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Ibtissam Batali, Abdellah Moussaoui and Khalid Esskali

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Blockchain as a Lever of Digitalization: Impact on Accounting. Systematic Literature Review

Ibtissam Batali, Abdellah Moussaoui, Khalid Esskalli
CED Droit – Economie – Gestion, FSJES AIN CHOCK
Lab. PRISME/ESTC Hassan II University Casablanca, Morocco
Ibtissam.batali-etu@etu.univh2c.ma
Abdellah.moussaoui1-etu@etu.univh2c.ma
khalid.esskali@etu.univh2c.ma

***Abstract*—Emerging from the realm of cryptocurrency in 2008, blockchain technology has transcended its initial niche to serve as a transformative force in digitalization. Today, its impact extends to a wide range of applications, including those of paramount importance to organizations seeking to ensure the reliability and security of their information systems. The inherent attributes and operational mechanisms of blockchain hold immense potential to revolutionize the field of accounting, particularly in enhancing the quality of financial information. This paper delves into the existing body of literature examining blockchain's impact on accounting, with a specific focus on financial accounting. Employing a systematic review methodology aligned with the PRISMA guidelines, we analyze 19 relevant publications to synthesize the current state of knowledge regarding blockchain, elucidate the intricate connections between this technology and financial accounting, and identify promising avenues for future research in this domain.**

***Index Terms*—Digitalization, Blockchain, Accounting, Information Systems, PRISMA method**

I. Introduction

Since 2008, Blockchain technology's primary objective has been to establish a dependable, decentralized virtual currency devoid of any overseeing authority. The uniqueness of this technological innovation lies in its absence of a trusted third party.

Given its technological architecture, numerous authors have described Blockchain as a ledger, register, or notebook accessible for reading and writing by anyone, yet transparent and indestructible [1]. This reiterates the fundamental role of accounting, specifically in recording and overseeing the transactions conducted by a company with its partners.

Furthermore, the digital revolution (encompassing Big Data, Artificial Intelligence, Internet of Things, Blockchain, etc.) is complicating the data management process due to volumes surpassing the capabilities of conventional technological tools. Consequently, organizations are departing from the traditional accounting data paradigm to incorporate a diverse array of new data, particularly sourced from digitizers [2]. This prompts another question, primarily concerning the saturation of traditional accounting information systems capacity and the shift towards increasingly sophisticated technologies, specifically blockchain technology.

The research question addressed in this paper is as follows: To what extent does blockchain technology impact accounting ?

The objective of this paper is to conduct a meta-synthesis of literature reviews examining the impact of blockchain on accounting. To achieve this, a systematic review of 19 articles is undertaken following the PRISMA guidelines, aiming to elucidate the potential impact relationships between blockchain technology and accounting.

To address our research question, it is pertinent to commence with an exposition of the theoretical foundations of blockchain and financial accounting, which are the pivotal concepts of our study. Subsequently, we will outline our research protocol (PRISMA), present and deliberate upon the principal findings derived from our comprehensive analysis of the literature, and finally conclude by suggesting avenues for future research on the impact of blockchain on financial accounting.

II. Theoretical background

A. Blockchain and its characteristics

Blockchain technology emerged in late 2008, conceived by an anonymous figure operating under the pseudonym Satoshi Nakamoto, with the primary aim of establishing the first dependable and decentralized virtual currency, Bitcoin [3].

Described as "a vast ledger, openly accessible for reading and writing, yet impervious to erasure and indestructible" [4].

Blockchain fundamentally revolutionizes conventional notions of record-keeping and trust. Technically, blockchain represents a novel database paradigm, leveraging the full potential of the Internet, open protocols, computational prowess, and cryptographic mechanisms. This distributed ledger system resembles a sophisticated accounting ledger, wherein each subsequent transaction is sequentially appended, immutable, and tamper-proof. Distinguished by its dynamism, chronological integrity, decentralization, verifiability, and robust security mechanisms, the blockchain operates on the foundation of distributed trust, orchestrated through a consensus protocol among its network participants, or nodes [5].

The ledger is composed of a series of blocks. Each block consists of two parts. The first part represents the body of

the block where transactions (facts/events) are recorded. The second part is the block header, which contains information about the block such as the timestamp, the hash of the transactions, etc. Additionally, it includes the hash of the preceding block (Figure 1).

