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SYSTEMATIC REVIEW

Application of blockchain technology for information security in the financial sector

Aplicación de la tecnología blockchain a la seguridad de la información en el sector financiero

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ABSTRACT

This study focuses on the impact of Blockchain Technology on the financial sector, specifically on improving information security. The complexity in the implementation of this technology and the resistance to change on the part of financial institutions that already have established systems are identified as main problems. The objectives of the study include the determination of improvement solutions from Blockchain Technology, the comparison of their applicability in the financial field and the proposal of strategies for their effective implementation. The methodology used consisted of a systematic review of 11 scientific articles collected since 2018. Of these, 82 % used the deductive method as a research approach, while 54 % used technological information as the main sample for their studies. The findings highlighted the relevance of Blockchain in financial markets, emphasizing its consensus mechanisms and its robust focus on information security. A trend was also observed in the use of this technological resource to guarantee the integrity of data in the financial field. In conclusion, it is highlighted that Blockchain Technology offers significant potential to improve security in financial operations. However, it is recognized that its full adoption faces technical challenges, as well as resistance and adaptation from already established institutions in the financial field. Despite these difficulties, there is a growing interest in exploring and developing strategies to effectively incorporate Blockchain Technology in the financial sector, seeking its use and benefit in the face of constant advances in information security.

Keywords: Blockchain; Financial Sector; Information Security.

RESUMEN

Este estudio se centra en el impacto de la tecnología Blockchain en el sector financiero, concretamente en la mejora de la seguridad de la información. Se identifican como principales problemas la complejidad en la implantación de esta tecnología y la resistencia al cambio por parte de las entidades financieras que ya cuentan con sistemas establecidos. Los objetivos del estudio incluyen la

determinación de soluciones de mejora a partir de la Tecnología Blockchain, la comparación de su aplicabilidad en el ámbito financiero y la propuesta de estrategias para su implantación efectiva. La metodología empleada ha consistido en una revisión sistemática de 11 artículos científicos recopilados desde 2018. De ellos, el 82 % utilizó el método deductivo como enfoque de investigación, mientras que el 54 % utilizó la información tecnológica como muestra principal de sus estudios. Los hallazgos destacaron la relevancia de Blockchain en los mercados financieros, enfatizando sus mecanismos de consenso y su sólido enfoque en la seguridad de la información. También se observó una tendencia en el uso de este recurso tecnológico para garantizar la integridad de los datos en el ámbito financiero. En conclusión, se destaca que la Tecnología Blockchain ofrece un potencial significativo para mejorar la seguridad en las operaciones financieras. Sin embargo, se reconoce que su adopción plena enfrenta desafíos técnicos, así como resistencia y adaptación por parte de instituciones ya establecidas en el ámbito financiero. A pesar de estas dificultades, existe un creciente interés en explorar y desarrollar estrategias para incorporar efectivamente la Tecnología Blockchain en el sector financiero, buscando su uso y beneficio ante los constantes avances en seguridad de la información.

Palabras clave: Blockchain; Sector Financiero; Seguridad de la Información.

INTRODUCTION

In recent years, the use of Blockchain technology has resulted in great benefits for various sectors such as education, commerce, health, among others. In the case of the financial sector, it has had great recognition for being the technology used for the operation of the already known “cryptocurrencies”, which, through cryptography, can provide protection to various transactions.[1] Furthermore, the use of this technology has implemented the association of agile value chains, innovation with different products and the integration of technology stored in the cloud.[2] Within this research, we will focus on the relationship that exists between Blockchain technology and information security, the latter being a very important factor within the use of Blockchain, which originated as an approach to facilitate data exchange. and the organization of processes through decentralized systems that have interconnected nodes. These nodes are supported by cryptographic schemes to guarantee the security of the information.[3,4,5] In these times, where our lives take place mostly within the digital world, in which we seek entertainment, education, and even business; These advances have brought with them new vulnerabilities, which various people can take advantage of to carry out different technological attacks.[6,7] For this reason, the use of technology has managed to improve and protect the integrity of valuable and/or relevant information for people.

The problem that arises in relation to this technology is the complexity in its development and implementation process and financial institutions reluctant to change. Although blockchain technology has the scope and features necessary to significantly boost the security and efficiency of financial operations, adopting this technology can be complicated and expensive, especially for companies that already have established systems. In addition, problems or technical interruptions that occur in a technological environment can be addressed, something that blockchain technology has already foreseen and has a solution, since the information is stored in multiple nodes of the network, it is very difficult for a technical failure to interrupt the system as a whole.[8,9,10]

Likewise, another very common problem is the alteration of data, of which blockchain technology has also worked with this evil, since it has implemented a distributed registry system where each block of information is encrypted and linked to the previous block, very similar. to the operation by link that the nodes have, and this makes the information immutable and difficult to alter, so the data cannot be changed or manipulated without said alteration being detected. On the other hand, there are opportunities for

improvement or knowledge, such as the development of simpler and more profitable blockchain technology implementation solutions such as dApps (identity management and carrying out financial transactions), smart contracts, blockchain consortiums, among others.[11,12]

