Revue Internationale du Chercheur
ISSN: 2726-5889
Volume 6 : Numéro 2

Blockchain and Management Control: A Bibliometric Analysis of Research Trends

La blockchain et le contrôle de gestion : une analyse bibliométrique des tendances de recherche

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Date de soumission : 26/04/2025

Date d'acceptation : 05/06/2025

To cite this article :

KAIZAR. C. & HILMI. Y. (2025) «Blockchain and Management Control: A Bibliometric Analysis of Research Trends», Revue Internationale du chercheur « Volume 6 : Numéro 2 » pp : 1300-1327.

Résumé :

Introduction : Cet article vise à analyser la production scientifique portant sur la relation entre la blockchain et le contrôle de gestion. Cette revue bibliométrique, fondée sur les données de Scopus, s'appuie sur le logiciel VOSviewer pour la cartographie des publications. Elle permet d'identifier les tendances de recherche, les thématiques clés et les éventuelles lacunes dans ce champ émergent.
Méthode : La méthodologie adoptée repose sur une étude bibliométrique des publications scientifiques traitant de la blockchain et du contrôle de gestion, en utilisant Scopus et VOSviewer. La base de données a été construite à partir de la requête "blockchain" et "management control", en filtrant selon les domaines du management, de la gestion et de la comptabilité.
Résultats : Les résultats de cette analyse bibliométrique révèlent un intérêt croissant pour les applications de la blockchain dans le contrôle de gestion, avec une dynamique interdisciplinaire impliquant le management, l'informatique et les sciences de la décision. Les thèmes dominants sont l'automatisation des processus, la traçabilité, la sécurité des données et l'intégration avec des technologies émergentes telles que l'intelligence artificielle et le Big Data. L'étude met aussi en lumière les réseaux de collaboration entre pays, auteurs et institutions.
Conclusions : Cette synthèse bibliométrique met en évidence l'état actuel et l'évolution des recherches sur la blockchain et le contrôle de gestion. Elle identifie les travaux influents, les concepts émergents et les dynamiques de collaboration, tout en fournissant des pistes utiles aux chercheurs et aux praticiens. Les résultats contribuent à orienter les futures stratégies de recherche et à promouvoir des approches interdisciplinaires pour mieux comprendre l'impact de la blockchain sur les pratiques de contrôle de gestion.

Mots-clès : Blockchain ; Contrôle de gestion ; Analyse bibliométrique ; Automatisation des processus ; Technologies émergentes

Abstract :

Introduction: The aim of this article is to analyse the scientific production exploring the relationship between blockchain and management control. This bibliometric review, based on Scopus data, uses VOSviewer software for the analysis. By mapping the existing literature, it identifies research trends, key topics, and potential gaps in this emerging field.
Method: The adopted methodology consists of a bibliometric study of publications on blockchain and management control, using Scopus and VOSviewer. A database was created using the keyword combination "blockchain" and "management control," with filtering by subject areas such as business, management, and accounting.
Results: The results of this bibliometric study reveal a growing interest in blockchain applications in management control, with an interdisciplinary dynamic involving management, computer science, and decision sciences. Main themes include process automation, traceability, data security, and integration with emerging technologies such as AI and Big Data. The analysis also highlights active collaboration networks between countries, authors, and institutions.
Conclusions: This bibliometric synthesis highlights the current state and evolution of research on blockchain and management control. It identifies influential works, emerging concepts, and collaboration patterns, offering valuable insights for researchers and practitioners. The results help guide future research strategies and promote interdisciplinary approaches to better understand the impact of blockchain on management control practices.

Keywords : Blockchain ; Management control ; Bibliometric analysis ; Process automation ; Emerging technologies

Introduction

In a world characterized by accelerated digitalization and increasing complexity in economic environments, companies are facing major challenges in terms of governance, transparency, and securing information flows. Digital transformation, now an essential lever of competitiveness, compels organizations to rethink their traditional practices, particularly in the field of management control. In this context, blockchain technology is emerging as a disruptive innovation, promising to overhaul processes related to traceability, validation, and the control of financial data.

Originally developed for cryptographic transactions, blockchain is now attracting growing interest in management sciences. Its potential to ensure data integrity, automate processes through smart contracts, and strengthen trust among economic actors makes it a strategic tool for organizational steering. According to Desplebin and Lux (2018), this technology is transforming the very foundations of control, auditing, and accounting by offering a new informational architecture based on disintermediation and verifiability.

Management control, as an information and decision-support system, is thus seeing its boundaries redefined by the arrival of blockchain. The objective is no longer solely to evaluate performance or guide managerial actions, but also to ensure greater transparency in operations and to reduce informational risks. However, this evolution raises several questions: What is the current state and trend of scientific production regarding the link between blockchain and management control?

In response to this question, this article offers a bibliometric analysis of scientific publications addressing blockchain and management control. By leveraging powerful analysis tools such as Scopus and VOSviewer, this study aims to map the main research trends, identify influential authors and institutions, and highlight key concepts structuring this emerging field. It thus seeks to provide a concise yet rigorous overview of the state of research while opening avenues for future academic work.

1. Bibliometric Analysis

Bibliometric analysis is a quantitative method for studying scientific publications, aiming to assess, map, and interpret research trends within a given field. It relies on data from reputable scientific databases (such as Scopus, Web of Science, etc.) to measure impact, productivity, collaboration, and knowledge networks through bibliographic indicators. This type of analysis

helps to better understand the structure of a scientific domain, its evolution, influential authors, the most cited journals, and emerging themes (Donthu et al., 2021).

According to Pritchard (1969), who introduced the term "bibliometrics," it refers to "the application of mathematical and statistical methods to books and other media of communication." In other words, bibliometrics goes beyond merely counting articles; it seeks to represent the dynamics of a research field by revealing patterns of influence, co-evolution, and collaboration. As such, it is fully aligned with contemporary scientific analysis, where the abundance of information requires structured approaches to extract meaningful insights.

Today, bibliometric analysis has become a central tool in systematic literature reviews. It is used to identify the most influential publications, detect “knowledge nodes” — that is, foundational works — as well as connections between topics, research gaps, and institutional dynamics of scientific production (using tools such as VOSviewer, Biblioshiny, CitNetExplorer, etc.). Thus, it provides both a macroscopic view (trends over time) and a microscopic view (conceptual relationships or co-citations) of the studied corpus (Zupic & Čater, 2015).

According to Aria and Cuccurullo (2017), bibliometrics is especially relevant in management sciences, as it allows the analysis of interdisciplinary domains often fragmented across several theoretical streams. By uncovering the hidden structures behind keywords, citations, and co-authorship, it helps researchers identify dominant paradigms, conceptual evolutions, or clusters of thought schools.

Moreover, as illustrated by Hilmi & Helmi (2024), bibliometric analysis can be combined with qualitative methods (e.g., surveys, interviews) to enhance the validity of results and offer a more nuanced understanding of scientific dynamics. This methodological triangulation allows for a better comprehension not only of what is being published but also how publications are received, discussed, and used by practitioners and researchers.

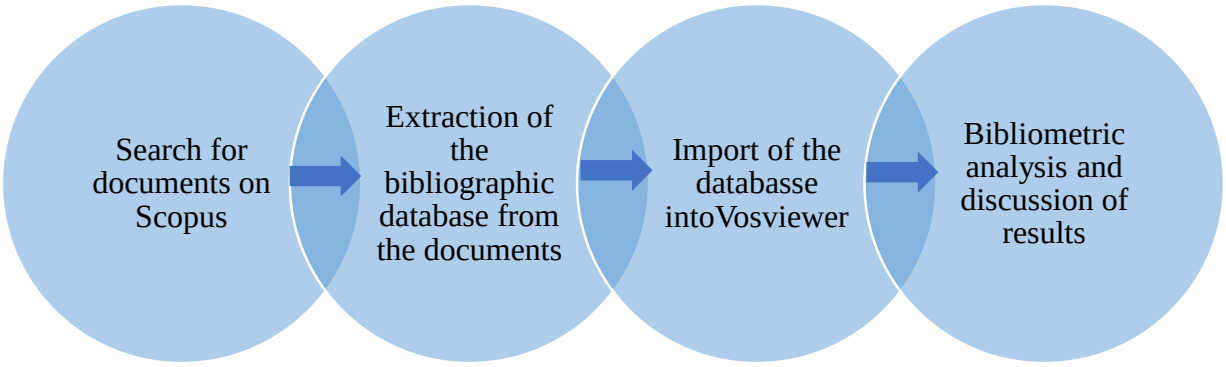
In summary, bibliometric analysis is a rigorous and systematic tool for mapping a field of knowledge through an empirical approach based on publication data. It is a valuable resource for researchers, institutions, and academic decision-makers seeking clarity, impact, and strategic direction in a scientific world saturated with information.

2. Research Methodology and Findings

The objective of this study is to conduct an in-depth analysis of current research on blockchain and management control. To achieve this, we adopted a bibliometric analysis methodology in order to thoroughly examine the existing literature using advanced bibliometric research and processing tools, namely **Scopus** and **VOSviewer**. In recent years, bibliometric analysis has become a widely used research method, generating increasing interest among scholars.

The study was conducted in several stages, as illustrated in Figure 1 below. This process includes: conducting a literature search in academic databases, extracting bibliographic references from the selected documents, importing the data into **VOSviewer**, and processing and interpreting the maps generated by **VOSviewer**.

