



المجلة العراقية للعلوم الاقتصادية
Iraqi Journal For
Economic Sciences



PISSN : 1812-8742

EISSE : 2791-092X

Arcif : 0.375

A proposed model for using blockchain technology in monitoring non-current assets in the Baghdad Municipality

انموذج مقترح لاستخدام تقنية سلسلة الكتل في الرقابة على الأصول غير المتداولة في بلدية بغداد

عماد محمد كندوري

Emad Mohammad Kendory
emadeco@uomustansiriyah.edu.iq

خمائل ابراهيم مشتت

Khamael Ibrahim Mushtat
khamaalibrahim1981@uomustansiriyah.edu.iq

كلية الإدارة والاقتصاد / جامعة المستنصرية

المستخلص

تعدّ الأصول غير المتداولة جزءًا بالغ الأهمية من البيانات المالية، إذ تلعب دورًا محوريًا في دعم الأنشطة التشغيلية وإظهار المتانة المالية للوحدات الاقتصادية. وتزداد أهميتها في ظل ضرورة الرقابة الفعالة التي تُركّز على صيانتها واستخدامها الأمثل. وتعدّ إدارة الأصول غير المتداولة إحدى أكبر التحديات التي تواجه الوحدات الاقتصادية اليوم، نظرًا لتزايد حالات الاحتيال والتلاعب والأخطاء في بيانات هذه الأصول. ولذا، أصبحت تقنية سلسلة الكتل (Blockchain) وسيلةً واعدةً لمراقبة وإدارة الأصول غير المتداولة. وتسعى هذه الدراسة نحو مراجعة عمليات الرقابة على الأصول غير المتداولة، ومعالجة أوجه القصور من خلال تطبيق تقنية سلسلة الكتل. فيما قد تم قياس متغيرات البحث من خلال تقييم إجراءات الرقابة الداخلية لعينة البحث (بلدية بغداد)، وإعداد إجراءات رقابة داخلية مقترحة باستخدام تقنية البلوك تشين. ومن أهم ما أوصى به الباحثان استخدام تقنية البلوك تشين في إدارة الأصول غير المتداولة لما لها من إسهام كبير في تحسين الرقابة عليها وبالتالي تعزيز جودة التقارير المالية.

الكلمات الرئيسية: تكنولوجيا المعلومات، تكنولوجيا البلوك تشين، الأصول غير المتداولة، الرقابة الداخلية، قطاع الخدمات.

Abstract

Non-current assets are a crucial part of financial statements, playing a pivotal role in supporting operational activities and demonstrating the financial soundness of economic entities. Their importance is amplified by the need for effective oversight focused on their maintenance and optimal utilization. Managing non-current assets is one of the biggest challenges facing economic entities today, given the increasing instances of fraud, manipulation, and errors in data related to these assets. Therefore, blockchain technology has emerged as a promising tool for monitoring and managing non-current assets. This study aims to review existing non-current asset control processes and address shortcomings through the application of blockchain technology. Research variables were measured by evaluating the internal control procedures of the

research sample (Baghdad Municipality) and developing proposed internal control procedures using blockchain technology. The researchers strongly recommend the use of blockchain technology in managing non-current assets, as it significantly contributes to improving their oversight and, consequently, enhancing the quality of financial reports.

Keywords: Information technology, Blockchain technology, non-current assets, internal control, financial reporting quality, service sector.

Introduction

Given the rapid pace of change in the world of technology, blockchain technology stands out as a major innovation, offering numerous advantages such as transparency, credibility, and reliability. This technology plays a crucial role in improving oversight of non-current assets. These assets—such as infrastructure, government property, and public utilities—are essential for delivering public services. However, their management continues to face challenges related to weak record-keeping systems, limited oversight, and the high risk of manipulation or inaccuracy in accounting data, negatively impacting the quality of financial reporting and decision-making. In this context, the development of blockchain technology has opened new horizons for improving the management of non-current assets in the public sector. This is due to its unique characteristics, including decentralization, tamper resistance, real-time transaction tracking, and enhanced data trust. Blockchain is viewed as an innovative tool capable of supporting government accounting and oversight systems by providing reliable and transparent digital records for managing the asset lifecycle, from acquisition and operation to disposal. This research will focus on proposing internal control procedures for non-current assets using blockchain technology, thereby improving control over these assets.

