Understanding FinTech Adoption: A Bibliometric and Systematic Review of the Literature.

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ARTICLE INFO	ABSTRACT
	The implementation of Financial Technology (FinTech) changed financial service operations through broadened accessibility and enhanced efficiency and innovation. This research conducts both a bibliometric examination and systematic review of FinTech adoption literature using Scopus database data which includes 609 papers for bibliometric evaluation and 22 highly cited papers for a thorough review. The research tracks significant FinTech development patterns while exposing leading sources who generate knowledge about FinTech adoption alongside discussing important thematic areas which power its growing adoption. Research activity regarding FinTech adoption has expanded notably during recent times because digital payments and blockchain technology and financial inclusion and regulatory challenges represent the most prevalent research fields. The research presents unmet needs that involve creating a single theoretical structure for FinTech studies along with additional investigations in emerging market economies. The review integrates existing research to present valuable insights which benefit both academic scholars and policymakers and industrial professionals studying FinTech adoption patterns.
	KEYWORDS: bibliometric review, financial service, financial technology (FinTech), FinTech adoption, systematic review

1. INTRODUCTION

Financial Technology (FinTech) has experienced rapid advancement to change the financial services industry by improving banking approaches alongside payments and lending and investment services (Buckley et al., 2016). FinTech adoption refers to the process by which consumers, businesses, and financial institutions integrate and utilize financial technologies to improve efficiency, reduce costs, and expand financial access. Technological innovations particularly blockchain together with artificial intelligence as well as big data analytics drive FinTech adoption because these advancements lead to improved service provision and cost decreases (Gomber et al., 2018). The financial inclusion process has received substantial benefits from FinTech operations especially within the developing economies which lack sufficient traditional banking systems (Demirguc-Kunt et al., 2018).
Research questions about FinTech adoption factors have grown in importance with increasing digital transformation in financial services (Venkatesh et al., 2012). Current research about FinTech adoption covers consumer technology acceptance and behavioral studies (Chuang et al., 2016; Liébana-Cabanillas et al., 2017, & Montoro-Ríos, 2017) as well as analyzes how FinTech transforms traditional financial regulations alongside institutions (Zavolokina et al., 2016). Research on FinTech adoption shows fragmentation across various academic fields because of which it becomes challenging to establish a single theoretical framework (Haddad & Hornuf, 2019).
This study performs a bibliometric and systematic review of FinTech adoption literature through analyzing 609 papers from Scopus and reviewing 22 highly cited papers to bridge the existing knowledge gap. The study aims to:
1. Identify and analyze key trends in FinTech adoption research.
2. Uncover dominant research themes and gaps in the existing body of knowledge.

3. Provide insights into future research directions, particularly in emerging economies and regulatory frameworks.
By synthesizing existing research, this study contributes to a comprehensive understanding of fintech adoption and its implications for financial markets, policymakers, and industry practitioners.

2. MATERIALS AND METHODS

The research analyzes existing studies regarding fintech adoption. Our research goal requires the combination of bibliometric and systematic review methods.

The popularity of bibliometric reviews has been rising throughout recent research because bibliometric review analyzes published literature to generate quantitative assessments of research dimensions. The investigation combines research results from different fields to establish new research directions for upcoming studies. Through bibliometric techniques researchers successfully organize extensive literature for screening and categorization and structure to discover novel research trends and essential research subjects. This research used Scopus as its database because it contains more than 18.8 million cited references dating from 1970 onward (Scopus).
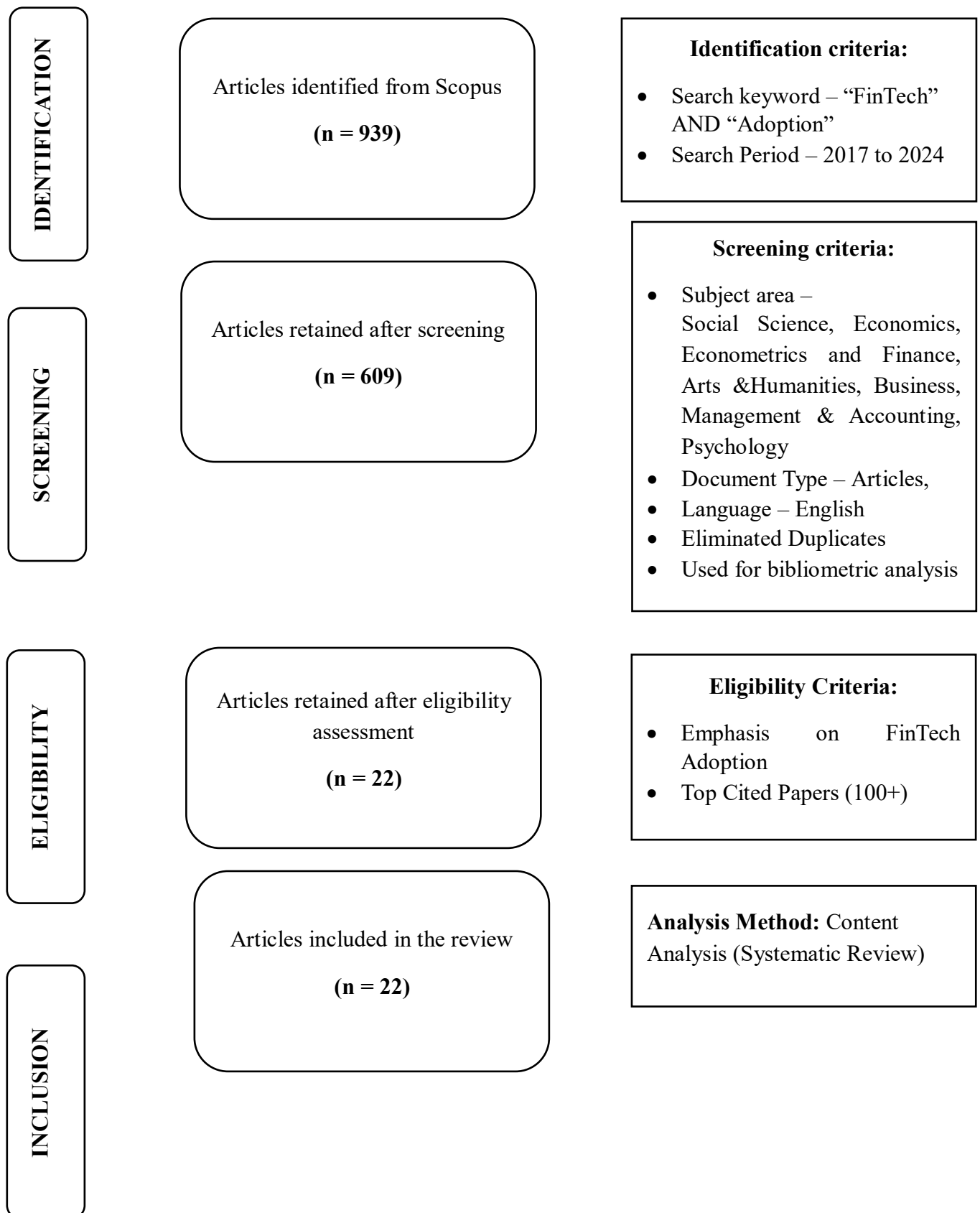
The database of Scopus includes a wider array of publications that extend beyond international and interdisciplinary material. Scopus provides researchers with updated information because its content addition process occurs at a faster rate. The large number of available research sources together with its strong search optimization makes Scopus the preferred platform for bibliometric reviews and its updated content alongside detailed citation identification features. Scopus contains peer-reviewed articles which improve the quality of its research materials. Scopus became our selected database because it provided available data along with excellent integration with Bibliometrics package in R Studio and VosViewer (Dervis, 2019).

