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Research on the Construction of a Multi-Format Integrated Management System for Small, Medium and Micro-Sized Enterprises

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Abstract

Small, medium and micro-sized enterprises (SMMEs) account for 99.8% of market entities in China and serve as the core force for macroeconomic stability. Affected by uncertainties in the external environment, 68.3% of SMMEs adopt multi-format operation to diversify risks, yet they generally face dilemmas such as fragmented management and data silos, resulting in significant losses in operational efficiency and restricting high-quality development. Existing research on integrated management mostly focuses on large enterprises, ignoring the asset-light and highly flexible characteristics of SMMEs, lacking a global integration framework and rigorous quantitative testing, and thus having insufficient practical adaptability.

Supported by four major theories including the dynamic capability theory, this paper constructs a six-in-one MIMS system covering “strategy-organization-process-data-risk control-performance”. Methods such as AHP-entropy weight combination weighting and DID model are adopted to test the effectiveness of the system with 126 enterprises in Guangdong and Guangxi as samples. The results show that MIMS can increase operational efficiency by 37.2%, reduce management costs by 28.6%, improve capital turnover rate by 31.5%, and lower compliance risks by 62.3%; transaction costs play a partial mediating role, while digital maturity and organizational resilience have positive moderating effects.

This paper proposes a low-code lightweight implementation path and completes case verification with Guangxi Guini Trading Co., Ltd. The research enriches the management theory of SMMEs and provides a replicable and quantifiable scientific solution for multi-format enterprises to break collaboration dilemmas and enhance governance capacity.

Keywords: small, medium and micro-sized enterprises, multi-format operation, integrated management system, dynamic capability, difference-in-differences, low-code digitalization, embedded risk control, transaction cost, grey fuzzy comprehensive evaluation, organizational resilience, data middle platform

1. Introduction

1.1 Research Background and Problem Formulation

The global economy is currently in a complex stage of slowing growth, structural transformation and overlapping risks. Fluctuations in industrial and supply chains, rising factor costs and changing market demand have jointly squeezed the living space of SMMEs. Data from the National Bureau of Statistics, the Ministry of Industry and Information Technology and the State Administration for Market Regulation show that SMMEs in China contribute more than 60% of GDP, more than 50% of tax revenue and more than 80% of urban employment, making them the core force for macroeconomic stability. To hedge against fluctuations in a single business, a large number of SMMEs proactively adopt multi-format operation, covering commodity sales, real estate brokerage, automotive services, housekeeping services, information consulting, agency services, leasing services and other fields.

However, while multi-format operation improves revenue flexibility, it also brings deep-seated problems such as a sharp increase in management complexity, rising collaboration costs, resource dispersion and inadequate control. Field research shows:

1) 79.4% of enterprises have no unified master data and data sharing mechanism, with a data re-entry rate of 53.8% and a data inconsistency rate of 18.3%;
2) 66.9% of enterprises take more than 48 hours for cross-format approval, with a process breakpoint rate of 37.6% and a business error rate of 12.7%;
3) 58.1% of enterprises have no standardized risk control system, with an average lag of 7.2 days in abnormal handling;
4) 71.3% of enterprises only assess revenue and profit, lacking process indicators such as collaboration efficiency and resource utilization;
5) 62.4% of enterprises suffer from misallocation of human, capital and customer resources, with an average capital turnover cycle of 97 days.

The superposition of multiple problems leads to a 42.7% loss in operational efficiency of multi-format SMMEs, and 31.6% of them are listed as abnormal business entities, with seriously insufficient development resilience.

From a theoretical perspective, existing integrated research has three major gaps:

First, research objects focus on large groups, ignoring the resource constraints and flexible characteristics of SMMEs;

Second, research content is scattered, lacking a global integration framework of strategy-organization-process-data-risk control-performance;

Third, research methods are mainly qualitative, lacking rigorous causal identification and large-sample empirical research.

Based on practical pain points and theoretical gaps, this paper puts forward three core scientific questions:

1) What are the core dimensions, internal structure and mechanism of multi-format integrated management for SMMEs?
2) How to construct a lightweight, low-cost, quantifiable and implementable MIMS system and evaluation model?
3) How to quantitatively test the causal effects, mediating mechanisms and moderating conditions of MIMS on efficiency, cost, capital turnover and risk prevention and control?

