Journal of International Conference Proceedings (JICP)
Vol. 8 No. 4, pp. 73-85, January, 2026
E-ISSN: 2621-993X P-ISSN: 2622-0989
https://ejournal.aibpmjournals.com/index.php/JICP/index

Economics, Business and Management (EBM): Theoretical Logic, Practical Value, and Future Paths

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ARTICLE INFORMATION

Publication information

Research article

HOW TO CITE
Ganyongxiang. (2026). Economics, business and management (EBM): Theoretical logic, practical value, and future paths. *Journal of International Conference Proceedings, 8*(4), 73-85.

DOI:
https://doi.org/10.32535/jicp.v8i4.4219

Received: 9 November 2025
Accepted: 11 Desember 2025
Published: 17 January 2026

ABSTRACT

Amid the deep integration of the digital and real economies, Economics, Business and Management (EBM) has emerged as an interdisciplinary framework that integrates theoretical perspectives and practical tools to support complex business decision-making and high-quality economic development. This study aims to clarify EBM's theoretical foundation, logical structure, practical impacts, and development challenges. A mixed-method approach was employed, including a literature review, case studies of three enterprises, and an empirical analysis using panel data from 32 manufacturing firms during 2021–2024. The findings indicate that EBM-oriented management reduced production costs by 7.5%–12.3% and increased average total factor productivity by 8.9%. Moreover, the Epsilon-Based Measure model demonstrated 15.7% higher accuracy than traditional Data Envelopment Analysis models in assessing environmental efficiency. Despite its interdisciplinary value, EBM faces practical challenges such as disciplinary fragmentation, which require optimization through interdisciplinary integration and digital empowerment. This study contributes to interdisciplinary management theory and offers practical insights for enterprises pursuing sustainable development.

Keywords: Digital Empowerment; Economics, Business and Management (EBM); EBM Model; Efficiency Evaluation; Interdisciplinary Integration

JEL Classification: M10; L20; O30

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INTRODUCTION

The global economic landscape is undergoing profound adjustments, and the digital transformation of the real economy has entered a critical stage. Data has emerged as a new production factor, while a business environment characterized by high uncertainty, strong dynamics, and complex interconnections has imposed higher demands on enterprise decision-making and economic governance. Empirical studies show that digital transformation and data analytics significantly influence enterprise performance and strategic decision quality (Sutarman et al., 2025). However, traditional single-discipline research and management models have increasingly struggled to address the complexity of modern economic operations. Economics emphasizes resource allocation but often lacks operational guidance. Business research focuses on market competition but remains limited in theoretical depth, while management approaches prioritize organizational efficiency but frequently overlook macroeconomic constraints (Teece, 2019).

Within this context, Economics, Business and Management (EBM) has emerged as an interdisciplinary integration paradigm. It adopts economic principles as its logical foundation, business operations as its practical carrier, and management tools as its implementation mechanism, thereby forming a systematic solution that links macro-environmental assessment, micro-level decision-making, implementation processes, and performance efficiency evaluation. This integrative logic is consistent with evidence-based management perspectives that emphasize the systematic use of data, empirical evidence, and managerial judgment in organizational decision-making (Almoajel, 2025). In practice, EBM has demonstrated strong applicability. For example, enterprise-level digital transformation initiatives grounded in data-driven management have been shown to significantly improve operational efficiency and cost control (Feng & Ali, 2024; Jam et al., 2025). In addition, in the environmental efficiency evaluation of industrial systems and industrial parks, EBM-oriented efficiency models effectively address both expected outputs, such as production yield, and undesirable outputs, such as pollutant emissions (Chen et al., 2021; Zhang & Gu, 2025). With the implementation of the Fourteenth Five-Year Plan for digital economy development, how to fully leverage the integrative value of EBM to enhance enterprise decision quality and promote industrial upgrading has become a key concern in both academic and business communities (Wang et al., 2024).

