

# Digital Finance & Green Innovation Review

## Paper with special reference to Oman and

### Bibliometric Analysis for the Duration of 2017-2023

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#### ABSTRACT

Digital Finance and Green Innovation are the two significant areas required for sustainable development. This bibliometric analysis highlighted the transformative role of blockchain technology in reshaping the banking sector and amplifying its value for stakeholders. Using data extracted from the Dimension AI database, the study centers on English-language articles from 2017 to 2023, which is processed and visualized using Excel and Vos-viewer. The annual publication growth rate in Digital Finance and Green Innovation stood at 33.74%. A peak of 1,197 citations in 2022 marks heightened scholarly engagement. Diverse citation counts across articles underscore the varied academic impact. Journals like 'Technological Forecasting and Social Change' are pivotal, with "Energy Policy" distinguishing itself in volume and impact. The Beijing Institute of Technology and North China Electric Power University emerge as influential contributors, with China, the US, and the UK leading globally in publications. Thematically, the synthesis of fintech, sustainability, innovation policy, and green finance signals the domain's depth and interdisciplinarity. Exploring economic, environmental, societal, and policy facets of Digital Finance and Green Innovation is very crucial in the technological era of today.

**Keywords**—Digital Finance; Green Innovation; Bibliometric Analysis; Blockchain

#### 1. INTRODUCTION AND BACKGROUND

The term " Fintech " gained popularity in the late 20th and early 21st centuries, driven by various factors. The dot-com bubble in the late 1990s and early 2000s played a significant role in the rise of Fintech. During this period, many online financial service start-ups emerged (Ryu, 2018). The 2008 financial crisis further enhanced the growth of Fintech. The crisis eroded trust in traditional financial institutions and created an opportunity for technology-first finance start-ups to enter the market (Ryu, 2018).

The 2010 witnessed a significant surge in Fintech start-ups and substantial investments in the sector. This growth was driven by technological advancements such as Blockchain, Cryptocurrencies like Bitcoin, and Mobile Banking (Renduchintala et al., 2022; Ryu, 2018). These technologies garnered widespread attention and offered new financial transactions and service possibilities. In addition to these

technological advancements, various sub-sectors within Fintech experienced rapid growth. Peer-to-peer lending platforms, Robo-advisors, and Insurtech, that gained momentum during this period (Ryu, 2018). Digital finance and green innovation are two important focus areas in pursuing sustainable development. The integration of digital technologies and financial systems has the potential to drive green innovation and contribute to environmental goals. Luo et al. (2022) examine the impact of the digital economy on green innovation in China. Using panel data from 278 cities over nine years, the study employs various models to analyze the direct and indirect effects of the digital economy on green innovation. The findings suggest that the advancement of the digital economy can significantly enhance urban green innovation. The study also highlights the importance of policy interventions, such as the "Broadband China" pilot policy, in promoting digital economy enhancement and its positive impact on green innovation.

Another study by (Xue et al., 2022) focuses on the role of digital transformation in promoting green technology innovation. The authors argue that organizations embracing digital technologies and strategic thinking are better positioned to innovate in green manufacturing, waste management, and resource efficiency. The findings suggest that digital transformation can positively impact green technology innovation.

Furthermore, (Fang & and Shao, 2022) explore the role of green finance in moderating the effect of environmental regulation on green technology innovation. Green finance aims to provide capital support for green projects and industries, facilitating the development and adoption of green technologies. The study highlights the importance of market-oriented capital allocation in promoting sustainable development and emphasizes the potential of green finance to drive green technology innovation.

(Chang et al., 2022) conducted a bibliometric analysis to examine the role of digital finance innovation in green manufacturing. The study highlights the importance of digital innovation in various stages of the green manufacturing process, including technology development and marketing. Digital finance plays a crucial role in supporting these innovations by providing financial resources and facilitating the acquisition of new technologies.