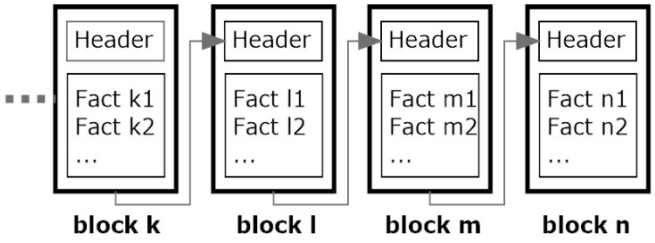

Fig. 1. Simplified blockchain example, source : [6]

The blockchain can be public, like Bitcoin. Public blockchains are large distributed networks, open to everyone at all levels; private blockchains, on the other hand, tend to be smaller with tightly controlled access. This type is favored by consortia, which have affiliate members exchanging confidential information. Consortia bring together multiple actors who hold rights, and decisions are made by a majority of participants. The approval process involves limited and selected participants [1].

The innovative aspects of this technology are rooted in its operational characteristics, particularly transparency: within the blockchain system, 'entries are irrevocable and tamper-proof. In essence, once something is recorded within this system, it is stored permanently and is accessible for review by all participants (nodes)' [5]; decentralization: the blockchain operates without central authority, absent trusted third parties, with validation and block addition resulting from consensus among validating users [7] and security supported by advanced validation mechanisms such as the Proof of Work (PoW) and Proof of Stake (PoS) mechanisms [8] alongside digital signatures and hash functions whose parameters can be realistically adjusted to safeguard the system against adversaries possessing substantial computing power [5].

B. Financial Accounting

Numerous studies testify that the primary function of accounting, which has defined its history, is to ensure the traceability of transactions conducted among stakeholders within the framework of exchange relationships such as buying and selling. This role is explicitly articulated in operational definition of accounting: "the purpose of accounting is to record in monetary units the movements of economic values, with the aim of facilitating the management of financial, industrial, and commercial affairs" [9].

This exchange relationship gave birth to the principle of "double-entry" an accounting model utilized worldwide to this day. According to this principle, debiting one account corresponds to crediting another, and vice versa.

In the Middle Ages, a new accounting system emerged, emphasizing the significance of both capital and personal accounts (representing claims and debts of correspondents). This system, known as the 'double-entry' system, emerged around In 1340, trade flourished in the prosperous republics of Venice and Genoa [21].

One of the pioneers of this model was the Italian Luca Pacioli, regarded as the father of accounting, who authored an initial work titled "Summa de arithmetica, geometria, proportioni et proportionalita". Within this book, encompassing a ninth chapter dedicated to accounting, Luca Pacioli provided the inaugural "theoretical" elucidation of the "double-entry" principle. He delineated the utilization of journals and ledgers, advocating for their division into two parts: the assets column (encompassing receivables and inventories), and the liabilities column comprising capital, income, and expense accounts [19] This publication laid the groundwork for the earliest manuals on double-entry accounting. Subsequently, double-entry bookkeeping has remained fundamentally unchanged.

From a systemic perspective, it constitutes an accounting information system facilitating the collection, processing, storage, and dissemination of data. Such accounting data serves both internal and external purposes. Internally, it caters to various stakeholders (management, shareholders, employees, etc.), while externally, it extends to other interested parties seeking insights into the company and its financial well-being (customers, suppliers, banks, prospective investors, etc.). Thus, accounting, besides maintaining transactional records, assumes an additional informative role by furnishing relevant financial information [10].

In fact, the double-entry technique involves storing accounting data in a matrix, generating the general ledger, and obtaining an up-to-date transaction history with the possibility of having classic categories of daily operations (purchases, sales, receipts, and payments). However, it presents its own challenges, such as the non-storage of intermediate data, which depicts a limited view of economic reality. According to [11] traditional double-entry accounting, as a cartographic model, provides a flat or planar view of economic reality, whereas the multiple-entry model can offer a three-dimensional image, from angles that can vary ad infinitum depending on the needs of the analysis [11].

III. METHODOLOGY

To address our research question regarding the impact of blockchain on financial accounting, we adopted a research protocol based on a systematic review of literature reviews following the guidelines of the PRISMA method (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) [12].

A. Eligibility criteria

Our research commenced with a query based on a combination of keywords related to Blockchain and financial accounting, including 'disruptive technology and accounting,' 'Blockchain and accounting,' 'Blockchain and accounting information system,' and 'Smart-contract and financial information,' consulting various databases such as IEEE, Scopus,

Web of Science, Cairn, Google Scholar. The initial stage of reference identification enabled us to enumerate 11596 results.