Figue 1 : Research and Document Selection Process



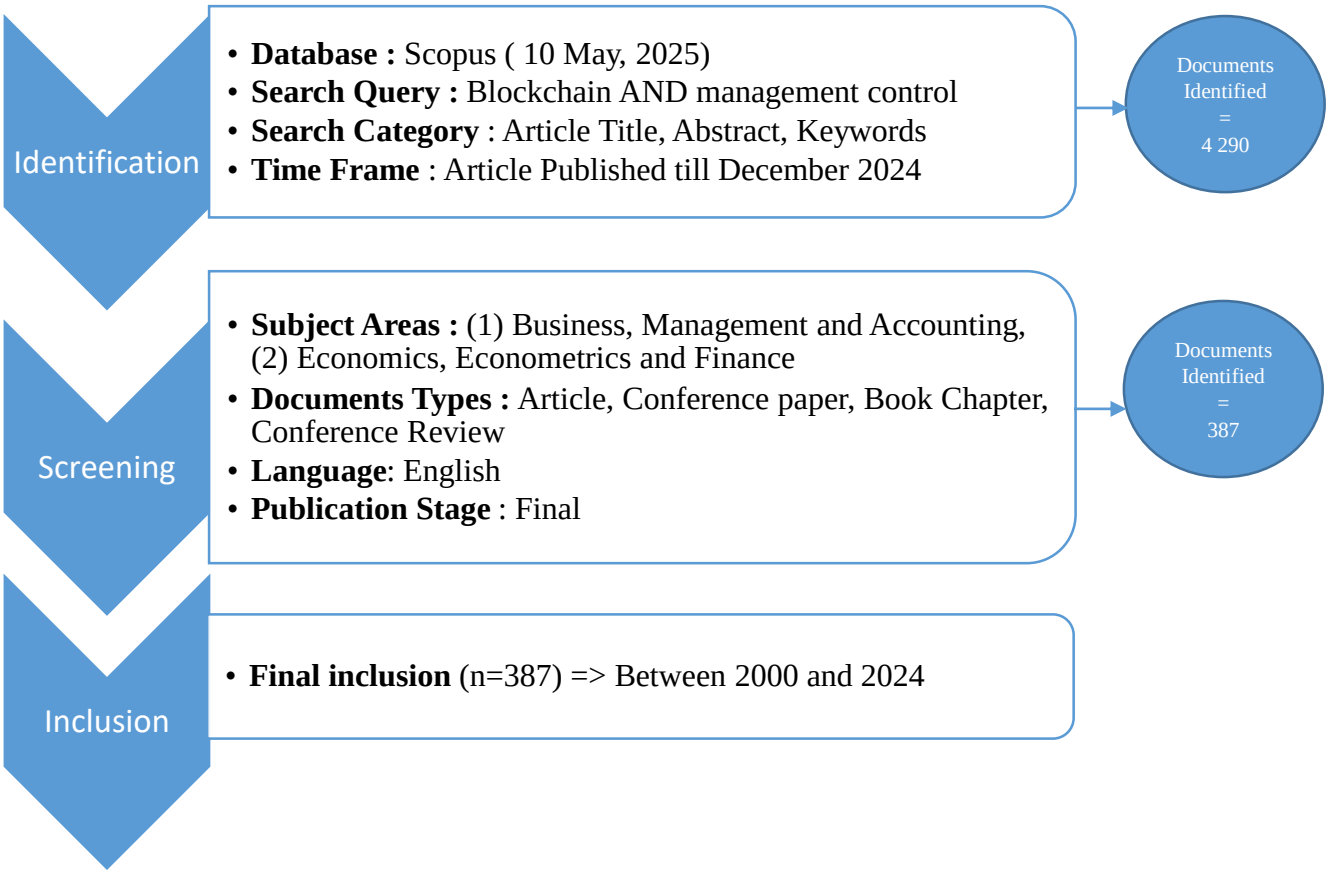
Source : by the authors.

2.1. Adopted Methodology :

The bibliometric study was conducted using the following advanced query: "**Blockchain**" AND "**Management Control**". Publications were extracted in February 2025 from Scopus, one of the largest academic databases (Knani et al., 2022).

This search resulted in the identification of 387 publications, which were filtered based on their subject area, limited to: Business, Management and Accounting and Economics, Econometrics and Finance. Publications from other fields were excluded, as were irrelevant documents after reading their abstracts. Moreover, various types of documents were considered, while applying additional filters, as illustrated in Figure 2 below.

Figue 2 : Research and Document Selection Process



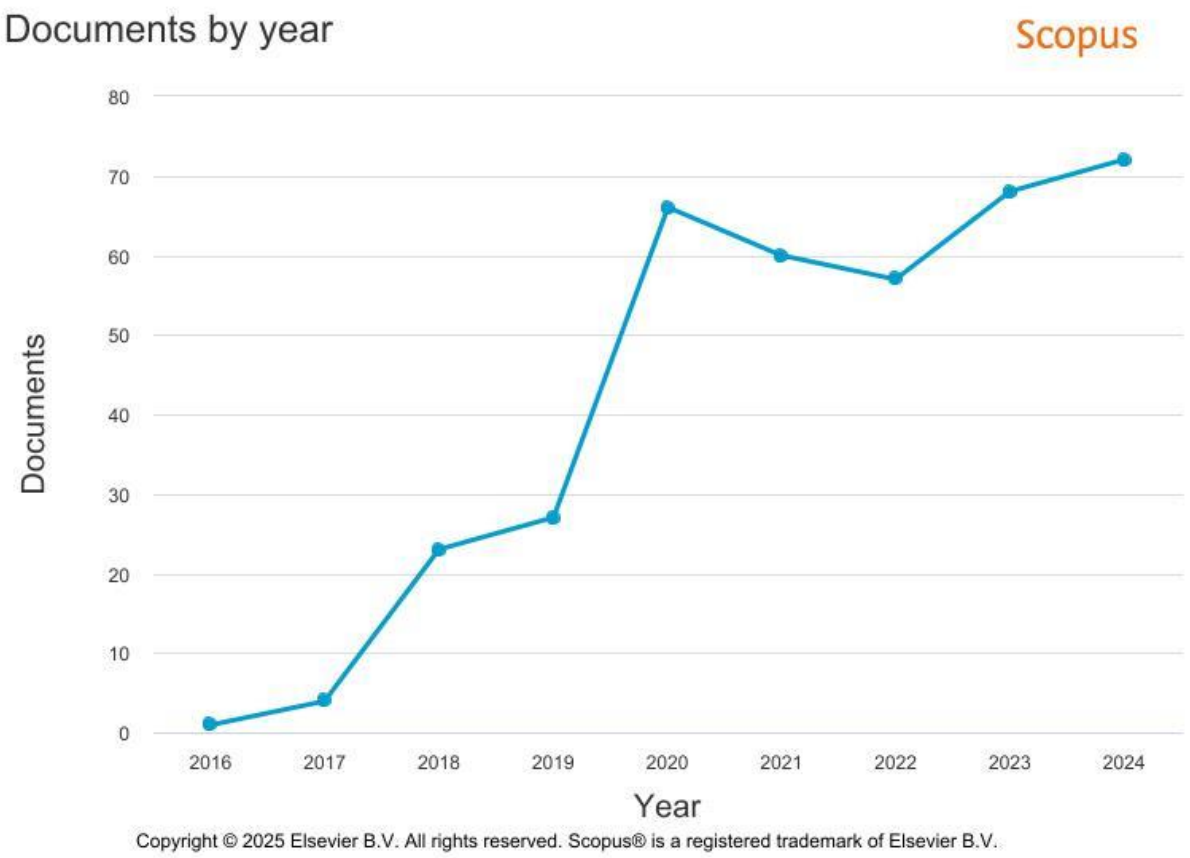
Source : by the authors.

Once our database was compiled, we carried out a series of bibliometric processes using the features available in VOSviewer.

2.2. Results of the Scopus Search :

Before conducting the bibliometric analysis of the documents retrieved from Scopus, it is relevant to provide a detailed summary of the extracted database :

Figure 3 : Number of Documents per Year (2016–2024)



Source : by the authors.

This graph illustrates the evolution of scientific publications on blockchain and management control between **2016** and **2024**.