Research Methodology: Research Problem: There are several units in the economy that have difficulties in managing the non-current assets. These assets are also a considerable part of the budget and, as such, are the resources that the economic unit uses to run its business and make future profits. Thus, the control processes concerning these assets need to be enhanced with the help of new technologies. Based on the foregoing, it is evident that the primary research issue is whether we can apply Blockchain technology to enhance the process of controlling the non-current assets and what the effect of the matter is on the quality of financial reporting. To comprehend the topic of the study completely, the problem can be stated as follows:

Does Baghdad Municipality experience poor control of the non-current assets?

Does Baghdad Municipality use modern technologies like blockchain technology to manage non-current assets?

Does the use of blockchain technology and the management of non-current assets have a statistically significant correlation?

Research Importance : This research is significant as it dwells on one of the most significant resources to economic units, that is, non-current assets. Moreover, it touches upon the most crucial questions associated with the regulation of non-current assets to increase the level of transparency and credibility and offer unchangeable digital records based on the principle of blockchain technology usage.

Research Objectives: The research aims to:

1. Review the existing controls of the non-current assets in the Baghdad Municipality.
2. show the level at which the Baghdad Municipality has modern technologies, including blockchain, to manage non-current assets.
3. proposing internal control procedures for non-current assets using blockchain technology, thereby improving control over these assets..

Research Hypotheses: The research is based on the following main hypotheses:

1. Weaknesses of the existing control procedures of non-current assets in the research sample.
2. The Baghdad Municipality is using current technologies, including blockchain, in the management of non-current assets.
3. Proposing internal control procedures for non-traded assets using blockchain technology could improve control over these assets.

Literature review: Past researches form a crucial source of reference, and they help to formulate a theoretical approach to the study. They illuminated on past scientific researches on the area of research, a ground on which they can be compared and analyzed. The purpose of the research undertaken by Al-Qaisi (2021) was to determine how the utilization of blockchain technology might influence the enhancement of the quality of the internal control system. The research was able to conclude that Blockchain technology is effective in enhancing the quality of the internal control system. The purpose of the study by Abu Al-Khair (2023) was to establish the degree to which the quality of the audit process was influenced by Blockchain technology as one of the digital transformation mechanisms. It was observed that the utilization of the Blockchain concept influences the quality aspect of the audit process immensely. Another research carried out by Lootah (2024) also set out to examine the particular impacts of Blockchain technology on the accuracy of financial reporting, and found that there exists a positive influence of the use of the technology on the accuracy of the financial reporting. Lastly, the research proposed by Fawaz (2025) was an attempt to investigate and examine the consequences of applying blockchain technology in terms of the qualitative attributes of

the accounting information. The work by Han (2023) was focused on the question of the increase in the level of transparency and trust in accounting practices and the enhancement of the decisions made by professionals through technology. In this regard, the present research is unique compared to the past studies in that it presents a significant factor, non-current assets, which are regarded as the foundation for increasing the effectiveness of control systems and quality financial reporting. This study was based on analyzing the weaknesses in the research sample and then proposing control procedures under the Blockchain Technology.

Theoretical Framework

The Concept of Blockchain Technology: The reason for calling it "blockchain" is due to its components. Blockchain technology consists of a set of operations or transactions that must be executed, each of which is called a "block." A unique fingerprint is then created for this block of transactions. By adding the block fingerprints of previous transactions, a chain of transaction blocks is formed, hence the name "blockchain." (Sayed, 2019:172) Blockchain technology is defined in the Oxford Dictionary as a system that records transactions performed using Bitcoin and other cryptocurrencies, and is stored across a group of computers connected to a peer-to-peer network. (Al-Qaisi, 2021:16) It is defined as a distributed, immutable database that operates on a peer-to-peer (P2P) system, consisting of information secured by cryptography. (Wijesekar et al., 2023:344) After learning about the concept of Blockchain technology, we will learn about the most important characteristics and types of the technology.

