.	<---	Human Capital	0.711
Technical training supports new machinery adoption.	<---	Human Capital	0.765

Source: Primary Data

Table represents the standardized factor loadings indicate that most of the observed variables significantly contribute to their respective latent constructs, thereby supporting the validity of the measurement model. Under Financial Access, all indicators show acceptable loadings, with equity funding (0.756) having the highest contribution, followed by subsidies (0.709) and collateral-free credit (0.683). Digital Transformation variables also exhibit strong loadings, particularly digital payments (0.773), indicating its prominent role in enhancing operational processes. Infrastructural Support demonstrates the strongest overall loadings, especially power supply reliability (0.853), highlighting its critical importance for MSME operations. Regulatory Support indicators show moderate loadings, with Udyam registration (0.740) and GST compliance (0.712) contributing significantly; however, licensing (TS-iPASS) has a relatively lower loading (0.477), suggesting it may have weaker explanatory power within this construct. Human Capital variables present consistent and acceptable loadings, with technical training (0.765) being the most influential. Overall, since most factor loadings exceed the recommended threshold of 0.50, the results confirm good convergent

validity of the constructs, though the lower loading of the licensing variable may require further consideration.

To examine the mediating effect of operational efficiency on the relationship between developmental reforms and MSME performance, **Structural Equation Modeling (SEM)** is employed. SEM is an advanced multivariate statistical technique that enables the simultaneous estimation of multiple relationships among latent and observed variables, allowing for the assessment of both direct and indirect (mediating) effects within a single comprehensive model. The analysis tests the following hypotheses: **Null Hypothesis (H_{02}):** Operational efficiency does not mediate the relationship between developmental reforms and MSME performance; and **Alternative Hypothesis (H_{12}):** Operational efficiency significantly mediates the relationship between developmental reforms and MSME performance. The results of the structural model are presented through the estimated path coefficients, which are used to evaluate the strength and significance of both direct and indirect relationships among the variables.

Figure 3:

Structural Equation Model of Mediating Effect of Operational Efficiency on the Relationship between Developmental Reforms and MSME Performance

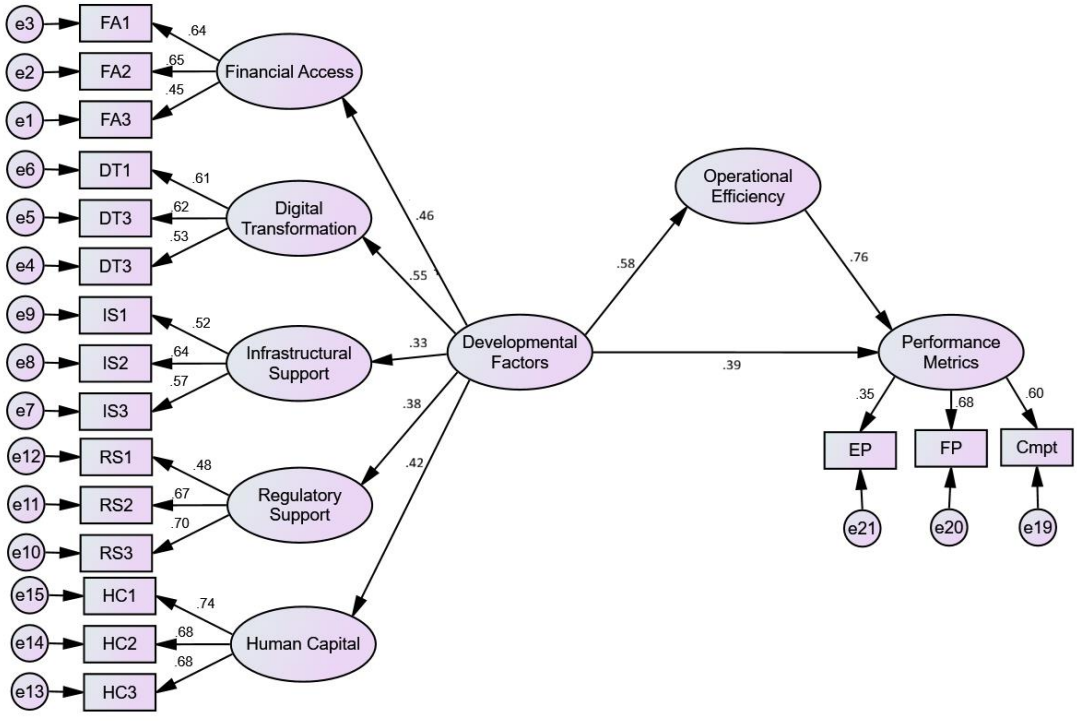


Table 4
Mediating Effect of Operational Efficiency on the Relationship between Developmental Reforms and MSME Performance