In order to streamline our research, we established eligibility criteria to acquire references that align precisely with our research objectives. These criteria include:

- Items such as journal articles or reviews.
- Items authored in either French or English.
- Items published in 2010 or later, due to the limited number of blockchain publications before this date.
- Items categorized under 'Management, finance and business, blockchain, accounting.
- Items where blockchain serves as an explanatory variable and financial accounting as a variable to be elucidated.

Indeed, exclusion criteria were applied to documents that did not meet the aforementioned criteria.

B. Sources of information

The initial phase of reference identification revealed that Scopus and Web of Science constitute the most comprehensive databases, offering the most reliable references pertinent to our topic and aligned with the predefined query. Nonetheless, certain articles addressing the impact of blockchain on accounting were sourced from alternative information outlets, notably Cairn and Google Scholar.

C. Research strategy and selection methods

The results of the initial identification phase, prior to considering the inclusion criteria, were exported to Excel in the form of a file with the extension (.csv). This file was generated through an initial combination of two key concepts. The query utilized was (Blockchain AND Accounting). This yielded a total of 10,532 documents on Scopus and 1000 on Web of Science. Additionally, 60 documents from Cairn and 4 from Google Scholar were integrated, resulting in a total of 11,596 collected prior to applying the eligibility criteria.

In Scopus, employing an advanced search, a final query was developed in accordance with the eligibility criteria set to reduce the number of references by focusing solely on articles that precisely aligned with our research objective, namely:

```
blockchain AND accounting AND PUBYEAR > 2010 AND PUBYEAR < 2025 AND ( LIMIT-TO ( OA , "all" ) ) AND ( LIMIT-TO ( DOCTYPE , "ar" ) OR LIMIT-TO ( DOCTYPE , "re" ) ) AND ( LIMIT-TO ( SUBJAREA , "BUSI" ) ) AND ( LIMIT-TO ( LANGUAGE , "English" ) OR LIMIT-TO ( LANGUAGE , "French" ) ) AND ( LIMIT-TO ( EXACTKEYWORD , "Blockchain" ) OR LIMIT-TO ( EXACTKEYWORD , "Accounting" ) ).
```

For articles sourced from other databases such as Web of Science, Cairn, and Google Scholar, the filtering and selection process was implemented either in a consistent manner or directly utilizing filter parameters. However, it is essential to remove duplicate references before applying these filters.

The results were then exported to Excel, encompassing the metadata of each document such as title, author, publication date, abstract, etc., resulting in a total of 251 entries, comprising 225 Scopus articles, 8 Web of Science articles, 14 Cairn articles, and 4 Google Scholar articles. Subsequently, a swift examination of the title and abstract was conducted to provide an initial insight into the article's content and its relevance to the subject matter. This phase led to the inclusion of 14 Scopus articles, 5 Cairn articles, 3 Google Scholar articles, and 3 Web of Science documents.

D. Data extraction process

Please use "soft" (e.g., `\eqref{Eq}`) cross references instead of "hard" references (e.g., `(1)`). That will make it possible to combine sections, add equations, or change the order of figures or citations without having to go through the file line by line.

As an academic expert, ensuring accurate translation is crucial for maintaining the integrity and clarity of the content, especially for scientific articles. Here's an improved translation of the text:

Once the list of 25 eligible articles was established, they were imported from Zotero into the Nvivo analysis software for qualitative examination of metadata before a detailed reading of the full text. In Nvivo, specific queries were executed to generate a word cloud of the most frequently cited terms in the articles (Figure 2).

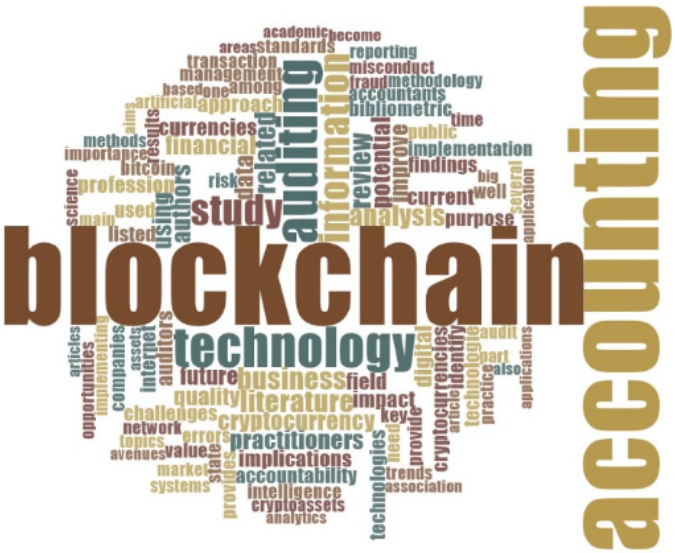

Fig. 2. Word cloud
Source: authors

From the word cloud, we observed that the most common terms are: Blockchain, accounting, auditing, technology, information, cryptocurrency, business. This enabled us to delve into the details by clicking on the most frequently occurring word to determine its frequency and precisely which articles it appeared in. Given that our objective is to investigate the impact of blockchain on accounting, we endeavored to analyze not only each keyword separately, but also to ascertain the