To conduct the bibliometric and systematic review, we adhered to the PRISMA framework outlined in Figure 1.

• Selection of Relevant Papers: The research used "FinTech" and "adoption" keywords in the Scopus database title, abstract and author keywords to achieve comprehensive inclusion of pertinent papers. The selection method achieved maximum coverage while admitting some irrelevant papers which were eliminated in the subsequent stage of evaluation.

• Cleaning the Sample: The database search produced 939 results until January 2024. Our research process involved filtering documents to obtain English-language journal articles from Economics, Business Management and Accounting and Social Science which focused on FinTech adoption. The refined dataset contained 609 documents after document selection with authorship information and source citations and publication dates and references recorded.

• Bibliometric Analysis: A bibliometric study applied to the final sample determined publication trends and keyword occurrences and citation networks. We chose the most frequently cited studies for rigorous detailed evaluation that examined main research topics alongside analytical techniques.

3. BIBLIOMETRIC LITERATURE REVIEW

We analyze the 609 relevant papers resulting from our search, using the Bibliometrics package in R Studio and VosViewer software (Dervis, 2019; Mohanty et al., 2023). First, we focus on the keywords included in the studies by the authors. Observing the trend over time, we note a shift in the terminology used to study FinTech adoption.

IDENTIFICATION

Articles identified from Scopus

(n = 939)

Identification criteria:

- Search keyword – "FinTech" AND "Adoption"
- Search Period – 2017 to 2024

SCREENING

Articles retained after screening

(n = 609)

Screening criteria:

- Subject area – Social Science, Economics, Econometrics and Finance, Arts &Humanities, Business, Management & Accounting, Psychology
- Document Type – Articles,
- Language – English
- Eliminated Duplicates
- Used for bibliometric analysis

ELIGIBILITY

Articles retained after eligibility assessment

(n = 22)

Eligibility Criteria:

- Emphasis on FinTech Adoption
- Top Cited Papers (100+)

INCLUSION

Articles included in the review

(n = 22)

Analysis Method: Content Analysis (Systematic Review)

Fig 1   Flow diagram of article selection using the PRISMA protocol.

3.1 Output

The result of bibliometric excel analysis is presented which shows different types of information.

Figure 2 highlights the evolution of FinTech adoption research over time, reflecting shifts in focus from general financial technology concepts to more specialized themes. The earlier research from 2019 or 2020 dealt with broad subjects, for instance, competition in services like bitcoin and fintech, paying more attention to its historical impacts. However, the research focus changed in the years between 2021 and 2022 where funding

concepts like crowdfunding, decentralized finance, smart contracts, and blockchain were increasing in usage demonstrating advanced technologies in specific areas of research attention. More recent research conducted from the year 2023 and forward shows increased focus on trusting consumers with the keywords like adoption of fintech, trust, and inclusion in finance. This illustrates the shift towards the study of user behavior, level of trust, regulatory issues, and social implications associated with the advancement of technology in the finance world. The emerging keyword patterns suggest increased sophistication of the study of fintech as the term is no longer associated with technology but rather with users and regulators.
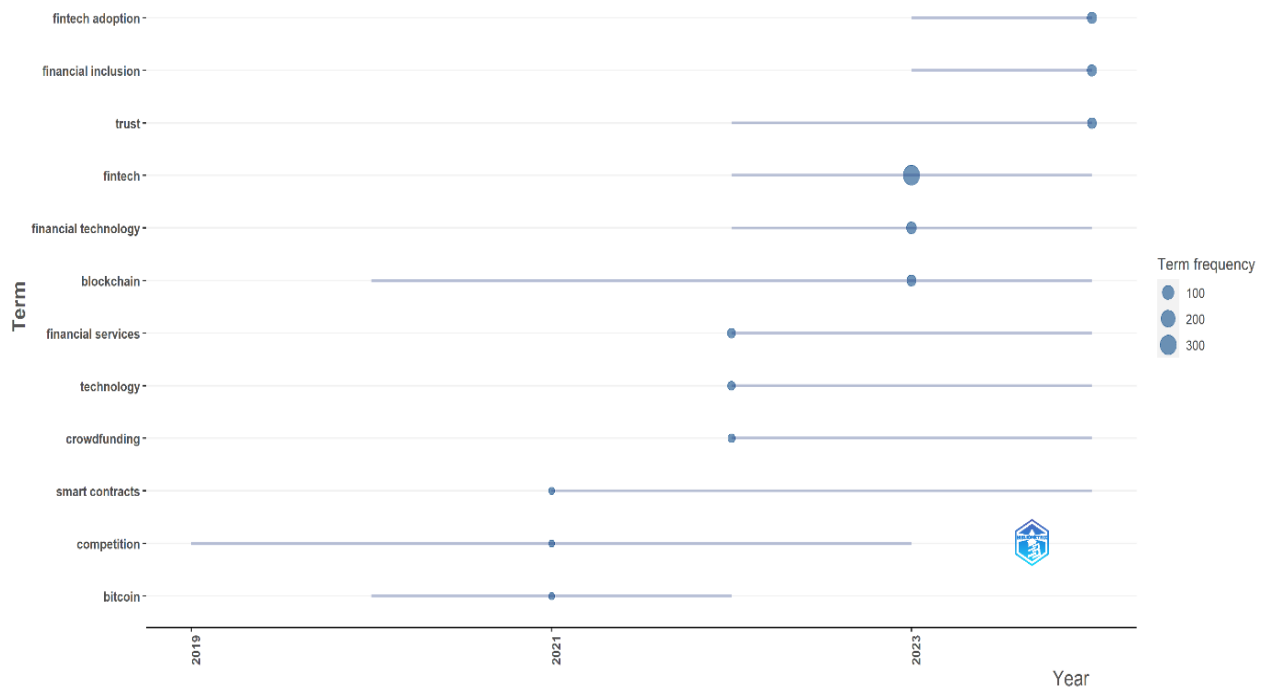