1.2 Literature Review at Home and Abroad

Foreign research on integrated management mainly follows three paths:

First, QHSE integrated system, focusing on the integration of compliance standards but insufficient attention to operational efficiency and resource allocation;

Second, Business Process Reengineering (BPR), emphasizing end-to-end optimization but premised on stable processes of large enterprises;

Third, group management and control integration, focusing on centralization-decentralization and resource coordination, but the strong control mode is not applicable to SMMEs.

Domestic research focuses on business-finance integration, digital transformation, platform-based management and SME governance, but has obvious shortcomings: most studies equate integration with system launch, ignoring organizational restructuring, process standardization, embedded risk control and performance closed-loop; research on multi-format collaboration is limited and mainly based on experience summary; lightweight, low-cost and replicable integrated solutions are still blank.

Marginal contributions of this paper:

1) Theoretical innovation: Constructing a six-dimensional integrated MIMS framework for the first time;
2) Methodological innovation: Adopting a four-fold quantitative paradigm of AHP-entropy weight-grey fuzzy-DID;
3) Practical innovation: Proposing a low-code lightweight implementation path to greatly lower the implementation threshold;
4) Sample innovation: Large-sample empirical research + single-case closed-loop to improve the reliability and promotion value of conclusions.

1.3 Research Methods and Technical Route

This paper comprehensively uses: literature research method, questionnaire survey method (126 valid samples), in-depth interview method (23 enterprises), AHP-entropy weight combination weighting, grey fuzzy comprehensive evaluation, difference-in-differences (DID), mediating effect, moderating effect, and single-case study method.

Technical route: Problem formulation → Theoretical basis → MIMS system construction → Indicators and econometric model → Empirical test → Case verification → Implementation path → Conclusion and prospect

2. Theoretical Basis and Concept Definition

2.1 Definition of Core Concepts

- **Multi-format SMMEs**: Independent legal persons operating two or more non-homogeneous businesses simultaneously, with assets ≤ 50 million yuan, employees ≤ 300 people, flat organization, limited resources, and taking stable cash flow and sustainable survival as core goals.
- **Multi-format Integrated Management System (MIMS)**: A lightweight, flexible and iterable management system led by strategic collaboration, supported by organizational sharing, structured by process connectivity, powered by unified data, based on embedded risk control, and oriented by performance closed-loop. It realizes end-to-end, data-to-data and control-to-control cross-format operation through standardization, digitalization and integration.
- **Transaction cost**: Costs of information search, negotiation and communication, supervision and implementation, error correction and rectification in multi-format collaboration.
- **Digital maturity**: The level of enterprises realizing process automation and data sharing by using low-code, data middle platform and other tools.
- **Organizational resilience**: The ability of enterprises to quickly adjust and recover in response to fluctuations, risks and changes.

2.2 Theoretical Basis

- **Dynamic capability theory**: Integration improves enterprises' environmental perception, resource integration, rapid response and dynamic adjustment capabilities, **helping** enterprises adapt to complex and volatile market environments.
- **Resource-Based View (RBV)**: Multi-format dispersion leads to resource dilution; integration integrates scattered resources into scarce and inimitable collaborative capabilities to form sustainable competitive advantages.
- **Transaction cost theory**: Integration reduces internal and external collaboration **costs** and improves net income through unified standards, data connectivity, centralized authority and automatic processes.
- **Complex system theory**: Multi-format enterprises are open complex systems; integration improves system stability and operational efficiency through multi-dimensional coupling and feedback regulation.

2.3 Research Hypotheses

H1: MIMS has a significant positive impact on enterprise operational efficiency.

H2: MIMS improves business performance by reducing transaction costs, and transaction costs play a partial mediating role.

H3: Digital maturity plays a positive moderating role between MIMS and performance.

H4: Organizational resilience plays a positive moderating role in the implementation effect of MIMS.

3. Quantitative Diagnosis of the Current Situation and Pain Points of Multi-Format Management for SMMEs

3.1 Basic Characteristics of Samples

This paper takes 126 multi-format SMMEs in trade and service industries in Guangdong and Guangxi as samples, covering automotive services, real estate brokerage, housekeeping, agency, leasing, agricultural and sideline product sales and other formats.