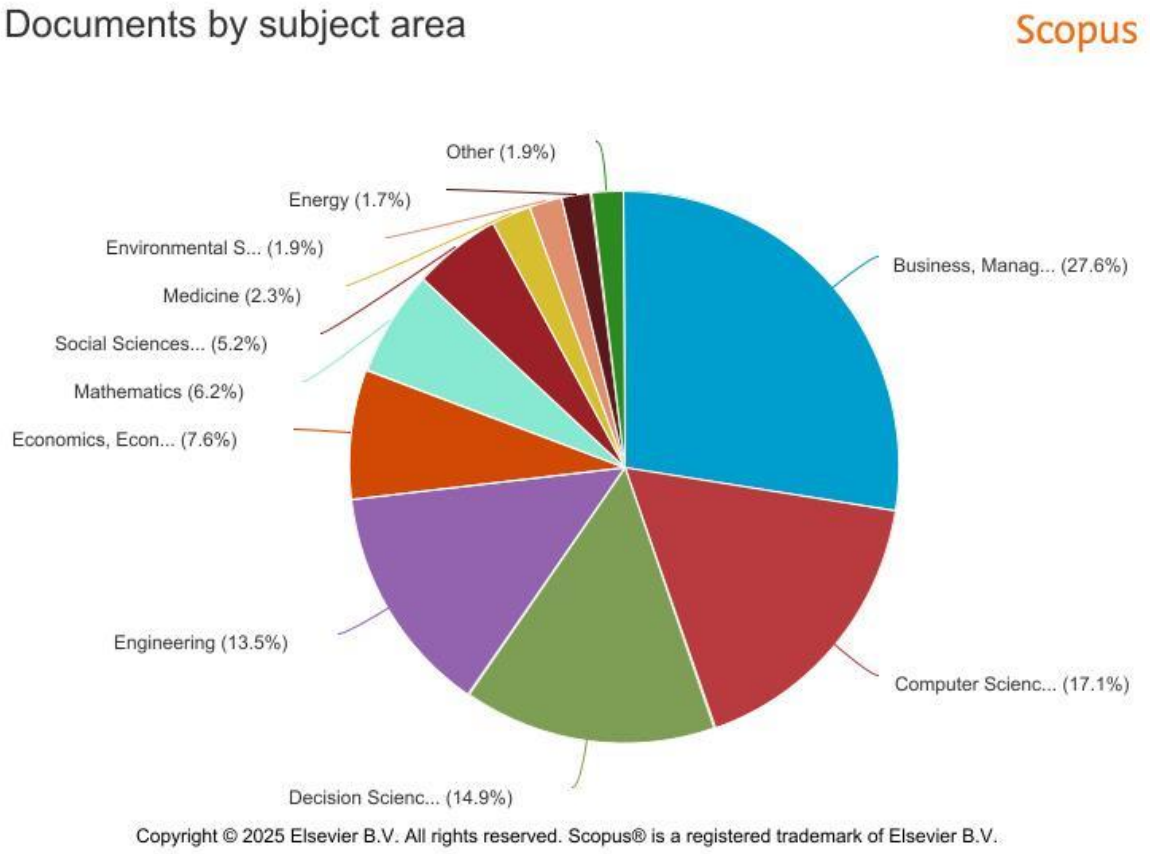
Between 2016 and 2020, there was a strong increase in research output, reaching a peak in 2020. This trend reflects an initial enthusiasm for blockchain and its potential in financial traceability, fraud reduction, and automation of management control processes.

However, between 2021 and 2022, a slight decline is noticeable, suggesting a stabilization phase in which research became more focused on applied and critical analyses, particularly in response to implementation challenges and regulatory concerns.

Since 2023, the number of publications has been rising again, indicating renewed interest in practical blockchain applications in management control, particularly regarding data security and the enhancement of reporting processes.

This trend highlights a classic technological cycle: a rapid exploration phase, followed by adjustment, and then a more deliberate adoption. Blockchain thus remains a strategic research topic for strengthening the reliability and efficiency of management control systems.

Figure 4 : Most relevant Subject area :



Source : by the authors.

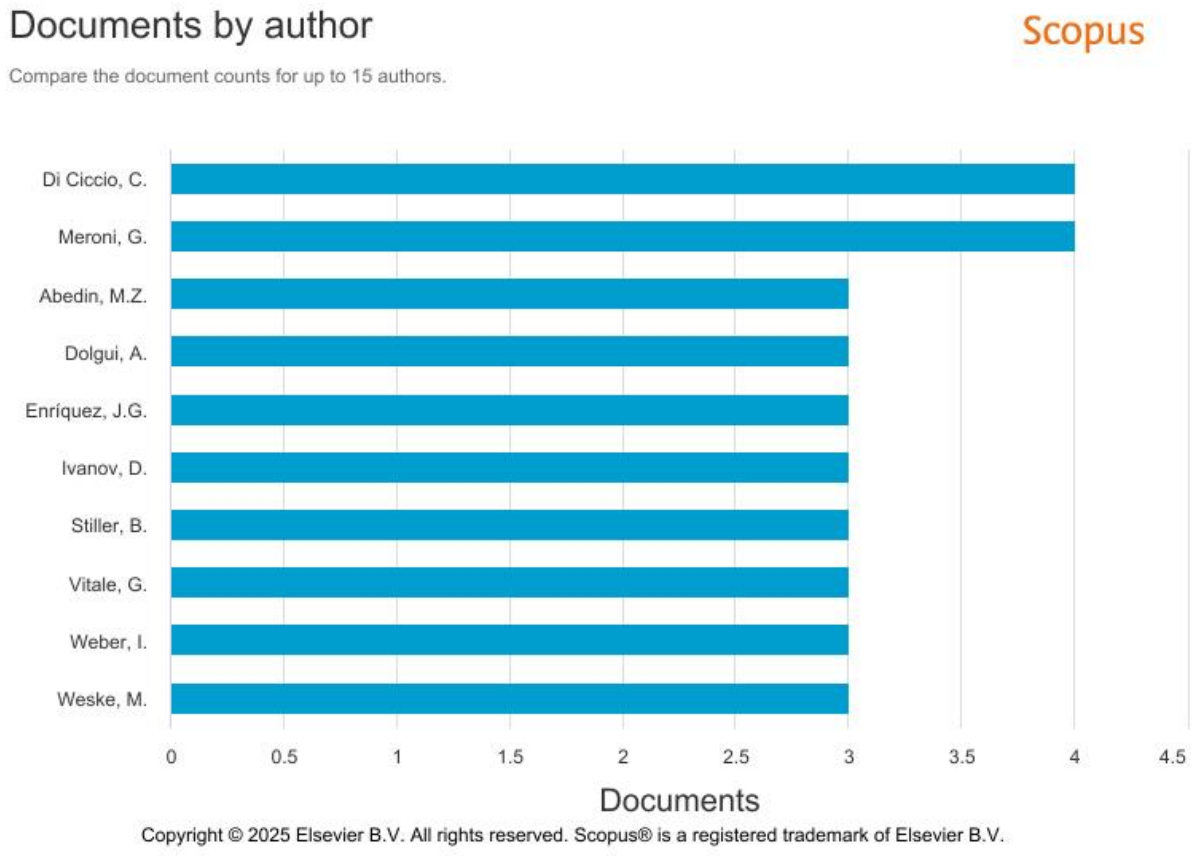
This graph illustrates the distribution of scientific publications on blockchain and management control, based on an analysis conducted using Scopus. The results reveal a significant concentration of research in the fields of management and accounting (27.6%), computer science (17.1%), and decision sciences (14.9%), followed by engineering (13.5%) and other disciplines such as economics, social sciences, and mathematics.

The strong representation of the management and accounting domain can be attributed to the growing interest in blockchain's impact on financial transparency, risk management, and the enhancement of management control systems. Researchers are increasingly examining how this technology can automate reporting processes, reduce fraud, and improve transaction traceability.

In the field of computer science, for instance, research primarily explores the technical dimensions of blockchain, including its development, implementation, optimization, and integration into enterprise systems. The high proportion of publications in this domain underscores the foundational role of technology in the adoption and innovation of blockchain solutions.

This distribution highlights the highly interdisciplinary nature of research on blockchain. Although management and accounting remain dominant, the interconnection with computer science, decision sciences, and engineering underlines the need for a comprehensive approach. The integration of these disciplines allows for a more holistic exploration of blockchain's potential in management control, bridging technological innovation with strategic and operational challenges.

Figure 5 : Most relevant Author :



Source : by the authors.

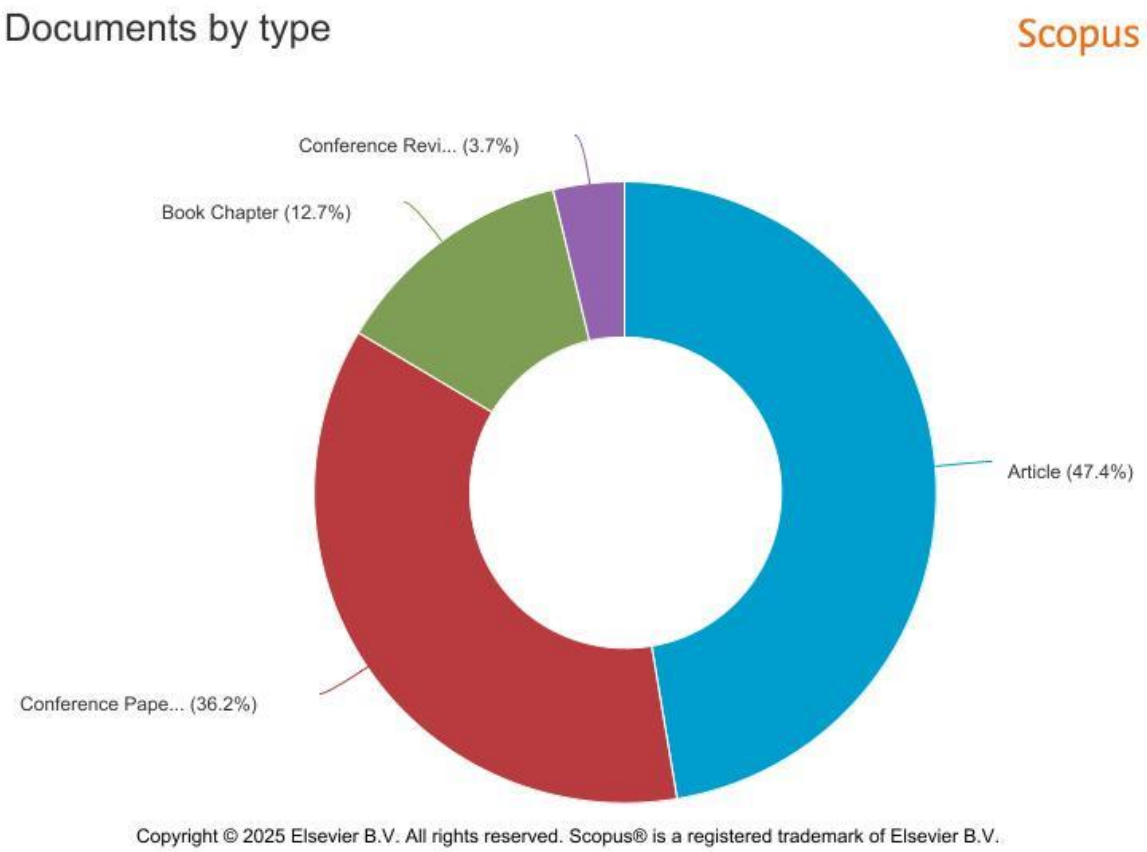
This graph presents the authors who have published the most research on blockchain and management control, based on Scopus data.