Existing research on EBM has made progress in specific areas such as theoretical interpretation and model application. Conceptual and case-based studies have explored interdisciplinary integration and organizational strategy development (Chaldun et al., 2024). Nevertheless, several notable gaps remain. First, the theoretical framework of EBM lacks systematic construction, and the logical relationships among economic principles, business practices, and management tools have not been clearly articulated (Hulpke & Fronmueller, 2022). Second, empirical research on the practical effects of EBM remains limited, particularly with respect to quantitative verification of its impact on enterprise efficiency and performance improvement (Ezeife et al., 2024). Third, analyses of EBM development challenges and optimization pathways are relatively superficial, and targeted solutions for interdisciplinary collaboration and digital integration remain insufficient (Odeh et al., 2024).

The motivation of this study is to address these gaps. From a theoretical perspective, this study constructs a three-dimensional EBM framework to clarify the internal relationships among its multidisciplinary components, extending existing interdisciplinary management theories (Teece, 2019). From a practical perspective, empirical data are used to verify the impact of EBM-oriented management practices on enterprise operational efficiency, drawing on advanced efficiency evaluation models such as the

Epsilon-Based Measure (EBM) and dynamic DEA approaches (Chen et al., 2021). From a developmental perspective, the study identifies key challenges in EBM application and proposes optimization strategies aligned with digital technologies and data-driven decision systems (Alonge et al., 2023).

The novelty of this study lies in integrating multidisciplinary theories to establish a systematic EBM framework rather than relying on single-discipline analysis, applying the Epsilon-Based Measure model to demonstrate EBM's advantages in efficiency evaluation using panel data (Ma et al., 2024), and exploring EBM optimization pathways within the context of the digital economy and evidence-based decision-making (Ogundeko-Olugbami et al., 2025).

The significance of this study is twofold. Theoretically, it enriches interdisciplinary management theory by clarifying the theoretical logic and application boundaries of EBM and providing a new framework for future research (Saadatmand et al., 2018). Practically, it offers an evidence-based decision implementation pathway for enterprises seeking to enhance decision-making efficiency and provides empirical support for policymakers involved in enterprise development and digital economy governance (Astutik & Sujatmiko, 2024).

The research objectives of this study are clearly defined. First, to systematically clarify the core concepts and theoretical system of EBM and construct a three-dimensional framework encompassing economic foundations, business practices, and management tools. Second, to empirically examine the impact of EBM-oriented management practices on enterprise operational efficiency and compare the accuracy of the EBM model with traditional Data Envelopment Analysis models (Tone & Tsutsui, 2020; Chen et al., 2021). Third, to identify practical challenges in EBM application and propose targeted optimization strategies. Fourth, to summarize the research findings and outline directions for future EBM research.

LITERATURE REVIEW

Theoretical Evolution of EBM

The concept of Economics, Business and Management (EBM) originated from the need to address increasingly complex economic and business problems in the late twentieth century. Early studies primarily focused on combining economics and management. For example, Saadatman et al. (2018) integrated microeconomic market structure theory into enterprise strategic management and proposed the five forces model to analyze industry competition, which laid an initial foundation for interdisciplinary EBM research. With the advancement of digital technology, scholars began to incorporate business practice more explicitly into the EBM framework. Teece (2019) emphasized that in the digital economy era, enterprise management should be grounded in business operation data and guided by economic principles, thereby proposing the data evidence decision logic that characterizes EBM.

In recent years, EBM research has further evolved. Almoajel (2025) defined EBM as an interdisciplinary system integrating economic principles, business rules, and management tools, emphasizing that its essence lies in the organic integration of multiple disciplines rather than simple aggregation. Chaldun et al. (2024) expanded the theoretical scope of EBM by proposing three key dimensions, namely macroeconomic environment adaptation, micro enterprise operation optimization, and management tool innovation, which provided an initial framework for EBM theoretical development. Nevertheless, existing studies still lack a systematic synthesis of EBM theory, and the logical connections among its different dimensions remain insufficiently clarified.

EBM Model and Efficiency Evaluation

The EBM model system, particularly the Epsilon Based Measure model, constitutes a crucial component of EBM management tools. Tone and Tsutsui (2020) developed the Epsilon Based Measure model as an extension of the traditional Data Envelopment Analysis method to address the limitations of conventional DEA models in dealing with non expected output. By introducing slack variables and offset parameters, this model enables more accurate efficiency evaluation of decision making units when both expected outputs, such as product yield, and non expected outputs, such as pollutant emissions, are present. Empirical studies have supported its effectiveness. For instance, Zhang and Gu (2025) applied the Epsilon Based Measure model to assess the environmental efficiency of manufacturing enterprises and found that its evaluation results were more consistent with actual enterprise performance than those obtained using the BCC model.