Direct Effect			Estimates	S.E.	C.R	P-value
Developmental Factors	<---	Performance Metrics	0.393	0.055	7.145455	***
Developmental Factors	<---	Operational Efficiency	0.582	0.089	6.539326	***
Operational Efficiency	<---	Performance Metrics	0.763	0.105	7.266667	***
Indirect Effect Estimates						
Developmental Factors <--- Operational Efficiency <--- Performance Metrics			0.444066			

Source: Primary Data

Table represents the structural model results indicate that all direct relationships are positive and statistically significant, as evidenced by high critical ratios (C.R. > 1.96) and p-values ($p < 0.05$). Developmental factors have a significant direct effect on MSME performance ($\beta = 0.393$), suggesting that reforms such as financial access, digital transformation, and regulatory support directly enhance performance outcomes. Similarly, developmental factors significantly influence operational efficiency ($\beta = 0.582$), indicating that these reforms improve internal processes and productivity. Further, operational efficiency shows a strong and significant impact on performance ($\beta = 0.763$), highlighting its critical role in translating reforms into tangible business outcomes. The indirect effect of developmental factors on performance through operational efficiency ($\beta = 0.444$) is also substantial, confirming the presence of a mediating effect. Since both direct and indirect effects are significant, this indicates partial mediation, implying that developmental reforms influence MSME performance both directly and indirectly through operational efficiency.

These findings are consistent with prior studies, where Farida Ida and Doddy Setiawan (2022) emphasized that operational performance plays a crucial role in achieving competitive advantage and firm performance. Similarly, Roshan Rassool and Ravindra Dissanayake (2019) found that digital and structural reforms enhance operational capabilities, which in turn improve organizational outcomes. Therefore, the null hypothesis (H_{02}) is rejected and the alternative hypothesis (H_{12}) is accepted, concluding that operational efficiency significantly mediates the relationship between developmental reforms and **MSME performance**.

RECOMMENDATIONS AND DISCUSSION

The findings of the study provide important insights into how developmental reforms influence MSME performance through operational efficiency, offering both theoretical and

practical implications. The strong interrelationships observed among financial access, digital transformation, infrastructural support, regulatory support, and human capital suggest that these factors should not be implemented in isolation but rather as an integrated policy framework. In line with the findings of **Suhail Ahmad Bhat and Shambhavi Singh (2020)**, policymakers should strengthen coordinated reform strategies that simultaneously address financial inclusion, regulatory simplification, and infrastructure development to enhance MSME growth.

The significant factor loadings indicate that infrastructural support and digital transformation are particularly influential, highlighting the need for continued investment in reliable power supply, logistics, and digital ecosystems. This supports the arguments of **M. Nayeem et al. (2025) and Roshan Rassool and Ravindra Dissanayake (2019)**, who emphasize that digital adoption and technological integration significantly enhance operational capabilities and organizational performance. Therefore, MSMEs in Warangal District should be encouraged to adopt digital tools such as e-commerce platforms, digital payment systems, and grievance redressal mechanisms, supported by targeted government initiatives.

The SEM results further confirm that operational efficiency plays a critical mediating role, implying that reforms yield better performance outcomes when they enhance internal efficiency. This finding aligns with **Ida Farida and Doddy Setiawan (2022)**, who highlight that improved operational processes are key drivers of competitive advantage and firm performance. Hence, MSMEs should focus on process optimization, cost control, and productivity enhancement through training and capacity-building programs. Additionally, the relatively lower loading of licensing procedures suggests the need for further simplification and awareness regarding regulatory mechanisms such as TS-iPASS to improve their effectiveness.

From a policy perspective, the presence of partial mediation indicates that while reforms directly influence performance, their indirect impact through operational efficiency is even more substantial. This suggests that policymakers should design reforms that not only provide external support but also strengthen internal capabilities of MSMEs. As highlighted by **Anbesh Jamwal et al. (2025),** integrating advanced technologies and skill development initiatives can significantly improve operational resilience and sustainability.

In conclusion, the study recommends a **holistic and integrated approach to MSME development**, where financial, technological, infrastructural, and human capital reforms are

aligned with efficiency-enhancing strategies. Such an approach will enable MSMEs in Warangal District to achieve sustainable performance, competitiveness, and long-term growth.

SCOPE FOR FUTURE RESEARCH

This study is limited to MSMEs in Warangal District, so future research can be conducted in other regions to make the findings more generalizable. Researchers can also compare different districts or sectors to better understand how developmental reforms work in different situations. In addition, future studies may use **long-term (longitudinal) data** to examine how MSME performance changes over time. Further research can include other factors such as innovation, technology adoption, or organizational resilience to improve the model. Moreover, using qualitative or mixed research methods can help to gain deeper insights into the practical challenges faced by MSMEs in implementing these reforms.

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