Authors Di Ciccio, C. and Meroni, G. stand out with four publications each, while all other authors (Abedin, M.Z., Dolgui, A., Enríquez, J.G., Ivanov, D., Stiller, B., Vitale, G., Weber, I., and Weske, M.) have three publications each.

This distribution suggests that research on blockchain applied to management control is driven by a diverse group of authors, with no single researcher overwhelmingly dominating the field. It reflects the presence of an active research community, composed of various experts exploring the implications of blockchain for financial traceability, data security, and the optimization of control processes.

Identifying these key authors may prove useful for deepening the state of the art, pinpointing foundational works, and guiding a more targeted literature review focused on the specific applications of blockchain in management control.

Figure 6 : Distribution of Documents by Type :



Source : by the authors.

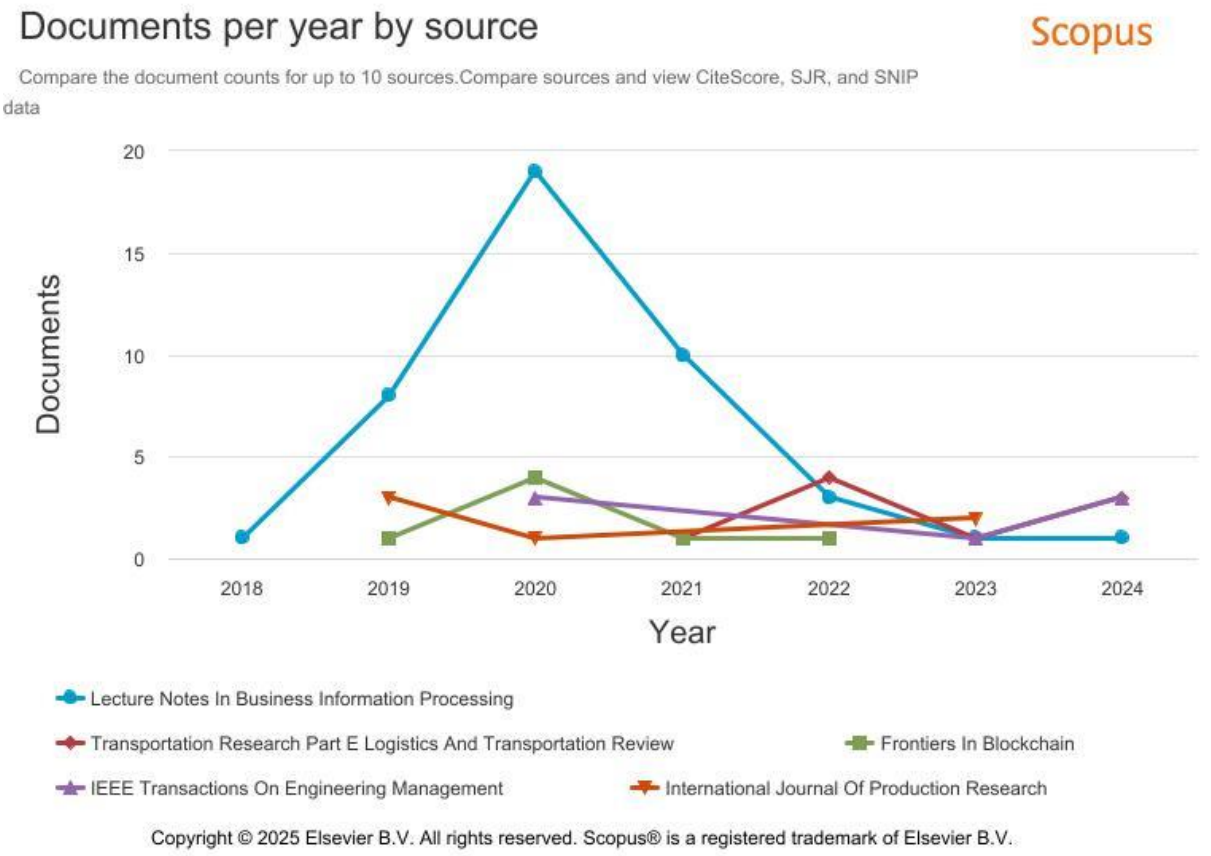
This graph shows the distribution of publication types related to blockchain and management control, according to Scopus.

Journal articles (47.4%) are predominant, reflecting in-depth and peer-reviewed research. Conference papers (36.2%) also represent a significant share, indicating a dynamic and evolving field where advances are frequently disseminated.

Book chapters (12.7%) suggest a gradual integration of the topic into broader academic studies, while conference reviews (3.7%) remain marginal.

These results reflect an active and engaged research community, contributing to the advancement of knowledge on the impact of blockchain in management control and fostering scientific dialogue on its implications.

Figure 7 : Distribution of Documents by Year and by Source :



Source : by the authors.

This graph illustrates the evolution of the number of publications on blockchain and management control by source, according to Scopus, between 2018 and 2024.

A notable peak is observed in 2020 in the journal Lecture Notes in Business Information Processing, which published nearly 20 documents that year. Following this sharp increase, the number of publications in this source gradually declined through 2024. This trend suggests an

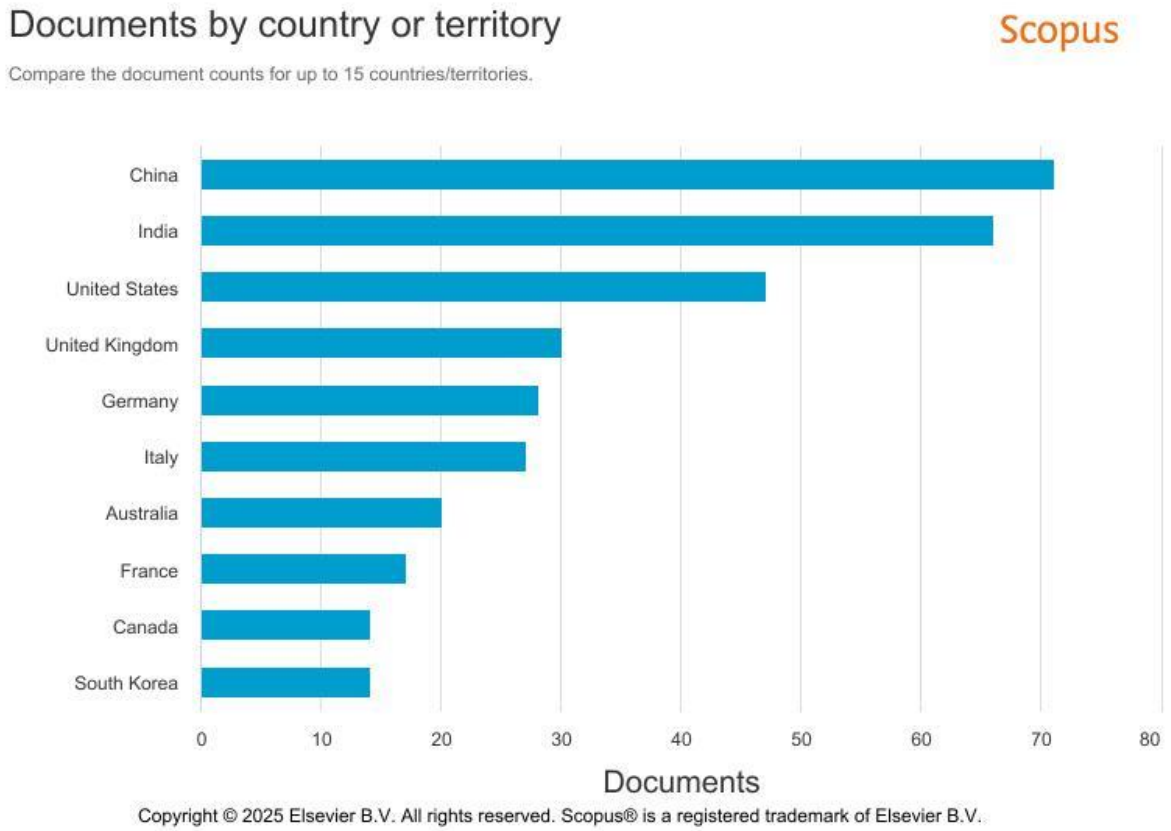
intense but temporary interest, possibly linked to a specific event or conference that stimulated scientific production on the topic.

Other journals, such as Transportation Research Part E: Logistics and Transportation Review, Frontiers in Blockchain, IEEE Transactions on Engineering Management, and the International Journal of Production Research, show a more balanced distribution and a more stable evolution of publications over the following years.

Since 2021, research publications have become more diversified, with several journals contributing to the advancement of knowledge on blockchain in management control. This dispersion of sources reflects the growing maturity of the field, with roots extending into multiple disciplines, including management, engineering, and logistics.

These results confirm that interest in blockchain within management control remains strong but has shifted toward more focused studies published across a wider range of journals, rather than being concentrated in a single dominant source.

Figure 8 : Distribution of Documents by Country :



Source : by the authors.