Fig 2 Trend Topics

Figure 3 further reinforces the trend observed in the figure 2, illustrating the cumulative occurrence of key FinTech-related terms over time. The occurrence of terms "blockchain" "financial technology" and "competition" showed a steady growth between 2017 to 2020 according to research data. From 2021 to the present day we observe the speeded up development of "fintech adoption" and "trust" and "financial inclusion" and "financial literacy" terms. The field has evolved from only studying technological aspects to user-focused research about consumer adoption patterns coupled with regulatory hurdles and social implications. After 2022 we see a sudden growth in "fintech" research patterns which demonstrates scholars now focus on trust issues alongside inclusion aspects and consumer interests in their research. The development of FinTech research shows its maturity because researchers now study technology alongside human factors and economic and regulatory aspects.
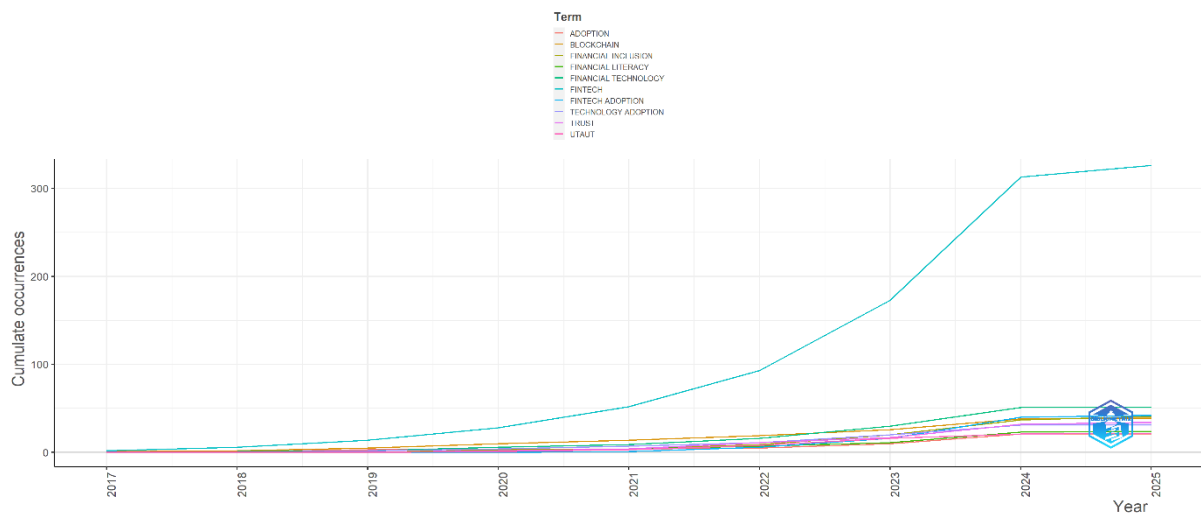

Fig 3 Word Frequency Over Time

Figure 4 demonstrates a co-occurrence network created with the help of VOS viewer which describes the themes and relationships between keywords in a particular area of research - in this case, fintech. The keyword 'fintech' emerges as the central node, which is associated with the highest prominence metric. This theme is further corroborated by the advanced literature. The network is separated into several clusters representing different areas of research each as a focus. The red cluster revolves around technology adoption, trust, perceived risk, and behavioural intention, suggesting a strong emphasis on user acceptance models such as TAM and UTAUT. The blue cluster focuses on financial inclusion, mobile banking, and financial development, highlighting the role of fintech in enhancing banking accessibility, especially in emerging economies. The green cluster centers on blockchain, cryptocurrency, smart contracts, and digital transformation, showing the technological innovations driving fintech. The yellow cluster covers fintech adoption, robo-advisors, SMEs, and financial literacy, indicating research on financial services and their impact on businesses and individuals. The purple cluster links sustainability, green finance, and economic growth, pointing to the emerging intersection of fintech and environmental sustainability. The density of connections between these clusters suggests a multidisciplinary approach, with fintech acting as a bridge between technology, financial accessibility, and economic development. This visualization provides valuable insights into the evolving research trends and potential areas for further investigation.
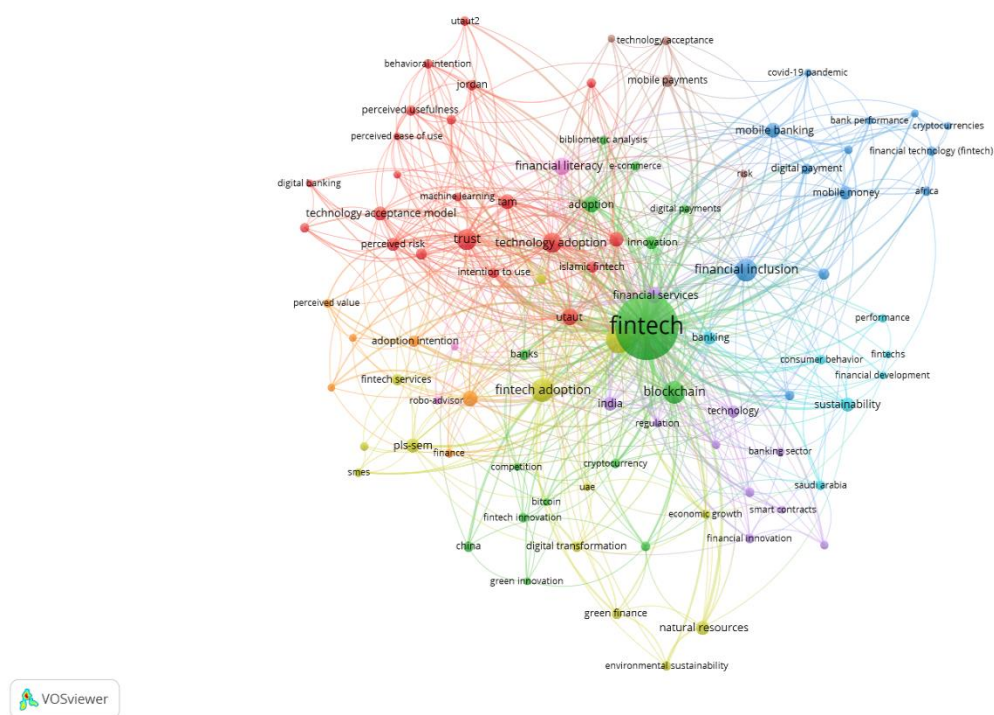

Fig 4 Keyword co-occurrence network

Figure 5 provides a thematic map of fintech research, categorizing themes based on their development (density) and relevance (centrality). Motor themes, such as financial innovation, finance, regulatory sandbox, financial regulation, and payment technology, are well-developed and central to the fintech landscape, driving advancements in financial technology and regulation. Niche themes like customer trust, regulatory environment, and technological development challenges are highly developed but less connected to the broader research field, focusing on specialized aspects of fintech. Basic themes, including fintech, financial inclusion, blockchain, trust, and technology adoption, serve as the foundational pillars of fintech research, with financial literacy and methodological tools like pls-sem highlighting the analytical approaches used in studying fintech adoption. Emerging or declining themes, such as financial performance, fintech firms, environmental sustainability, and digitalization, indicate either growing or diminishing areas of study, with sustainability and green finance potentially representing an emerging intersection with fintech. Overall, fintech research is primarily driven by financial innovation and regulatory developments, supported by foundational studies in financial inclusion and blockchain, while niche research explores trust and regulatory challenges, and emerging themes suggest increasing attention to sustainability and digital transformation.
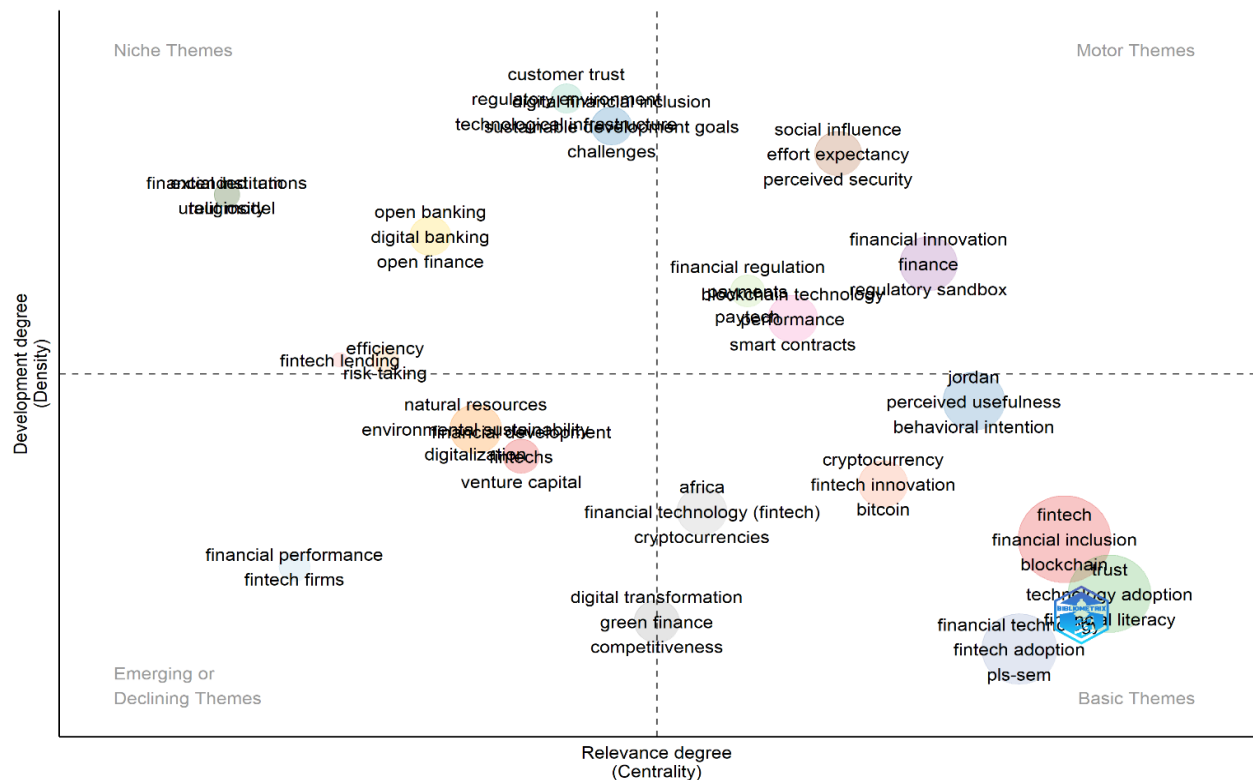
Fig 5 Thematic Map

