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REVIEWER'S REPORT

Manuscript No.: IJAR-59653

Title: Integration of Enterprise Resource Planning and Advanced Data Analytics for Cost Optimization and Supply Chain Performance Improvement in Saudi Cement Manufacturing.

Recommendation:
Accept

Rating	Excel.	Good	Fair	Poor
Originality	Yes			
Techn. Quality		Yes		
Clarity	Yes			
Significance		Yes		

Reviewer's ID: JPR- 015

Detailed Reviewer's Report

Reviewer's Comment for Publication.

Acceptance Comment are mentioned below suitable for the paper titled "**Integration of Enterprise Resource Planning and Advanced Data Analytics for Cost Optimization and Supply Chain Performance Improvement in Saudi Cement Manufacturing"**

Reviewer Comments: Accept

Reviewer Comments –

1. Introduction

The manuscript addresses an important issue in the digital transformation of Saudi Arabia's cement manufacturing sector through the integration of Enterprise Resource Planning (ERP) systems and advanced data analytics. The study highlights the operational complexities associated with energy-intensive production, capital-intensive assets, inventory management, and geographically dispersed distribution networks. It establishes the importance of connecting transactional ERP data with production and supply chain information to improve organisational decision-making. The research is highly relevant to cost optimisation, operational efficiency, and supply chain reliability. Overall, the introduction provides a clear and practical foundation for the study.

2. Literature Review

The manuscript presents an integrative review of 30 peer-reviewed publications covering ERP integration, advanced analytics, cement process optimisation, and supply chain modelling. The selected literature provides a relevant foundation for understanding the relationship between enterprise information systems and operational performance. The focus on the Saudi industrial context adds regional significance to the research. The mechanism–outcome matrix offers a structured approach to

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synthesising existing evidence without making unsupported causal claims. The review also identifies an important research gap concerning the availability of longitudinal, plant-level evidence.

3. Solution Approach

The proposed framework adopts a systematic approach to integrating ERP systems with advanced analytical capabilities across key cement manufacturing activities. It considers procurement, kiln operations, inventory management, maintenance, and outbound logistics as interconnected operational functions. The proposed architecture emphasises reliable data reconciliation, constraint-based optimisation models, and organisational accountability in implementing analytical recommendations. The inclusion of an illustrative cost measurement protocol provides a practical mechanism for evaluating potential operational improvements. The phased assessment strategy further strengthens the applicability of the proposed framework for Saudi cement enterprises.

4. Results and Discussion

The findings highlight that effective integration of operational and commercial data is essential for achieving meaningful cost and supply chain improvements. The study identifies three critical connections: data reliability, optimisation under operational constraints, and organisational routines for converting analytical insights into actions. The illustrative cost scenarios provide a useful basis for understanding potential economic benefits while distinguishing assumptions from verified operational outcomes. The consideration of energy prices, clinker quality, transportation capacity, and demand uncertainty adds practical relevance to the analysis. Overall, the discussion provides valuable insights into the role of integrated data visibility in improving cost-to-serve and supply chain reliability.

5. Conclusion

The manuscript offers a meaningful contribution to the understanding of ERP-enabled analytics in the cement manufacturing industry. The proposed framework provides a structured pathway for integrating enterprise systems, analytical decision-making, and operational performance measurement. Its emphasis on data visibility, process constraints, and accountable implementation makes the research particularly relevant to industrial digital transformation. The identified research gaps and testable propositions also provide useful directions for future empirical investigations.

Overall, the manuscript is relevant, well-focused, and suitable for acceptance.