## 2. REVIEW OF THE LITERATURE

The emergence of Financial Technology, or Fintech, has significantly impacted the Gulf region, particularly in fostering financial inclusion, diversifying the economy, enhancing cross-border transactions, modernizing traditional banking systems, and evolving regulatory frameworks. Fintech has the potential to foster financial inclusion in the Gulf by providing access to financial services for the population. Digital wallets and peer-to-peer lending systems are examples of Fintech platforms extending financial assistance to those lacking access (Hua & Huang, 2020). In addition to financial inclusion, Fintech contributes to the diversification of the Gulf economies. As start-ups and Fintech firms flourish, they create jobs, drive innovation, and contribute to the shift toward a knowledge-based economy. Countries like the UAE and Bahrain have positioned themselves as Fintech hubs, attracting global investors and innovators (Tang et al., 2020). Efficient cross-border transaction systems are crucial for the Gulf region due to its strategic location and involvement in global trade. Fintech solutions such as blockchain and digital currencies offer reduced transaction costs, enhanced security, and faster transaction speeds, which are advantageous for businesses and remittances in the Gulf (Tang et al., 2020). Fintech also plays a role in modernizing traditional banking systems in the Gulf. Fintech start-up's agile and customer-centric solutions have pushed conventional banks to innovate. Many Gulf banks

have digitized their services, offered online platforms, and collaborated with Fintech firms to remain relevant in the changing landscape (Panzarino & Hatami, 2020). Furthermore, the Gulf regulators have recognized the potential of Fintech and have started evolving their financial regulations accordingly. Regulatory reforms, such as those implemented in Saudi Arabia and the UAE, allow Fintech start-ups to test their innovations in a controlled environment, ensuring compliance with regulatory requirements while promoting innovation (Alsmadi et al., 2023)

In an era of rapid technological evolution, the Central Bank of Oman (CBO) is at the forefront of championing sustainability and digitalization within Oman's financial landscape. The CBO has proactively endorsed sustainable and green finance to align with global benchmarks. Their notable initiatives comprise a keen adherence to the Basel Committee's guidelines, collaboration with the Be'ah Authority on capacity-building and energy-saving in the financial domain, and internal efforts to minimize the CBO's ecological footprint. As part of this roadmap, the CBO will offer guidance encompassing climate-related metrics, championing green Fintech solutions, and promoting green bonds and Sukuk issuance. Furthermore, CBO's strategic direction emphasizes stringent climate-related reporting, including climate risks in macroprudential policies, and adopting environmental, social, and governance (ESG) criteria in their investment frameworks. Parallely, the bank acknowledges the transformative power of digital innovations in the financial sector. A review of recent trends indicates a decline in traditional payment means, such as cheques, and an upswing in electronic transactions. The exponential growth in ACH transactions, Oman Net usage, and the surge in e-commerce transactions, particularly during the COVID-19 pandemic, reflect this shift. The CBO has introduced multiple frameworks to accommodate this evolving paradigm: the PSP licensing framework for payment service providers, an e-KYC system for digital onboarding, and a forthcoming framework for digital banking and 'Buy Now Pay Later' services. CBO has fortified its cybersecurity measures by recognizing the cyber vulnerabilities inherent in digital platforms. (Thomas, 2023)

### 3. METHOD AND MATERIAL

This study employs bibliometric analysis as its primary methodology, a widely recognized and extensively used research approach (Zupic & cater, 2015). The bibliometric analysis provides an objective framework for conducting a literature review centered on comprehensively examining the conceptual landscape within Digital Finance and green innovation (Ramos-Rodríguez & Ruíz-Navarro, 2004). Bibliometric analysis employs statistical methods to assess qualitative and quantitative patterns within a given scientific topic (De Bakker, Groenewegen, & Den Hond, 2005; Niu et al., 2016). The bibliometric analysis review used the standards of PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses).

Digital Finance and Green Innovation are the evolving landscape of financial technology and sustainability; there need to be comprehensive bibliometric studies that delve deep into the intersection of these domains. Addressing the intricacies and implications of how digital finance paves the way for green innovation is paramount, given the need to comprehend the full spectrum of academic insights in this area. The influence of digital finance in spearheading green innovations has picked up the interest of scholars, policymakers, and industry experts alike. This emphasizes the importance of thoroughly reviewing the extant literature, gaining a deeper understanding of emerging research themes, and identifying gaps and potential directions for future inquiries in digital finance and sustainable innovations. Guided by a bibliometric analysis and science mapping techniques, this study meets these

research imperatives. We have framed the following research questions (RQs) through our bibliometric review approach:

- RQ1. What is the annual scientific publication growth in Digital Finance and Green Innovation?
- RQ2. To investigate the evolution of the concepts over time through the top-cited articles.
- RQ3. Which author is the most productive in Digital Finance and Green Innovation?
- RQ4. To explore the geographical distribution of the publications.
- RQ5. Which journal researchers are mostly publishing their articles?
- RQ6. Who are the Top organizations involved in Digital Finance and Green Innovation?
- RQ7. To identify the significant themes that have been explored

**4. DATA SOURCE AND SEARCH STRATEGY**

The data used for this research was obtained from the Dimension database. The data was acquired via the implementation of a general search query. On September 14, 2023, a comprehensive and systematic search was conducted using the Dimension online databases. The database searches were limited to a single day to prevent the possibility of bias caused by the frequent and routine updates. The research focused on documents related to Digital finance and green innovation indexed by Dimension databases between 2017 and 2023 for bibliometric analysis review. The researcher searched for databases about these topics, notably those written only in English, and only research articles were selected. (("Digital finance" OR "Fintech") AND ("green technology" OR "green tech" OR "renewable energy technology"))

In Dimension database guidelines, words between double quotation marks are treated as a single unit throughout the search procedure. Consequently, the keywords will appear together in the exact sequence entered in the search query. To consolidate the many subtopics of the search query, the Boolean operators OR and AND have been used to accomplish this task and include all relevant material. Table 1 below illustrates the search methodology used in the Dimension database, using Boolean operators (OR, AND); Researchers obtained a sample of documents from Dimension in \*CSV format to analyze the critical information. This information comprises the article's title, the author's name and affiliation, an abstract, keywords, the journal's name, and references. Furthermore, the research refined the search criteria to exclusively include research articles, excluding conference papers, conference reviews, and notes. We filtered out research articles as a final step, resulting in a dataset comprising 359 documents.

**Table 1: The search strings**

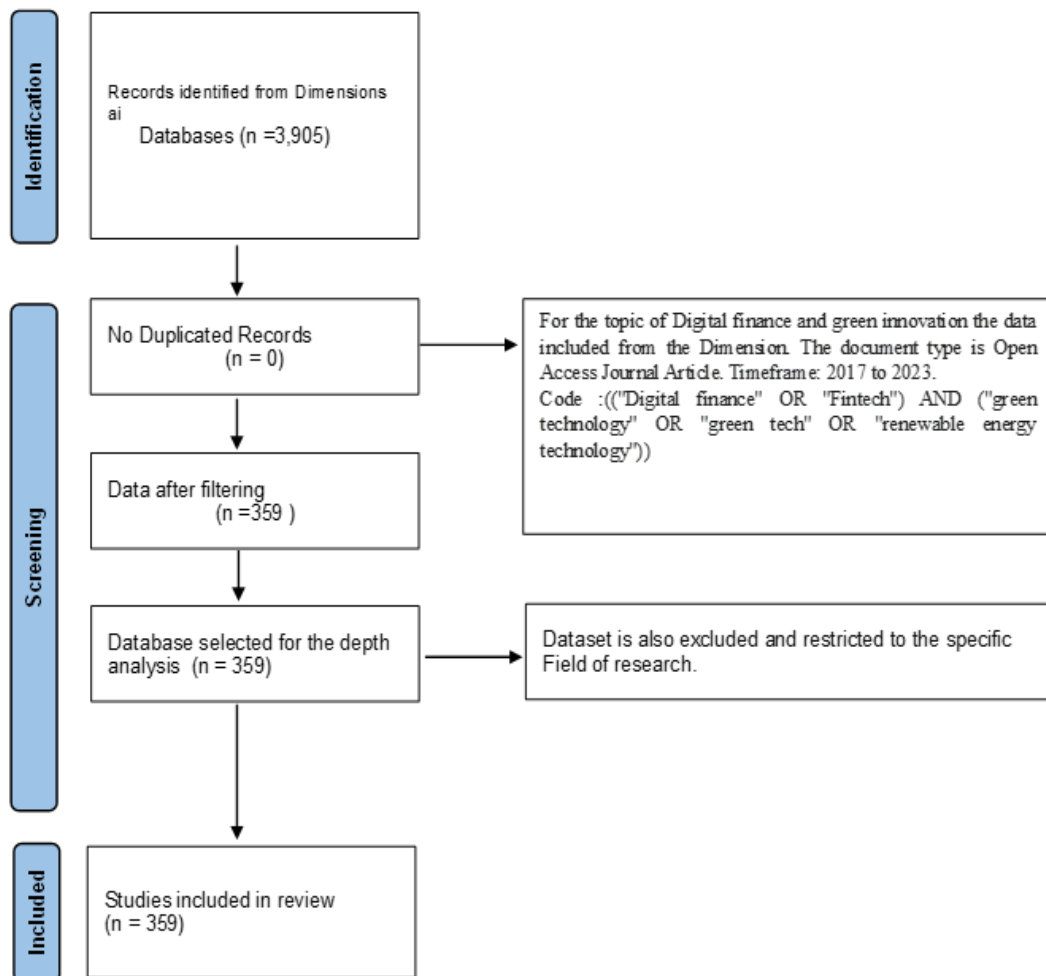
Database Search criteria	Search string strategy Boolean operators	No. Documents
Search string keyword	((("Digital finance" OR "Fintech") AND ("green technology" OR "green tech" OR "renewable energy technology"))	3900
Documents Types	Articles only	-
Year Published	2017-2023	7years
Language	English	-
Dimension Database	Total databases	359