Figure 6 is the conceptual structure map, generated using Multiple Correspondence Analysis (MCA), illustrates the key themes in fintech research by clustering related topics along two primary dimensions. The right side of the map highlights behavioral aspects such as social influence, behavioral intention, trust, perceived usefulness, and perceived risk, which align with technology adoption models like TAM and UTAUT. The left side focuses on digital finance, mobile money, financial inclusion, and crowdfunding, emphasizing fintech's role in enhancing financial accessibility, particularly in developing economies. Additionally, artificial intelligence, blockchain, and e-commerce are central to fintech's technological advancements. At the bottom, the map showcases the growing intersection between green finance, environmental sustainability, and digital transformation, indicating an emerging focus on sustainable financial technologies. Positioned centrally, financial innovation, fintech adoption, and fintech services act as connecting elements across different domains. This distribution suggests that fintech research is highly interdisciplinary, spanning behavioral adoption, technological advancements, financial inclusion, and sustainability initiatives.
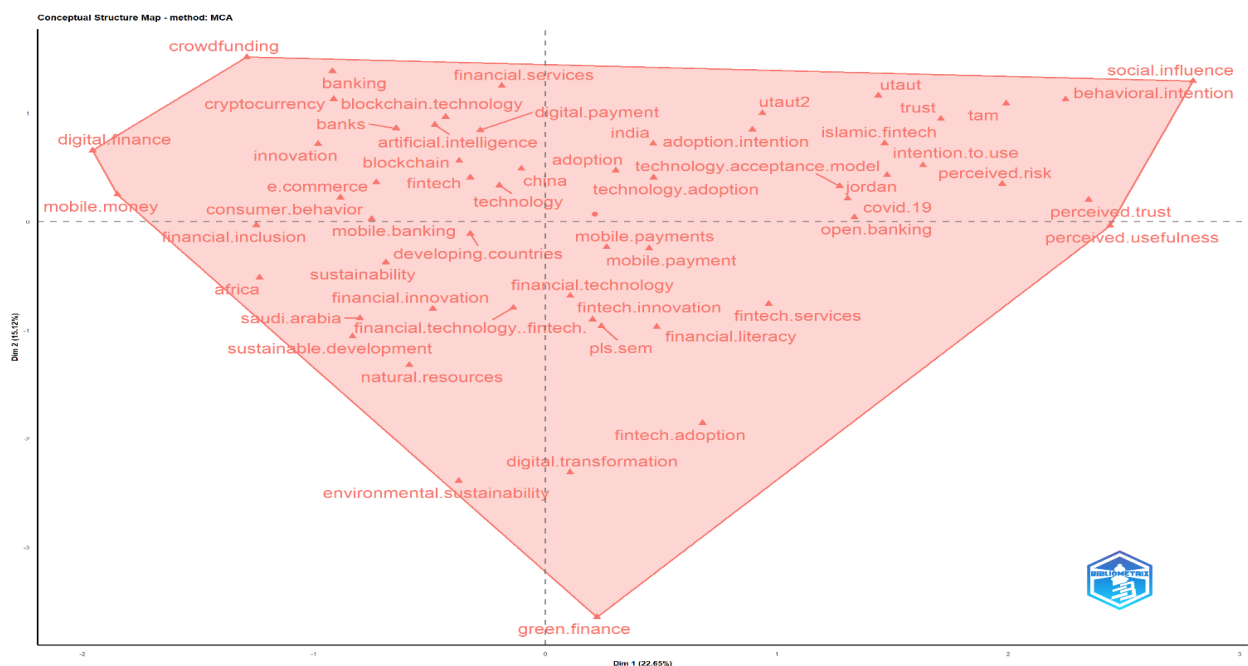

Fig 6 Conceptual Structure Map

Figure 7 is the bibliometric analysis of FinTech adoption research across different countries highlights a strong concentration of scholarly contributions in Asia, with India (95 documents), China (88 documents), and Malaysia (81 documents) leading in research output. This trend suggests a growing academic interest in FinTech adoption in regions experiencing rapid digital transformation and financial inclusion initiatives. Developed economies such as the United States (64 documents) and the United Kingdom (59 documents) also contribute significantly, likely reflecting their advanced financial infrastructures and regulatory frameworks. Additionally, emerging markets like Saudi Arabia (47 documents), Indonesia (42 documents), Jordan (36 documents), and Pakistan (29 documents) are gaining traction in FinTech research, indicating an increasing focus on financial technology's role in economic growth and inclusion. Australia's presence in the top 10 further signifies its contributions to regulatory advancements and financial innovation. The overall distribution of research suggests that both developed and developing nations recognize the transformative potential of FinTech, with a particular emphasis on digital financial services in high-growth economies.
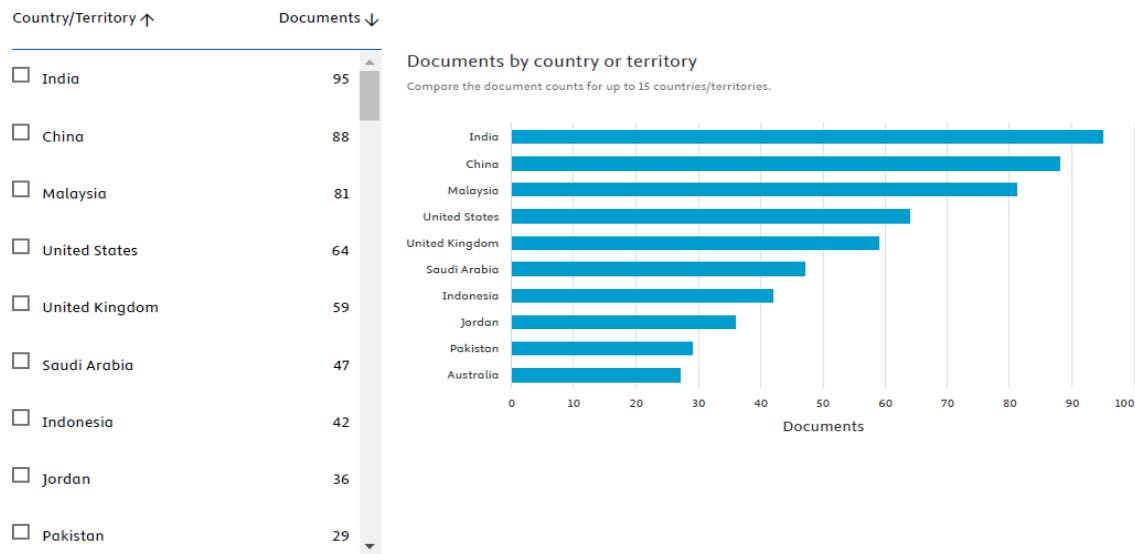

