

REVIEWER'S REPORT

Manuscript No.: IJAR-59108

Title: "AI and Big Data Analytics for Local Content Optimization in Saudi Industrial Supply Chains"

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 "AI and Big Data Analytics for Local Content Optimization in Saudi Industrial Supply Chains"

Reviewer Comments: Accept

Reviewer Comments –

1. Introduction

The manuscript addresses a timely and significant topic concerning the application of artificial intelligence and big-data analytics to local-content optimization in Saudi industrial supply chains. The study clearly connects the challenges of dynamic procurement, supplier capability, cost, demand, and supply risk with the objectives of Saudi Vision 2030. The introduction establishes a strong rationale for moving beyond static and compliance-oriented approaches to local-content development. The topic has considerable relevance to industrial competitiveness, domestic value creation, and supply-chain resilience.

2. Literature Review

The literature review provides a relevant and comprehensive foundation by connecting AI-enabled supply chains, big-data analytics, Industry 4.0, supplier development, and supply-chain resilience. The

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integration of these research areas is appropriate for understanding the complex requirements of local-content optimization. The manuscript appropriately identifies the roles of machine learning, natural-language processing, graph analytics, and mathematical optimization in modern procurement and supply-chain management. The inclusion of Saudi Vision 2030 and official merchandise-trade evidence further strengthens the contextual relevance of the review.

3. Solution Approach

The proposed solution approach is systematic and represents a major strength of the manuscript. The six decision modules covering spend intelligence, demand forecasting, supplier-capability analytics, localization opportunity prediction, supply-risk analytics, and local-content performance optimization provide a coherent analytical structure. The proposed Local Content Optimization Score (LCOS) offers a useful mechanism for combining economic value, supplier readiness, risk, feasibility, cost competitiveness, and strategic importance. The integration of AI with mathematical optimization and explainable data architecture is particularly appropriate. The framework also correctly positions AI as a decision-support capability that complements rather than replaces commercial and technical expertise.

4. Results and Discussion

The results and discussion provide a convincing conceptual demonstration of how AI and big-data analytics can support more dynamic local-content decisions. The proposed framework enables organizations to analyse procurement expenditure, forecast demand, identify supplier-development opportunities, assess supply risks, and optimize sourcing portfolios. The discussion appropriately highlights the importance of explainability, governance, data quality, and human judgment when applying AI to strategic supply-chain decisions. The integration of local supplier readiness with cost and resilience considerations provides a balanced basis for localization decisions.

5. Conclusion

The conclusion effectively summarizes the contribution of the manuscript and emphasizes the potential of AI and big-data analytics to transform local-content management in Saudi industrial supply chains. The proposed framework provides a structured pathway for shifting from periodic compliance assessment toward continuous, data-driven supplier and sourcing optimization. Its alignment with industrial competitiveness, domestic value creation, supplier development, and supply-chain resilience enhances its practical significance. The LCOS concept and integrated decision modules provide a useful foundation for future empirical implementation and validation.

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