Code is: ALL ((("Digital finance" OR "Fintech") AND ("green technology" OR "green tech" OR "renewable energy technology"))



**Fig.1. Outline of the data retrieval process**

After identifying the document, the data was cleaned by verifying the missing and incorrect data. All the entries in the column are checked to ensure that no vital data is missing. Furthermore, columns are checked to ensure that the data content of the field is aligned with the area of the tile of the column. After sorting, the data is saved for analysis with author/s, title, ID, year, source, volume, issue, time cited, link, abstract, keywords, and publisher information finalized for the study. A flow chart of the Preferred Reporting Items for Systematic review and Meta-Analyses (PRISMA) is presented below:



**Fig.2. PRISMA Model ;Source From: (Page et al., 2021)**

## 5. RESULT AND DISCUSSION

### RQ1. What is the annual scientific publication growth in Digital Finance and Green Innovation?

#### A. TREND IN THE PUBLICATION

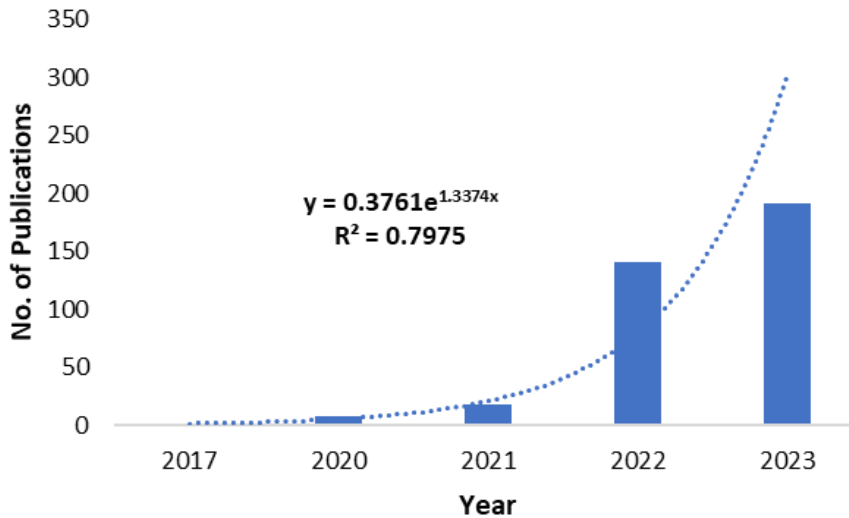


Fig.3. Publication Trend

In this study, we employed an exponential regression model to elucidate the relationship between the year of publication and the number of publications within our research domain. The regression equation,  $y = 0.3761e^{(1.3374x)}$ , offers valuable insights into the dynamics of publication trends over time. The coefficient 0.3761 signifies the estimated number of publications in the base year, suggesting an initial baseline level of scholarly output. Meanwhile, the coefficient 1.3374 quantifies the exponential growth rate in publications with each successive year, implying an annual increase of approximately 33.74%. Furthermore, our model exhibited a robust goodness of fit with an R-squared value of 0.7975. This statistic suggests that about 79.75% of the observed variability in publication counts can be attributed to changes in the publication year. This substantial R-squared value underscores the significance of temporal trends, illustrating that the year of publication is a strong predictor of the number of publications within our research domain. These findings provide compelling evidence for the evolving nature of our field and the critical role played by the passage of time in shaping research output. Overall, our analysis highlights the substantial influence of temporal factors on publication patterns, shedding light on significant trends in our research area.