Fig 7 Country-wise Publication

Figure 8 illustrates the global research collaboration network, highlighting the interconnections between countries in FinTech adoption studies. The United States emerges as a central hub, demonstrating the highest number of international collaborations, particularly with India, China, the United Kingdom, and Australia. Asian countries, including China, India, and Malaysia, also show strong linkages, indicating significant regional cooperation. European nations, notably the United Kingdom and Germany, play a crucial role in bridging Western and Eastern research efforts. The map underscores the growing internationalization of FinTech research, with developing economies forming networks with established financial hubs. These collaborations reflect the interdisciplinary and cross-border nature of FinTech research, fostering knowledge exchange and innovation.
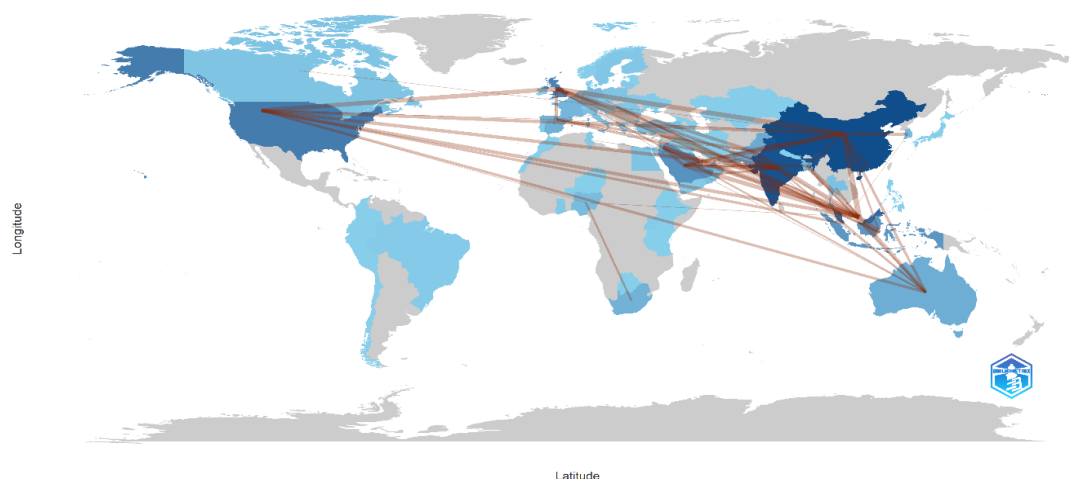

Fig 8 Country-collaboration Network

Figure 9 is the bibliographic review of FinTech country research citations demonstrates China and the United Kingdom as leading contributors through their 1,353 and 1,212 citations respectively. This suggests that these nations are leading contributors to scholarly discourse on financial technology, likely driven by their strong FinTech ecosystems, regulatory advancements, and early adoption of emerging technologies. Spain and India together with Germany and the USA show research influence through citations which fall between 523 to 711. The countries of Korea and Malaysia along with Indonesia and Jordan show low citation rates which indicates their developing research presence or minimal academic involvement in FinTech studies. The geographical distribution of citations underscores a concentration of FinTech research in technologically advanced and economically influential regions, while emerging economies are gradually increasing their presence in the field.
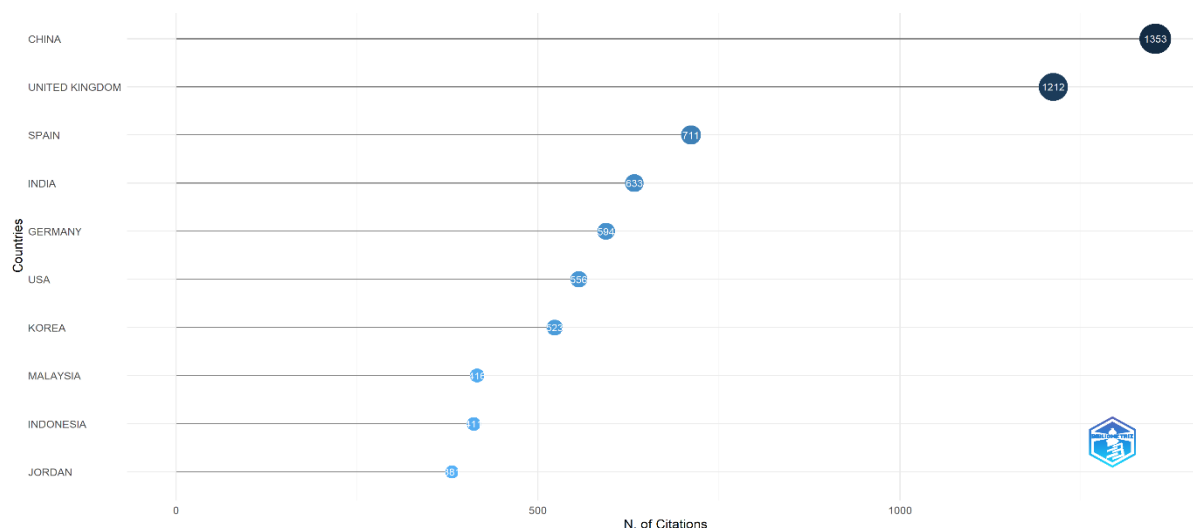
Fig 9 Most Cited Countries