Characteristics of Blockchain Technology: The most important characteristics of Blockchain technology are:

1. Traceability: This implies that the information that is accessible to all the network participants with authorized access can be observed simultaneously, which guarantees full transparency between the involved parties. (Al-Qaisi, 2021: 25)
2. Transparency: It is an aspect where all transactions are documented, and all the information can be tracked. The system is strong and viable because it replicates records to autonomous network devices. Traceability helps to improve user confidence (Hasher et al. 2023: 101)
3. Decentralization: This implies that there is no central authority to control the network, and the nodes themselves keep the network as a group, as opposed to traditional centralized systems that need to verify each transaction with a central authority. (Vaigandla et al. 2023: 77)
4. Encryption: Blockchain technology has not been hacked so far, although other cryptocurrency sites have been breached. This technology is based on

encrypting transactions using public and private keys, and each block keeps

the latest encrypted transaction. (Al-Qaisi, 2021: 24) As can be seen in the above, the nature of the Blockchain technology can contribute to practical enhancements in the non-current assets control process and generate trust, transparency, and precision in the economic entities' financial reporting. Although there are benefits of using the Blockchain technology, there are indeed some challenges associated with the practical implementation of the technology, which include high cost, inability to find qualified and experienced workers, lack of willingness to change among the management and individuals, the fact that the technology requires high-speed internet, and many other challenges. This technology can be classified into three types:

1. Public blockchain: This is a major type of blockchain, characterized by decentralization and openness. Anyone interested in transactions can access it (Paul & et al, 2021: 192)

2. Private Blockchain: This refers to blockchain networks that operate in specific, closed environments, typically controlled by a single company. Although decentralized, their scope is much smaller than that of public blockchains. (Vaigandla & et al, 2023) 78)

3. .Mixed Blockchain (Consortium Blockchain): This type represents a combination of private and public blockchains, giving the economic entities that use it great flexibility in choosing private and public data transparently without sacrificing privacy or security. (Fawaz, 2025: 5)

The Concept of Non-Current Assets: These are assets that a project intends to retain for more than one financial period, such as machinery, equipment, and real estate. What is considered a "fixed asset" in one project may be considered a current commodity in another. For example, cars are considered merchandise for a car dealer. (Abdullah, 2012: 217) They are assets of great value and have a productive life of more than one year, and are used in commercial operations and are not intended for resale in the context of the normal business of the economic unit (Silifusti, et al, 2025)

The Concept of Internal Control: Control is a set of procedures and policies designed to protect the assets of an economic unit from all forms of fraud and exploitation, ensure the availability of accurate and reliable accounting information for the economic unit, and verify the degree of compliance with policies and regulations and the extent to which they are followed and implemented by all employees in the economic unit. (109) Florid, et al. 2023) Control is also defined as the safeguards implemented by an economic unit to ensure the fulfilment of its priorities, objectives, and missions. Control consists of establishing operational standards that regulate the actions of members, implementing security measures to ensure

the safety of assets, and establishing systematic records. (107-108) Tuwei, & Ondabu 2022)

Internal Control Objectives: Control Objectives according to COSO ERM Standards: (Nugraha & Tjakrawala, 2023: 147)

i- Strategic: Represents the mission of the economic unit linked to the highest economic objectives of the unit.

ii-Operational: Represents the efficient and effective use of resources.

iii-Reporting: Represents reliable reports from the economic unit.

iv- Compliance: The extent of compliance with applicable laws and regulations.

Components of Internal Control: Control consists of the following five components:

1. **Control environment:** This includes defining responsibilities, procedures, methods, appropriate information systems, and appropriate practices. It is an essential part of the business structure. Therefore, the board of directors and executive management are responsible for determining acceptable behaviour (Olaniyi & Omubo, 2023:2).