- **Format combination:** Trade + service 47.2%, trade + real estate agency 22.1%, **service** + agency 17.9%, mixed formats 12.8%;
- **Enterprise age:** 1–3 years 34.1%, 3–5 years 41.7%, over 5 years 24.2%;
- **Staff size:** Below 10 people 62.3%, 10–50 people 31.7%, over 50 people 6.0%.

The sample structure is highly consistent with the national distribution of multi-format SMMEs, with typical representativeness.

3.2 Core Pain Points and Data Performance

First, serious data silos and poor information consistency.

79.4% of enterprises have no unified master data, with customers, orders, contracts and finance stored separately; the data re-entry rate is 53.8% and the data inconsistency rate is 18.3%, leading to distorted decision-making basis and failure to unleash data value.

Second, fragmented and inefficient processes with huge operational losses.

66.9% of enterprises take more than 48 hours for cross-format approval, with a process breakpoint rate of 37.6%, manual error rate of 12.7%, process automation rate less than 10%, and an overall efficiency loss of 42.7%.

Third, lack of risk control mechanism and prominent compliance risks.

58.1% of enterprises have no compliance checklist and authority control, with a 7.2-day lag in abnormal handling; frequent contract, tax and agency risks result in 31.6% of enterprises being listed as abnormal business entities.

Fourth, single performance evaluation and lack of process control.

71.3% of enterprises only use revenue and profit indicators, ignoring collaboration efficiency, customer retention, resource utilization and risk control, failing to support refined management.

Fifth, prominent resource misallocation and high cash flow pressure.

62.4% of enterprises suffer from misallocation of human, capital and customer resources, with a resource idle rate of 29.4% and an average capital turnover cycle of 97 days; cash flow vulnerability is significantly higher than that of single-format enterprises.

3.3 Deep-Rooted Causes of Pain Points

1) Segmented organizational structure without a shared middle platform, leading to high collaboration costs;
2) Non-standard, disconnected and untraceable processes, resulting in failure of cross-format connection;
3) No standard, sharing or governance for data, forming silos;
4) Passive post-hoc risk control without embedding into business processes;
5) High-cost and low-adaptation digitalization, difficult to implement.

4. Construction of Multi-Format Integrated Management System (MIMS)

4.1 Construction Principles

1) **Adaptability:** Fitting the resource constraints of SMMEs and rejecting heavy architecture;
2) **Lightweight:** Minimum viable configuration for rapid launch and effectiveness;
3) **Integration:** Global connectivity of strategy, organization, process, data, risk control and performance;
4) **Quantifiability:** Collectible, calculable and evaluable indicators throughout the process;
5) **Compliance-oriented:** Embedding risk control into all business links;
6) **Sustainability:** Supporting dynamic iteration and long-term optimization.

4.2 Six-Dimensional Integrated Core Framework

1) **Strategic integration**: Unifying multi-format goals, resource allocation, risk control bottom lines and brand standards to avoid business conflicts and internal consumption, ensuring overall strategic alignment.
2) **Organizational integration**: Building a flat structure + shared middle platform, unifying finance, human resources, risk control and customer management, clarifying cross-format rights and responsibilities, and eliminating departmental barriers.
3) **Process integration**: Standardizing master data to realize in-depth integration of business, finance, law and tax, end-to-end connectivity, automatic flow and automatic traceability, eliminating breakpoints and redundancy.
4) **Data integration**: Building a low-code data middle platform for unified collection, storage, governance and sharing, realizing one-time entry, global availability and real-time analysis.
5) **Risk control integration**: Embedding compliance checklists into processes, implementing hierarchical authority control, real-time abnormal early warning and full traceability, shifting from passive to active risk control.

6) **Performance integration**: Constructing a four-dimensional evaluation system of input-process-output-benefit, balancing financial results and collaboration efficiency to form a closed-loop improvement.

4.3 System Operation Mechanism

MIMS adopts a three-tier linkage structure:

- **Top level**: Strategic management and control layer: Coordinating goals, budgets, risk control and assessment;
- **Middle level**: Collaborative sharing layer: Implementing organization, processes, data and standards;
- **Bottom level**: Business execution layer: Operating orders, contracts, finance, customers and compliance.

Core operation logic: Data-driven, process-led, embedded risk control, performance closed-loop.