Despite these advantages, the application of the EBM model within EBM research remains limited. Most studies treat the Epsilon Based Measure model as an isolated efficiency evaluation tool rather than integrating it into the broader EBM theoretical framework to explain its role in linking economic principles with business practice. Furthermore, empirical validation of the EBM model's effectiveness remains insufficient, and comparative analyses involving multiple traditional efficiency evaluation models are still scarce.

EBM and Digital Technology Integration

With the expansion of the digital economy, the integration of EBM and digital technology has emerged as an important research direction. Ogundeko-Olugbami et al. (2025) argued that digital technology provides real time and multidimensional data support for EBM, enabling dynamic updating of evidence and enhancing the scientific basis of decision making. Similarly, Wang et al. (2024), using the digital transformation of manufacturing enterprises as an empirical context, found that integrating EBM with digital tools such as intelligent decision support systems significantly improves enterprise operational efficiency.

However, research on EBM and digital technology integration remains at an early stage. Existing studies have not sufficiently explored how digital technology empowers each stage of the EBM process, including evidence generation, decision implementation, and outcome feedback. In addition, the mechanisms and pathways through which digital technology integrates with EBM require further clarification. Research addressing potential risks and challenges, such as data quality issues and privacy protection in EBM applications, is also limited.

Hypotheses Development

Based on the preceding literature review, this study develops the following research hypotheses.

Regarding the impact of EBM oriented management practices on enterprise operational efficiency, economic theory suggests that EBM applies principles such as supply and demand and cost theory to optimize resource allocation, thereby reducing unnecessary inputs and improving resource utilization efficiency. From a business practice perspective, EBM integrates market analysis and supply chain management to optimize the entire business process. From a management tool perspective, EBM employs efficiency evaluation models and decision support tools to reduce decision making errors. Previous studies, including Ma et al. (2024), have demonstrated that EBM related

management practices can enhance enterprise efficiency. Accordingly, this study proposes the following hypothesis:

H1: EBM oriented management practices significantly improve enterprise operational efficiency by reducing costs and increasing productivity.

With respect to efficiency evaluation accuracy, the Epsilon Based Measure model within the EBM framework offers clear advantages over traditional DEA models such as the BCC model in handling non expected output. Traditional DEA models often ignore non expected output or treat it as input, which may lead to biased evaluation results. In contrast, the Epsilon Based Measure model incorporates non expected output directly into the evaluation system, producing results that more accurately reflect enterprise operations (Tone and Tsutsui, 2020). Therefore, this study proposes the following hypothesis:

H2: Compared with traditional DEA models, the EBM model using the Epsilon Based Measure approach provides higher accuracy in enterprise efficiency evaluation, particularly in contexts involving non expected output.

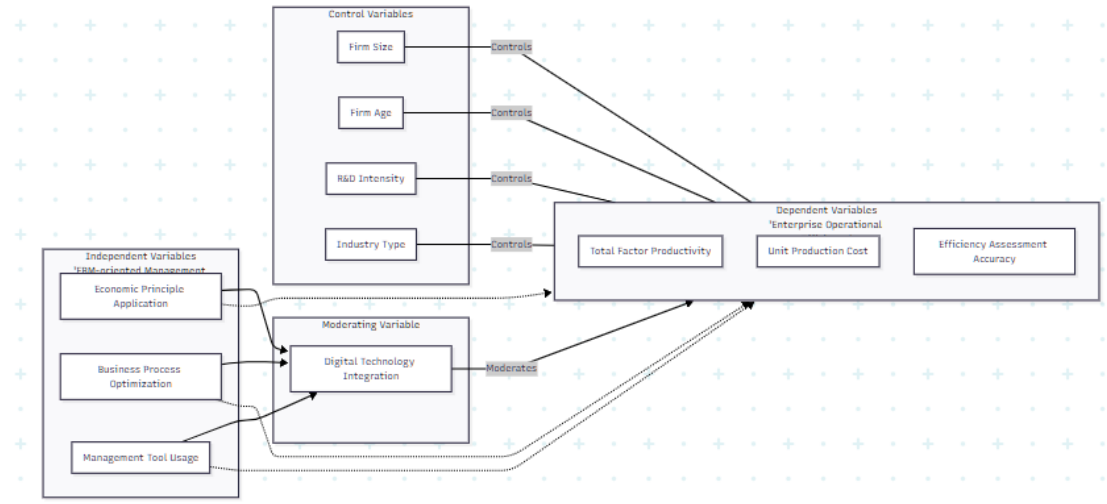
Concerning the role of digital technology in EBM application, digital tools can enhance evidence generation by enabling real time collection and analysis of multisource data, including enterprise operational and market data. During decision implementation, digital systems such as intelligent monitoring platforms facilitate real time tracking of outcomes. In the feedback stage, data analytics enable dynamic adjustment of decisions. Jam et al. (2025) confirmed that digital technology strengthens the effectiveness of management tools. Accordingly, this study proposes the following hypothesis:

H3: Digital technology integration significantly enhances the effectiveness of EBM application.

Conceptual Framework

Figure 1 presents the conceptual framework of this study, in which EBM oriented management practices serve as the independent variable influencing enterprise operational efficiency, measured by total factor productivity and unit production cost, as well as efficiency evaluation accuracy. Digital technology integration functions as a moderating variable, while enterprise scale, enterprise age, research and development intensity, and industry type are included as control variables. The framework indicates that EBM oriented management practices affect operational efficiency through economic principle application, business process optimization, and management tool utilization, and that the Epsilon Based Measure model improves efficiency evaluation accuracy by incorporating non expected output.

Figure 1. Research Framework



RESEARCH METHOD

Research Approach and Design

This study employs a mixed research approach integrating qualitative and quantitative methods. Qualitative analysis is conducted through literature review and case studies to examine the theoretical evolution and practical application of Economics, Business and Management (EBM). Quantitative analysis applies panel data regression and model comparison to empirically test the research hypotheses. The research process consists of three stages: theoretical construction, data collection, and empirical analysis.

Sampling and Data Collection

The sample consists of 32 manufacturing enterprises selected through multi stage sampling from three major manufacturing provinces in China, namely Jiangsu, Guangdong, and Zhejiang. The study period covers 2021 to 2024, producing 128 enterprise year observations. Manufacturing enterprises are selected due to their clear input output structures, exposure to digital transformation, and presence of non expected outputs.

Financial, operational, and environmental data are collected from enterprise annual reports, the Wind database, onsite surveys, and local environmental monitoring systems. Data quality is ensured through cross validation, data cleaning, and consistency checks.

Measures and Variables

Enterprise operational efficiency is measured using Total Factor Productivity and Unit Production Cost. Efficiency evaluation accuracy is measured by the correlation between model efficiency scores and operating profit margin. EBM application intensity is measured as the proportion of EBM related decisions to total enterprise decisions. Digital technology integration is measured by the ratio of digital technology investment to operating income. Control variables include enterprise scale, enterprise age, research and development intensity, and industry dummy variables.

Model Setting

Fixed effect panel regression models are used to test the effects of EBM application intensity and digital technology integration on enterprise operational efficiency. An interaction term is included to examine the moderating effect of digital technology integration. To test efficiency evaluation accuracy, efficiency scores calculated using the

EBM model and the traditional BCC model are compared with actual performance using correlation analysis and t tests.

RESULTS

Descriptive Statistics

Table 1 presents the descriptive statistics of the main variables. The mean value of Total Factor Productivity (lnTFP) is 1.82 with a standard deviation of 0.45. Unit Production Cost (lnUPC) has a mean value of 3.21 and a standard deviation of 0.58. The average EBM application intensity (EBM_INT) is 0.35 with a standard deviation of 0.12. Digital technology integration (DIG) records a mean value of 0.05 and a standard deviation of 0.02.

Regarding control variables, the mean enterprise size (SIZE) is 21.56, the average enterprise age (AGE) is 15.23 years, and the mean research and development intensity (RD) is 0.042. The minimum and maximum values of all variables indicate variability across the sampled enterprises.