frequency of word combinations by constructing a matrix crossover (Figure 3).

	A : Accounting	B : Blockchain	C : Information	D : Technology
1 : Smith, S.S. (2018)	2	4	1	0
2 : Sheldon, M.D. (2018)	4	3	1	1
3 : Secinaro, S.; Dal Mas, F.; Brescia, V.; Calandra, D. (2021)	6	5	0	1
4 : Perrot, Étienne (2018)	0	0	0	0
5 : Niftaliyev, S.G. (2023)	7	0	1	0
6 : Mugwira, Tatenda (2022)	0	3	1	2
7 : Matskiv, H.; Smirnova, I.; Malikova, A.; Puhachenko, O.; Dubinina, M. (2023)	7	10	0	4
8 : Kolisnyk, O.; Hurina, N.; Druzhynska, N.; Holovchak, H.; Fomina, T. (2023)	12	8	4	5
9 : Han, H.; Shiwakoti, R.K.; Jarvis, R.; Mordi, C.; Botchie, D. (2023)	7	10	1	3
10 : Garanina, Tatiana; Ranta, Mikko; Dumay, John (2022)	7	11	3	2
11 : Desplebin, Olivier; Lux, Gulliver; Petit, Nicolas (2019)	0	2	0	0
12 : Desplebin, Olivier; Lux, Gulliver; Petit, Nicolas (2018)	0	1	0	0
13 : Bellucci, Marco; Bianchi, Damiano Cesa; Manetti, Giacomo (2022)	10	9	1	2

Fig. 3. Extract from a Cross-tabulation matrices generated by Nvivo
Source: authors

A cross-tabulation matrix allowed us to exclude articles with a zero crossover frequency. Taking the combination of (Accounting; Blockchain) as an example, articles with frequencies of (0; 0), (0; f), or (f; 0) were excluded. This process enabled the selection of a total of 21 articles, which underwent a thorough reading of the full text.

At this stage, each article was meticulously reviewed to extract information regarding the variables sought in our systematic review and to address our objective of synthesizing the impact of blockchain on accounting, identifying trends and challenges in this research domain, and ultimately proposing our research topic, 'The Impact of Blockchain on Accounting,' through the discussion of results.

IV. Findings

A. Results of the systematic data selection process

Our research strategy yielded 21 eligible articles in accordance with the PRISMA method. Figure 4 illustrates the systematic selection process from the identification phase to the inclusion phase.

B. Deep analyze

After conducting an in-depth analysis of the 19 selected articles, we utilized Nvivo to generate a table summarizing the data for each reference, including title, year, authors, methodology, problem statement, results, etc. The objective was to identify the impact of blockchain on financial accounting.

The translation provided seems accurate and captures the essence of the original text well. However, there are a few tweaks to enhance clarity and readability:

Using standardized questionnaires primarily directed at accountants and practitioners, [13] endeavored to evaluate the impact of blockchain on the quality of financial information among both listed and unlisted companies in Iraq. Their study results indicate that blockchain technology is likely to have a positive impact on the quality of financial information across companies, regardless of their listing status. Consequently, a more dependable flow of information within a company could enhance the effectiveness of monitoring and control policies,