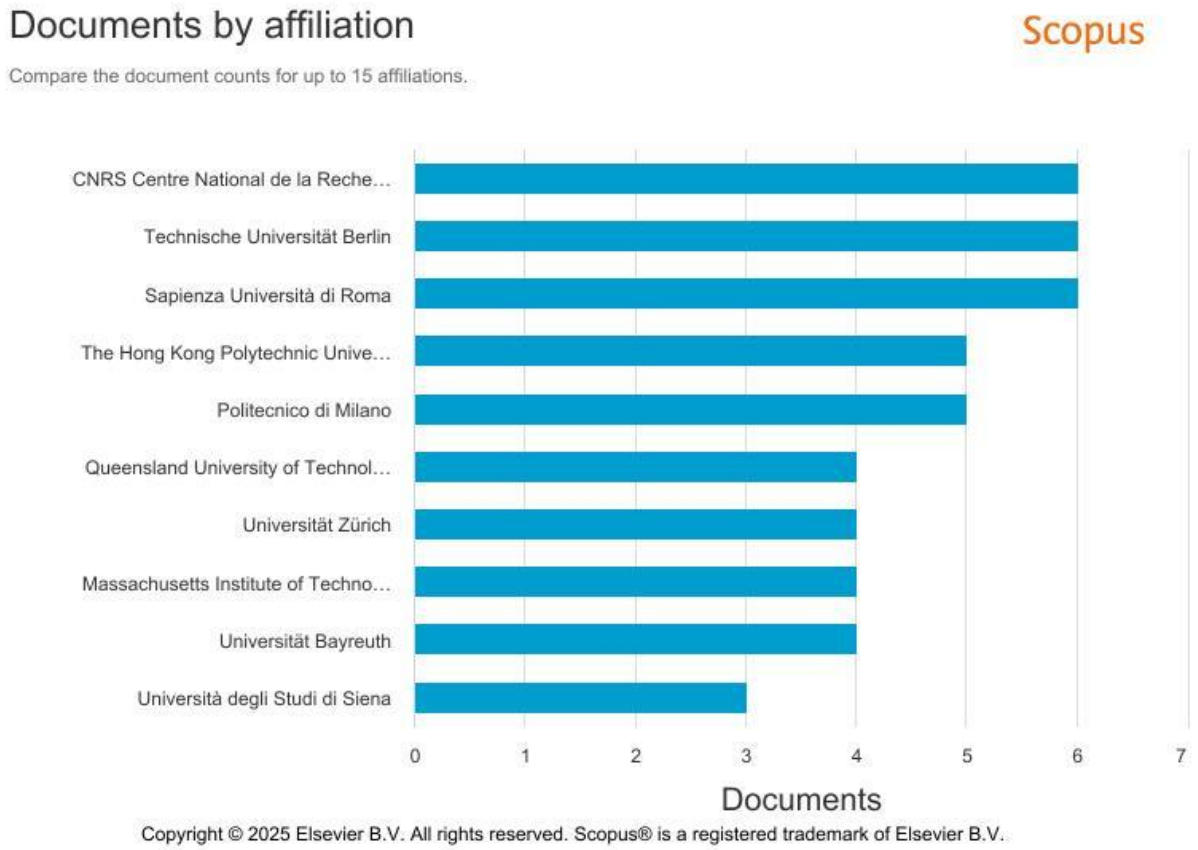
This graph illustrates the distribution of publications on blockchain and management control by country, based on Scopus data.

China ranks first with the highest number of publications, followed by India and the United States. This predominance can be attributed to these countries' substantial investments in blockchain technology, particularly for applications in finance, accounting, and management control.

The United Kingdom, Germany, and Italy also demonstrate significant scientific output, indicating a growing European interest in the application of blockchain in management and accounting.

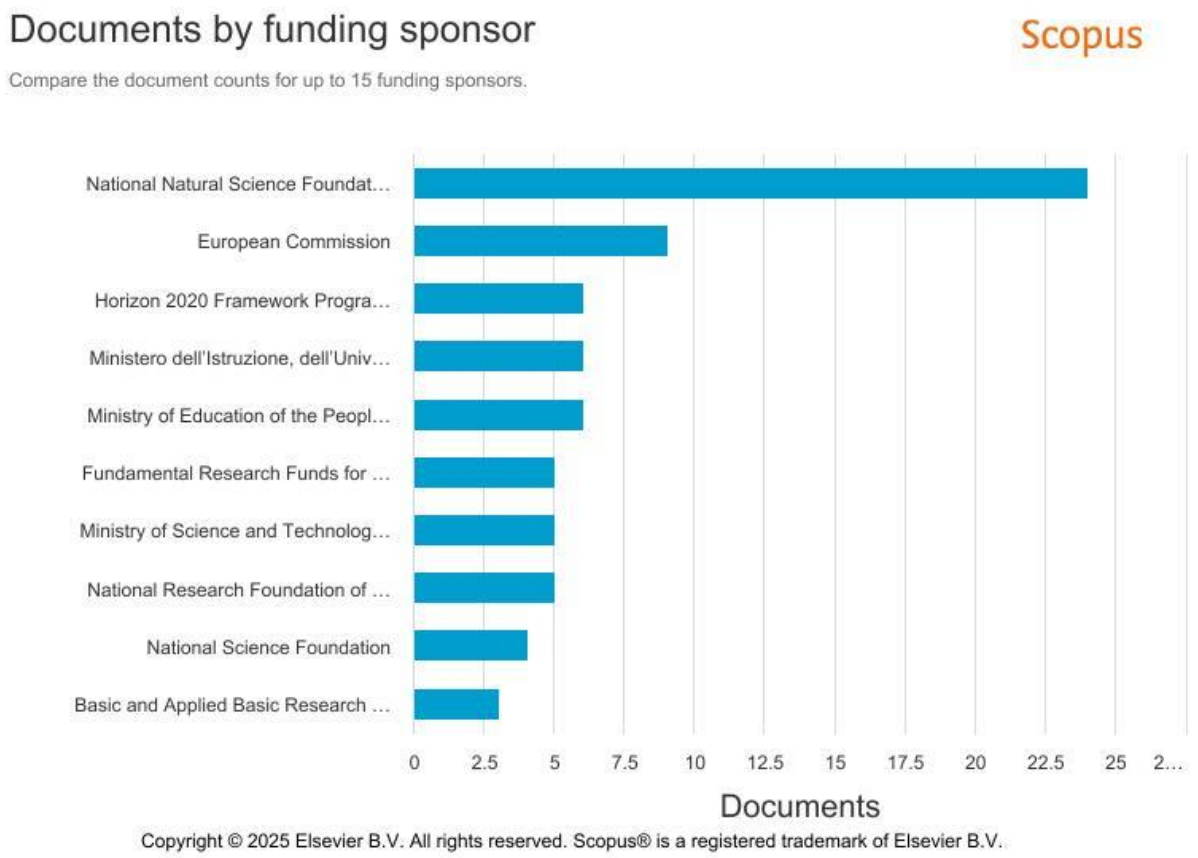
Other countries such as Australia, France, Canada, and South Korea also contribute to the research, although to a lesser extent. This distribution reflects a global engagement in the study of blockchain, with geographic diversity that underscores the international relevance of the topic.

Figure 9 : Most relevant affiliation :



Source : by the authors.

Figure 10 : Most relevant Sponsor :



Source : by the authors.

This graph illustrates the main funders of research on blockchain and management control, according to Scopus.

The **National Natural Science Foundation of China** stands out as by far the largest contributor, confirming China's strategic interest in blockchain applications for management and finance. The **European Union**, through the **European Commission** and the **Horizon 2020 program**, also supports numerous studies, highlighting a strong commitment to technological innovation and digital transformation.

Other institutions, such as Italy's **Ministero dell'Istruzione, dell'Università e della Ricerca**, China's **Ministry of Education**, and the **Ministry of Science and Technology**, are also among the key funders, demonstrating government support across multiple countries.

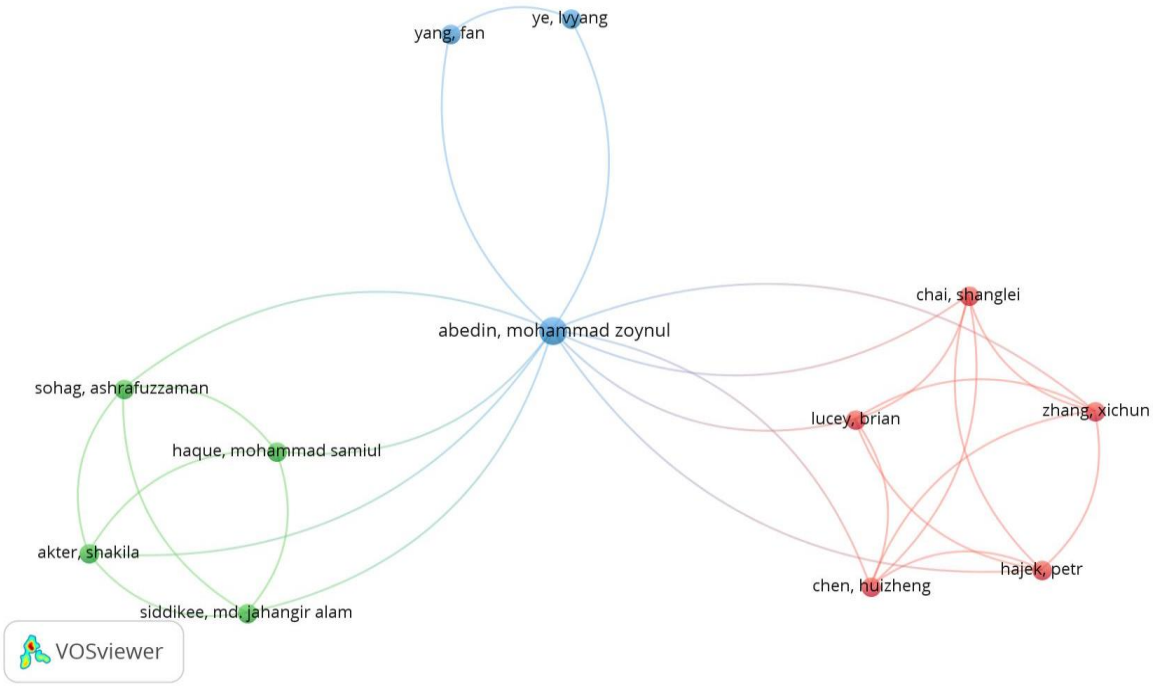
This distribution shows that research on blockchain in management control benefits from diverse sources of funding, involving both national and international stakeholders. The strong presence of China and Europe reflects their willingness to explore and adopt this technology in accounting and managerial practices.