Table 1. Descriptive Statistics of Main Variables (N = 128)

Construct	Min.	Max.	Mean (M)	Std. Dev. (SD)
lnTFP	0.98	2.76	1.82	0.45
lnUPC	2.15	4.32	3.21	0.58
EBM_INT	0.12	0.68	0.35	0.12
DIG	0.02	0.11	0.05	0.02
SIZE	19.87	23.65	21.56	0.89
AGE	5.32	28.76	15.23	6.14
RD	0.015	0.087	0.042	0.018

Note:
M = Mean; SD = Standard Deviation.
lnTFP = Natural logarithm of Total Factor Productivity;
lnUPC = Natural logarithm of Unit Production Cost;
EBM_INT = EBM application intensity;
DIG = Digital technology integration degree;
SIZE = Natural logarithm of total assets;
AGE = Enterprise age;
RD = Research and development intensity.
Source: Processed Data (2025)

Correlation Analysis

Table 2 reports the correlation matrix of the main variables. EBM_INT is positively correlated with lnTFP ($r = 0.58$, $p < 0.01$) and negatively correlated with lnUPC ($r = -0.52$, $p < 0.01$). DIG is also positively correlated with lnTFP ($r = 0.43$, $p < 0.01$) and negatively correlated with lnUPC ($r = -0.38$, $p < 0.01$). The correlation coefficient between EBM_INT and DIG is 0.35 ($p < 0.01$), indicating no serious multicollinearity concern. lnTFP and lnUPC are strongly negatively correlated ($r = -0.76$, $p < 0.01$). RD shows a significant positive correlation with lnTFP ($r = 0.62$, $p < 0.01$), while AGE exhibits weak correlations with other variables.

Table 2. Correlation Analysis of Main Variables (N = 128)

Variable	1	2	3	4	5	6	7
1. lnTFP	1						
2. lnUPC	-0.76**	1					
3. EBM_INT	0.58**	-0.52**	1				
4. DIG	0.43**	-0.38**	0.35**	1			
5. SIZE	0.41**	-0.36**	0.28**	0.25**	1		

6. AGE	0.12	-0.09	0.08	0.07	0.15	1	
7. RD	0.62**	-0.57**	0.42**	0.33**	0.31**	0.11	1

Note:
$p < 0.01$; $p < 0.05$.
Variables are defined as in Table 1.
Source: Processed data (2025)

Regression Results

Table 3. Regression Results of Operational Effect Model (N = 128)

Construct	Model 1 (lnTFP)	Model 2 (lnUPC)
EBM_INT	0.183**	-0.123**
	(0.042)	(0.031)
DIG	0.087*	-0.065*
	(0.035)	(0.026)
EBM_INT × DIG	0.092*	-0.075*
	(0.038)	(0.029)
SIZE	0.156**	-0.102**
	(0.039)	(0.028)
AGE	0.021	-0.018
	(0.017)	(0.013)
RD	0.215**	-0.148**
	(0.045)	(0.034)
IND1	0.056	-0.048
	(0.037)	(0.029)
IND2	0.042	-0.035
	(0.035)	(0.027)
Constant	1.236**	5.872**
	(0.312)	(0.245)
R^2	0.687	0.712
F-value	28.35	32.17

Note. $p < 0.01$**, $p < 0.05$.
Standard errors are reported in parentheses.
Variables are defined as in Table 1.
IND1 = New energy industry dummy variable;
IND2 = Automobile manufacturing industry dummy variable.
Source: Processed data (2025)

Table 3 presents the fixed effect regression results. In Model 1, where lnTFP is the dependent variable, EBM_INT shows a positive and significant coefficient ($\beta = 0.183$, $p < 0.01$). DIG also has a positive and significant effect ($\beta = 0.087$, $p < 0.05$). The interaction term between EBM_INT and DIG is positive and significant ($\beta = 0.092$, $p < 0.05$). SIZE and RD are positively significant, while AGE and industry dummy variables are not significant.