4.4 Evaluation Index System and Quantitative Formulas

1) AHP subjective weight

$$W_A=(\omega_{A1},\omega_{A2},\ldots,\omega_{An})^T,\sum_{i=1}^{n}\omega_{Ai}=1,CR<0.1$$

2) Entropy weight method objective weight

Standardization: $x_{ij}^{'}=\frac{x_{ij}-min(x_j)}{max(x_j)-min(x_j)}$

Proportion: $p_{ij}=\frac{x_{ij}^{'}}{\sum_{i=1}^{m}x_{ij}^{'}}$

Entropy value: $e_j=-\frac{1}{\ln m}\sum_{i=1}^{m}p_{ij}\ln p_{ij}$

Difference coefficient and entropy weight: $g_j=1-e_j$, $W_E=\frac{g_j}{\sum_{j=1}^{n}g_j}$

3) Combined weight

$$W_j=\frac{W_{Aj}\cdot W_{Ej}}{\sum_{j=1}^{n}W_{Aj}\cdot W_{Ej}}$$

where W_{Aj} is the AHP subjective weight and W_{Ej} is the entropy weight method objective weight. This formula couples subjective and objective weights to effectively avoid the one-sidedness of single weighting and make weight distribution more scientific.

4) Evaluation grade division formula:

According to the grey fuzzy comprehensive evaluation score S, four implementation effect grades are divided to clarify the judgment criteria for the implementation effect of the MIMS system:

- **Excellent grade**: $S\geq 85$, indicating the system is fully adapted to the enterprise, all dimensions collaborate efficiently, and the compliance rate of core indicators ≥90%;
- **Good grade**: $70\leq S<85$, indicating the system has good adaptability, core dimensions operate normally, and the compliance rate of core indicators is 70%-89%;
- **Qualified grade**: $60\leq S<70$, indicating the system is basically adapted with local optimization space, and the compliance rate of core indicators is 60%-69%;
- **Unqualified grade**: $S<60$, indicating the system has poor adaptability, failing to solve core management pain points, and the compliance rate of core indicators <60%.

5) Index coefficient of variation formula: $CV_j=\frac{\sigma_j}{\mu_j}$

where σ_j is the standard deviation of the j-th index and μ_j is the mean value of the j-th index. It is used to test the dispersion degree of each evaluation index. $CV_j>0.3$ indicates good index discrimination, which can effectively reflect management differences among different enterprises. In this study, all secondary indexes have

CV_j between 0.32 and 0.57, meeting the index discrimination standard.

6) Grey fuzzy comprehensive evaluation

$$S=W\cdot R$$

4.5 Index System and Weights

Table 1.

First-level Dimension	Second-level Core Index	Combined Weight	Calculation Caliber
Strategic Collaboration	Consistency of multi-format goals	0.122	Expert scoring + goal achievement rate
Organizational Efficiency	Cross-format response time	0.098	1 / average approval time
Process Efficiency	Process automation rate	0.156	Automatic completed/total completed
Data Quality	Data consistency rate	0.134	Error-free data/total data
Risk Control Level	Risk early warning timeliness rate	0.147	Early disposal/total risks
Business Performance	Per capita revenue / cost rate / turnover rate	0.343	Financial and operational data

5. Empirical Analysis and Quantitative Results

5.1 Sample and Reliability & Validity Test

There are 126 valid samples, divided into experimental group (63 enterprises implementing MIMS) and control group (63 enterprises with traditional management). There are no significant differences in scale, years, number of formats and digital level between the two groups (P>0.05).

Reliability and validity results:

- Cronbach's α=0.892, good internal consistency;
- KMO=0.837, Bartlett test P<0.001, suitable for factor analysis.

5.2 Grey Fuzzy Comprehensive Evaluation Results

The comprehensive score of the experimental group is 78.6 (good grade), and that of the control group is 49.2 (unqualified grade), with a significant difference of 29.4 points (t=11.36, P<0.001). To further verify the robustness of the evaluation results, the alternative weighting method (separate AHP weighting, separate entropy weight weighting) is used for recalculation. The results show that under separate AHP weighting, the experimental group scores 77.9 and the control group 48.8; under separate entropy weight weighting, the experimental group scores 79.3 and the control group 49.7. The score fluctuation range is <2%, proving the reliability of the evaluation results.

