

Block chain in the field of Accounting: Opportunities and Benefits of the application

Lakehal Mohamed ^{1♦}, Mezouaghi Djilali ²

¹ Relizane University (Algeria), mohamed.lakehal@univ-relizane.dz

² Laboratory of :The Strategy of Transition to a Green Economy, Relizane University (Algeria),
djilali.mezouaghi@univ-relizane.dz

Received: 26/08/2024

Accepted: 15/11/2024

Published: 19/11/2024

Abstract:

This study explores the applications of block technology, particularly in the field of accounting. It aims to elucidate the diverse areas where B-chain is being utilized, with a focus on cloud accounting and e auditing. The research delves into the most significant modern applications of BTC being adopted by contemporary organizations. By investigating the opportunities and benefits, that block chain offers the accounting profession, the study provides valuable insights into how this transformative technology can streamline processes, enhance transparency, and improve overall efficiency within the accounting domain. The findings of this research will aid practitioners and academics in understanding the strategic advantages of embracing BTC technology in the evolving landscape of the accounting industry.

Key words: B-chain, application, e-auditing, accounting, benefits

JEL Classification: M41, O33, Q55

♦ Corresponding author

1. Introduction :

Technology is one of the most important modern tools, it helps organizations achieve financial and economic added value, through intelligence and automation applications, it helps organizations to reduce costs and realize returns and opportunities, Its application also contributes to transforming administrative processes in better ways.

The accelerated application of artificial intelligence and digitization, transforming accounting into electronic systems and platforms, through which data and information flow and recording are automated, in order to avoid financial errors and strengthen the financial position of organizations at the external level,

For the accountant, it offers advantages, Detecting and addressing financial and accounting errors in the financial statements

-The problem

"What are the key applications and opportunities presented by the use of blockchain technology in the field of accounting?"

-the importance of the study:

- Knowing the place of the BTC in accounting;
- Identify the most important modern applications;
- Clarify opportunities and impact.

2. Literature Review

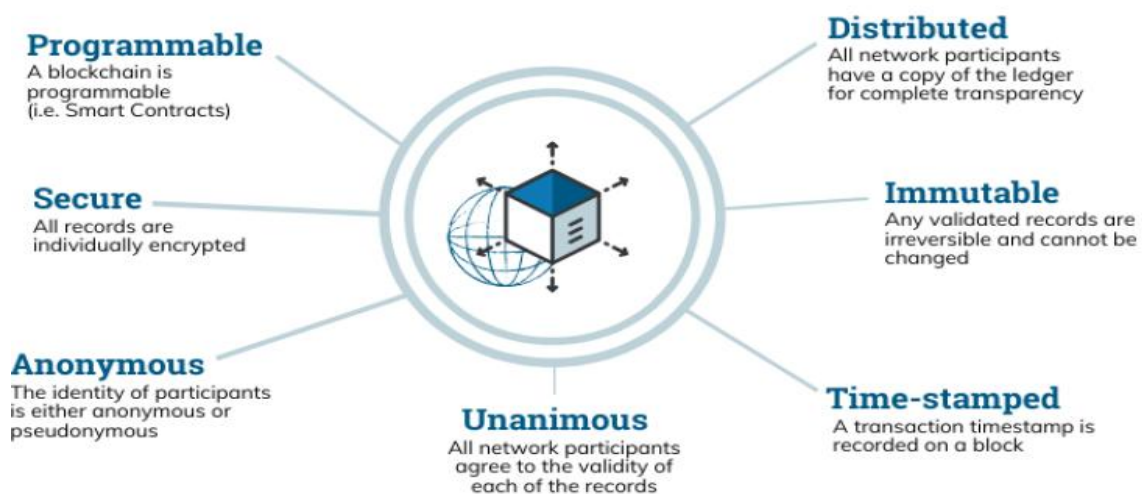
2.1. Definition:

(Babas, 2020, p. 311) indicate that block- chain is: "database, an open source to record any operation that relies on mathematical, (Lahlou, 2019, p. 20) pointed out that "Its importance lies in the practical level of the evolution of data on the Internet", (Bencherif, 2023, p. 403) argued that the "Each block in the chain contains several transactions each time a new transaction occurs".