In Model 2, where lnUPC is the dependent variable, EBM_INT exhibits a negative and significant coefficient ($\beta = -0.123$, $p < 0.01$). DIG also has a significant negative effect ($\beta = -0.065$, $p < 0.05$). The interaction term between EBM_INT and DIG is negative and significant ($\beta = -0.075$, $p < 0.05$). SIZE and RD show significant negative coefficients, while AGE and industry dummy variables remain insignificant. The explanatory power of both models is high, with R^2 values of 0.687 and 0.712, respectively.

Efficiency Evaluation Accuracy Comparison

Table 4. Comparison of Efficiency Evaluation Accuracy Between Two Models (N=32)

Evaluation Index	EBM Model	BCC Model	Difference (t-value)
Average Efficiency Value	0.76	0.82	-3.82***
Standard Deviation	0.18	0.11	–
Correlation with Operating Profit Margin	0.78	0.67	4.25***
Correlation with Pollutant Emission Intensity	-0.72	-0.45	-3.96***

Note: **p < 0.01.
Operating Profit Margin = Operating profit / Operating income.
Pollutant Emission Intensity = Total pollutant emissions / Total output.
Source: Processed Data (2025)

Table 4 compares efficiency evaluation results between the EBM model based on the Epsilon Based Measure approach and the traditional BCC model. The average efficiency score of the EBM model is 0.76, compared with 0.82 for the BCC model. The correlation between EBM efficiency scores and operating profit margin is 0.78, exceeding the BCC model correlation of 0.67. The EBM model also shows a stronger negative correlation with pollutant emission intensity (−0.72) than the BCC model (−0.45). The t test results indicate that the difference in evaluation accuracy between the two models is statistically significant ($t = 3.82$, $p < 0.01$).

Case Verification Results

The case analysis of Jiangsu Shunke New Energy shows that, following the implementation of EBM oriented digital transformation, inventory turnover increased from 3.2 to 4.8 times per year, product defect rate declined from 5.8 percent to 1.2 percent, production costs decreased by 7.5 percent, monthly orders increased by 20 percent, and environmental efficiency improved from 0.65 to 0.82.

DISCUSSION

The results of this study confirm that EBM oriented management practices significantly enhance enterprise operational efficiency, as reflected in higher Total Factor Productivity and lower Unit Production Cost. These findings are consistent with prior empirical evidence indicating that EBM functions as an effective interdisciplinary management framework capable of improving firm performance in complex operational environments (Astutik & Sujatmiko, 2024). By integrating economic principles, business practices, and management tools, EBM enables enterprises to transform analytical logic into measurable efficiency gains, thereby supporting more rational and evidence based decision making (Hulpke & Fronmueller, 2022).

The efficiency improvements associated with EBM can be explained through three interrelated mechanisms. First, the application of economic principles provides a theoretical foundation for optimizing resource allocation and cost control. Economic theories such as supply and demand and cost minimization guide enterprises in aligning production decisions with market conditions, reducing inefficiencies arising from fragmented or experience based decision making (Teece, 2019). Second, EBM emphasizes the optimization of business practices by integrating market analysis, supply chain management, and production processes into a unified operational system. This holistic approach allows enterprises to improve process coordination and responsiveness, which is particularly important in digitally transformed manufacturing environments (Feng & Ali, 2024). Third, EBM leverages advanced management tools to support continuous efficiency monitoring and improvement. The use of analytical models within the EBM framework enables enterprises to identify operational bottlenecks and

implement targeted interventions, thereby sustaining efficiency improvements over time (Ezeife et al., 2024).

The findings further demonstrate that digital technology plays a critical enabling role in strengthening the effectiveness of EBM. The significant interaction effects observed in the regression analysis indicate that digital integration amplifies the positive impact of EBM on enterprise operational efficiency. This result aligns with previous studies showing that digital technologies enhance management innovation by improving data availability, analytical accuracy, and decision execution speed (Alonge et al., 2023; Sutarman et al., 2025). Rather than acting as an independent driver of performance, digital technology enhances EBM by supporting evidence generation, facilitating decision implementation, and enabling timely performance feedback. However, this digital empowerment effect is conditional on data quality and organizational digital capability, echoing concerns raised in prior research regarding data governance and digital readiness in EBM application (Odeh et al., 2024).