In addition to being beneficial, it is beneficial to develop training programs for people in charge of implementing the technology, investors, engineers, students, etc., in order to improve understanding and knowledge about the use of blockchain within the financial sector.[13] For this reason, we consider it necessary to also explain the fundamental reasons why we focus our research on blockchain. It is a shared accounting technology that enables the generation of databases without centralization, which means that the stored information is not in a single place, but is distributed in a network of distributed systems, which characterizes it as very secure to this technology by Patricio Lozano (2006),[14,15] since the information stored in it is complete and resistant to current IT threats.[16]

In the financial sector, blockchain technology is used for the creation of cryptocurrencies, implementation of smart contracts, which are activated automatically when certain conditions are met. This technology offers high security in terms of computer protection, thanks to its decentralized structure and the use of advanced cryptographic techniques. Likewise, well-positioned companies such as Visa, Tesla and Paypal have begun to adopt "cryptocurrencies" as a payment option for their products and have implemented virtual cryptocurrency wallets to facilitate these transactions.[17,18,19,20]

Regarding the sectors that benefit the most thanks to blockchain, we have the telecommunications sector accelerating internal operations, such as the transfer of digital assets or billing processes. In the field of health and pharmaceuticals, they can with respect to medical records and make it easier for patients to obtain prescriptions. In the banking sector, connecting participants in financial markets and allowing the flow of information to be continuously updated, among others.[21] However, we consider that there are still many facets of this technology – to be taken advantage of, whether for the security approach, mainly in the risk of computer attacks and the vulnerability of the private keys that are used to access digital assets or protection of sensitive information for organizations or their users.[22,23] To reinforce the aforementioned points, we consider it necessary to carry out in-depth research on the development of new innovative computer security and Blockchain solutions focused on the field of finance, such as the use of secure hardware for the storage of private keys. and the implementation of more advanced security protocols (PoW, PoS). According to Manohar et al. (2023) indicates that many people believe that the decentralization of a blockchain and its cryptographic techniques make the data it stores secure. Consensus algorithms play a role in stabilizing blockchain networks and as a result, several consensus processes have been initiated to maximize the effectiveness of the system and meet the expectations of the different application areas.[24,25,26] In summary, the use of blockchain technology in the finance sector has become a topic of great interest in the last decade thanks to the benefits it offers in terms of security and efficiency, despite the fact that there are pending challenges in terms of computer security, innovative solutions are being created to address these challenges and further strengthen the security of applications based on blockchain technology. In this sense, we pose the following research question: How does blockchain technology improve the security of information focused on the financial sector? Likewise, we set the following objectives:

General objective

- Determine how blockchain technology improves information security in the field of finance, through comparative analysis of cases applied to give greater visibility in the financial sector.

Specific objectives

- Select the best information security improvement solutions offered by blockchain technology.
- Compare the improvement solutions that blockchain technology offers to the financial sector.
- Propose strategies to promote interest in implementing blockchain in the financial sector.

METHODS

Regarding the approach used in this study, it will be carried out through a systematic review of the scientific literature. A combination of deductive, analytical and observational methods will be used in research that combines bibliographic and applied elements.[27,28] Based on the research question proposed as a starting point: How does Blockchain technology improve the security of information focused on the financial sector? Information was collected during the period of April and May 2023, following the following inclusion criteria:

- Publications must be present in databases such as Scopus, Dialnet, SciELO, etc.
- The articles must be studies that use deductive or quantitative and qualitative methods and focused on a sample of Peruvian workers.
- Publications must have been published in Spanish or English since 2018. The criteria were selected with the objective of guaranteeing that the chosen research provided a solution supported by verified information in databases.

Table 1. Number of records per database

Repository	Amount
Scopus	8
Scielo	1
Dialnet	2
Total	11

Likewise, with the objective of starting the search for the unit of analysis, keywords or descriptors grouped into three categories were used: (a) Blockchain (blockchain, data, technology), (b) Security (Proof of Work), Proof of Stake, Cryptography), (c) Information (Database, Digital, Virtual), (d) Finance (Banks, Transactions, Economic Agreements) and (e) Information Technology (Software, Automated Processes, Computer Security). The search process was divided into three phases: (a) in the initial phase, research in English related to the financial sector was searched in the Scopus database; (b) in the second phase, research was searched in Latin American and national databases such as Scielo and Dialnet, also related to the financial sector; (c) finally, a search was carried out in Internet browsers to identify articles published in journals other than those mentioned above.