The properties of Distributed Ledger Technology can be illustrated in the figure below:

Fig.1. The properties of Distributed Ledger Technology

The Properties of Distributed Ledger Technology (DLT)



Source : (eurcomoney, 2020, p. 1).

DLT is a programmable system where transactions are securely recorded with encrypted individual entries. The network participants can remain anonymous or pseudonymous, and they collectively validate the integrity of each record. This distributed

ledger is accessible to all participants, ensuring complete transparency. Furthermore, the records are immutable and time-stamped, providing an unalterable audit trail of the transactions.

The Variation between the above can be illustrated in the following.

Table 1. Differences.

property	Public	consortium	private
Consensus determination	All miners	Selected of nodes	Within one organization
Immutability level	Almost impossible to tamper	Could be tampered	Could be tampered
Efficiency	low	High	high
Centralization	no	partial	yes
Consensus process	permissionless	Needs permission	Needs permission

Source: (Ravi Kumar, 2024, p. 24) .

2.2Fonctions; the system helps to achieve the following (nasrine & hanifa, 2021, p. 186):

- The quality: it helps to provide the best service according to the standards;
- Reduce the costs;
- Storing and protecting data (Cryptography);
- Minimize errors in operations;
- Achieve performance;
- Control (data centralisation).

2.3 .Types:

Table 2. Types

Public	Everyone can participate Available
Private	Read and write data One person controls the block creation
Hybrid	Distributed to participants, which contributes to the network's partial

Source: Prepared by the researchers

2.4 characteristics

With this regard, we propose a new typology presented characteristics, in the following table.

Table 3. 4D-bc

Decentralized	This characteristic is a guarantee for privacy
Distributed	Means not all the processing of the transactions is done in the same place
Disruptive	Leading to transformation in businesses and governments.(business model)
Divine	standardise rules

Source : (Charbel , & Pierrette, 2018, p. 5).