#### B. CITATION

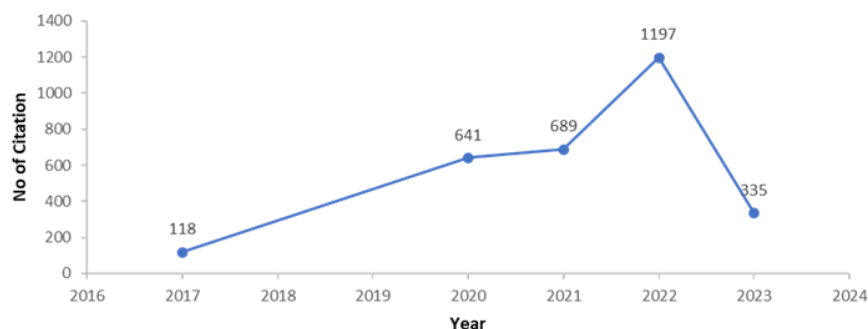


Fig.4. Citation Trend

This study analyzed citation trends from 2017 to 2023 within our research domain. The dataset reveals a dynamic pattern of scholarly recognition over time. In the inaugural year of 2017, research articles amassed 118 citations, denoting a baseline level of academic acknowledgment. Subsequently, a notable citation escalation occurred, with 641 citations recorded in 2020, 689 in 2021, and a zenith of 1,197 citations in 2022. This pronounced upsurge underscores heightened impact and recognition within the research field. However, in 2023, the number of citations receded to 335, potentially indicating a stabilization or decline in the recognition of research articles. These fluctuations in citation counts testify to the evolving nature of research impact, likely influenced by multifaceted temporal factors like COVID-19 and Distributed Ledger Technology (DLT). Sustainable digital finance using technology in finance with environmental, social, and governance (ESG) objectives and issues regarding Cultural and Ethical issues are raised by making products using Personal Data and Artificial Intelligence (AI).

**RQ2. To investigate the evolution of the concepts over time through the top-cited articles.**

**TOP 10 CITED ARTICLE**

Rank	Title	Journal	Year	Citation	Reference
1	How Blockchain can impact financial services – The overview, challenges, and recommendations from Expert interviewees	Technological Forecasting and Social Change	2020	260	Chang et al.,2020
2	Fintech investments in European banks: a hybrid IT2 fuzzy multidimensional decision-making approach	Financial Innovation	2021	191	Kou et al.,2021
3	Diversification in the age of the 4th industrial revolution: The role of artificial intelligence, green bonds and cryptocurrencies	Technological Forecasting and Social Change	2020	134	Huynh et al.,2020
4	A Cross-Strait Comparison of Innovation Policy under Industry 4.0 and Sustainability Development Transition	Sustainability	2017	118	Lin et al.,2017
5	Blockchain, business and the fourth industrial revolution: Whence, whither, wherefore and how?	Technological Forecasting and Social Change	2020	95	Kimani et al.,2020
6	Sustainable B2B E-Commerce and Blockchain-Based Supply Chain Finance	Sustainability	2020	84	Lakhani et al.,2020
7	Does green finance mitigate the effects of climate variability: role of renewable energy investment and infrastructure	Environmental Science and Pollution Research	2022	83	Mngumi et al.,2022
8	Impact of Green financing, FinTech, and financial inclusion on energy efficiency	Environmental Science and Pollution Research	2021	75	Liu et al.,2021
9	Fintech and Sustainability: Do They Affect Each Other?	Sustainability	2021	67	Vergara et al.,2021
10	Innovative Finance, Technological Adaptation, and SMEs Sustainability: The Mediating Role of Government Support during COVID-19 Pandemic	Sustainability	2021	63	Pu et al.,2021

**Sources:**(Chang et al., 2020; Chueca Vergara & Ferruz Agudo, 2021; Huynh et al., 2020; Kimani et al., 2020; Kou et al., 2021; Lakhani et al., 2020; Lin et al., 2017; Liu et al., 2022; Mngumi et al., 2022; Pu et al., 2021)