Table 2. Records per author, topic, year and country

N°	Authors	Title of the article or publication	Year of publication	Country
1	Yadav, A. K., Singh, K., Amin, A. H., Almutairi, L., Alsenani, T. R., & Ahmadian, A.	A comparative study on consensus mechanism with security threats and future scopes: Blockchain	2023	Indian
2	Manohar, M., Kumar, A., Kumar Singh, M., Anil Kumar, M., & Kiruthika Devi, B. S.	A study on security schemes in blockchain technology	2023	Indian
3	Patricio Lozano, D.	Criptomonedas y Blockchain en el ámbito financiero: un análisis de correlación	2022	Spain
4	Yang, R.	Development and supervision of financial technology based on blockchain	2022	China
5	Corredor Higuera, J. A., & Díaz Guzmán, D	Blockchain y mercados financieros: aspectos generales del impacto regulatorio de la aplicación de la tecnología blockchain en los mercados de crédito de América Latina	2018	Colombia

6	Coello, L., Jahir, A., Cáceres, P., Yudier, A., Mera, Z., & Bayas, O.	Blockchain: Medio de seguridad, reducción de costos e identificación de errores para organizaciones ecuatorianas	2021	Venezuela
7	GRIGERA DEL CAMPILLO, S.	Ciberseguridad y Blockchain	2021	Argentina
8	Baena-Luna, P., & García-Río, E.	TECNOLOGÍA BLOCKCHAIN: DESAFÍOS PRESENTES Y FUTUROS EN SU APLICACIÓN	2022	Spain
9	KPMG	Aportamos confianza desde la ética y la transparencia Informe anual	2018	Spain
10	Selvarajan, S., Srivastava, G., Khadidos, A. O., Khadidos, A. O., Baza, M., Alshehri, A., & Lin, J. C. W	An artificial intelligence lightweight blockchain security model for security and privacy in IIoT systems	2023	USA
11	Jimenez, M.	From the blockchain technology to the token economy	2019	Spain