2.5. The benefits -based accounting, it can (Hongdan & al, 2023, p. 4):

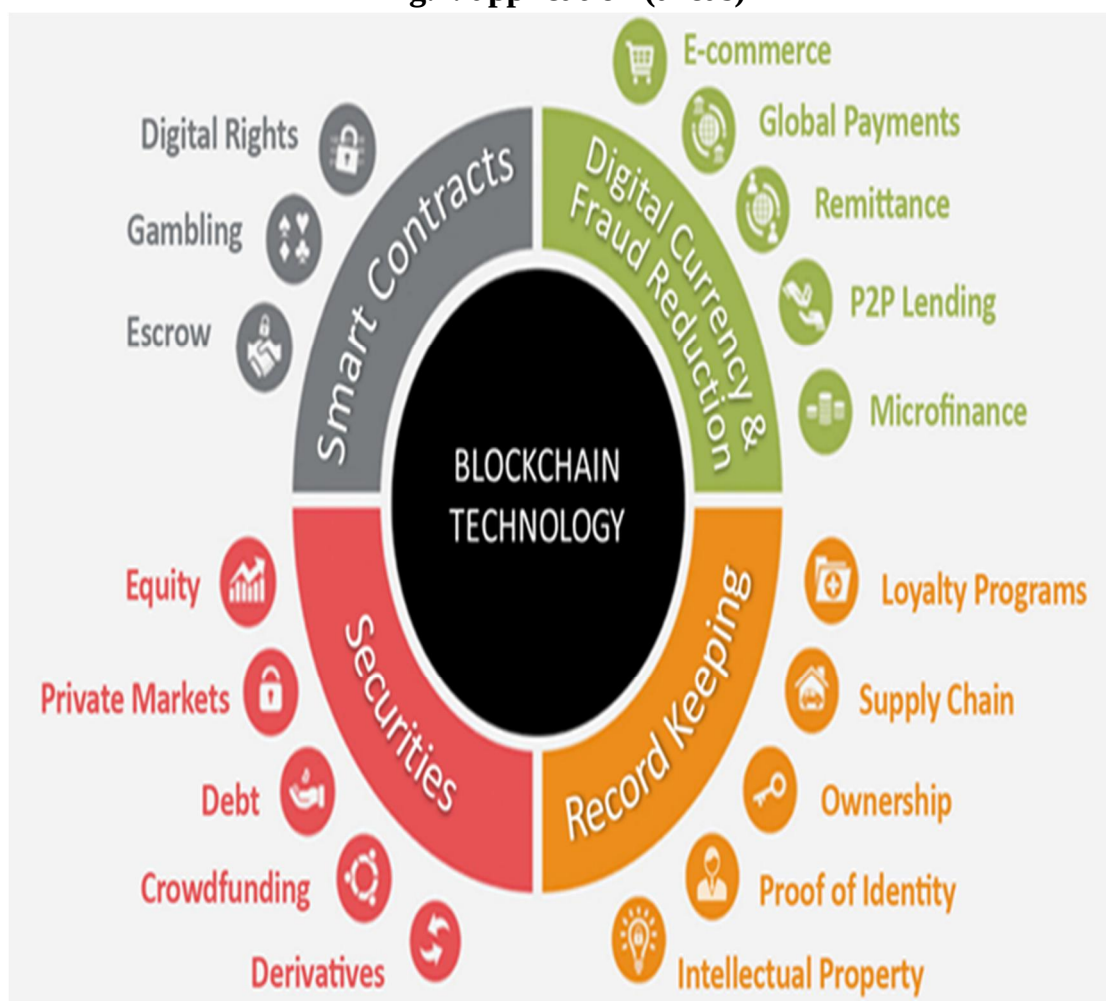
- Digitizes documents;
- reduces costs;
- Fraud minimization;

- Provides transparency, visibility;
- Liquidity and capital improvement;
- Counterpart risk reduction.

2.6- Applications:

It is used in many fields, such as economics, commerce and other fields, because it minimizes costs and provides opportunities for economic organizations, and achieves long-term competitiveness.

Fig.2. application (areas)



Source: (CRI-Lab).