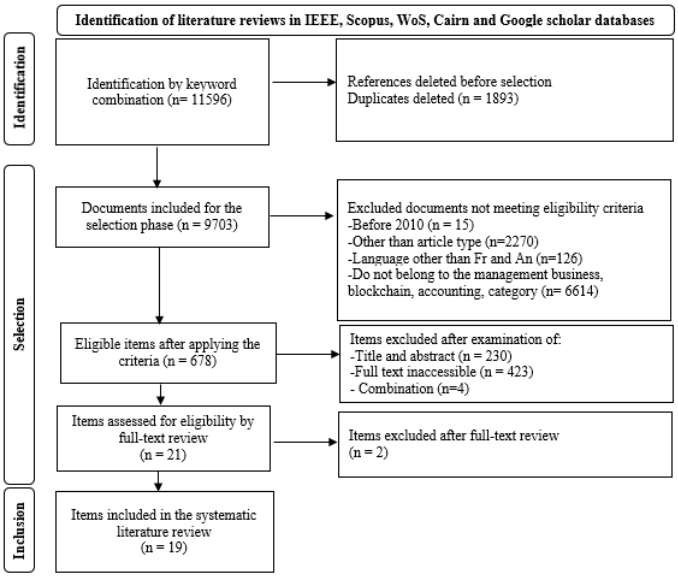

Fig. 4. Flow chart of the item selection process, PRISMA 2020
Source: authors

alleviate the workload of auditors, and mitigate agency issues through the generation of high-quality financial reports [13]. This finding was corroborated by [14] who concluded that blockchain-based real-time accounting could significantly diminish opportunistic behaviors among managers, leveraging blockchain's capability to furnish secure and tamper-proof data [14].

On their part, [1] demonstrated the significance of blockchain through practical examples. For instance, EY utilizes its OpsChain platform to facilitate blood donation tracking for the Canadian Blood Services. Additionally, the blockchain analysis tool allows auditors to trace batch transactions, review transaction history, and apply tax regulations to blockchain-based business transactions. KPMG has also developed a blockchain-powered supply chain application for its pharmaceutical clients, while PwC assists clients with smart contracts. Deloitte offers guidance to clients on the accounting and auditing of crypto assets and dedicates considerable effort to educating them about the potential benefits of blockchain. They have developed a tool named 'Blockchain in a Box' for this purpose. They also emphasized the imprudence of solely portraying this technology in a positive light and overlooking the flaws inherent in even the most innovative technologies. Therefore, they argue, it is imperative to initially scrutinize its technical infrastructure to gain a better understanding of its workings and the potential advantages blockchain could offer to the accounting profession [1].

In this articles, [4], [7] endeavored to comprehend the technical intricacies of blockchain and its distinctions from traditional databases. Before delving into its ramifications on accounting, auditing, and control professions, they underscored the fundamental disparity between traditional databases and blockchain: the data control mechanism[3]. [23] illustrated

how this advantage, stemming from the tamper-proof nature of data, diminishes the necessity for retrospective certification, thereby potentially diminishing the role of trusted third parties or limiting their sphere of influence [4], [15] emphasized that process automation won't render professions such as auditing or accounting obsolete; rather, it will catalyze an evolution in their professional engagements, notably towards consultancy and the analysis of intricate transactions [15].

Through a systematic review of 346 references available on Scopus, [16]identified blockchain as an innovation gradually reshaping the landscape of accounting, auditing, and reporting. These changes primarily entail reducing repetitive tasks, eliminating the need for reconciliation, enabling real-time accounting, and facilitating continuous auditing, including the ability to assess entire databases rather than samples. The authors emphasized the triple-entry principle and its significance in accounting within the blockchain era. Notably, the most cited paper in this field is by Dai and [15], who introduced triple-entry accounting into the academic discourse on blockchain and accounting. Their concept originates from [3] who proposed a third entry recorded by a trusted third party, storing a receipt where both parties involved in a transaction digitally accept and sign [16].

In this context, [17] differentiate between a traditional double-entry accounting system and a triple-entry accounting system. The former constitutes a centralized location for storing and editing accounting records, with only the accountant and auditor having access to the centralized ledger. On the other hand, the latter is a decentralized location or distributed ledger based on the triple-entry principle, where records are accessible to all transaction participants [3], [18] emphasize that in a triple-entry system, each transaction generates three entries: the debit record, the credit record, and the cryptographic signature verifying the transaction's validity [18]. In this setup, the blockchain serves as a neutral intermediary responsible for data distribution, storage automation, and process verification [3]. This paradigm shift has led several authors to recognize blockchain as a disruptive innovation [19], [20].

Beyond the opportunities presented by blockchain technology, there are challenges that may hinder its adoption and utilization. For instance [21], discussed the potential implications of blockchain applications for accounting and legal professionals, emphasizing that the future of blockchain lies in the development of applications increasingly integrated into financial discourse, regulatory guidance, and accounting frameworks. Therefore, merely specializing in a particular technical domain will no longer suffice, as a significant volume of data can now be processed through automated or computerized means. Consequently, professionals will also need to cultivate interdisciplinary skills and capabilities to collaborate effectively within a broader team of internal stakeholders and transition into a role closer to that of strategic partner. Smith, S.S. also confirms that a transition to the role of strategic partner or trusted advisor is a goal and aspiration often cited by many accounting and finance professionals, but remains a difficult change for the majority of practitioners due to two key factors: the lack of technical tools to augment and automate accounting processes and the mindset of the profession itself [19].