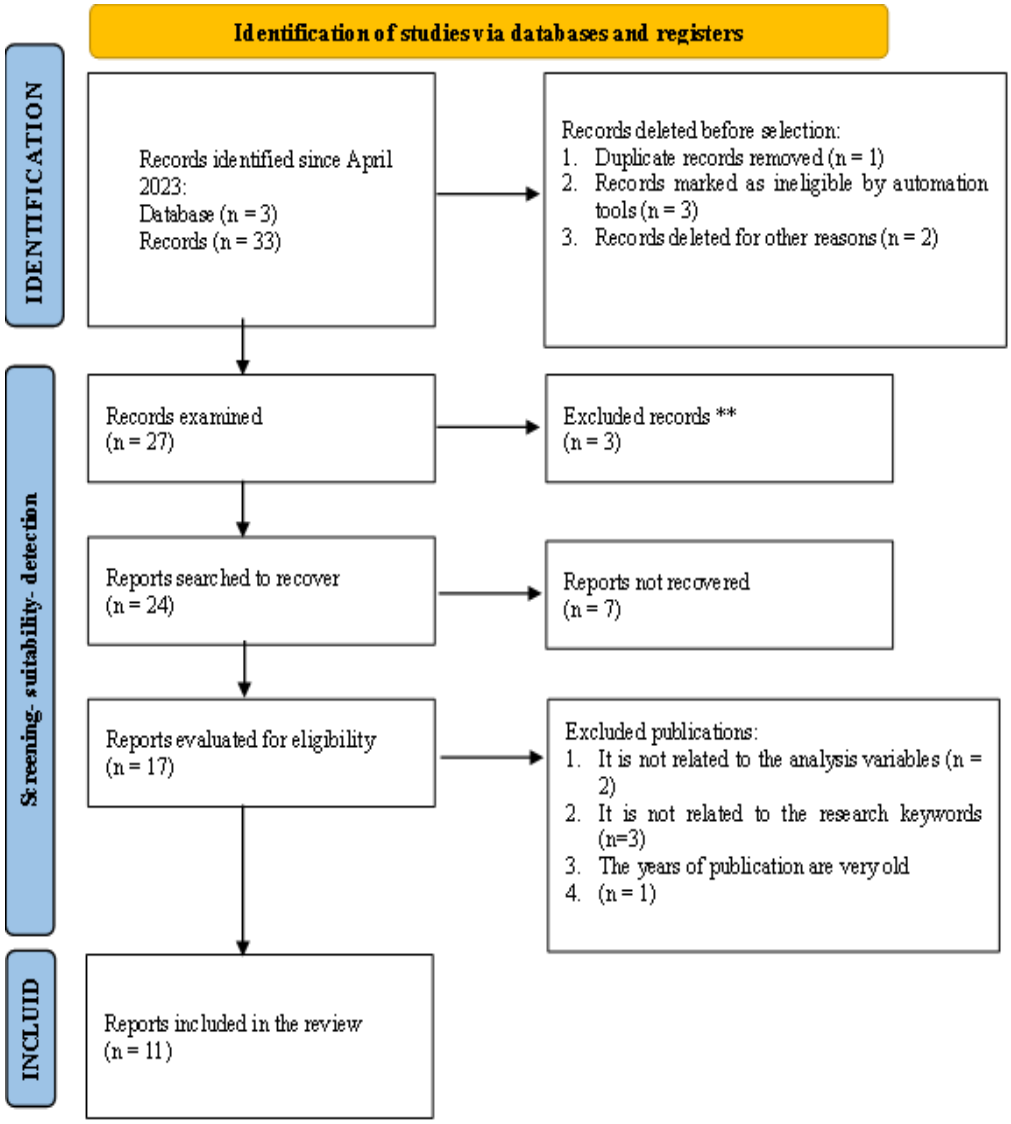

Figure 1. Prisma flowchart

RESULTS

According to table 3, the methodologies used in our articles are shown, of which 11 articles were used. Among the types of research, it was possible to identify that 9 of them use the deductive method, 1 is mixed type, and finally 1 uses the qualitative type.

Table 3. Number of articles grouped by methodology

Methodology	Amount
Deductive	9
Qualitative	1
Mixta	1
Total	11

According to figure 2, the methodologies used in our articles are shown, of which 11 articles were used. Among the types of research, it was possible to identify that 82 % of the articles collected use the deductive method, 9 % are mixed type, and another 9 % use the qualitative type.

According to table 4, the sample selection procedure with six review articles. Of them, 3 of these studies used technological information as a type of sample; Likewise, 1 of them collected information about companies, which include world leaders in banking. IOT, banking, technology and manufacturing. Also, 1 of these studies used academic application works as a sample. Likewise, one of these studies had a group of people as a sample, one of these being natural or legal persons from a member state and international investors.

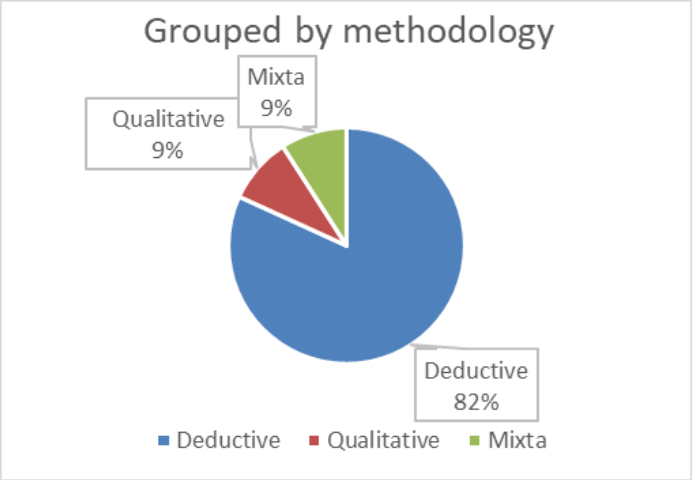

Figure 2. Summary of articles by methodology in percentages

Table 4. Number of articles grouped per sample

Sample	Amount
Technological information	3
Academic works	1
People	1
Companies	1
Total	6

According to figure 3, the sample selection procedure with six review articles. Of them, 50 % of studies used technology information as the sample type; so also 16,67 % of them collected information about companies, which include world leaders in banking, IOT, technology and manufacturing. Also, another

16,67 % of these studies used academic application papers as a sample. Also, another 16,67 % of these studies had a group of people as a sample, one of these being individuals or legal entities by a member state and international investors.

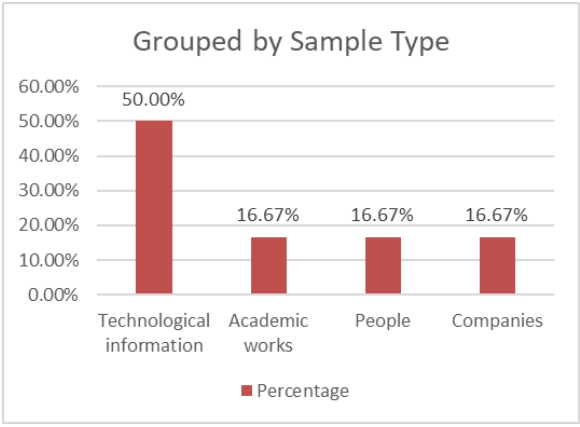

Figure 3. Summary of articles by sample type in percentages and quantities

Table 5 shows the number of articles grouped by prism flow, 11 of which were included in our research work, while 22 were excluded due to different criteria that we have established.

Figure 4 shows the percentages of the articles grouped by prism flow, with 33 % of these articles being included in our research work, while 67 % have been excluded due to different criteria that we have established.