3. Results of the Bibliometric Analysis Using VOSviewer

3.1. Co-authorship Analysis:

Co-authorship analysis helps identify collaborations among authors, institutions, and countries in research on blockchain and management control. By examining the connections between researchers, organizations, and nations, this analysis highlights active scientific networks, leading research hubs, and the degree of international cooperation within this field.

Figure 11 : Co-authorship by Authors :



Source : by the authors, via VOSviewer.

This graph, generated by VOSviewer, represents collaborations among researchers working on blockchain and management control. It highlights several co-authorship networks, illustrating how scholars are organized into distinct yet interconnected groups.

The analysis reveals three main clusters:

- **The first cluster (blue)** is centered around ***Abedin, Mohammad Zoynul*** and includes researchers such as ***Ye, Lvyang*** and ***Yang, Fan***. This network appears to play a central role, acting as a bridge between various research communities.
- **The second cluster (green)** is formed around ***Haque***, *Mohammad* ***Samiul*** and includes scholars such as ***Sohag***, ***Ashrafuzzaman, Akter, Shakila***, and ***Siddikee***, ***Md Jahangir***

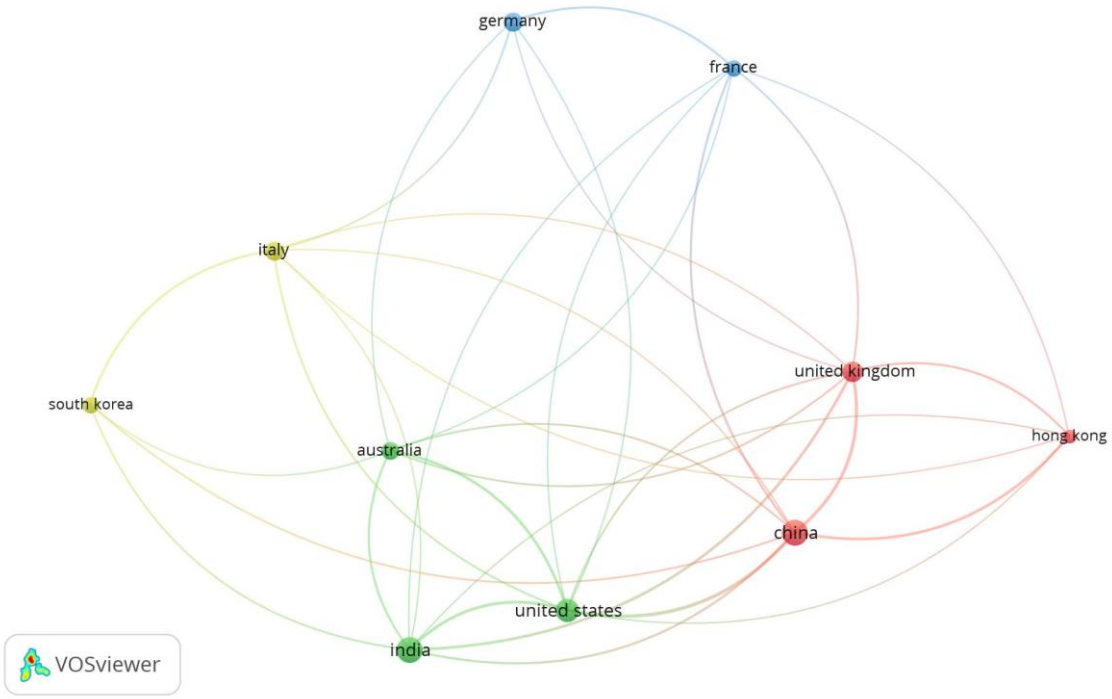
Alam. This group shows strong internal links, suggesting a focused specialization, potentially on a specific aspect of blockchain in management control.

- **The third cluster (red)** is structured around ***Chai, Shanglei*** and includes researchers such as ***Lucey, Brian, Zhang, Xichun, Chen, Huizheng,*** **and** ***Hajek***, ***Petr***. This dense and highly interconnected network indicates close collaboration and a well-established community focusing on a particular dimension of blockchain applied to management.

The formation of multiple clusters indicates that research on blockchain and management control is somewhat fragmented, with various centers of expertise collaborating to different extents.

Overall, this mapping highlights an active and structured research community, with key researchers playing strategic roles in the dissemination and advancement of knowledge on blockchain in management control.

Figure 12 : Co-authorship by countries :



Source : by the authors, via VOSviewer.

This graph, generated by VOSviewer, represents international collaborations between countries on blockchain and management control. It highlights co-publication networks and academic ties across different nations. The analysis reveals four main clusters:

- **Red cluster (China, Hong Kong, United Kingdom):**

China plays a central role in blockchain research applied to management, with strong collaborations with **Hong Kong** and the **UK**.
This connection reflects China's ambition to position itself as a global leader in blockchain, supported by significant academic exchanges with British institutions.

- **Green cluster (United States, India, Australia):**

The United States, India, and Australia form a major collaboration group, indicating a shared interest in blockchain applications in management and finance. India and Australia, both heavily engaged in digital innovation, play a key role in this scientific cooperation.

- **Yellow cluster (Italy, South Korea):**

Italy and South Korea maintain academic ties in blockchain research and collaborate with other countries, notably Australia and India.

- **Blue cluster (Germany, France, United Kingdom):**

Germany and France are well connected, particularly with the **UK**, indicating a strong European axis in blockchain research related to management control. This cluster reflects Europe's commitment to digital transformation and blockchain governance.

Overall, this graph highlights a high degree of scientific interdependence between countries, illustrating the growing global importance of blockchain in management control practices. This mapping of collaborations helps identify key research hubs and offers insight into potential opportunities for international cooperation on the topic.

Figure 13 : Co-authorship by Orgaisations :

Source : by the authors, via VOSviewer.

This graph, generated by VOSviewer, illustrates collaborations between academic institutions in the field of blockchain and management control research. It highlights the connections among various universities and their level of involvement in this domain.

The University of Vienna (Austria) collaborates with Sapienza University of Rome (Italy), suggesting a scientific partnership between these two institutions. However, this connection appears to be limited to a few joint works.

Sapienza University of Rome occupies a central position in the network, linking the University of Vienna with Politecnico di Milano (Italy). Its bridging role indicates that it plays a key part in the scientific production on blockchain applied to management control.

Politecnico di Milano, although active in this field, seems to collaborate mainly with other Italian institutions, which limits its exposure to broader international partnerships.

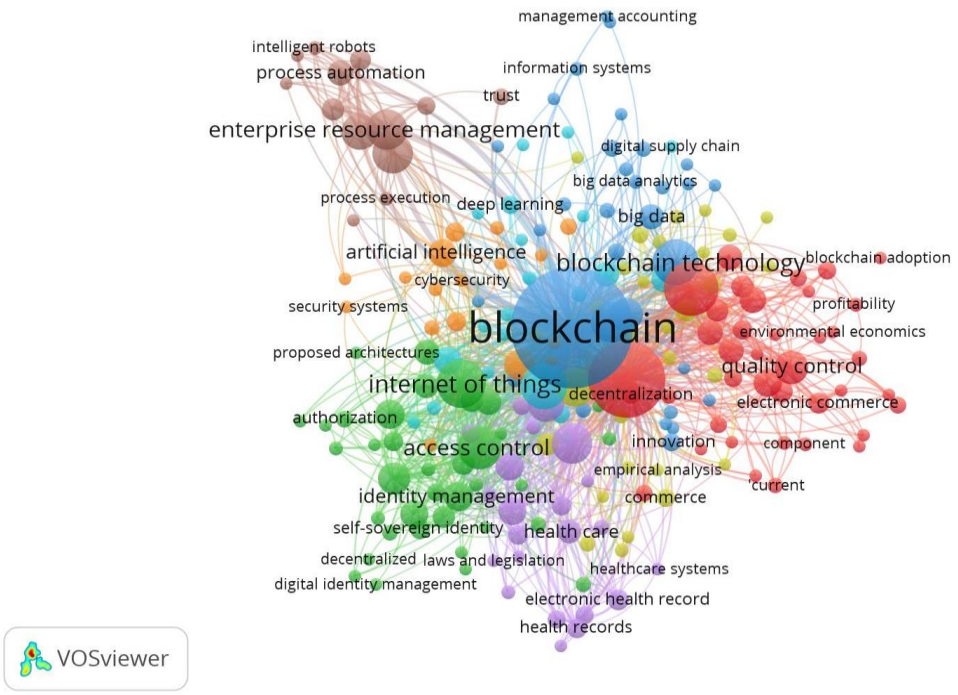
Overall, this graph reveals a strong concentration of research in Italy, with some existing—yet still limited—links to other countries such as Austria. The absence of other major universities in the network suggests that research on blockchain and management control is still relatively underdeveloped at the international level and could benefit from expanded academic collaboration.