Several noteworthy patterns and trends have emerged in analyzing the selected research articles. First, there is a notable variation in citation counts among these articles, ranging from 63 to 260 citations. This variation suggests varying levels of impact and recognition within the scholarly community. Moreover,

the distribution of publication years reveals a concentration of articles in 2020 and 2021, indicating a surge in research activity in recent years, possibly driven by the growing importance of topics such as fintech, blockchain, sustainability, and innovation policy. The choice of journals for publication is also diverse, reflecting the multidisciplinary nature of the research topics. 'Technological Forecasting and Social Change' is a prominent journal hosting multiple highly cited articles. From a thematic perspective, the articles span various subjects, including Financial Services, Fintech, Sustainability, Innovation Policy, and Green Finance. This diversity underscores the interdisciplinary nature of research in these domains and highlights the interconnectedness of topics in the context of contemporary economic and technological developments.

**RQ3. Which author is the most productive in Digital Finance and Green Innovation?**

**TOP 10 POTENTIAL AUTHOR**

Rank	Author	Publication	Citation	Average Citation Per Article
1	Oecd	8	15	2
2	Boqian Lin	3	111	37
3	Solaymani	3	93	31
4	M Al-Saidi	2	53	27
5	Rube Bibas	2	42	21
6	Je Chateau	2	42	21
7	L Coscieme	2	42	21
8	R Costanza	2	42	21
9	Fra Crespi	2	76	38
10	Djoni Hartono	2	24	12

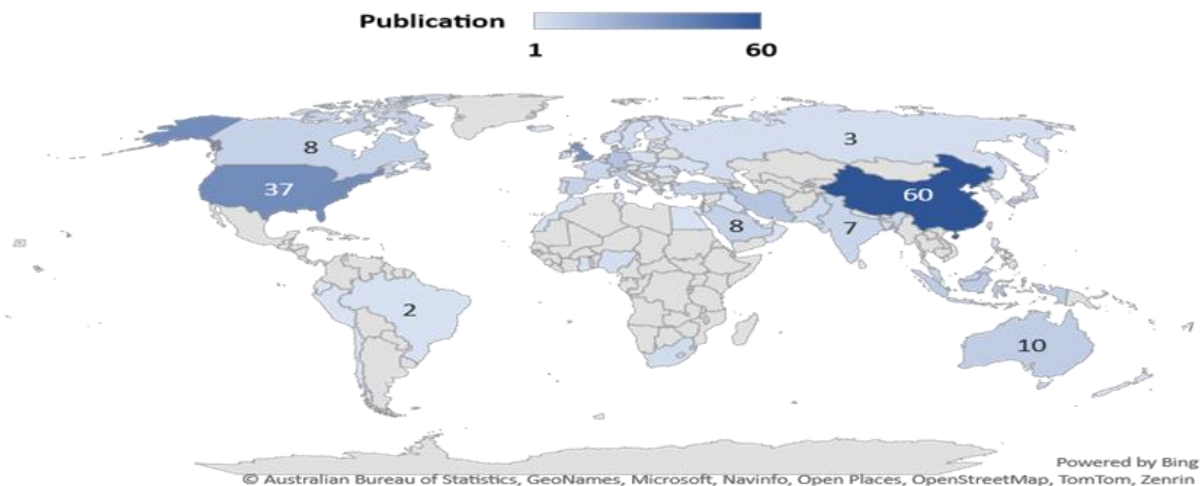
Several interesting patterns and insights have surfaced in examining the authors' contributions to the field. The dataset reveals various authors with varying publications and citation counts. At the forefront, the Organization for Economic Co-operation and Development (OECD) stands out with eight publications but an average of 2 citations per article. While their prolific output is evident, the citation level suggests their work might not be as heavily cited as some authors. Turning our attention to individual researchers, Boqian Lin, Solaymani, and Fra Crespi produced three publications showcasing their active engagement in scholarly activities. However, what sets them apart is the significant average citation count per article, with Boqian Lin averaging 37 citations per article, Solaymani averaging 31, and Fra Crespi achieving an impressive average of 38 citations per article. This suggests that their research contributions have garnered substantial attention and recognition within their respective fields. Additionally, the clustering of authors with two publications each and similar average citation counts, such as M Al-Saidi, Rube Bibas, Je Chateau, L Coscieme, and R Costanza, suggests consistency in their scholarly impact. While they may have fewer publications than others, their work attracts a steady and comparable amount of attention from their peers. Conversely, Djoni Hartono presents an interesting case with two publications but a relatively lower average of 12 citations per article. This suggests that although prolific in output, the impact of their work might be less pronounced compared to some of their peers.