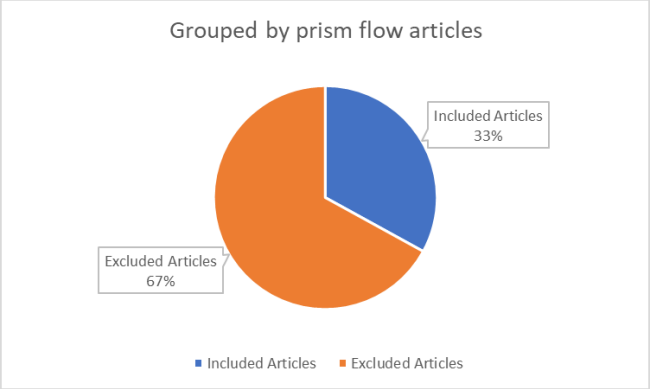

Figure 4. Included articles

Table 5. Number of items grouped by prism flow

PRISMA	Amount
Included Articles	11
Excluded Articles	22
Total	33

Table 6 shows the numbers on the frequency of keywords within our articles. Of which, the first article has a frequency of 281, the second a frequency of 72, the third a frequency of 121, the fourth a frequency of 245, the fifth a frequency of 311, the sixth a frequency of 129, the seventh a frequency of 70, the eighth a frequency of 90, the ninth a frequency of 128, the tenth a frequency of 162, and the last a frequency of 162.

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Table 6. Number of items grouped by pareto diagram

N°	Articles	Keyword frequency	Accumulated
5	Blockchain and financial markets: general aspects of the regulatory impact of the application of blockchain technology in Latin American credit markets	311	311
1	A comparative study on consensus mechanism with security threats and future scopes: Blockchain	281	592
4	Development and supervision of financial technology based on blockchain	245	837
11	From the blockchain technology to the token economy	162	999
10	An artificial intelligence lightweight blockchain security model for security and privacy in IIoT systems	148	1147
6	Blockchain: Means of security, cost reduction and error identification for Ecuadorian organizations	129	1276
9	We provide trust based on ethics and transparency Annual report	128	1404
3	Cryptocoins and Blockchain in finance: a correlation analysis.	121	1525
8	Blockchain technology: current and future application challenges	90	1615
2	A study on security schemes in blockchain technology	72	1687
7	Ciberseguridad y Blockchain	70	1757
	Total	1757	

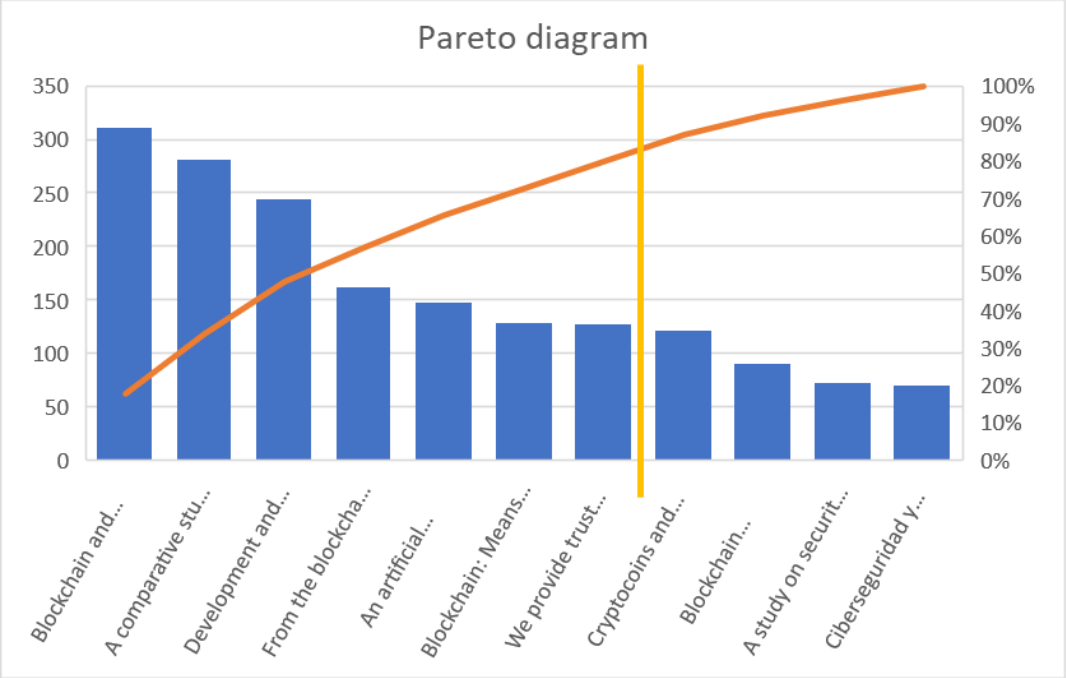

Figure 5. Summary of Pareto articles

Figure 5 represents the Pareto chart showing the percentage of keyword frequency for each article reviewed and referenced in our research. Of which, we have that the first 7 articles delimited by the dividing line belong to the 80 % of articles with more keywords included in the work. While the remaining 4 belong to the 20 % with the lowest frequency index and accumulated percentage.