Figure 10 is the chart displaying bibliographic data showing Belanche et al., (2019) in Industrial Management & Data Systems achieves 400 citations as its leading position while Chang et al., (2020) in Technological Forecasting & Social Change obtains 372 citations followed by Milian EZ (2019) in Electronic Commerce Research and Applications securing 282 citations. Two scholarly papers by Albayati et al., (2020) and Akpan et al., (2022) stand out because they received considerable numbers of citations within their academic domains. Research in technology adoption and financial technology and business management continues to attract worldwide scholarly interest because recent publications are drawing more academic readership.
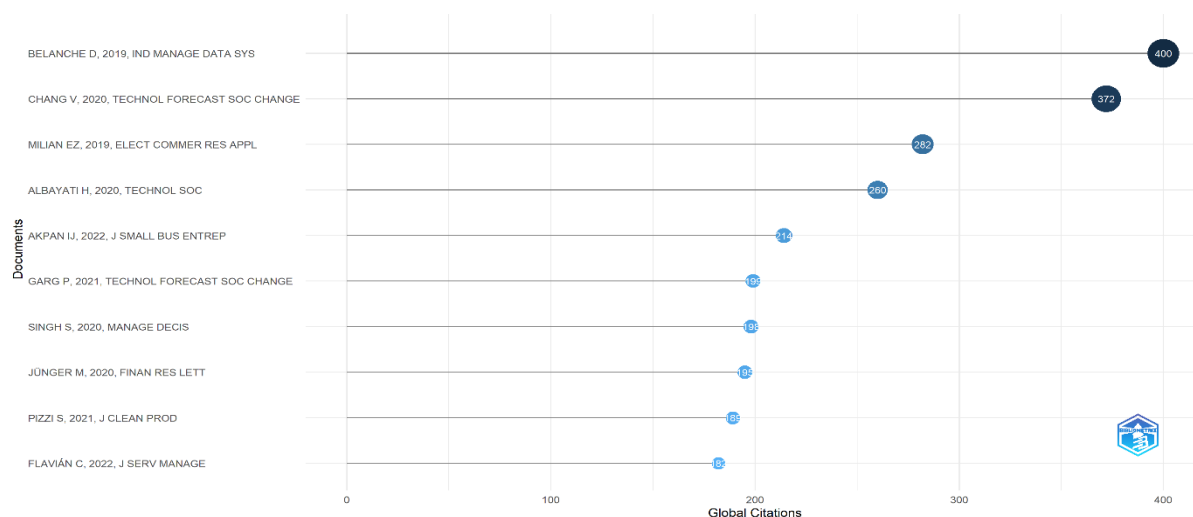
Fig 10 Most Cited Documents

Figure 11 shows academic source relevance by counting the number of published documents. The source Resources Policy maintains the highest number of documents at 30 while Technological Forecasting and Social Change ranks second with 22 and the Journal of Risk and Financial Management comes third with 21 documents. The literature contains 18 documents from Sustainability and 13 documents from the Journal of Open Innovation. The scholarly interest in innovation and financial management along with sustainability and marketing fields is reflected in the number of journals that focus on these areas because of global trends in economic technological and environmental research.
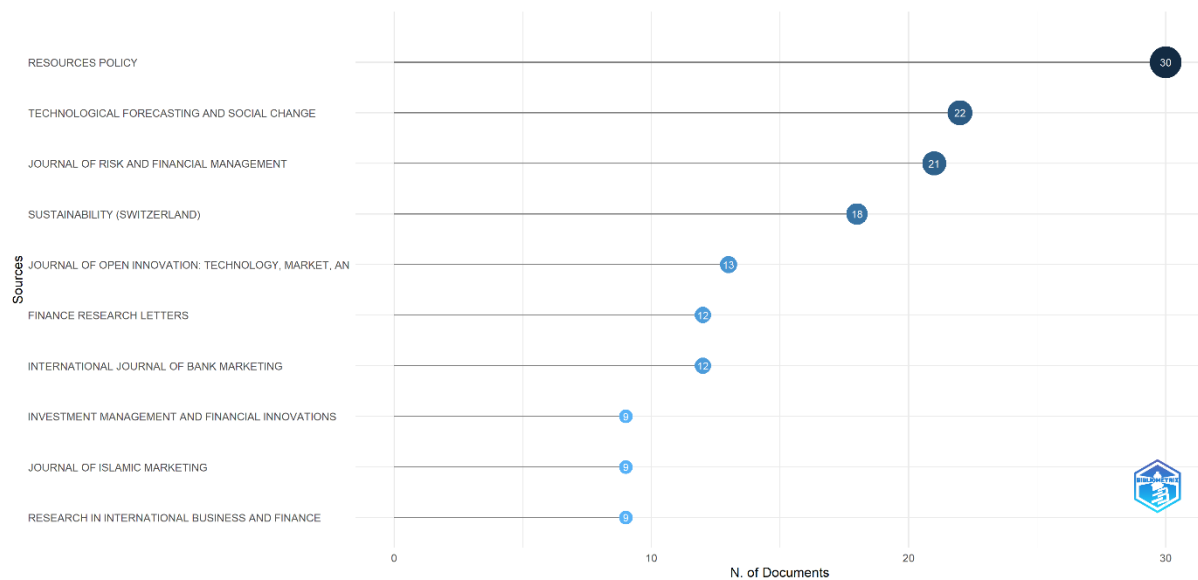
Fig 11 Most Relevant Sources

Figure 12 shows the H-index measures both productivity and citation impact to analyze the impact of sources that were previously evaluated for relevance. The H-index value of 14 confirms Technological Forecasting and Social Change as a leading research journal for forecasting and social change studies. The scholarly influence of Resources Policy becomes evident through its H-index value of 10. The academic presence of the International Journal of Bank Marketing and the Journal of Risk and Financial Management and Sustainability (Switzerland) is confirmed by their H-index of 9. The sources with both high document volume and high impact demonstrate their field-leading status by publishing extensive research materials that receive extensive academic recognition.
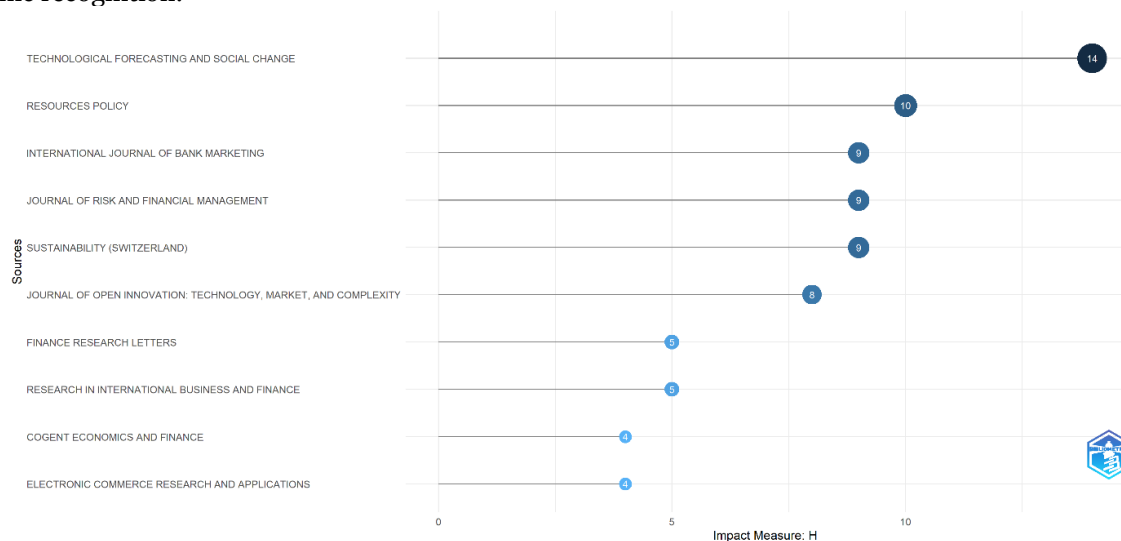
Fig 12 Source Impact

4. SYSTEMATIC LITERATURE REVIEW OF TOP CITED PAPERS

To offer an overview of the most influential papers on FinTech Adoption, we conduct a systematic literature review of the top 22 cited papers. We define the most relevant studies as those with approximately 100 or more citations. The selected documents are presented in Table 1. This analysis helps in identifying studies that are most recognized by peer researchers.

Furthermore, these papers are typically referenced by researchers exploring the topic and are likely to influence future literature in the field. The most cited papers, with few exceptions, are published in top-tier journals and all after 2017, making them a highly recent set of contributions. The different authors of these papers show how researchers stay separated from one another when studying this subject. These studies define the main areas which future studies will likely investigate in fintech adoption research.

