

Research Methodology in Computer Science Assignment1

by Mohammed Anbar

Submission date: 20-Nov-2024 04:43AM (UTC+0800)

Submission ID: 2376678177

File name: Research_Methodology_in_Computer_Science_Assignment.docx (22.61K)

Word count: 896

Character count: 5842

Course Title: Research Methodology in Computer Science

Course Code: AI800

Weighting: 20%

Lecturer: Dr. Mohammed Anbar

Hand-out Date: 09 Nov 2024

Hand-in Date: 19 Oct 2024

Hand-in Method: Online Submission via E-Learning.

Assignment Report: ⁵ Analysis of the Use of Blockchain Technology in Facilitating Financial Transactions

Contents

Summary of Research Papers	2
Paper 1: Blockchain and Financial Services Transformation	2
Paper 2: Smart Contracts and Blockchain in Banking	3
Paper 3: Security Benefits of Blockchain for Financial Transactions	3
Paper 4: Blockchain for Cross-Border Payments	3
Paper 5: The Role of Blockchain in Fraud Prevention in Finance	3
Critical Analysis	3
• Strengths	3
• Shortcomings	3
• Limitations	3
Connections	3
1. Security and Fraud Prevention	3
2. Cost Reduction	3
3. Cross-Border Transactions	4
4. Automation with Smart Contracts	4
Conflicts Between Findings	4
1. Regulatory Impact	4
2. Scalability Concerns	4
3. Data Privacy vs. Transparency	4
Synthesis Matrix for Literature Review	4
References	5

Summary of Research Papers

Paper 1: Blockchain and Financial Services Transformation

This study explores how blockchain technology can enhance transparency and reduce costs in

financial processes by eliminating traditional intermediaries and shortening transaction times. It highlights potential applications in money transfers, e-commerce, and digital asset issuance.

Paper 2: Smart Contracts and Blockchain in Banking

This paper discusses how blockchain-based smart contracts can automate financial agreements and reduce the need for auditing. It finds that banks using blockchain and smart contracts can cut operational costs and increase the efficiency of financial services.

Paper 3: Security Benefits of Blockchain for Financial Transactions

This study examines how blockchain enhances the security of financial transactions through encryption and a distributed ledger system. It suggests that blockchain makes data tampering or alteration difficult, thereby increasing security in the financial sector.

Paper 4: Blockchain for Cross-Border Payments

This research discusses blockchain's advantages in cross-border payments by reducing time and costs and lowering reliance on traditional systems. Results show that blockchain contributes to faster and more secure international payments.

Paper 5: The Role of Blockchain in Fraud Prevention in Finance

This study explores blockchain's role in minimizing financial fraud, where the transparent transaction ledger helps prevent fake transactions and fraud, thereby enhancing trust among financial sector users.

Critical Analysis

- **Strengths:** The papers consistently agree that blockchain improves security, reduces dependence on intermediaries, lowers costs, and increases transparency in financial transactions.
- **Shortcomings:** Challenges in implementing blockchain include regulatory uncertainty and high technical resource requirements. Some studies rely on simulated models and do not test technology in real financial environments.
- **Limitations:** Most studies focus on specific benefits within certain financial processes, like money transfers, and may not address broader or less conventional applications in finance.

Connections

1. **Security and Fraud Prevention:** Several studies emphasize the role of blockchain in securing financial transactions and preventing fraud.
2. **Cost Reduction:** Multiple papers highlight blockchain's potential to reduce operational costs by eliminating intermediaries.

- 3. **Cross-Border Transactions:** Studies often discuss the efficiency of blockchain for international transactions, improving speed and security.
- 4. **Automation with Smart Contracts:** The use of smart contracts is frequently cited as a means of automating and securing financial agreements.

Conflicts Between Findings

- 1. **Regulatory Impact:** Some studies emphasize that blockchain can be adopted without significant regulatory changes, while others highlight regulatory ambiguity as a major obstacle.
- 2. **Scalability Concerns:** There is a disagreement over blockchain's scalability, with some studies citing potential limitations in handling large transaction volumes.
- 3. **Data Privacy vs. Transparency:** Some papers value blockchain's transparency, while others caution that excessive transparency may infringe on user privacy in financial transactions.

Synthesis Matrix for Literature Review

Study Title	Authors	Year	Research Design	Key Findings	Methodology	Limitations
1 The impact of blockchain technology on enhancing sustainability in the agri-food sector: A scoping review	1 Giganti, P., Borrello, M., Falcone, P. M., & Cembalo, L.	2024	Scoping Review	Blockchain improves sustainability 5 in the agri-food sector by enhancing traceability and reducing waste.	Literature Review	Limited to the agri-food sector

Study Title	Authors	Year	Research Design	Key Findings	Methodology	Limitations
2 Improving the financial security of national health insurance using cloud-based blockchain technology application	Amponsah, A. A., Adekoya, A. F., & Weyori, B. A.	2022	Empirical Study	Cloud-based blockchain enhances security in national health insurance systems.	Case Study and Analysis	Focused on health insurance applications
4 From smart legal contracts to contracts on blockchain: An empirical investigation	Bassan, F., & Rabitti, M.	2024	Empirical Study	Examines legal and technical challenges in implementing blockchain-based contracts.	Empirical Investigation	Limited to legal and contractual applications
3 Enhancing secure financial transactions through the synergy of blockchain and artificial intelligence	Alenizi, A., Mishra, S., & Baihan, A.	2024	Experimental Design	Combines blockchain and AI to improve the security of financial transactions.	AI-Blockchain Integration Study	Requires further testing in varied financial contexts

References

1. Giganti, P., Borrello, M., Falcone, P. M., & Cembalo, L. (2024). The impact of blockchain technology on enhancing sustainability in the agri-food sector: A scoping review. *Journal of Cleaner Production*, 456, 142379. <https://doi.org/10.1016/j.jclepro.2024.142379>
2. Amponsah, A. A., Adekoya, A. F., & Weyori, B. A. (2022). Improving the financial security of national health insurance using cloud-based blockchain technology application. *International Journal of Information Management Data Insights*, 2(1), 100081. <https://doi.org/10.1016/j.ijime.2022.100081>

3. Bassan, F., & Rabitti, M. (2024). From smart legal contracts to contracts on blockchain: An empirical investigation. *Computer Law & Security Review*, 55, 106035. <https://doi.org/10.1016/j.clsr.2024.106035>
4. Alenizi, A., Mishra, S., & Baihan, A. (2024). Enhancing secure financial transactions through the synergy of blockchain and artificial intelligence. *Ain Shams Engineering Journal*, 15(6), 102733. <https://doi.org/10.1016/j.asej.2024.102733>

Research Methodology in Computer Science Assignment1

ORIGINALITY REPORT

10%
SIMILARITY INDEX

7%
INTERNET SOURCES

10%
PUBLICATIONS

7%
STUDENT PAPERS

PRIMARY SOURCES

1 link.springer.com **3%**
Internet Source

2 www.semanticscholar.org **2%**
Internet Source

3 doaj.org **2%**
Internet Source

4 Fabio Bassan, Maddalena Rabitti. "From smart legal contracts to contracts on blockchain: An empirical investigation", Computer Law & Security Review, 2024 **2%**
Publication

5 Ashkan Pakseresht, Sina Ahmadi Kaliji, Karin Hakelius. "Blockchain technology characteristics essential for the agri-food sector: A systematic review", Food Control, 2024 **1%**
Publication

Exclude bibliography ☒ On