2. **Risk assessment:** Risk assessment includes identifying and analyzing risks related to achieving the organization's objectives. This component helps determine how the economic unit manages risks. (Domili et al., 2025: 78)

3. **Control activities:** This component includes the development of proposed policies and procedures to mitigate previously identified risks. (Chowdhury & Leary, 2025: 4-5)

4. **Information and communication:** Maintaining the other components of internal control requires continuous work within and outside the organization to obtain and communicate critical information. Therefore, the organization must process, control, and communicate information to identify inherent risks that may affect business objectives. (Olaniyi & Omubo, 2023: 2)

5. **Monitoring activities:** Continuous monitoring of controls is essential to ensure their effectiveness is evaluated over time (Ziorkluis et al. 2024:1261). After understanding the concept of non-current assets, the concept of control, its importance, and its components, it has become necessary to address the impact of employing Blockchain technology in monitoring non-current assets.

The Role of Blockchain Technology in Monitoring Non-Current Assets
Rapid technological development has led to developments in monitoring methods within economic units, as modern technologies have come to play a fundamental role in enhancing the effectiveness of monitoring non-current assets to protect them from waste and loss. A study (Abdel Nasser, 2022) aimed to explore the potential role of using Blockchain technology

in improving the quality of the internal control system. It concluded that Blockchain technology can record and process transactions with minimal intervention. Humans contribute to reducing the rate of human error. The study (Rashwan et al. 2022) aimed to identify the role of digital transformation in improving the quality of the audit process. It concluded that digital transformation plays an effective role in dealing with a large volume of big data at the same time, which reduces the completion process. The study (Abu Al-Khair 2023) aimed to measure the impact of Blockchain technology on enhancing the quality of the audit process. It concluded that there is a positive impact of the technology on improving the quality of the audit process. The study (Abu Zaid 2025) aimed to analyze and evaluate the impact of Blockchain technology on improving audit performance in economic units. It concluded that the use of the technology leads to a reduction in the chances of fraud due to the availability of records that cannot be modified or tampered with and are updated periodically. After reviewing the positive impact of technology on auditing and oversight, the importance of studying the impact of this technology on the quality of financial reporting emerges. Blockchain can impact the monitoring of non-current assets by:

1. Enhancing the reliability of accounting records Studies indicate that blockchain enables the recording of every transaction related to an asset (acquisition, depreciation, revaluation, maintenance, disposal) in an immutable ledger, thus reducing the risk of tampering with asset entries or subsequent record modifications (Dai & Vasarhelyi, 2017).
2. Improving asset lifecycle tracking: By integrating blockchain with supporting technologies such as the Internet of Things (IoT), non-current assets can be tracked from the moment of purchase until the end of their useful life. Recent studies have shown that this integration mitigates the problems of fictitious or underutilized assets and enhances the efficiency of public and private asset management (Kouhizadeh et al., 2021).
3. Supporting Continuous Auditing and Real-Time Control: Accounting researchers believe that blockchain shifts the auditing function from the traditional periodic model to continuous auditing, where auditors and regulators can access asset data in real time, reducing the expectation gap and enhancing confidence in financial reports (Yermack, 2017).

Practical Aspect: The Baghdad Municipality is one of the service departments that aims to provide the best municipal services to the citizens of Baghdad Governorate. It was selected from the study sample departments based on the criterion of the percentage of non-current assets. The economic units with the largest percentage of these assets were selected, noting that the Baghdad Municipality includes approximately 21

sub-departments. The results of the evaluation of the control procedures for non-current assets in the Baghdad Municipality were as follows:

First Axis: Control Environment

- The Baghdad Municipality failed to submit the results of the periodic inventory of non-current assets for the years 2012, 2013, 2014, and 2015. This problem remained unresolved, and its repercussions continued into subsequent periods, reflecting a flaw in the organizational culture of the economic unit towards senior management.
- The Baghdad Municipality also failed to record grants and gifts in the appropriate registers, reflecting a weakness in its oversight culture and a lack of adherence to regulations and instructions.

Second axis: Risk assessment and management

- It was noted that there are specialized mechanisms for which depreciation has not been calculated since 2009, leading to an incorrect estimation of the book value of non-current assets.