The top three research papers ranked by total citations come from Belanche et al. (2019), Chang et al. (2020), and Milian et al. (2019). The first research (Belanche et al., 2019) studies which factors drive customers to adopt robo-advisors in the FinTech sector. The authors examine survey responses from 765 potential users to determine why people use robo-advisors through multi-sample structural equation modeling analysis. The

second paper, by Chang et al. (2020), explores the impact of blockchain technology on financial services, highlighting key challenges, ethical concerns, and expert recommendations for adoption and integration. The study is based on qualitative data collected through 16 expert interviews, analyzed using open coding in Nvivo. Milian et al. (2019) performed a systematic research review to locate FinTech studies and recommended research possibilities based on the present tendencies from those works. The research uses both bibliometric and content analysis methods to examine changes in the study of FinTech. Many of the top-cited papers apply quantitative methods such as structural equation modeling, bibliometric analysis, and regression models, while others incorporate qualitative approaches like interviews and thematic analysis to explore various dimensions of FinTech adoption, blockchain integration, and financial technology trends.

Table 1 Overview of top-cited studies included in the analysis, by total citations.

PURPOSE	DATA	METHODS	REFERENCE	CITATIONS
UNDERSTAND THE KEY FACTORS INFLUENCING CUSTOMER ADOPTION OF ROBO-ADVISORS IN FINANCIAL TECHNOLOGY (FINTECH)	Survey data collected from 765 potential users of robo-advisors	Structural equation modeling and multisample analysis.	(Belanche et al., 2019)	400
EXPLORE THE IMPACT OF BLOCKCHAIN TECHNOLOGY ON FINANCIAL SERVICES, IDENTIFYING KEY CHALLENGES, ETHICAL CONCERNS, AND EXPERT RECOMMENDATIONS FOR ITS ADOPTION AND INTEGRATION.	Qualitative data collected through 16 expert interviews	Open coding using Nvivo	(Chang et al., 2020)	372
INVESTIGATE THE CONCEPT OF FINTECH, MAP THE EXISTING LITERATURE, AND IDENTIFY KEY RESEARCH TRENDS AND FUTURE OPPORTUNITIES IN THE FIELD	Systematic Literature review	Bibliometric analysis, Content Analysis	(Milian et al., 2019)	282
EXAMINE CUSTOMER BEHAVIOR AND THE KEY FACTORS INFLUENCING THE ACCEPTANCE OF BLOCKCHAIN-BASED CRYPTOCURRENCY TRANSACTIONS USING AN EXTENDED TECHNOLOGY ACCEPTANCE MODEL (TAM).	Online survey of 251 respondents	Partial least squares-structural equation modeling (pls-sem)	(Albayati et al., 2020)	260
EXAMINES THE AWARENESS, ADOPTION, AND CHALLENGES OF IMPLEMENTING STATE-OF-THE-ART TECHNOLOGIES BY SMALL BUSINESSES IN EMERGING AND DEVELOPING MARKETS (EMDES)	Case studies on technology adoption by smes in emerging and developing markets, Literature review	Thematic analysis, comparative analysis	(Akpan et al., 2022)	214
MEASURE THE PERCEIVED BUSINESS BENEFITS OF IMPLEMENTING BLOCKCHAIN TECHNOLOGY IN THE BANKING SECTOR	Primary data collected from 291 respondents	EFA, CFA and SEM (AMOS)	(Garg et al., 2021)	199
EXAMINE THE ADOPTION AND ACTUAL USE OF FINTECH SERVICES BY INTEGRATING SUB-CONSTRUCTS FROM THE TECHNOLOGY ACCEPTANCE MODEL (TAM), UNIFIED THEORY OF ACCEPTANCE AND USE OF TECHNOLOGY (UTAUT), SERVPERF, AND WEBQUAL 4.0	Primary data collected from 439 active internet users	EFA, CFA, Multi-group analysis and SEM (AMOS)	(Singh et al., 2020)	198

INVESTIGATES THE FACTORS INFLUENCING THE ADOPTION OF FINTECH SERVICES BY GERMAN HOUSEHOLDS,	Primary survey data collected from 643 German households,	Principal component analysis (pca), logit regression models	(Jünger & Mietzner, 2020)	195
TO EXPLORE HOW FINTECH CAN ENABLE SMALL AND MEDIUM-SIZED ENTERPRISES (SMES) TO ADOPT SUSTAINABLE BUSINESS MODELS AND TRANSITION TOWARDS A CIRCULAR ECONOMY.	Qualitative data through multiple case studies of Fintech enterprises.	Qualitative, inductive research approach using multiple case studies	(Pizzi et al., 2021)	189
TECHNOLOGY READINESS AND SERVICE AWARENESS AFFECT THEIR INTENTION TO USE ANALYTICAL AI INVESTMENT SERVICES.	Survey data	Structural equation modeling (SEM), Post hoc analysis	(Flavian et al., 2021)	182
EMPIRICALLY ANALYZE THE KEY FACTORS INFLUENCING THE ADOPTION OF FINTECH INNOVATION IN GERMANY	Questionnaire survey distributed to 700 bank customers in Germany	EFA, CFA and SEM (AMOS)	(Stewart & Jürjens, 2018).	173
EXAMINES THE FINANCIAL STRUCTURAL TRANSFORMATION IN CHINA BY ANALYZING THE ROLE OF FINTECH, CRYPTOCURRENCIES, STABLECOINS, AND CENTRAL BANK DIGITAL CURRENCIES (CBDCS),	Secondary data from past studies	Literature review	(Allen et al., 2022).	149
EXPLORES THE POTENTIAL OF BLOCKCHAIN TECHNOLOGY AS A DISRUPTIVE AND ENABLING NETWORK FOR URBAN GOVERNANCE, PROPOSING THE FUTURE LIVING FRAMEWORK	Secondary data sources, including literature reviews, policy documents, and case studies on blockchain, smart cities, and urban governance	Comparative analysis, Case study approach	(Marsal-Llacuna, 2018).	148
PROPOSES A HESITANT FUZZY-BASED DECISION-MAKING FRAMEWORK FOR SELECTING THE MOST SUITABLE INDUSTRY 4.0 TECHNOLOGIES TO ENHANCE FINTECH ADOPTION AND SUPPORT SUSTAINABLE SUPPLY CHAIN FINANCE (SSCF) FOR SMALL AND MEDIUM ENTERPRISES (SMES).	Questionnaire survey(experts)	Multi-attribute decision-making (MADM), Hesitant fuzzy, Graph theory, Decision-making framework, Sensitivity analysis	(Soni et al., 2022).	146
EXPLORES THE IMPACT OF DIGITAL FINANCIAL SYSTEMS, SPECIFICALLY FINTECH, XBRL, BLOCKCHAIN, AND CRYPTOCURRENCIES, ON MODERN FINANCIAL MANAGEMENT	Secondary data sources, including literature reviews, policy documents, and case studies on fintech, artificial intelligence, blockchain, and digital financial reporting systems	Comparative analysis, Conceptual framework development	(Mosteanu & Faccia, 2020)..	145
TO INVESTIGATE THE FACTORS INFLUENCING INDIVIDUALS' ADOPTION OF FINTECH PLATFORMS, PARTICULARLY INTERNET WEALTH MANAGEMENT PLATFORMS	Survey data	Survey data	(Xie et al., 2021)	134