DISCUSSIONS

Firstly, the prevalence of the deductive methodology is highlighted, suggesting a theoretical and logical approach in research on blockchain in the financial sector.[29,30,31,32,33,34] This emphasis on deductive logic

can contribute to formulating clear hypotheses and drawing robust conclusions. Furthermore, the robustness of this approach can strengthen the internal validity of the research by establishing coherent connections between the concepts explored.

Furthermore, the diversity in the sample types used reflects a comprehensive approach when examining the impact of blockchain technology in different areas of the financial sector.[35,36] This breadth can enrich perspectives and allow for stronger generalizations about the applicability of technology in various contexts. The inclusion of technological information, academic works, people, and companies as sample types offers a holistic view of the effects of blockchain.[37,38,39,40]

Regarding the selection of articles through the PRISMA flow, a rigorous and transparent approach is evident in the systematic review. The application of this flow ensures that the selection process is replicable and transparent, contributing to the reliability of the results obtained. The inclusion of 33 % of the articles reviewed highlights the quality and relevance of the selected literature, supporting the robustness of the review.[41,42,43]

Finally, the keyword analysis using the Pareto diagram highlights the importance of specific topics such as regulating the impact of blockchain on credit markets. These critical topics can be priority focus areas for future research and practical applications in the financial field. This focus on key topics facilitates the identification of priority areas of interest for future research and development in the field.[44]

CONCLUSIONS

In terms of the prevalence of deductive methodology, the high proportion suggests that researchers find benefits in approaching the application of blockchain in financial security from a deductive approach. This approach can support the formulation of sound theories and the identification of patterns in the reviewed literature, thereby strengthening the internal validity of the research.

The breadth of sample types used enriches the external validity of the research, considering multiple perspectives and contexts. This, in turn, can contribute to the generalization of the results to different segments within the financial sector. The diversity in the samples provides a more complete understanding of how blockchain technology affects different areas and actors within the sector.

The rigor in the selection of articles through the PRISMA flow highlights the quality of the systematic review process, ensuring the inclusion of relevant articles and the exclusion of those that do not meet the predefined criteria. This rigorous approach increases the reliability of the results obtained, thus supporting the robustness of the review.

Finally, targeting relevant keywords, especially those with higher frequencies according to the Pareto diagram, identifies critical topics in the research. Understanding these key issues can guide future research and assist in the identification of priority areas for the implementation of blockchain technologies in the financial sector. This focus on key topics facilitates the identification of priority areas of interest for future research and development in the field.

REFERENCES

1. Aguilera NR, Jara RG, Machuca-Contreras F. Diagnóstico de la implementación de la gestión del cuidado de enfermería para atención cerrada en Chile. Salud, Ciencia y Tecnología 2023;3:348-348. https://doi.org/10.56294/saludcyt2023348.

2. Amaya AJC, Rojas MG. The art of seduce through a distinctive brand and women's lingerie. Community and Interculturality in Dialogue 2023;3:63-63. https://doi.org/10.56294/cid202363.

3. Bory E de JP, Naranjo OV, Herrero LB, Flores LGA, Fuentes MGB. Pertinence of the teaching use of virtual classroom by Basic Biomedical Science Department. Seminars in Medical Writing and Education 2023;2:31-31. https://doi.org/10.56294/mw202331.

4. Cánovas LPL, Cánovas LBL, Rodríguez YP, Hernández BG, Martín MMP, Montano AL. Evaluation of Burnout Syndrome and associated factors in primary care health personnel. Community and Interculturality in Dialogue 2023;3:73-73. https://doi.org/10.56294/cid202373.

5. Cantaro JCC, Tello JDLCH, Ruiz GEZ, Claudio BAM. Leadership styles and organizational climate among employees in Lima, Peru. Health Leadership and Quality of Life 2023;2:36-36. https://doi.org/10.56294/hl202336.

6. Castellanos S, Figueroa C. Cognitive accessibility in health care institutions. Pilot study and instrument proposal. Data and Metadata 2023;2:22-22. https://doi.org/10.56294/dm202322.

7. Coello L, Jahir A, Cáceres P, Yudier A, Mera Z, Bayas O. Blockchain: medio de seguridad, reducción de costos e identificación de errores para organizaciones ecuatorianas. Rev Cienc Soc. 2021;27(3):219–233. Available from: https://dialnet.unirioja.es/servlet/articulo?codigo=8081768&info=resumen&idioma=SPA. Accessed on Oct 16, 2023.

8. Corredor Higuera JA, Díaz Guzmán D. Blockchain y mercados financieros: aspectos generales del impacto regulatorio de la aplicación de la tecnología blockchain en los mercados de crédito de América Latina. Derecho PUCP. 2018 Nov;81(81):405–439. doi: 10.18800/DERECHOPUCP.201802.013.