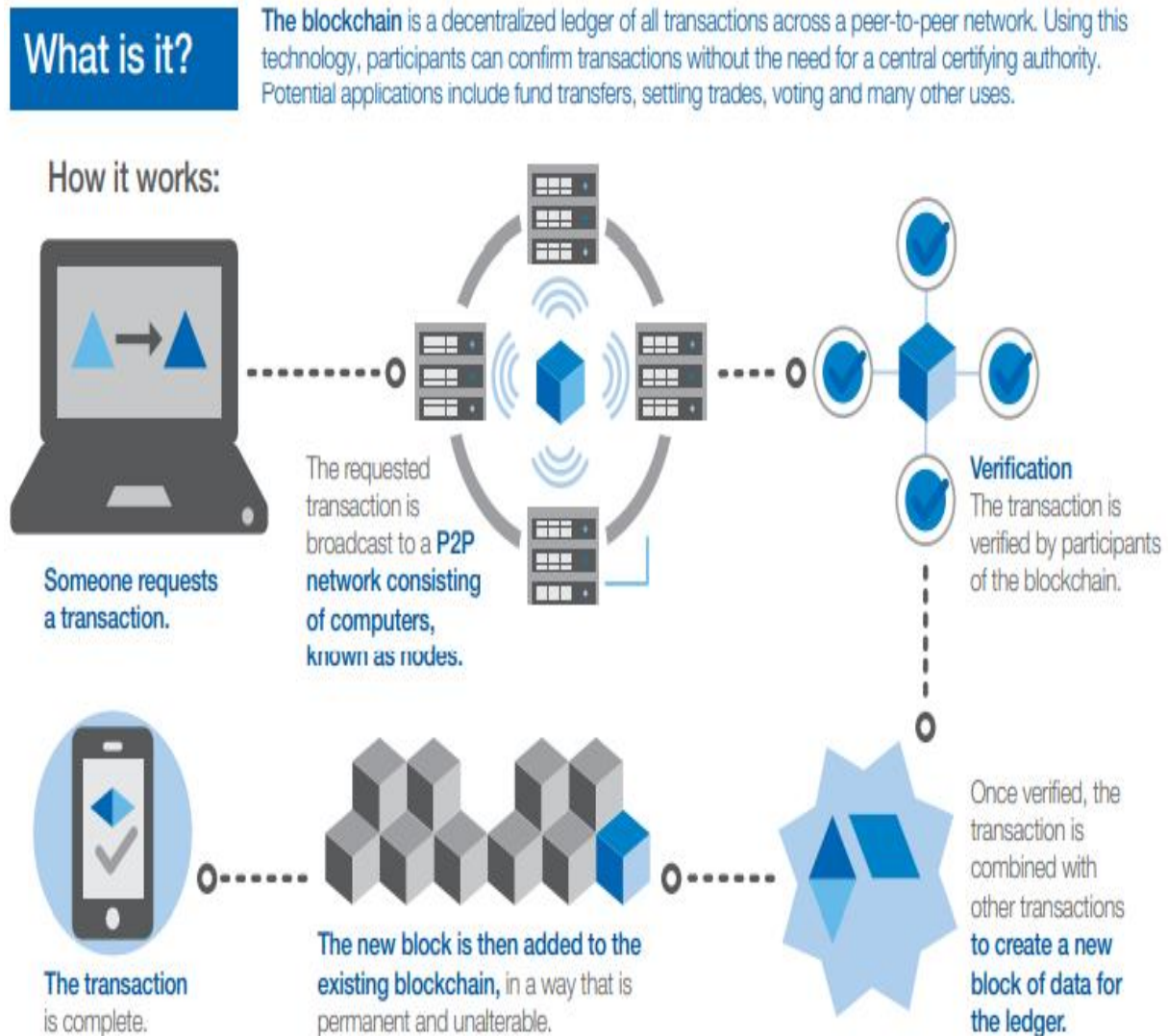
Block chain work are as follow (Bencherif, 2023, p. 409):

- Whenever any blockchain nodes send a new block data or an update comes in the chain, consensus algorithm broadcasting that change to network. majority present in the chain to verifies the present BTC and check the history of that block.
- All nodes that receive new block in network perform execution algorithm of proof of work(PoW) or proof of stake(PoS) as it implemented in block-chain that block.
- If the majority of nodes in the chain approves that received change is legal, then the present block is added to the chain or update stored to a block of blockchain.
- If the majority of nodes in the chain does not approve the received change(i.e addition or validation of block then that change will be discarded.

- Distributed consensus algorithm permits block-c, to be distributed ledger. It means that is no need of centralized database of all nodes in bc network prove this block and will incessantly extend the chain on this btc.

Regarding the way of working, it can be illustrated in the following figure.

Fig.3. BTC-work



Source: (WEF, 2018, p. 10)