TO EXPLORE HOW COVID-19 HAS ACCELERATED DIGITAL ENTREPRENEURSHIP OPPORTUNITIES IN INDIA BY IDENTIFYING EMERGING TECHNOLOGIES AND SECTORS	Semi-structured interviews with 23 entrepreneurs	A three-layered coding process—open, axial, and selective coding—was applied for thematic analysis	(Modgil et al., 2022).	132
TO DESIGN A ROBO-ADVISORY SOLUTION TAILORED FOR RISK-AVERSE, LOW-BUDGET CONSUMERS BY IDENTIFYING KEY DESIGN PRINCIPLES	Mixed-method laboratory studies with a total of 30 participants aged 18–26 years	Literature review & expert discussions, three design cycles, mixed-method evaluation	(Jung et al., 2018).	129
TO EXAMINE THE FACTORS INFLUENCING JORDANIAN CITIZENS' INTENTION TO USE FINTECH APPLICATIONS DURING THE COVID-19	Survey data from 500 potential fintech service users	Structural equation modeling (SEM-PLS)	(Al Nawayseh, 2020).	124
EXAMINES HOW THE COVID-19 PANDEMIC INFLUENCED THE GLOBAL ADOPTION OF FINTECH APPLICATIONS	Historical and real-time mobile app download data from the apptweak platform	Panel data regression models	(Fu & Mishra, 2022).	123
INVESTIGATES THE DETERMINANTS OF FINTECH ADOPTION IN INDONESIA TO UNDERSTAND THEIR IMPACT ON EXPANDING FINANCIAL INCLUSION	Survey data from 485 fintech users in Indonesia	Structural Equation Modeling (SEM) with a Partial Least Squares (PLS) approach	(Setiawan et al., 2021).	110
EXAMINES HOW FINTECH ADOPTION INFLUENCES HOUSEHOLD CONSUMPTION AND CONSUMPTION INEQUALITY IN CHINA	Household-level panel data from the China Family Panel Studies (CFPS) covering 162 counties in 25 provinces of China	Panel data regression analysis and an instrumental variable approach	(Yang & Zhang, 2022).	100

5. DISCUSSION

Research on FinTech adoption shows how experts study this subject through their work patterns in recent years. The analysis of publication trends in FinTech adoption research provides insights into the evolution of this field, highlighting dominant themes, methodologies, and research gaps. Initially, studies focused on broad aspects such as digital finance, payments, and competition, but over time, the research landscape has shifted towards more specialized topics such as blockchain technology, financial inclusion, and regulatory challenges. The keyword evolution reflects this transition, with an increasing emphasis on "FinTech adoption," "trust," and "regulatory frameworks," indicating a maturing field that now prioritizes consumer behavior and policy implications.

Research shows that most studies happen in specific geographical locations. Research about FinTech adoption mainly happens in developed market areas of North America and Asia. China India and Malaysia produce much research about FinTech because they advance rapidly in technology while working to include more people in the financial system. Research gaps exist today regarding the effect of FinTech in developing and emerging economies which offer chances to bring better financial opportunities to their people.

FinTech adoption research is characterized by a mix of quantitative and qualitative approaches. Structural Equation Modeling (SEM), bibliometric analysis, and regression models dominate empirical studies, while thematic analysis and case studies are frequently employed in qualitative research. The wide range of research methods used in FinTech shows that this field relies on different areas of expertise like finance technology and behavioral science. However, the literature still lacks a unified theoretical framework that integrates these diverse perspectives, signaling an opportunity for future studies to establish a more cohesive research agenda. Moreover, a major research gap lies in the limited exploration of the long-term implications of FinTech adoption, particularly in relation to regulatory policies, cybersecurity risks, and digital financial literacy. While studies increasingly recognize the importance of trust and regulatory compliance, the complex relationship between technological advancements and consumer protection remains underexplored. Addressing these issues will be crucial for ensuring the sustainable growth of FinTech ecosystems.

The findings suggest that FinTech adoption research is progressing towards greater specialization, with emerging themes such as decentralized finance (DeFi), artificial intelligence in financial services, and sustainable FinTech gaining traction. Future research should focus on expanding studies to underrepresented regions and addressing regulatory and security concerns to develop a more inclusive and secure digital financial landscape.

6. FUTURE RESEARCH DIRECTIONS

Future research on FinTech adoption should focus on addressing the gaps identified in the existing literature, particularly in relation to emerging markets, regulatory frameworks, and technological advancements. While current studies have extensively explored the role of FinTech in financial inclusion (Pizzi et al., 2021) and consumer adoption behaviour (Belanche et al., 2019), there remains a need to investigate the long-term impact of FinTech innovations on financial stability and economic development. Research should also explore the relationship between technological readiness and regulatory policies, as regulatory uncertainties continue to pose challenges for widespread adoption (Chang et al., 2020).

Researchers should look deeper into how financial services use blockchain technology for purposes beyond digital currency transactions. Research by Garg et al. (2021) looks at banking sector benefits of blockchain but studies should now explore how blockchain systems handle growth while staying secure and connecting with other networks. Further research must study both ethical and operational risks that come from using AI to generate financial advice because AI affects how people make financial choices (Flavian et al., 2021).

Reseaechers now explore the ways digital financial technology supports growing small and medium businesses in developing nations. The research demonstrates FinTech helps SMEs develop sustainable business methods (Pizzi et al., 2021) but need to analyze how FinTech includes people without bank access in developing regions. Digital transformation quickly progresses and there is a need to research and understand cybersecurity risks plus data privacy risks that come from using FinTech services (Albayati et al., 2020).

Finally, future studies should adopt a multidisciplinary approach by integrating insights from finance, technology, psychology, and regulatory science to develop a comprehensive theoretical framework for FinTech adoption. Researchers need to develop common standards and conduct international comparisons to show how FinTech affects different countries worldwide (Milian et al. 2019). Addressing these research gaps will provide valuable insights for policymakers, financial institutions, and technology providers, ensuring the sustainable and inclusive development of the FinTech ecosystem.

7. CONCLUSIONS

Research on FinTech adoption moves quickly but different academic fields have not brought its concepts together into a unified theoretical framework. Through examination of 609 papers and selected top-cited studies this research gives insights about FinTech adoption methods with identified major themes and research trends. The research shows that digital payments, blockchain, financial access, and regulation determine tech financial development directions (Belanche et al., 2019; Chang et al., 2020; Milian et al., 2019). The research on FinTech grows across many fields but still lacks important insights about developing nations and security threats plus regulation (Albayati et al., 2020).

This study's main weakness involves using only English research from Scopus-indexed sources that may have missed valuable findings across other materials. The study selects only high-cited papers which fails to give attention to new research before it builds up its citation count. The next bibliometric and systematic reviews should include more research sources plus they should update their dataset to include new FinTech research findings.

Moving forward, it is crucial to integrate multidisciplinary perspectives, enhance cross-country comparative studies, and develop standardized methodologies to better understand FinTech adoption. Given the increasing role of artificial intelligence, blockchain, and financial inclusion in shaping global finance, continued research efforts should focus on regulatory compliance, consumer trust, and the long-term implications of FinTech innovation. Addressing these areas will provide valuable insights for policymakers, financial institutions, and technology providers, ensuring a more inclusive, secure, and sustainable digital financial ecosystem.

Declarations
Funding
The authors declare that no funds, grants, or other support were received during the preparation of this manuscript.

Competing Interest
The authors have no relevant financial or non-financial interests to disclose.

Ethical Consideration
There are no human participants in this article and informed consent is not required.

Author Contributions

Authors contributed to the study conception and design. Material preparation, data collection and analysis were performed collectively by the authors. The first draft of the manuscript was written by the first author and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

Data Availability

The list of articles reviewed is given below.

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