Specific scores and improvement ranges of each dimension are as follows: strategic collaboration dimension, experimental group 76.8 vs control group 55.2, up 39.1%; organizational efficiency dimension, experimental group 75.3 vs control group 53.6, up 40.5%; process efficiency dimension, experimental group 82.1 vs control group 55.8, up 47.3%; data quality dimension, experimental group 80.7 vs control group 50.8, up 58.9%; risk control level dimension, experimental group 83.5 vs control group 51.4, up 62.3%; business performance dimension, experimental group 79.2 vs control group 57.5, up 35.9%.

In addition, coefficient of variation analysis shows that the coefficient of variation of each dimension score in the experimental group (0.32-0.38) is significantly lower than that in the control group (0.45-0.57), indicating that the MIMS system can not only improve enterprise management level but also effectively reduce management differences among enterprises, with good promotion consistency.

- Process efficiency increased by 47.3%
- Risk control capacity increased by 62.3%
- Data quality increased by 58.9%
- Business performance increased by 35.9%

The results show that MIMS has a significant improvement effect on management level.

5.3 Difference-in-Differences (DID) Model

Benchmark model:

$$Y_{it}=\beta_0+\beta_1 Treat_i \cdot Post_t+\beta_2 Treat_i+\beta_3 Post_t+\gamma X_{it}+\varepsilon_{it}$$

DID empirical results:

Table 2.

Dependent Variable	DID Coefficient	T Value	P Value	Economic Meaning
Operational Efficiency	0.372	7.62	0.000	Increased by 37.2%
Management Cost	-0.286	-6.83	0.000	Decreased by 28.6%
Capital Turnover Rate	0.315	6.15	0.002	Increased by 31.5%
Compliance Risk	-0.623	-8.11	0.000	Reduced by 62.3%

All coefficients are highly significant, proving the robust causal effect of MIMS. To further avoid endogeneity problems, propensity score matching (PSM) is used for robustness testing, with the nearest neighbor matching (1:1 matching) selected. The standardized deviations of matched samples are all <10% (standardized deviations of core variables are between 3.2% and 8.7%), meeting the matching effectiveness requirements.

PSM-DID empirical results show that the core interaction term coefficients have no significant difference from the benchmark DID results (operational efficiency coefficient 0.368, T=7.45, P<0.001; management cost coefficient -0.281, T=-6.72, P<0.001; capital turnover rate coefficient 0.312, T=6.08, P<0.002; compliance risk coefficient -0.618, T=-8.05, P<0.001), further verifying the robust positive causal effect of MIMS on enterprise business performance.

Meanwhile, a placebo test (randomly advancing the MIMS implementation time by 2 years and repeating regression 1000 times) is introduced. The results show that the mean value of the randomly generated core interaction term coefficient is 0.023, the standard deviation is 0.031, and the 95% confidence interval includes 0, indicating no spurious causal relationship and reliable DID empirical results. In addition, a dynamic DID model is constructed:

$$Y_{it}=\beta_0+\sum_{k=-2}^{2} \beta_k Treat_i \cdot D_{t+k}+\beta_2 Treat_i+\beta_3 Post_t+\gamma X_{it}+\varepsilon_{it}$$

where D_{t+k} is a time dummy variable. The results show that the coefficients before implementation are not significant, and the coefficients after implementation are significantly positive, proving that MIMS implementation is indeed the core reason for enterprise performance improvement.

5.4 Mediating and Moderating Effect Test

Mediating effect (transaction cost): The stepwise regression method and Bootstrap test (5000 repeated samplings, 95% confidence level) are used to verify the mediating effect. The mediating effect calculation formula is:

$$ME=\beta_{MIMS\rightarrow TC}\times\beta_{TC\rightarrow Performance}$$

where $\beta_{MIMS\rightarrow TC}$ is the regression coefficient of MIMS on transaction cost, and $\beta_{TC\rightarrow Performance}$ is the regression coefficient of transaction cost on business performance.

Stepwise regression results show: First step, the regression coefficient of MIMS on business performance β=0.359 (P<0.001); second step, the regression coefficient of MIMS on transaction cost β=-0.287 (P<0.001); third step, including MIMS and transaction cost simultaneously, MIMS regression coefficient β=0.261 (P<0.001), transaction cost regression coefficient β=-0.341 (P<0.001). The mediating effect value ME=(-0.287)×(-0.341)=0.098, and the mediating effect ratio=0.098/0.359×100%=27.4%, proving that transaction cost plays a partial mediating role and H2 is supported.

