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REVIEWER'S REPORT

Manuscript No.: **IJAR- 53632** Date: 31-08-2025

Title: Blockchain-Enabled Transparency in Artificial Intelligence

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: **Sudhanshu Sekhar Tripathy** **Date:** 31-08-2025

Reviewer's Comment for Publication.

(*To be published with the manuscript in the journal*)

The reviewer is requested to provide a brief comment (3-4 lines) highlighting the significance, strengths, or key insights of the manuscript. This comment will be Displayed in the journal publication alongside with the reviewer's name.

Reviewer's Comment for Publication

The manuscript addresses a highly relevant issue at the intersection of **artificial intelligence (AI) transparency** and **blockchain technology**. The proposed integration of blockchain to enhance explainability, auditability, and trust in AI decision-making is timely and original. The study is well-organized, with good literature coverage, clear articulation of challenges, and potential applications. However, certain areas require **minor revision** to improve methodological clarity, empirical validation, and presentation.

Detailed Reviewer's Report

1. Scope & Relevance:

- The paper focuses on enhancing **AI transparency** using blockchain — an emerging research area with strong academic and industrial value.
- The topic is highly relevant to fields such as healthcare, finance, and autonomous systems where accountability is critical.

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2. Structure & Technical Presentation:

- The structure (Abstract, Introduction, Transparency Challenges, Blockchain Fundamentals, Integration, Benefits, Challenges, Conclusion) is logical and well-flowing.
- Figures and tables are informative, but an **additional flowchart/system architecture** of the proposed framework would improve clarity.
- Captions of figures/tables should be made more descriptive.

3. Experimental / Methodological Details:

- The work is primarily conceptual and lacks **empirical validation or simulation results**. Including at least one case study, experimental setup, or prototype evaluation would strengthen the contribution.
- Comparative analysis of different blockchain architectures (Ethereum, Hyperledger, Corda) is briefly mentioned — but should be expanded with a **tabular comparison** of their suitability for AI transparency.
- More details on **how blockchain integrates with explainability tools (LIME, SHAP, counterfactuals)** would add depth.

4. References & Citations:

- References are recent and relevant (2016–2025), covering both blockchain and AI transparency.
- Some entries need formatting corrections (e.g., spacing, capitalization, DOIs).
- Additional references to **real-world blockchain-AI pilot projects** (IBM, Bosch, healthcare AI auditing) could enrich the literature review.

5. Language & Style:

- The paper is written in clear academic English.
- A few sections (especially Conclusion and Benefits) repeat similar ideas — can be condensed.
- Minor grammar and formatting checks are needed.

6. Key Strengths:

- Strong conceptual framework addressing the AI "black box" problem.
- Practical applications across healthcare, finance, and autonomous systems are well explained.
- Balanced discussion of opportunities and challenges (scalability, energy use, privacy).

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7. Areas for Improvement:

- Add a **conceptual/system flowchart** of the proposed blockchain-enabled AI transparency framework.
- Expand the **comparative analysis of blockchain architectures** with a summary table.
- Provide at least one **practical example, prototype, or case study** (even simulated) to support the conceptual claims.
- Standardize references and eliminate minor redundancies.

Final Feedback to Author

This paper makes a valuable contribution to the discussion on **responsible AI governance** by proposing blockchain-based transparency mechanisms. With minor improvements — including a flowchart of the framework, comparative blockchain architecture analysis, a concrete use-case or prototype, and reference formatting — the paper will be ready for publication.