9. Cruz LMSDL, Fernández CA de. Factores asociados a la violencia contra los estudiantes de enfermería del internado rotativo. Salud, Ciencia y Tecnología 2023;3:464-464. https://doi.org/10.56294/saludcyt2023464.

10. Díaz-Chieng LY, Auza-Santiváñez JC, Castillo JIR. The future of health in the metaverse. Metaverse Basic and Applied Research 2022;1:1-1. https://doi.org/10.56294/mr20221.

11. Diseiye O, Ukubeyinje SE, Oladokun BD, Kakwagh VV. Emerging Technologies: Leveraging Digital Literacy for Self-Sufficiency Among Library Professionals. Metaverse Basic and Applied Research 2024;3:59-59. https://doi.org/10.56294/mr202459.

12. Ettaloui N, Arezki S, Gadi T. An Overview of Blockchain-Based Electronic Health Records and Compliance with GDPR and HIPAA. Data and Metadata 2023;2:166-166. https://doi.org/10.56294/dm2023166.

13. González RE. Gobernanza de enfermería en redes integradas de servicios de salud y su impacto en procesos de atención en el ámbito de equipos del primer nivel de atención. Salud, Ciencia y Tecnología 2021;1:37-37. https://doi.org/10.56294/saludcyt202137.

14. Gonzalez-Argote D, Gonzalez-Argote J, Machuca-Contreras F. Blockchain in the health sector: a systematic literature review of success cases. Gamification and Augmented Reality 2023;1:6-6. https://doi.org/10.56294/gr20236.

15. Gonzalez-Argote J. A Bibliometric Analysis of the Studies in Modeling and Simulation: Insights from Scopus. Gamification and Augmented Reality 2023;1:5-5. https://doi.org/10.56294/gr20235.

16. Grigera del Campillo S. Ciberseguridad y Blockchain. Revista Blockchain e Inteligencia Artificial. 2021;3:85–94. doi: 10.22529/RBIA.2021(3)05.

17. Horta GAH, García ZG. Resultados del tratamiento de rehabilitación física en niños con retardo en el desarrollo psicomotor. Interdisciplinary Rehabilitation / Rehabilitacion Interdisciplinaria 2023;3:28-28. https://doi.org/10.56294/ri202328.

18. Horta GAH, Miranda GLH, García ZG. Calidad de vida de pacientes con enfermedad de Parkinson que reciben tratamiento rehabilitador. Interdisciplinary Rehabilitation / Rehabilitacion Interdisciplinaria 2023;3:27-27. https://doi.org/10.56294/ri202327.

19. KMPG. Generamos confianza para construir un futuro mejor. Madrid - España; 2019. Available from: https://assets.kpmg.com/content/dam/kpmg/es/pdf/2020/07/informe-anual-2019-kpmg.pdf. Accessed on Oct 16, 2023.

20. Lascano IA, Acurio EV, López JH, Garcia DM, Jiménez EA, Sevilla VC. Asociación del nivel de estrés con el desarrollo del síndrome metabólico en el personal de salud. Salud, Ciencia y Tecnología 2023;3:386-386. https://doi.org/10.56294/saludcyt2023386.

21. Lepez CO. Invisible challenges in healthcare leadership. Health Leadership and Quality of Life 2023;2:35-35. https://doi.org/10.56294/hl202335.

22. Lichtensztejn M, Benavides M, Galdona C, Canova-Barrios CJ. Knowledge of students of the Faculty of Health Sciences about Music Therapy. Seminars in Medical Writing and Education 2023;2:35-35. https://doi.org/10.56294/mw202335.

23. Lobato KJT, Pita DLR, Ruiz GEZ, Claudio BAM. The impact of job performance and performance on workers in northern Lima. Health Leadership and Quality of Life 2023;2:30-30. https://doi.org/10.56294/hl202330.

24. Lozano DP. Revista de Métodos Cuantitativos para la Economía y la Empresa. Revista de Métodos Cuantitativos para la Economía y la Empresa. 2006 Dec;34:328–358. doi: 10.46661/REVMETODOSCUANTECONEMPRESA.6650.

25. Manohar M, Kumar A, Singh MK, Kumar MA, Kiruthika Devi BS. A Study on Security Schemes in Blockchain Technology. Advances in Transdisciplinary Engineering. 2023 Jan;32:393–399. doi: 10.3233/ATDE221287.

26. Matos-Rodríguez A, Sargenton-Savon S, Mosqueda-Lobaina Y, Chibas-Muñoz EE. Características del Síndrome Demencial en la Atención Primaria de Salud. Interdisciplinary Rehabilitation / Rehabilitacion Interdisciplinaria 2023;3:45-45. https://doi.org/10.56294/ri202345.