Third axis: Control activities

- The Baghdad Municipality failed to provide inventory lists for its lands, properties, and vehicles, which contradicts the principle of full disclosure and oversight requirements.
- Detailed statements of land, buildings, and vehicles were not provided, nor were documents proving ownership submitted.
- Inventory results for non-current assets for the years 2012, 2013, 2014, and 2015 were not submitted, affecting the credibility of the financial statements.
- Encroachments on Baghdad Municipality properties were not documented, leading to a loss of control over non-current assets and their suboptimal use.
- Seventeen (17) antique vehicles of various makes and models (royal carriage, Cadillac, Continental, Mercedes, Jaguar Sport, Rolls-Royce) were identified, but their values were not appraised or recorded in the accounting records.

Fourth Axis: Information and Communication

- It was noted that specialized vehicles purchased from regional development allocations, valued at 739,391,250,000 dinars, were not recorded in the Baghdad Municipality's accounting records, resulting in inaccurate information flow between relevant parties.
- Furthermore, the Baghdad Municipality failed to maintain proper records for its vehicles and equipment, as required by the Unified Accounting System, leading to a lack of accurate and reliable data necessary for preparing financial reports.

Fifth Axis: Monitoring Activities

- The Baghdad Municipality's failure to take the necessary measures and follow up on corrective actions to address non-current and depreciated assets that were previously included in inventory lists.
- The failure to document encroachments on Baghdad Municipality property indicates a lack of, or weak, monitoring and oversight of, non-current assets, a failure to detect encroachments on public funds early, and a failure to take appropriate and timely corrective measures.

The Sixth Axis: Technology and Control

- The economic unit's failure to adopt modern technologies and its reliance on traditional methods and means expose it to many errors in controlling non-current assets. There is a gap between reality and optimal implementation, indicating the need to improve this axis through the use of modern technologies such as Blockchain technology.

From the above, we conclude that there is a weakness in the control procedures for non-current assets in the Baghdad Municipality. This confirms the validity of the first hypothesis, which indicates (weak control procedures for non-current assets in the study sample). From the sixth point, we note that the research sample does not use modern technologies such as blockchain, and this refutes the second hypothesis, which indicates that the Baghdad Municipality employs modern technologies, such as Blockchain, in monitoring non-current assets. Since the Baghdad Municipality, which is the study sample, does not currently use blockchain technology, the researcher Darjafb suggests internal control procedures for monitoring non-current assets as shown in Table 1.

Table No. (1) Proposed Control Procedures for Employing Blockchain Technology in Monitoring Non-Current Assets

items	Control procedures	Auditor's name and signature	Worksheet N.
1	Verifying the adoption of blockchain in documenting non-traded asset control procedures to prevent manipulation		
2	Verifying the use of blockchain transparency to support fair job rotation and enhance management planning		
3	Verifying the use of blockchain automation and real-time analytics to accelerate risk detection and support decision-making.		
4	Verify that the tracking feature is enabled on the blockchain to monitor assets and limit losses.		
5	Verifying the effective use of decentralization in monitoring regulatory amendments and distributing powers efficiently		
6	Verifying the use of smart contracts to automatically exclude assets according to approved terms		
7	Verifying the use of blockchain in enhancing the physical and electronic security of assets		
8	Verify the use of tracking and security features in periodic inventory and reduce errors		
9	Investigating the role of decentralization in ensuring the separation of accounting and auditing functions		
10	Assessing the role of immutability in producing accurate and reliable asset reports		
11	Assessing the role of efficiency and speed in enhancing communication channels and exchanging information instantly		
12	Evaluating the contribution of integration and decentralization to improving the		

	efficiency of asset information systems		
13	Evaluating the role of programmability in automating asset reporting.		
14	Assessing the role of transparency and traceability in monitoring performance and ensuring compliance		.
15	Evaluating the role of automation in the rapid detection of deficiencies in control procedures		
16	Assessing the role of security in promoting employee autonomy and protecting procedures		
17	Evaluating the role of instant registration in improving oversight and transparency		.
18	Evaluating the role of efficiency in compensating for human resource shortages and improving accuracy		
19	Evaluating the role of analyzability in supporting data-driven prediction and decision-making		