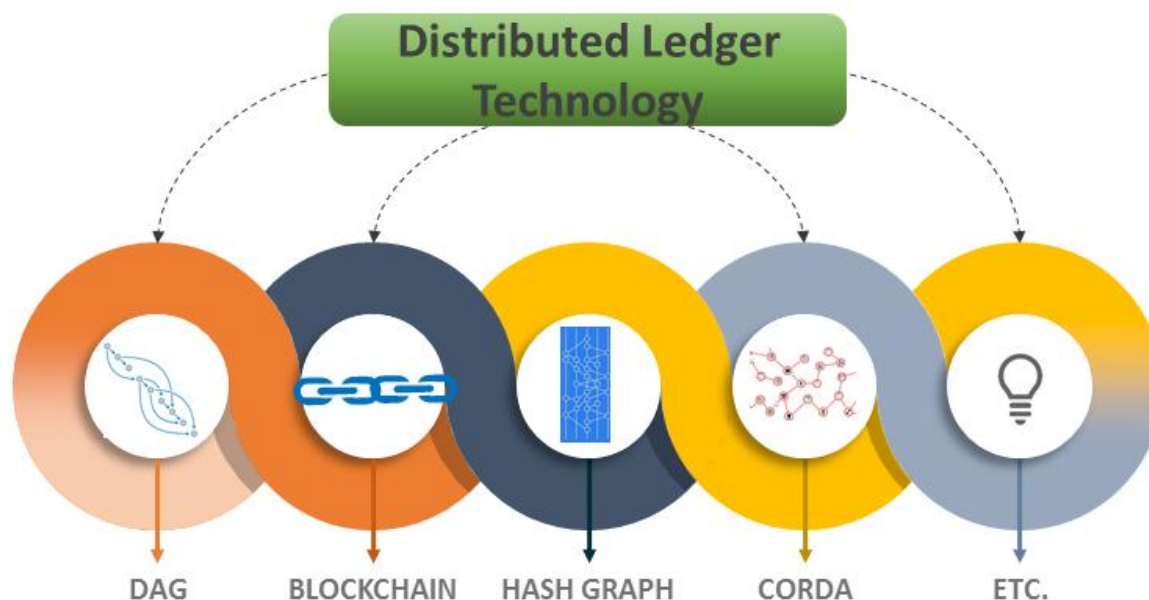
From the figure above, it can be seen that:

- Need for a first –party (person requests a transaction);
- operation p2p;
- Verification of transactions;
- transaction;
- existing block.

3. Importance to the economy and finance

Regarding applications related to financial technology, we find(shared records dlt) , it is a digital database shared across multiple sites and points in a single network, it also works by decentralizing data from there:

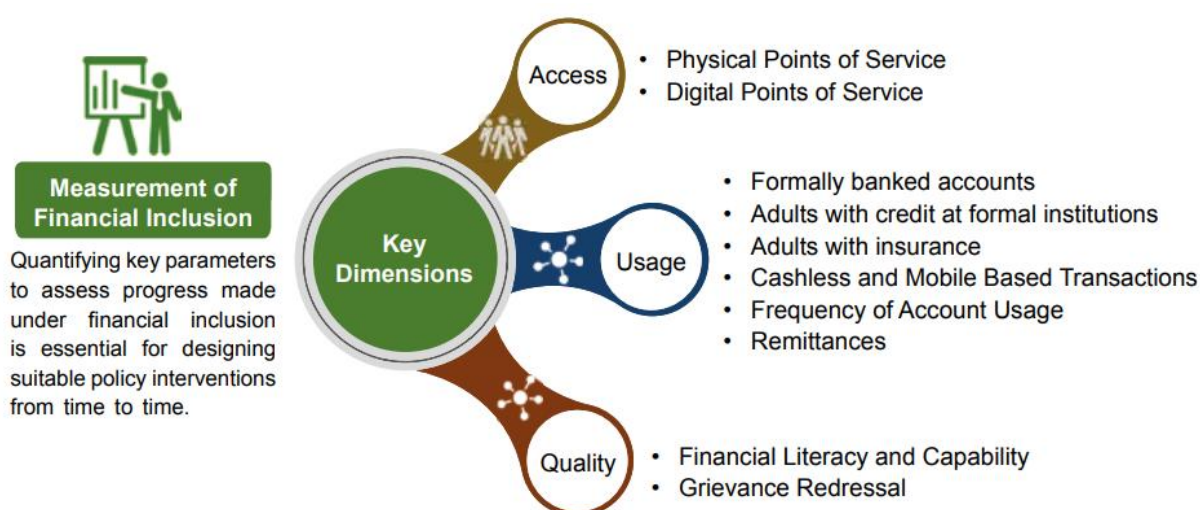
Fig.4. Financial technology techniques



Source : (talem, 2022, p. 253).

