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REVIEWER'S REPORT

Manuscript No.: **IJAR-52797** Date: 16-07-2025

Title: Synergizing Quality, Cost and Engineering for Sustainable Healthcare Infrastructure: A Multidisciplinary Framework

Recommendation:
Accept as it is .....
Accept after minor revision.....
Accept after major revision .....
Do not accept (*Reasons below*) .....

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

Reviewer Name: Dr Aamina

Reviewer's Comment for Publication.

General Assessment:
The manuscript presents a timely and well-structured analysis of the growing need for multidisciplinary approaches to healthcare infrastructure development. It successfully brings together engineering, economics, and quality management as three critical pillars for ensuring sustainability, cost-efficiency, and performance in healthcare systems. The topic is of global relevance, particularly in light of rising healthcare demands, budget constraints, and environmental imperatives.

Abstract Evaluation:
The abstract concisely articulates the problem, the proposed multidisciplinary approach, and the methodological base (literature and case studies). It clearly identifies the integration of engineering design, cost models, and quality management as the core focus. The language is direct and informative, and the content appropriately sets up expectations for the rest of the paper. The emphasis on implementation and synergy reinforces the practical utility of the framework.

Introduction Evaluation:
The introduction establishes a clear context by highlighting the structural, economic, and environmental pressures on global healthcare systems. It accurately identifies the healthcare sector as uniquely complex and undergoing continuous transformation. The narrative smoothly transitions to a call for integrated frameworks that combine engineering innovation, cost optimization, and total quality management

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(TQM). The focus on sustainability—encompassing operational, financial, and environmental dimensions—is clearly stated and offers a well-justified rationale for the study.

Thematic Clarity and Relevance:
The manuscript demonstrates strong thematic clarity by situating healthcare infrastructure challenges at the intersection of three domains: engineering, economics, and quality management. The emphasis on synergy among these domains is appropriate and lends itself well to interdisciplinary research. The mention of data sources from peer-reviewed literature and international case studies suggests a sound foundation in empirical evidence and global best practices.

Conceptual and Practical Contribution:
This work offers both conceptual insights and practical implications. By presenting a multidisciplinary framework, it contributes to a more integrated understanding of how hospitals and healthcare facilities can simultaneously meet the goals of efficiency, affordability, and sustainability. The manuscript resonates with current healthcare infrastructure planning needs, particularly in developing nations and rapidly urbanizing contexts.

Language and Presentation:
The language is professional, coherent, and well-suited to an academic audience. Key terms such as "synergy," "total quality management," and "cost optimisation" are used accurately and in context. The writing maintains clarity without oversimplifying the technical or economic concepts involved.

Final Remarks:
The manuscript provides a compelling and policy-relevant discussion of sustainable healthcare infrastructure development through multidisciplinary integration. It is forward-looking, theoretically sound, and grounded in practical realities. The focus on synergy among engineering, cost efficiency, and quality assurance addresses a pressing global concern and is likely to be of interest to scholars, practitioners, and policymakers alike.