For [4] there persist technical challenges, regulatory uncertainty, and resistance to change. Within this context, [3] emphasized that these challenges include preparing for a new paradigm characterized by logistical issues associated with managing and overseeing multiple parties contributing to various public and private blockchains. This necessitates legal frameworks to regulate crypto assets.

[22] conducted a study aiming to pinpoint the critical success factors for blockchain adoption in the supply chain. Although the explained variable isn't directly tied to accounting, the choice of this article was driven by blockchain's significant achievements in logistics, rendering the findings more tangible. The authors identified 22 factors categorized into 6 groups: data governance (security, integrity, confidentiality), blockchain operation (architecture, accessibility, inter-blockchain operation, resilience), organizational capabilities (IT capacities, strategic alignment, financial backing), blockchain ecosystem (regulatory framework, collaborators), managerial deployment of blockchain projects (cost/benefit analysis, operationalization, customer satisfaction), and a specific factor pertinent to supply chain management.

The authors analyzed the results of their study in the light of the TOE Technology Organisation Environment framework. This suggests that technological, organizational, and environmental contexts influence the process by which a company adopts and implements technological innovation. The technology dimension incorporates the properties of technological innovation. The organizational dimension refers to the structure of the organization, resources, and intra-company communications. The environmental dimension refers to the characteristics of industries, markets, and the legal environment. Government policy and support are also essential for fostering Blockchain adoption [15].

[19] in his article "Implications of Next Step Blockchain Applications for Accounting and Legal Practitioners," emphasized the necessity for practitioners and professionals to embrace continuous learning and training to stay abreast of the evolving landscape. Thus, building upon this educational imperative, the demand and anticipation for information and education present a potential new spectrum of services and revenue streams for the profession. Delving further into this educational realm, [23] in a recent article, deliberated on the necessity of incorporating blockchain education in accounting within the university system.

By surveying the top 50 universities worldwide, researchers have categorized and consolidated 229 courses centered around teaching innovations like blockchain. They introduced a model comprising five course categories (approaches): business-oriented; dual or triple competency; entrepreneurship and business development; sector-specific; critical and holistic.

For instance, in a business-oriented approach, courses are tailored for managers, aiming to impart fundamental introductory knowledge rather than comprehensive training. A

dual or triple competency approach encompasses 66 courses, with 56 geared towards cultivating dual competencies (in two disciplinary fields) and 10 towards triple competencies (in three disciplinary fields). These courses are structured around distinct blockchain emphases, such as blockchain and law, blockchain and IT, and an intermediate focus on blockchain and finance [23].

V. Discussion

When delving into the technological aspect of blockchain, akin to any information system, it encompasses four components: hardware, software, a storage server, and a network interconnecting the machines, performing four primary functions: collecting, storing, processing, and disseminating information. Nonetheless, as underscored by the majority of scholars [3], [4], [8], [14], [17], [18], [24] the distinctiveness of this technology compared to ERPs utilized in accounting lies, on one hand, in the validation mechanisms ensuring the impossibility of altering a transaction once its block has been validated, namely, cryptography and the hashing process, serving as two elements of protection and assurance concerning the consensus mechanism [18]. On the other hand, it constitutes a decentralized system founded upon a peer-to-peer network that does not necessitate the involvement of a trusted third party.

Consensus is a crucial element in arriving at a satisfactory decision. [18] affirm in their article that consensus in accounting is positively correlated with decision accuracy, stating, 'Besides, there is evidence that consensus in accounting has a positive correlation with the accuracy of decisions.' Furthermore, the ability to conduct a transaction without a supervisory authority demonstrates that blockchain's strength lies in accelerating transactions while preserving collective trust. Consequently, blockchain could offer a solution to issues associated with contractual relationships, namely pre- and post-contractual uncertainty and control costs. This was well supported by [14] in their article, highlighting that "Blockchain-enabled, real-time accounting would significantly reduce opportunistic managerial behaviors aimed at engaging in accounting gimmicks and value-destroying actions to manipulate reported earnings".

From the above, we can infer that blockchain could have a positive impact on enhancing financial information, decision-making processes, and fostering trust between executives and shareholders.