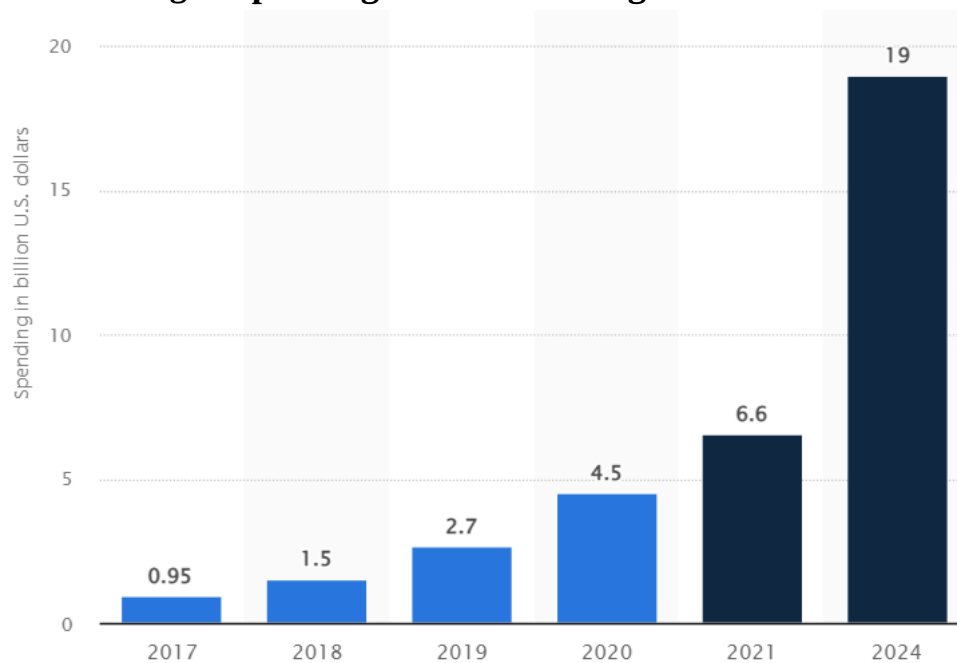
Correlation of financial technology techniques (quantitative indicators) in measuring financial inclusion, to achieve quality and use, we find it based on the following indicators.

Fig.4. measuring



Source: (NSFI, 2019-2024, p. 27).

by 2024, Block chain spending is set to increase to around \$19 billion ,compared spending on block chain amounted to \$6.6 billion in 2021.and companies will spend almost \$19 billion on 2024,also 90% of U.S., Canadian and European banks have started exploring block chain technology (Bencherif, 2023, p. 416), here are some key statistic.

Fig.5. Spending solutions during 2017-2024

Source: (statista, 2024).

4. Results analysis:

Some of the projects that can be utilized by companies include (nourelhouda & mohamed, 2022, p. 40).

- **Rubix** : Created by Deloitte to develop a client application, It is a triple-entry accounting system, it allows a company to record transactions between clients, Other programmes include (dStock)
- **Harmony**: Enables rapid compilation of documents, this saves money and time (review) of loan documents and data from multiple sources .
- The system minimizes audit, risk and legal costs associated with debt management.
- **Balanc3**: It is an application centred on the open source technology provided by ethereum , the app has different features Through which transparency is achieved, with the ability to access financial data , Provides a solution for invoicing ,accounting and document.
- **Storage and payment processing**

Regarding the reasons for using Smart Automation, refer to the following realization (Sahar Abd Elsattar, 2022, p. 20):

- Obtaining high-quality financial reports;
- Recording processes with high accuracy;
- Achieve speed in the execution of operations with accuracy and consistency;
- Provides accountants with a good opportunity to optimise accounting system operations.

Regarding **opportunities** for the auditing profession in the context of technology, the following table illustrates the key points.