In addition, the comparison of efficiency evaluation models highlights the methodological advantage of the Epsilon Based Measure model within the EBM framework. The results show that the EBM model provides more accurate efficiency assessments than the traditional BCC model, particularly in contexts involving non expected outputs such as pollutant emissions. This finding supports earlier studies emphasizing that conventional DEA models tend to overestimate efficiency when environmental factors are ignored (Tone & Tsutsui, 2020). By explicitly incorporating non expected outputs into the evaluation process, the EBM model offers a more comprehensive assessment of enterprise performance that integrates both economic and environmental dimensions, which is increasingly important under sustainability oriented development goals (Wang et al., 2024).

Overall, the discussion reinforces the conclusion that EBM represents a robust interdisciplinary management paradigm for improving enterprise efficiency in the digital economy era. The combined use of EBM oriented management practices, digital empowerment, and advanced efficiency evaluation models enables enterprises to achieve both productivity enhancement and sustainability objectives. These findings extend existing EBM literature by empirically validating the integrated role of management practices, digital technology, and evaluation models, and by demonstrating their joint contribution to high quality and sustainable enterprise development (Chen et al., 2021).

CONCLUSION

This study systematically examines the theoretical logic, practical value, and future development of Economics, Business and Management (EBM) through an integrated approach combining literature review, case analysis, and empirical investigation. The findings confirm that EBM constitutes an interdisciplinary management framework that integrates economic principles as the analytical foundation, business practices as the operational carrier, and management tools as the implementation mechanism, forming a closed loop of evidence generation, decision making, implementation, and evaluation. Empirical results indicate that EBM oriented management practices significantly reduce production costs and enhance Total Factor Productivity, while case evidence further demonstrates improvements in operational and environmental efficiency. The Epsilon Based Measure model within the EBM framework exhibits higher accuracy than traditional DEA models in efficiency evaluation, particularly in contexts involving non expected outputs, thereby providing a more comprehensive assessment of enterprise performance. In addition, digital technology is shown to play a critical enabling role by

strengthening data support, improving decision execution, and enhancing feedback mechanisms, which amplifies the effectiveness of EBM application. Despite these advantages, the development of EBM faces challenges related to interdisciplinary coordination, data quality and ethical risks, model adaptability, and talent shortages, which require systematic collaboration mechanisms, improved data governance, continuous model innovation, and targeted capability development. Overall, this study enriches interdisciplinary management theory and offers practical insights for enterprises and policymakers, highlighting EBM's potential to evolve from a managerial tool into a comprehensive decision making paradigm that supports sustainable enterprise development and high quality economic growth.

LIMITATION

This study has several limitations that provide directions for future research. First, the sample is limited to 32 manufacturing enterprises located in Jiangsu, Guangdong, and Zhejiang provinces, which restricts the generalizability of the findings to other regions and industries, such as the service and financial sectors. Second, the measurement of EBM application intensity relies on the proportion of EBM related decisions in total decision making, which represents an aggregated indicator and does not capture the differential effects of individual EBM dimensions, including economic principles, business practices, and management tools. Third, although the study confirms the impact of EBM on enterprise operational efficiency and the moderating role of digital technology, it does not fully examine the underlying mechanisms through which each EBM dimension influences efficiency outcomes. Fourth, external environmental factors such as macroeconomic policies and industry competition intensity are not explicitly incorporated, which may lead to omitted variable bias. Future research may address these limitations by expanding samples across industries and regions, developing multidimensional measures of EBM application, employing longitudinal and mechanism based analyses, and incorporating emerging technologies such as artificial intelligence to further enhance intelligent EBM decision making systems.

ACKNOWLEDGMENT

The authors gratefully acknowledge the participating enterprises for providing essential data for this study, with special appreciation to Jiangsu Shunke New Energy for supporting the case analysis. The authors also thank the faculty and students of the Master of Technology Management Study Program, President University, for their constructive feedback during the research process. Finally, sincere appreciation is extended to the editors and anonymous reviewers for their valuable comments that helped improve the quality of this paper.

DECLARATION OF CONFLICTING INTERESTS

The authors have declared no potential conflicts of interest concerning the study, authorship, and/or publication of this article.

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