Conclusions and Recommendations

Conclusions

- The Baghdad Municipality, the study sample, does not give sufficient oversight to non-current assets, despite their importance in the balance sheet, as they constitute the largest percentage. This negatively impacts the quality of financial reports and exposes financial statements to distortion and errors.
- The findings of the study showed some flaws in the management processes of noncurrent assets in the study sample, which is the Baghdad Municipality. This might bring about more risks of loss, manipulation and misuse. This weakness indicates the necessity to implement a contemporary technology, including Blockchain that would boost the supervision procedures of non-current assets.
- The study sample, the Baghdad Municipality, is not applying the second technology, which is the use of Blockchain technology to monitor the non-current assets, which means that the municipality did not adopt any modern and contemporary technology. There is a need to sensitize economic units to embrace the need to harness such modern technologies, which are relevant in increasing the efficiency of the internal control systems and financial reporting.
- The study identified a set of proposed internal control procedures for non-current assets using blockchain technology.

Recommendations

- The researcher suggests that the Baghdad Municipality should offer non-current assets an adequate oversight weight by embracing contemporary and sophisticated oversight strategies that guarantee the maintenance of the assets.
- The researcher suggests applying the concept of Blockchain technology (A proposed model) in the management of non-current assets, as it will increase the efficiency and effectiveness of the oversight process.
- The researcher suggests the significance of the adoption of the Blockchain technology in the management of non-current assets to strengthen the internal control system

- The researcher suggests that future research on the implementation of Blockchain technology in different economic units should be carried out.
- The researcher suggests conducting training sessions to improve the knowledge of modern technologies, such as blockchain technology, and allow employees to utilize it efficiently when executing their responsibilities.
- Future research may involve testing the proposed model of internal control procedures.

References

1. Al-Qaisi, Rawan Thaer Issa (2021). The Impact of Using Blockchain Technology on the Financial Statements of Jordanian Commercial Banks. Fulfilling the Requirements for a Master's Degree in Accounting, Department of Financial and Accounting Sciences, Faculty of Business, Middle East University.
2. Abdul Latif Muhammad Nasir, & Abdul Nasser. (2022). The Role of Blockchain Technology in Improving the Quality of Internal Control Systems in Companies Listed on the Saudi Stock Exchange. Scientific Journal of Business and Environmental Studies, 13(3), 114-1
3. Abdullah, Khaled Amin. (2012). The Science of Auditing - Theoretical and Practical Aspects - Wael Publishing House.
4. Mohamed Fawaz (2025) The impact of blockchain technology on the qualitative characteristics of accounting information and its impact on users of financial statements (investment decisions in the stock market - an analytical study). Sohag Journal for Young Researchers 4(4), 1-20.
5. Han, H., Shiwakoti, R. K., Jarvis, R., Mordi, C., & Botchie, D. (2023). Accounting and auditing with blockchain technology and artificial intelligence: A literature review. International Journal of Accounting Information Systems, 48, 100598.
6. Lootah, R. E. A. (2024). The Impact of Blockchain Technology on Financial Reporting Practices in the UAE. International Journal of Digital Accounting and Fintech Sustainability, 1(1), 2-12.
7. Domili, H. I., Gamaliel, H., & Korompis, C. (2025). Analysis of Internal Control Systems on Safe Quick Loans (KCA) at PT Pegadaian Megamas Branch. Asian Journal of Applied Business and Management, 4(1), 73-90.
8. Florid, M. I., Hendra, R. F., & Purnamasari, P. (2023). The Influence of Accounting Information Systems, Internal Control Systems and the Implementation Of Good Corporate Governance in Efforts to Prevent Fraud. Return: Study of Management, Economics and Business, 2(2), 106-117
9. Hashem, R. E. E. D. R., Mubarak, A. R. I., & Abu-Musa, A. A. E. S. (2023). The impact of blockchain technology on audit process quality: an empirical study on the banking sector. International Journal of Auditing and Accounting Studies, 5(1), 87-118.
10. International Financial Reporting Standard Foundation (2022) "Conceptual Framework for Financial Reporting".
11. Hussein, Amal Hussein Muhammad (2023). The Impact of Integration between Blockchains and Cloud Computing on the Quality of Digital Financial Reports (A Proposed Approach). Faculty of Commerce, Alexandria University.
12. Olaniyi, O. O., & Omubo, D. S. (2023). The importance of COSO framework compliance in information technology auditing and enterprise resource management. International Journal of Innovative Research & Development, 12(4).
13. Tuwei, R. J., & Ondabu, I. T. (2022). Internal Control Elements and Organizational