These findings highlight the importance of strengthening inter-institutional partnerships to broaden scientific perspectives and promote greater knowledge exchange on this emerging topic.

3.2. Keyword Co-occurrence Analysis

The keyword co-occurrence analysis aims to identify central themes and research trends in the field of blockchain and management control. By examining the frequency and connections between keywords used by authors, this approach provides insights into dominant concepts, emerging areas, and the relationships among the various topics under investigation.

Figure 14 : Co-occurrence by All keywords :



Source : by the authors, via VOSviewer.

This graph, generated by VOSviewer, represents the keyword co-occurrence analysis in research on blockchain and management control. With a minimum occurrence threshold set at 3, the map is based on 200 identified keywords, highlighting the main research trends in this field.

Blockchain is viewed as a potential lever for management control, as it offers solutions in terms of transparency, traceability, and process automation. Several keywords in the graph confirm this relationship:

- **"Enterprise Resource Management"** and **"process automation"** suggest that blockchain is being integrated into management systems aimed at improving the fluidity of internal controls and processes.
- **"Big Data Analytics"** and **"Information Systems"** indicate that blockchain is used to enhance data management and analysis—an essential concern for management controllers seeking to ensure the reliability of financial information.

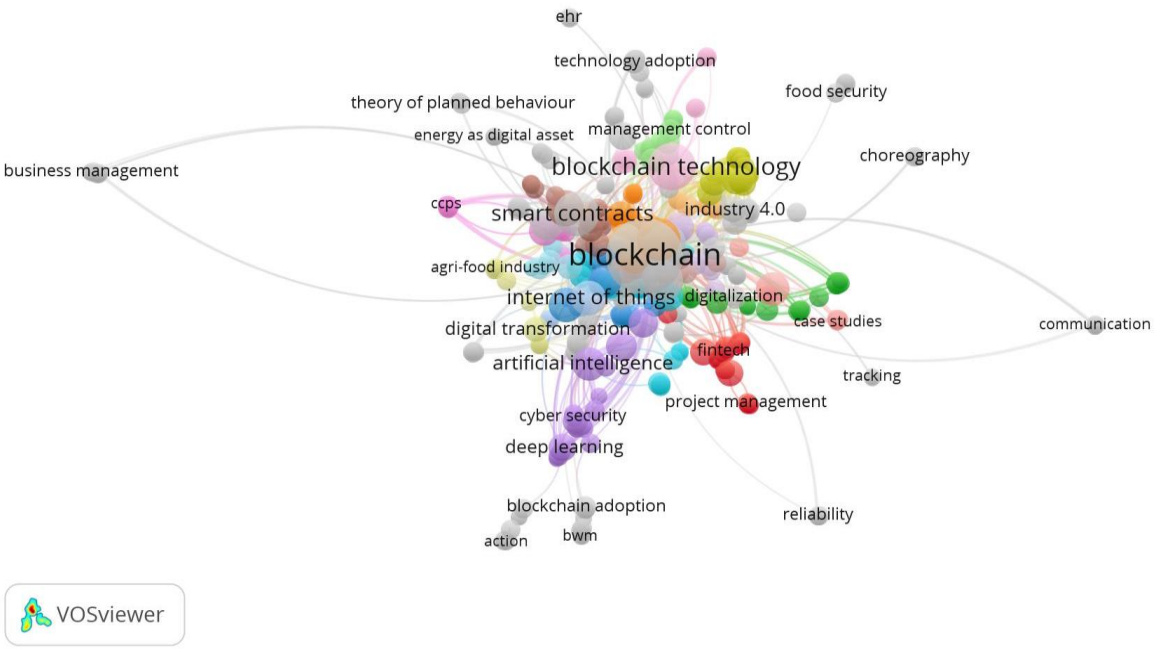
- **"Management Accounting"**, though less central, appears connected, suggesting growing interest in integrating blockchain into management accounting and financial performance monitoring.

Major thematic clusters identified include:

- **Automation and Management Systems:** Terms such as *"process automation"*, *"enterprise resource management"*, and *"intelligent robots"* highlight blockchain's potential to optimize and automate control processes. Automating information flows through blockchain reduces the risk of errors and enhances the efficiency of internal control systems.
- **Security and Access Management:** The presence of keywords like *"access control"*, *"authorization"*, and *"identity management"* demonstrates blockchain's essential role in securing management systems. This is especially relevant in management control, where protecting financial and strategic data is a top priority.
- **Traceability and Data Quality:** Terms such as *"quality control"*, *"traceability"*, and *"trust"* suggest that blockchain is seen as a tool for ensuring the authenticity and reliability of data used for management and decision-making. This is critical for audits and financial controls, where data transparency and quality are key issues.
- **Integration with Other Technologies:** Strong links with *"artificial intelligence"*, *"big data"*, and *"internet of things"* confirm that blockchain is frequently studied in synergy with other technologies to enhance information management and analysis. This opens the door to more automated and predictive management control.

In summary, the graph confirms that blockchain is a highly interdisciplinary topic, with a direct impact on management control by improving the security, transparency, and quality of data used in decision-making processes.

Figure 15 : Co-occurrence by authors keywords :



Source : by the authors, via VOSviewer.

The keyword co-occurrence analysis, based on the authors' work, uses a minimum occurrence threshold of 1 and includes a total of 500 identified keywords. This graph makes it possible to identify the most explored themes and emerging research trends related to blockchain and management control.

The keyword **"management control"** appears directly connected to **"blockchain technology"**, confirming that blockchain is perceived as a tool with significant impact on management control systems. It is notably associated with concepts such as:

- **"Smart contracts"**, which enable the automation of internal controls and enhance transaction traceability.
- **"Artificial intelligence"** and **"deep learning"**, which strengthen the integration of blockchain with advanced analytical tools for management decision-making.
- **"Internet of Things"** and **"digital transformation"**, reflecting a shift toward more connected and automated management systems.

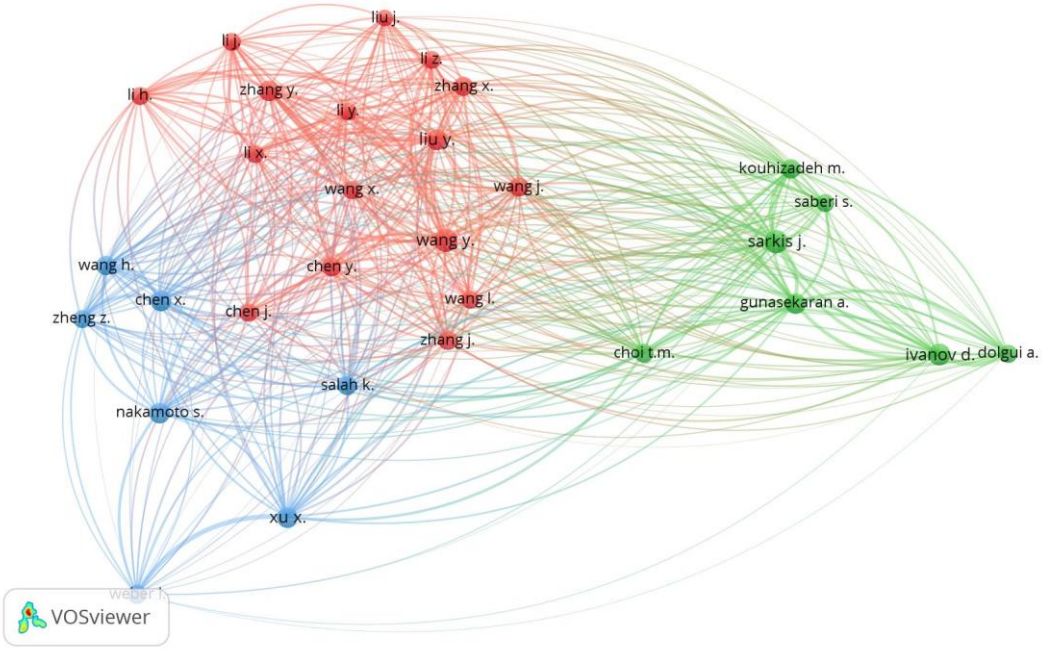
Main themes identified include:

- **Automation and Digitalization of Management Control:** The presence of terms such as *"**process automation**"*, *"**digitalization**"*, and *"**enterprise resource management**"* illustrates the interest in automating management systems using blockchain. This suggests that blockchain is being explored for its potential to support more secure and transparent control processes.
- **Security and Reliability of Information Systems:** Keywords like *"**cyber security**"*, *"**data privacy**"*, and *"**reliability**"* highlight growing concerns around securing management data. The integration of blockchain could help protect against fraud and enhance the reliability of financial information.
- **Sectoral Applications and Technological Innovations:** Blockchain is being studied across various domains, as shown by the presence of keywords such as *"**fintech**"*, *"**agri-food industry**"*, and *"**healthcare**"*. The combination with *"**industry 4.0**"* and *"**digital transformation**"* indicates interest in integrating blockchain into advanced digital ecosystems.
- **Adoption and Diffusion of Blockchain:** Keywords like *"**blockchain adoption**"*, *"**technology adoption**"*, and *"**theory of planned behaviour**"* suggest that researchers are analyzing the factors influencing the implementation of blockchain in management and accounting.

This indicates a focus not only on technical aspects but also on the organizational challenges and resistance to adoption.