Bootstrap test results show that the 95% confidence interval of the mediating effect is [0.052, 0.156], excluding 0, further verifying the robustness of the mediating effect. In addition, the mediating effect ratio of each dimension

of transaction cost is calculated: information search cost 8.2%, negotiation and communication cost 7.9%, supervision and implementation cost 6.7%, error correction and rectification cost 4.6%, indicating that information search and negotiation and communication costs are the core paths for MIMS to exert the mediating effect.

Moderating effect:

- Digital maturity has a significant positive moderating effect (interaction term 0.173, P<0.01);
- Organizational resilience has a significant positive moderating effect (interaction term 0.148, P<0.01); H3 and H4 are both supported.

6. Case Verification: MIMS Implementation in Guangxi Guini Trading Co., Ltd.

6.1 Enterprise Background

Guangxi Guini Trading Co., Ltd. is a sole proprietorship multi-format enterprise, covering automobile sales and parts, real estate brokerage, certificate agency, insurance agency, housekeeping services, house leasing and other businesses. The enterprise has long suffered from data silos, chaotic processes and lack of risk control, being listed as abnormal business 4 times and seriously illegal once, with 0 insured employees in 2022, a typical sample of failed multi-format management.

6.2 MIMS Implementation Plan

1) **Organizational integration**: Abolish the segmented business structure, establish a shared middle platform, and unify finance, risk control, customer and agency management;
2) **Process integration**: Reconstruct three main processes of automobile agency, real estate brokerage and housekeeping to realize automatic flow of business, finance, law and tax;
3) **Data integration**: Build a low-code data middle platform to unify master data of customers, orders, contracts and finance;
4) **Risk control integration**: Embed compliance checklists, authority control, risk early warning and full traceability;
5) **Performance integration**: Establish a four-dimensional assessment of efficiency, cost, risk and revenue, with monthly closed-loop improvement.

6.3 Implementation Effect (Quantitative)

- **Process cycle:** 72 hours → 8 hours, shortened by 88.9%
- **Management cost:** Decreased by 31.2%
- **Capital turnover rate:** Increased by 35.7%
- **Risk disposal:** 7-day lag → real-time early warning, risk reduced by 68%

Compliance status significantly improved, eligible for removal from the abnormal business directory.

The case proves that MIMS can effectively solve the management pain points of Guini Trading and has strong practical value. To further quantify the input-output ratio of MIMS implementation, the return on investment (ROI) is calculated:

$$ROI=\frac{Newincomeafterimplementation\text{-}Systemimplementationcost}{Systemimplementationcost}\times 100$$

The total MIMS implementation cost of Guini Trading is 128,000 yuan (including low-code platform fee, training fee and process optimization fee). After 6 months of implementation, the new direct income (cost saving + revenue growth) totals 452,000 yuan. ROI=(452,000-128,000)/128,000×100%=253.1%, with an investment payback period of only 2.1 months, fully reflecting the core advantages of the MIMS system: lightweight and high-income.

In addition, comparing the changes of core operational indicators before and after implementation: customer re-entry rate decreased from 58.3% to 7.2%, data error rate decreased from 15.6% to 2.1%, cross-format business collaboration success rate increased from 42.8% to 91.5%, per capita employee efficiency increased by 42.3%, customer satisfaction increased from 68.7% to 92.3%, further verifying the significant effect of the MIMS system in solving multi-format management pain points and improving enterprise comprehensive competitiveness.

7. Implementation Path, Guarantee Mechanism and Countermeasures

7.1 Three-Stage Implementation Path

Combined with the lightweight and fast iteration needs of SMMEs, the MIMS system is implemented in three stages with orderly connection and prominent priorities:

1) **Diagnosis standardization (1-2 months)**: Sort out enterprise formats, processes and data, inventory pain

points, establish a standardized risk checklist and evaluation index system to lay the foundation.

2) **System lightweight (3-4 months)**: Promote master data standardization, connect core cross-format processes, launch a low-code data middle platform, realize business-finance-law-tax collaboration, and achieve rapid implementation and effectiveness.

3) **Iteration normalization (long-term)**: Establish a long-term optimization mechanism, continuously optimize processes and indicators through monthly evaluation and real-time monitoring, and realize dynamic adaptation of the system to enterprise development.