27. Morgner MI, Djament L. Impact of Preventive and Mandatory Social Isolation in the control of type I diabetes in adults in the Buenos Aires Metropolitan Area. Community and Interculturality in Dialogue 2023;3:82-82. https://doi.org/10.56294/cid202382.

28. Oloriz MAG, Beltrán CR, Sánchez CMC. Trends in health telematics and telemedicine services. Data and Metadata 2022;1:16-16. https://doi.org/10.56294/dm202216.

29. Orsetti M, Bertolini Y, Villaalta AF, Creo F, Santillan P, Inzaurralde N. Food safety and the approach of the Human Milk Collection Center at the Hospital Zonal General de Agudos "Prof. Dr. Ramón Carrillo". Community and Interculturality in Dialogue 2023;3:104-104. https://doi.org/10.56294/cid2023104.

30. Prieto YN, Sánchez GAR, García AP. The discipline of Medical Psychology in the ethical-humanistic education of medical students. Seminars in Medical Writing and Education 2023;2:42-42. https://doi.org/10.56294/mw202342.

31. Quintana-Honores M, Corvalán P, Gironda-Gurán J. Family integration and skin-to-skin contact with the newborn favors the recovery of the hospitalized patient: experiences of its implementation in an Obstetric Critical Care Unit. Health Leadership and Quality of Life 2023;2:33-33. https://doi.org/10.56294/hl202333.

32. Ramírez ME, Ron M, Mago G, Hernandez–Runque E, Martínez MDC, Escalona E. Proposal for an epidemiological surveillance program for the prevention of occupational accidents and diseases in workers exposed to carbon dioxide (CO2) at a Venezuelan brewing company. Data and Metadata 2023;2:55-55. https://doi.org/10.56294/dm202355.

33. Rodríguez-Martínez C, Alvarez-Solano J, Pérez-Galavís AD, Ron M. Distance education during the COVID-19 pandemic: experience at a public university. Seminars in Medical Writing and Education 2023;2:32-32. https://doi.org/10.56294/mw202332.

34. Romero-Carazas R. Prompt lawyer: a challenge in the face of the integration of artificial intelligence and law. Gamification and Augmented Reality 2023;1:7-7. https://doi.org/10.56294/gr20237.

35. Ron M, Pérez A, Hernández-Runque E. Nivel de riesgo para la salud y predicción del dolor musculo-esqueletico en trabajadores en condiciones de teletrabajo: Un enfoque matricial. Interdisciplinary Rehabilitation / Rehabilitacion Interdisciplinaria 2023;3:40-40. https://doi.org/10.56294/ri202340.

36. Sánchez CMC, León LAG, Yanes RCA, Oloriz MAG. Metaverse: the future of medicine in a virtual world. Metaverse Basic and Applied Research 2022;1:4-4. https://doi.org/10.56294/mr20224.

37. Sánchez-Ortega B, Pérez-Galavís A, Ron M. Condition, Working Environment and Health Effects on the Medical Personnel. Community and Interculturality in Dialogue 2023;3:105-105. https://doi.org/10.56294/cid2023105.

38. Santos CA, Ortigoza A, Barrios CJC. Nursing students' perceptions of Clinical Clerkship. Seminars in Medical Writing and Education 2023;2:30-30. https://doi.org/10.56294/mw202330.

39. Tacuri ABG, Pérez GPL. Hospitalización prevenible en enfermedades crónico degenerativas: hipertensión arterial y diabetes. Salud, Ciencia y Tecnología 2023;3:487-487. https://doi.org/10.56294/saludcyt2023487.

40. Torres A, Pérez-Galavís A, Ron M, Mendoza N. Factores Psicosociales Laborales y Estrés en el Personal Médico Asistencial. Interdisciplinary Rehabilitation / Rehabilitacion Interdisciplinaria 2023;3:42-42. https://doi.org/10.56294/ri202342.

41. Tumiri T, Duran L, Lin J, Ríos NB, Mosca A, Gómez T. La Imagen de enfermería y simulación. Metaverse Basic and Applied Research 2023;2:36-36. https://doi.org/10.56294/mr202336.

42. Velasco ASD, Ccama FLM, Claudio BAM, Ruiz GEZ. Transformational Leadership as a Driver of Business Success: A Case Study in Caquetá. Health Leadership and Quality of Life 2023;2:37-37. https://doi.org/10.56294/hl202337.

43. Villalobos C, Cavallera C, Espinoza M, Cid MF, Paredes I. Toward Efficiency and Accuracy: Implementation of a Semiautomated Data Capture and Processing Model for the Construction of a Hospital-based Tumor Registry in Chile. Data and Metadata 2023;2:124-124. https://doi.org/10.56294/dm2023124.

44. Zhang W. Blockchain-based solutions for clinical trial data management: a systematic review. Metaverse Basic and Applied Research 2022;1:17-17. https://doi.org/10.56294/mr202217.

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