From an accounting perspective, it is reasonable to assert that the primary role of accounting pertains to transaction traceability. In today's era of vast data volumes (big data), fulfilling this role is increasingly challenging. This is why some authors argue that the benefits of applying blockchain in other domains, such as logistics, can also enhance the traceability of accounting flows. For instance, [24] concluded that AI and blockchain can complement each other: AI enables the more efficient utilization of archived data, empowering computers to autonomously understand and interpret extensive datasets, while blockchain enhances data traceability, immutability, and certification.

Our thorough review has allowed us to identify commonalities among all the proposed results and gathered information. One commonality is that blockchain exerts a positive impact on financial accounting, as discussed earlier. Another commonality pertains to the challenge some authors face in comprehending and analyzing the technical aspects. For instance, [16] were unable to delve into technical, legal, or ethical issues such as data security, confidentiality, or the reliability of information input into the blockchain. Additionally, [18] underscored that, 'Although academic authors outnumber practitioner authors, the theoretical aspects of blockchain in this research domain remain largely unexplored.' Another common thread relates to the challenges that could impede the successful adoption of blockchain. Indeed, several authors converge on three major challenges: technical operationalization, organizational, and legal.

A technical challenge mainly concerns understanding the technology, as grasping blockchain from a systemic perspective entails mastering its functions to utilize it effectively. Moreover, as affirmed by certain authors [3], [16], [18], [19] the operational mode of blockchain has engendered a new accounting paradigm where transactions are recorded following a triple-entry model instead of one based solely on double-entry. Consequently, any deficiency in knowledge and comprehension could impede progress in establishing globally accepted accounting practices, alongside tax and regulatory frameworks [25].

As for the organizational challenge, three essential axes were mentioned in the article by [22]. The first axis concerns the Information Systems (IS) capabilities, which revolve around four aspects: the maturity, flexibility, and readiness of the IT infrastructure to deploy and operate a Blockchain; the availability of interdisciplinary talent in areas such as Big Data, prototyping, finance, law, software implementation, and project management; the accessibility to innovative and validated applied knowledge on Blockchain; and finally, the alignment of the organization's structure and culture with Blockchain technology.

The second dimension revolves around strategic alignment, aiding businesses in leveraging this technology to cultivate a competitive edge by crafting a well-considered business model tailored to Blockchain. Lastly, a third dimension pertains to the financial capability required to support Blockchain implementation, its assimilation, and sustainable utilization [22].

From a legal standpoint, [22] emphasize that blockchain necessitates straightforward local legislation [2] characterized by a high degree of legal lucidity and political certainty. Consequently, a significant innovation introduced by blockchain, particularly concerning the dematerialization of the contractual process (smart contracts), could profoundly reshape legal professions [8].

VI. Conclusion

Our work involves examining literature reviews addressing the impact of blockchain on financial accounting in order to identify existing theoretical knowledge. For this purpose, we relied on a systematic review as it allows us to adopt a reproducible scientific protocol, enabling us to provide viable results and discussions.

Through our detailed analysis, we found that the majority of authors addressed the opportunities of blockchain technology, its possible innovative applications in the accounting field, as well as the challenges that may hinder its successful adoption.

Thus, our research has allowed us to conclude that although blockchain has been around since 2008 with the development of digital currencies, it has recently gained significant momentum in the field of management. This has obviously sparked the interest of some authors in examining the potential impacts of this technology on the accounting, control, and auditing professions.

The translation provided seems accurate and captures the essence of the original text well. However, here's a refined version to ensure it aligns seamlessly with the style typically found in academic articles:

Indeed, the research conducted in this regard suggests that beyond the benefits derived from digitalization, blockchain, with its mode of operation, validation and certification mechanisms, and innovative applications such as smart contracts, holds the potential to revolutionize accounting and its professions. Such a transformation could significantly impact the evolution of accounting practices, particularly the transition from a double-entry model to a triple-entry model.

Our study has revealed that the successful adoption and integration of blockchain primarily depends on technical, organizational, and legal factors.

In conclusion, while the literature is rich in conceptualization and theoretical explanations, it lacks empirical evidence. Hence, future endeavors should explore diverse empirical methods to complement and validate theoretical frameworks.

References

[1] M. Alles and G. Gray, "Hope or hype? blockchain and accounting," vol. 23, pp. 19–45.

[2] N. Levilly and S. Dermarkar, "Comptabilité : comment réussir la transformation numérique ?:," vol. Vol. 46, no. 1, pp. 50–55.

[3] T. Garanina, M. Ranta, and J. Dumay, "Blockchain in accounting research: current trends and emerging topics," vol. 35, no. 7, pp. 1507–1533.