**RQ4. To explore the geographical distribution of the publications.**



## GEOGRAPHICAL REPRESENTATION

The dataset reveals a diverse landscape of research contributions across numerous countries. China emerges as a prominent leader in research output with 60 publications, underlining its significant presence in the global research arena. Notably, the United States and the United Kingdom follow closely, with 37 and 34 publications reaffirming their well-established roles in scholarly efforts. European nations, including Germany, the Netherlands, Italy, and Spain, exhibit substantial research activity with ten or more publications each. This data emphasizes the international character of academic research, with countries such as Iran, Indonesia, Australia, Canada, Malaysia, Saudi Arabia, and Turkey also making notable contributions. Additionally, emerging research nations like Rwanda, Montenegro, and Latvia demonstrate their increasing engagement in the global academic discourse. This dataset underscores the worldwide research reach and offers opportunities for cross-border collaboration among scholars, enhancing the collective effort to address global challenges and advance knowledge.



**Fig.5. Geographical Distribution of the Publications**

## RQ5. Which journal researchers are mostly publishing their articles?

### TOP 10 JOURNAL

The dataset presents a comprehensive overview of academic journals within a specific research domain, shedding light on their respective contributions and impact within the scholarly landscape. Notably, "Energy Policy" emerges as the preeminent journal, showcasing prolific research output, with 28 publications and a substantial average citation count of 29.04 citations per article. This suggests a strong recognition of the journal's content within the academic community. Additionally, the dataset underscores the diversity of publishers involved, with Elsevier, MDPI (Multidisciplinary Digital Publishing Institute), and Springer prominently represented. Furthermore, the prominence of impact factors, particularly in journals like "Applied Energy" (impact factor of 11.2) and "Energy Economics" (impact factor of 12.8), underscores their influential role and the esteem in which they are held. These metrics provide valuable insights for researchers seeking to navigate the scholarly landscape, enabling them to identify journals of significance and relevance to their research.

Rank	Journal	Publication	Citation	Average Citation Per Article	Publisher	Impact Factor
1	Energy Policy	28	813	29.04	Elsevier	9
2	Sustainability	24	295	12.29	MDP	3.9
3	Applied Energy	15	930	62.00	Elsevier	11.2
4	Environmental Science And Pollution Research	12	277	23.08	Springer	5.8
5	Energy Economics	9	307	34.11	Elsevier	12.8
6	Technological Forecasting And Social Change	9	446	49.56	Elsevier	12
7	Energy Research & Social Science	8	126	15.75	Elsevier	6.7
8	Journal Of Environmental Management	5	146	29.20	Elsevier	8.7
9	Resources Policy	5	13	2.60	Elsevier	10.2
10	The Science Of The Total Environment	5	271	54.20	Elsevier	9.8

## RQ6. Who are the Top organizations involved in Digital Finance and Green Innovation?

### ORGANIZATION

The dataset presents various institutions, each with varying research output and impact levels, as measured by citation counts and average citations per article. At the forefront, the Beijing Institute of Technology and North China Electric Power University share the lead with six publications each, but what distinguishes them is their impressive average citation counts of 49.33 and 38.67, respectively. This suggests that these institutions are prolific in research output, and their work resonates strongly within their respective academic communities. While boasting six publications, University College London demonstrates a different facet of educational impact. With an average citation count of 19.83, their contributions exhibit a commendable level of recognition, albeit at a somewhat lower average than the aforementioned Chinese institutions. This signifies the institution's substantial presence in the scholarly landscape. On an international scale, the King Abdullah Petroleum Studies and Research Centre, affiliated with Saudi Arabia, has five publications. While its average citation count per article is 13.80, indicating a more moderate level of impact, it showcases the global reach of its research efforts. The University of Oxford and Xiamen University, with five publications each, exhibit noteworthy average citation counts of 19.20 and 40.20, respectively. These figures underscore their contributions as leading institutions in generating research that resonates within their academic domains. Colorado State University, with four publications, stands out for its remarkably high average citation count of 128.00, signifying the influential nature of its research output. Similarly, Dalian University of Technology and Nanjing University of Aeronautics and Astronautics, with four publications, maintain substantial average citation counts of 37.00 and 27.25, respectively. Finally, Beijing Normal University, although producing fewer publications, demonstrates a commendable average citation count of 27.00, suggesting the significance of its contributions to the scholarly discourse.