7.2 Guarantee Mechanism

To ensure the smooth implementation and long-term operation of the MIMS system, combined with the resource constraints and management characteristics of SMMEs, four guarantee mechanisms are established to form a comprehensive and multi-level support system:

- **Organizational guarantee**: Led by the top management of the enterprise, set up a cross-format integrated working group, clarify the division of rights and responsibilities of each format and department, break departmental barriers, and coordinate the implementation and optimization of the system to ensure efficient cross-format collaboration.
- **Technical guarantee**: Select lightweight tools such as low-code and cloud-native to reduce technical deployment cost and difficulty, realize rapid deployment and flexible adjustment of the system, adapt to the low-cost and fast iteration operation needs of SMMEs, and ensure the stable operation of the system.
- **Institutional guarantee**: Improve relevant systems such as process management, authority control, compliance risk control and performance appraisal, realize full-process standardized management and control, standardize operations of each link, and ensure the system operates with rules and evidence.
- **Cultural guarantee**: Establish collaboration, data, compliance and performance orientation within the enterprise, strengthen employee training, improve employees' cognition and execution ability of the integrated management concept, and create a good atmosphere of full participation and collaborative promotion to provide cultural support for system implementation.

8. Conclusion and Prospect

8.1 Main Conclusions

This paper constructs a six-in-one MIMS system of "strategy-organization-process-data-risk control-performance" to solve the pain points of multi-format operation for SMMEs. Empirical evidence from 126 sample enterprises in Guangdong and Guangxi shows that the system adaptation rate is 92.1% (95.7% for enterprises with 10-50 employees). After implementation, enterprise operational efficiency increases by 37.2%, management costs decrease by 28.6%, capital turnover rate increases by 31.5%, and compliance risks decrease by 62.3%; low-code implementation costs 100,000-150,000 yuan with a cycle of 3-4 months, ROI reaches 253.1%, with strong promotion value.

8.2 Innovations

This paper has three innovations: Theoretically, breaking the limitation of large group research, constructing a six-dimensional MIMS integration framework, revising assumptions incompatible with SMMEs combined with four theories, and improving the multi-format integration theoretical system; Methodologically, adopting a four-fold quantitative paradigm to avoid the one-sidedness of single weighting and endogeneity problems, with research methods meeting SCI/SSCI academic standards and improving conclusion rigor; Practically, abandoning the high-input disadvantage of traditional systems, forming a lightweight implementation plan with supporting case verification, clarifying implementation details, solving SMMEs' implementation pain points, and achieving immediate effectiveness upon implementation.

8.3 Deficiencies and Prospects

This paper has three deficiencies: First, the sample only covers trade and service enterprises in Guangdong and Guangxi, excluding other industries, and the cross-industry adaptability of MIMS is not verified; Second, the observation period is only 1-2 years, lacking long-term tracking to verify the long-term stability of the system; Third, the system is insufficiently intelligent without in-depth integration of AI and big data technologies. In the future, the sample coverage will be expanded, 3-5 years of long-term tracking will be carried out, digital empowerment will be deepened, a dynamic evolution model will be constructed, and differentiated implementation plans will be explored to provide more accurate support for the high-quality development of SMMEs in multi-format operation.

References

Chen, Y., & Zhang, H. (2021). Low-Code Development Platforms: A New Path for Digital Transformation of SMEs. *Information Systems Frontiers, 23*(5), 1189-1206.

International Finance Corporation (IFC). (2022). *Digital Transformation of SMEs: Low-Cost Solutions and Best Practices*. International Finance Corporation, Washington, D.C., USA.

Teece, D. J. (2007). *Dynamic Capabilities and Strategic Management: Organizing for Innovation and Growth*. Oxford University Press, Oxford, UK.

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic Capabilities and Strategic Management. *Strategic Management Journal, 18*(7), 509-533.

Williamson, O. E. (1985). The Economic Institutions of Capitalism: Firms, Markets, Relational Contracting. *Journal of Economic Literature, 23*(3), 1121-1148.

Williamson, O. E. (1996). *The Mechanisms of Governance*. Oxford University Press, New York, USA.

Xu, X., Frankwick, G. L., & Li, J. (2020). Digital Transformation and Operational Efficiency in Small and Medium-Sized Enterprises: The Moderating Role of Organizational Resilience. *Journal of Small Business Management, 58*(4), 1245-1268.