3.3. Co-citation Analysis by Authors :

Figure 16 : Co-citation Analysis by Authors :



Source : by the authors, via VOSviewer.

This graph, generated by VOSviewer, represents the co-citation analysis of authors in research on blockchain and management control. It highlights networks of authors who are cited together in scientific publications, thereby revealing influential groups and connections among researchers.

The graph reveals three main clusters of highly interconnected authors:

- **Red cluster (high internal density):** This group includes authors such as *Li H.*, *Zhang Y.*, *Liu J.*, *Wang X.*, and *Chen Y.*, and displays a dense network of tightly connected authors, indicating a high frequency of mutual citations. These connections suggest that the researchers within this cluster likely belong to the same school of thought or work on closely related topics, strengthening their interrelationship.
- **Green cluster (structured but less dense network):** The authors in this cluster are well connected, although with fewer internal links than in the red cluster. It shows a central core of strongly connected authors surrounded by others with weaker—but still meaningful—connections.

- **Blue cluster (more dispersed network with external connections):** This group is more fragmented, with several outward connections to other clusters. The links between authors in the blue cluster and other groups suggest a cross-disciplinary influence, as these authors are cited across various scientific communities.

Connections between clusters:

- ⇨ **The red and green clusters exhibit significant connections**, indicating exchanges between the two groups of researchers, though they remain more internally cohesive.
- ⇨ **The blue cluster acts as a bridge between other clusters**, linking multiple authors across groups, suggesting a broader influence or interdisciplinary approach.
- ⇨ **Some inter-cluster connections are weaker**, implying that certain research communities remain relatively isolated, with limited interaction between them.

These relationships indicate that research on blockchain and management control is segmented into distinct schools of thought, with areas of strong interconnection as well as zones of fragmentation. This may reflect differences in methodological or disciplinary approaches within the field.

4. Discussion of results

The in-depth bibliometric analysis conducted in this study provides several structuring insights into the evolution of research on blockchain and management control, while also highlighting major theoretical and managerial implications. Beyond the mere mapping of scientific production, this analysis sheds light on how blockchain is progressively being integrated into contemporary reflections on organizational control, governance, and performance management systems.

First, the findings reveal a strong disciplinary structuring around management sciences, accounting, and information systems, confirming that blockchain is primarily approached as a lever for transforming existing control mechanisms. This orientation is not surprising, given that management control fundamentally relies on the production, reliability, and exploitation of information. Previous studies have already emphasized that the core promise of blockchain lies less in its technological novelty than in its capacity to reconfigure the informational architectures underpinning control, auditing, and reporting systems (Desplebin & Lux, 2018; Hilmi & Kaizar, 2023).

However, this predominance of techno-managerial approaches tends to favor an instrumental view of blockchain, often considered mainly as a tool for enhancing efficiency, traceability, and data security. While such a perspective is essential for understanding the operational benefits of the technology, it may overshadow deeper organizational, social, and institutional transformations induced by its adoption. Like other digital technologies, blockchain does not merely optimize existing practices but contributes to redefining power relations, coordination mechanisms, and accountability logics within organizations.

Moreover, the analysis highlights a significant geographical and contextual bias in the existing literature. Scientific output remains largely dominated by Anglo-Saxon and technologically advanced Asian contexts, while studies focusing on emerging or Francophone environments remain marginal. This geographical concentration limits the explanatory scope of the theoretical frameworks employed, as management control systems are deeply shaped by institutional, cultural, and regulatory contexts. As contingency-based approaches to management control emphasize, the effectiveness of control systems depends heavily on their alignment with organizational environments (Otley, 1980). The relative lack of contextualized research thus represents a major gap, calling for greater diversification of empirical settings to better capture the differentiated modes of blockchain adoption.

Another key contribution of this analysis lies in the evolving debates surrounding control mechanisms themselves. The literature points to a gradual questioning of traditional control models based on ex post, centralized, and human-centered devices. Blockchain, by contrast, introduces a logic of continuous, automated, and distributed control, in which trust is partially transferred from human actors to technical protocols. This shift fuels a major conceptual tension between formal and social control, as well as between automation and managerial judgment. While blockchain can enhance the reliability and transparency of processes, it may also reduce the interpretative and adaptive flexibility that has historically been at the core of management control.

In this context, the role of the management controller appears to be profoundly transformed. The literature suggests a progressive shift in responsibilities, moving from information production and verification toward roles more focused on analysis, interpretation, and the governance of digital systems. This transformation is part of a broader trend toward the digitalization of management control, in which the controller's value creation lies less in tool mastery than in the ability to connect data, strategy, and decision-making. However, this

evolution also raises issues related to competencies, organizational acceptance, and professional legitimacy, which remain insufficiently explored in current research.

Finally, the bibliometric analysis highlights a growing interest in the articulation between blockchain and other emerging technologies, such as artificial intelligence, big data, and the Internet of Things. This technological convergence reflects a shift toward integrated management control systems capable of producing real-time information and supporting increasingly complex decisions. Nevertheless, this techno-centric orientation entails the risk of marginalizing the human, ethical, and institutional dimensions of control, which are essential to overall organizational performance.

From this perspective, the findings call for a renewal of the analytical frameworks used to study blockchain and management control. Future research would benefit from drawing more extensively on theoretical perspectives such as contingency theory, actor-network theory, and institutional approaches to better understand the processes of appropriation, resistance, and transformation of control systems. Such an orientation would make it possible to move beyond a purely instrumental view of blockchain and to fully grasp its organizational and societal implications.

Conclusion

The bibliometric analysis conducted on blockchain and management control highlights a rapidly expanding research field, characterized by strong interdisciplinarity and evolving international collaborations. The co-authorship network analysis identified key research hubs at the levels of authors, institutions, and countries, revealing a concentration of work in certain regions and a collaboration network that remains somewhat fragmented.

In parallel, the keyword co-occurrence analysis revealed the main research axes and concepts associated with blockchain within the context of management control. Core themes such as **process automation**, **transaction traceability**, **data security**, and **integration with emerging technologies**—**such as artificial intelligence and the Internet of Things**—emerged as central points in academic work. The evolution of the research field also shows increasing interest in **regulatory aspects, technology adoption**, and **sector-specific applications**, highlighting the challenges linked to implementing blockchain in enterprise management.

However, this analysis also reveals several limitations and opportunities for future research. On the one hand, although publications on blockchain applied to management control are

increasing, the concentration of studies around a limited set of themes may hinder the exploration of more innovative or alternative approaches. On the other hand, the lack of connection between some scientific communities suggests that better integration among researchers in management, finance, and information technology could enrich the field and foster more meaningful advances.

Future Perspectives

The rapid evolution of distributed ledger technologies and the gradual adoption of blockchain in control and management systems open up new avenues for research. Among the most promising directions are:

- The impact of blockchain on the role of the management controller, particularly in terms of automated decision-making and data transparency.
- The challenges of implementing blockchain in integrated management systems, taking into account regulatory and organizational constraints.
- The convergence with other technologies, such as artificial intelligence and advanced analytics, to optimize performance management and risk control.

In conclusion, this analysis highlights the current scientific dynamics, dominant trends, and development opportunities in the field of blockchain and management control. While research has already produced significant advances, it continues to evolve, requiring a collaborative and interdisciplinary approach to fully harness the potential of blockchain in transforming management and control practices.

References :

BENBACHIR, H., & EL HADDAD, M. Y. (2023). Revue de littérature de la technologie Blockchain et son impact sur le secteur bancaire. Revue Française d'Economie et de Gestion, 4(6), 325–340.

Broadus, R. N. (1987). Toward a definition of bibliometrics. Scientometrics, 12(5–6), 373–379.

CHEKROUNI, A., & al. (2022). L'impact potentiel de la Blockchain sur le supply chain management : quelles applications et quelles perspectives ? Revue Française d'Economie et de Gestion, 3(8).

Desplebin, O., & Lux, G. (2018, mai). L'évolution de la comptabilité, du contrôle, de l'audit et de leurs métiers au prisme de la Blockchain : une réflexion prospective. In Transitions numériques et informations comptables, Nantes, France. HAL-01907902.

DHIBA, Y., & ALAOUI, M. (2020). Blockchain et gestion des risques logistiques : Quel apport ? Revue Internationale du Chercheur, 1(3), 393–413.

Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. Journal of Business Research, 133, 285–296.

Glänzel, W. (2003). Bibliometrics as a research field: A course on theory and application of bibliometric indicators. In Handbook of Quantitative Science and Technology Research (pp. 37–43).

Hilmi, Y., & Helmi, D. (2023). Impact du Big Data sur la Pratique du Contrôle de Gestion au Maroc : Une Analyse Bibliométrique et Lexicométrique. Journal of Academic Finance (J.o A.F.), 15(1).

Hilmi, Y., & Kaizar, C. (2023). Le contrôle de gestion à l'ère des nouvelles technologies et de la transformation digitale. Revue Française d'Economie et de Gestion, 4(4).

NAOUI, F., & ABDELADIM, O. (2023). L'intégration de la technologie Blockchain dans les programmes de fidélisation. Revue Internationale des Sciences de Gestion, 6(3), 275–293.

Pritchard, A. (1969). Statistical bibliography or bibliometrics? Journal of Documentation, 25(4), 348–349.

SADJO, K., & al. (2021). Contribution de la Blockchain à l'amélioration de la qualité de l'information comptable dans les établissements financiers au Cameroun. Revue du contrôle, de la comptabilité et de l'audit, 5(1), 47–64.

Zupic, I., & Čater, T. (2015). Bibliometric methods in management and organization. Organizational Research Methods, 18(3), 429–472.