Rank	Organization	Publication	Citation	Average Citation Per Article
1	Beijing Institute Of Technology	6	296	49.33
2	North China Electric Power University	6	232	38.67
3	University College London	6	119	19.83
4	King Abdullah Petroleum Studies And Research Centre	5	69	13.80
5	University Of Oxford	5	96	19.20
6	Xiamen University	5	201	40.20
7	Colorado State University	4	512	128.00
8	Dalian University Of Technology	4	148	37.00
9	Nanjing University Of Aeronautics And Astronautics	4	109	27.25
10	Beijing Normal University	3	81	27.00

**6. CONCLUSION AND RECOMMENDATION FOR THE FUTURE RESEARCH” RQ7. To identify the significant themes that have been explored**

Blockchain technology is a new revolution in the banking industry that has drastically upgraded payment processes and services (Mishra & Kaushik, 2023), thus ensuring firms' sustainable performance. In the wake of digitalization, this fundamental tool has led financial institutes to create value for the stakeholders (Martínez-Peláez et al., 2023). Fundamentally, in this regard, previous studies suggest that corporate affinity for technology has emerged as a vital factor in satisfying stakeholder needs, thus contributing to firms' sustainable performance. (Ibrahim & Alola, 2020). Our in-depth analysis has offered several insights into the research landscape of digital finance and green innovation. The employed exponential regression model, detailing the relationship between publication year and volume, signifies an accelerating scholarly emphasis in this domain, with an annual publication growth rate of approximately 33.74%. Such a pronounced progression is echoed in the dynamic citation trends observed between 2017 and 2023, with peaks like the zenith of 1,197 citations in 2022, underscoring periods of heightened academic acknowledgment. A closer inspection of individual articles within our purview reveals a notable variance in their citation counts, reinforcing each work's varied recognition and impact within the academic milieu. This diversity extends to the journals of publication, with journals like 'Technological Forecasting and Social Change' as central conduits for impactful scholarly discourse. From a thematic stance, the confluence of subjects—ranging from fintech and sustainability to innovation policy and green finance—accentuates the interdisciplinary nature and depth of the domain.

Furthermore, our examination of author contributions unveiled distinct patterns. Institutions like the Beijing Institute of Technology and North China Electric Power University stand out in terms of volume and the influence of their research, as evidenced by their citation counts. On the global front, China's commanding lead in publications, followed by stalwarts like the US and the UK, highlights the international character of the discourse.

As a crucial pillar of the academic ecosystem, journals have shown pronounced patterns. "Energy Policy" emerges preminent in volume and impact, emphasizing its pivotal role in shaping and guiding

educational thought in the field. Such metrics, interwoven with our understanding of the influence of publishers like Elsevier and Springer, provide an intricate map of the research terrain.

Looking ahead, this analysis offers valuable insights and directions for future research in Digital Finance and Green Innovation. To further enrich this field, researchers should continue to explore the intricate interplay of economic, environmental, societal, and policy dimensions in Digital Finance and Green Innovation reform initiatives. Additionally, collaboration across borders and disciplines can foster a more comprehensive understanding of the challenges and opportunities associated with sustainable development. Furthermore, future research initiatives may consider conducting in-depth case studies to provide nuanced insights into the implementation and impact of Digital Finance and Green Innovation reform policies in various countries. This approach can contribute to evidence-based policy recommendations and inform decision-makers on effective strategies to promote sustainability in the energy sector. In conclusion, this study is a stepping stone for future research endeavors. It encourages scholars to delve deeper into the multifaceted aspects of Fintech reforms and their implications for Digital Finance and Green Innovation. By addressing these critical issues, researchers can play a pivotal role in shaping a more sustainable environment.

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