Table 4. Bc for audit

-
- Stored data are not subject to modification;
 - Reported transactions can now be verifiable through BC;
 - The automation of verification process drives to cost efficiencies in the audit Environment;
 - Transactions recorded through BC offer the two parties a transparent relation through permanent verifiable and efficient transactions.
-

Source: (Charbel , & Pierrette, 2018, p. 10)

As for accounting applications with in artificial intelligence. They were as follows (e- Invoice, e- flow and MediusA ,Xero, Automation Anywhere, Zoho) (benhamada & mohamed, 2022, p. 763).

The importance of these programs is:

- Automated exchange of accounting data;
- Reduce error;
- Speed of Operations.

5. Conclusion:

Accounting is among the most important jobs in the economy. it shows financial operations and transactions. and the cost and return, Using blockchain applications in the accounting field has brought many advantages and opportunities including the automation of accounting transactions (Digital invoice - electronic records related to inputs and outputs)

Results:

- Technology applications have an influential role in the economy and finance.
- The trend towards 'technology' is helping to digitise accounting
- Bc has an effective role in making accounting decisions
- Applications used in the accounting field have contributed to reducing costs
- Facilitating operations and transactions through electronic exchange technology

6. References:

- Babas, M. (2020). Blockchain Technology Applications in the Islamic Financial Industry. Economic Sciences, Management and Commercial Sciences, 13(02), 311.
- Bencherif, M. (2023). Blockchain technology applications and challenges -Bitcoin cryptocurrency model. Journal of the Développements Policies and the Prospective Studies., 08(01), 403.
- benhamada, a, & mohamed, s. (2022). The impact of introducing artificial intelligence applications on electronic accounting software - a field study. Journal of the New Economy, 13(2), 763.
- Charbel , C., & Pierrette, H. (2018). Audit in the Blockchain era within a principal-agent approach. Information and Communication Technologies in Organizations and Society (ICTO 2018), (p. 10). University Paris Nanterre.
- CRI-Lab. (n.d.). Security In Blockchain Applications. Retrieved 16;07, 2024, from Cyber-Security Research: <https://cri-lab.net/security-in-blockchain-applications/>
- eurcomoney, l. (2020). blockchain explained. England.

- Hongdan , H., & al. (2023). Accounting and auditing with blockchain technology and artificialIntelligence: A literature review. International Journal of AccountingInformation Systems, 48, 4.
- Lahlou, b. (2019). Blockchain Technology in financial services industry:. review of Innovation and Industrial Development, 02(01), 20.
- nasrine, k & hanifa, b. (2021). Accounting profession in light of digital technology-opportunities and challenges-Blockchain as model. Journal of Development and Prospecting for Research and Studies, 06(02), 186.
- nourelhouda, m., & mohamed, t. (2022). the futur of the accounting profession under digital transformation technique-block chain technology model. jmi, 05(01), 40.
- NSFI. (2019-2024). PublicationReport Detai ,National Strategy for Financial Inclusion . reserve bank of india
- Ravi Kumar, M. (2024). Introduction to Blockchain Technology,. Retrieved 2024, from <https://ntiprit.gov.in>.
- Sahar Abd Elsattar, A. E. (2022). Determinants of Using of Intelligent Automation (IA) Techniques inAccounting Information Systems (AIS) to ImproveQuality of Forward looking Disclosure (FLD) - an EmpiricalStudy on ListedCompanies on the Egyptian Exchange. 7 international conference. tanta university-faculty of commerce, egypt.
- statista. (2024). Worldwide spending on blockchain solutions from 2017 to 2020, with forecasts for 2021 and 2024. Retrieved 08 25, 2024, from www.statista.com: <https://www.statista.com/statistics/800426/worldwide-blockchain-solutions-spending/>
- talem, (2022). Contributions of financial technology applications in the development of the islamic financial industry- Crowdfunding platforms technologies as a model-. Journal of Economic Papers, 13(02), 253.
- WEF. (2018). Fourth Industrial Revolution for the Earth Series: Building Block(chain)s for a Better Planet. Switzerland: World Economic Forum.