[4] O. Desplebin, G. Lux, and N. Petit, "Comprendre la blockchain : quels impacts pour la comptabilité et ses métiers ?," vol. 5, no. 2, pp. 5–23.

[5] L. Leloup, *Blockchain: la révolution de la confiance*. Eyrolles.

[6] M. T. Hammi, "Sécurisation de l'internet des objets,"

[7] O. Desplebin, G. Lux, and N. Petit, "L'évolution de la comptabilité, du contrôle, de l'audit et de leurs métiers au prisme de la blockchain : une réflexion prospective," vol. 103, no. 5, pp. 137–157.

[8] C. Berbain, "La *blockchain* : concept, technologies, acteurs et usages," vol. Août 2017, no. 3, p. 6.

[9] J.-G. Degos, "Jean fourastié : diachronie d'une pensée comptable," vol. 3, no. 1, p. 5.

[10] W. Cheffi and M. Nekhili, "Rôles assignés à la comptabilité de gestion par les managers et changement comptable : question d'adéquation ou simple désillusion ?:," vol. Tome 17, no. 1, pp. 67–97.

[11] J.-G. Degos and D. Leclere, "Vingt ans de contestation du modèle comptable," vol. 5, no. 3, p. 199.

[12] M. J. Page, J. E. McKenzie, P. M. Bossuyt, I. Boutron, T. C. Hoffmann, C. D. Mulrow, L. Shamseer, J. M. Tetzlaff, E. A. Akl, S. E. Brennan, R. Chou, J. Glanville, J. M. Grimshaw, A. Hróbjartsson, M. M. Lalu, T. Li, E. W. Loder, E. Mayo-Wilson, S. McDonald, L. A. McGuinness, L. A. Stewart, J. Thomas, A. C. Tricco, V. A. Welch, P. Whiting, and D. Moher, "The PRISMA 2020 statement: an updated guideline for reporting systematic reviews," p. n71.

[13] B. Alkafaji, M. Dashtbayaz, and M. Salehi, "The impact of blockchain on the quality of accounting information: An iraqi case study," vol. 11, no. 3.

[14] H. Han, R. Shiwakoti, R. Jarvis, C. Mordi, and D. Botchie, "Accounting and auditing with blockchain technology and artificial intelligence: A literature review," vol. 48.

[15] H. Matskiv, I. Smirnova, A. Malikova, O. Puhachenko, and M. Dubinina, "THE APPLICATION OF BLOCKCHAIN TECHNOLOGY IN ACCOUNTING AND AUDITING: EXPERIENCE OF UKRAINE AND KAZAKHSTAN," vol. 1, no. 48, pp. 180–192.

[16] M. Bellucci, D. C. Bianchi, and G. Manetti, "Blockchain in accounting practice and research: systematic literature review," vol. 30, no. 7, pp. 121–146.

[17] L. ESCAFFRE, A. G. Y. Nexia, K. MEGHRAOUI, and A. élève de l'École, "Blockchain et métiers du chiffre: la comptabilité en partie triple, un nouveau cadre conceptuel?," no. 568, p. 3.

[18] S. Secinaro, F. Dal Mas, V. Brescia, and D. Calandra, "Blockchain in the accounting, auditing and accountability fields: a bibliometric and coding analysis," vol. 35, no. 9, pp. 168–203.

[19] S. Smith, "Implications of next step blockchain applications for accounting and legal practitioners: A case study," vol. 12, no. 4, pp. 77–90.

[20] T. Mugwira, "Internet related technologies in the auditing profession: A WOS bibliometric review of the past three decades and conceptual structure mapping," vol. 25, no. 2, pp. 201–216.

[21] M. Smith, "Luca pacioli: The father of accounting."

[22] L. Benhayoun and T. Saikouk, "Untangling the critical success factors for blockchain adoption in supply chain: a social network analysis," vol. 36, no. 1, pp. 27–59.

[23] O. Desplebin, G. Lux, and N. Petit, "L'enseignement de la blockchain pour les étudiants en comptabilité : état des lieux et leçons issues du top 50 mondial des universités.:," vol. N° 18, no. 3, pp. 59–91.

[24] R. M. N. Marone, M. Mbengue, and D. Diakhaté, "Archivage des données numériques massives: contribution de l'intelligence artificielle et de la blockchain," vol. 5, no. 2, pp. 6–21.

[25] N. Alsalmi, S. Ullah, and M. Rafique, "Accounting for digital currencies," vol. 64.