- Performance: Evidence from the Level-5 Public Hospitals in Nairobi County. *Journal of Auditing and Accounting Studies*, 4(1), 107-142.
14. Vaigandla, K. K., Karne, R., Siluveru, M., & Kesoju, M. (2023). Review on blockchain technology: architecture, characteristics, benefits, algorithms, challenges and applications. *Mesopotamian Journal of CyberSecurity*, 2023, 73-84.
15. Wijesekara, P. A. D. S. N., & Gunawardena, S. (2023). 344 A Review of blockchain technology in knowledge-defined networking, its applications, benefits, and challenges. *Network*, 3(3), 343-421.
16. Ziorklui, J. E. K., Ampofo, F. O., Nyonyoh, N., & Antwi, B. O. (2024). Effectiveness of internal control mechanisms in preventing and detecting fraud. *Finance and Accounting Research Journal*, 6(7), 1259-1274.
17. Silifusti, I., & Siswanto, A. (2025). The role of fixed asset accounting in improving company operations at Ud Tiga Berlian. *Journal of Commerce, Management, and Tourism Studies*, 4(1), 46-57.
18. Paul, P., Aithal, P. S., Saavedra, R., & Ghosh, S. (2021). Blockchain technology and its types—a short review. *International Journal of Applied Science and Engineering (IJASE)*, 9(2), 189-200.
19. Nugraha, M. T., & Tjakrawala, F. K. (2023). Analysis of Implementation of Internal Control based on COSO ERM Perspective (Case Study of PT JOY). *International Journal of Scientific and Research Publications*, 13(6), 146-152.
20. Chowdhury, M. R., & Leary, M. (2025). Analyzing COSO Framework, Objectives, and Implementation.
21. Abu Zaid, 2025. The Impact of Blockchain Technology on the Quality of External Auditing to Enhance Transparency and Reduce Fraud. *Scientific Journal of Financial and Commercial Studies and Research* 6(1), 1195-1252.
22. KHAMAIL& Kendoery “Employing Blockchain technology to monitor non-current assets” *Iraqi Journal For Economic Sciences*, issue 85, June,2025.
23. Ibrahim Naim & Abu Al-Hassanain Mohsen Joda (2021). The Impact of the COVID-19 Pandemic on the Quality of Financial Reporting Content, *Journal of the Faculty of Management and Economics* 17 (No. 3), 2021.
24. Abu Al-Khair, Osama Ahmed Mohamed (2023). A Proposed Framework for Using Blockchain Technology as a Foundation for Enhancing the Quality of the Audit Process in a Digital Transformation Environment, with a Field Study in the Digital Business Environment. Tanta University.
25. Khaled Bashir Mohamed, A. Tamim Ali Al-Hadi Shona (2025). Qualitative Characteristics of Accounting Information and Its Impact on the Effectiveness of Liquidity Risk Management (A Field Study on Commercial Banks Listed in the Libyan Stock Market). *Journal of Humanities and Natural Sciences*, 6(3), 194-229.
26. Rashwan, Abdel Rahman Mohamed, and Abu Arab, Heba Hamada (2022). The Role of Digital Transformation in Improving the Quality of the Internal Audit Process, Volume 17, Issue 59, University College of Science and Technology, Gaza, Palestine.
27. Sayed, Abdel Fattah (2019). The Impact of Blockchain Properties on Improving Digital Financial Reporting - A Field Study. *Journal of Contemporary Business Studies*, 5(8), 170-206.
28. Dai, J., & Vasarhelyi, M. A. (2017). Toward blockchain-based accounting and assurance. *Journal of Information Systems*.
29. Yermack, D. (2017). Corporate governance and blockchains. *Review of Finance*.
30. Kouhizadeh, M., Saberi, S., & Sarkis, J. (2021). Blockchain technology and the sustainable management of assets. *International Journal of Production Research*.