Fintech Innovations: A Bibliometric Study & Future Research Agenda

Dr. Vijay Joshi

Post-Doctoral Research Fellow,
State Bank Institute of Leadership,
Kolkata, West Bengal, India
Email: pdrf3.sbil@sbi.co.in

Abstract

This bibliometric study aims to understand the academic developments in Financial Technology (Fintech) based innovations. The technological disruption post-pandemic era has propelled researchers to mull over the disruptions caused by fintech firms. Disruptive Fintech innovations and their impact on the Banking industry are one of the grand challenges to be contemplated by researchers. Bibliometric tools and techniques as a methodology have been adopted to delve deeper into fintech innovations. Web of Science database revealed 211 documents based on the keyword search for2017 to 2022. After applying inclusion criteria like Web of Science Categories Business, Management, Economics, and Business Finance, total of 124articles were selected as the final sample to review the fintech innovations. The Bibliometrix package of r (programming language) has been used to process the data. The bibliometric study revealed six themes (1) Innovation, (2) Impact, (3) Adoption, (4) Management, (5) Firms, and (6) Strategy; as potential areas for further exploration. One of the theoretical groundings of fintech innovation is disruptive innovation. The study provides input to policymakers, working professionals and academicians.

Keywords: Fintech Innovations, Bibliometric study.

Introduction:

The tremendous rise in the number of scholarly papers on Fintech has drawn the attention of many. It is so as the disruptive capabilities of fintech firms have challenged conventional banks and non-banking financial institutions (NBFCs). The innovative products and services launched by fintech firms are gaining momentum. FinTech refers to the use of digital technology in financial services and is responsible for the substantial disruption occurring throughout the financial sector. There has been a paradigm shift due to a new collaborative business model. Many start-ups are unbundling financial services and challenging incumbents (Basole& Patel, 2018).

The increasing digitalization of financial markets significantly influences customer-centric financial products and services. New entrants, such as FinTech and BigTech companies, actively participate in the financial marketing of cutting-edge technology and forward-thinking business models (Tanda &Schena, 2019). It creates undue

pressure on incumbents. As Fintech is in a growing stage, it will be fair to say that the digital transformation of financial services is the key growth engine. Firms cannot achieve their strategic and operational goals without an adequate technological base (Adler &Shenhar, 1990). However, research on Fintech is not established, and the literature is loosely connected without any research agenda. There is a need for research on Fintech innovations and how it can be streamlined theoretically and managerially in management literature. The literature review as a research approach is becoming more critical in today's digitally advancing academic environment. Traditional literature review techniques often lack completeness and rigour and are carried out according to predetermined processes (Snyder, 2019). It is generally accepted that bibliometric approaches are helpful as auxiliary tools for decision-making in prioritizing research and tracing the development of scientific knowledge (Donthu et al., 2021; Hubert, 1977; Jackson, 1980; Milian et al., 2019; Rowe, 2014).

This bibliometric study aims to map and analyse academic writings on fintech innovations to make them discernible and understandable within the banking and financial space context.The use of bibliometrics is slowly being expanded to include all academic fields. In a time when there is a strong focus placed on empirical contributions, which is resulting in the production of many fragmented, and contentious research streams. The bibliometric approach of the literature review is primarily meant for scientific mapping of journal articles (Aria &Cuccurullo, 2017; Donthu et al., 2021). Rowe (2014) has proposed four significant dimensions or typologies for literature reviews.In the present paper, Rowe's typologies have been adopted to uncover the body of knowledge on fintech innovations. The four typologies are (i) academic goals, (ii) problem breadth, (iii) systematically explaining the inclusion criteria, and (iv) utilizing argumentative strategy.

The article is divided into five sections. Section one discusses the introduction about the publication on fintech innovations, the need to review available literature and the gap. Section two deals with materials and methods adopted to carry out the study. Section three covers the bibliometric analysis of the sampled articles. Section four summarizes and concludes the significant findings, and last but not the least, section five presents limitations and future research directions.

Materials & Methods

The bibliometric methodology generally refers to applying quantitative methods such as citation analysis to bibliometric data. These methods include units of publication and citation (Donthu et al., 2021). Many different models have been developed to describe the productive capacity of scientific discourse, such as journals (Chen &Lelmkuhler, 1986; Drott & Griffith, 1978; Garfield, 1980; Hubert, 1977). The meaning of the word "bibliometrics" is found in extant literature (Broadus, 1987; Ikpaahindi, 1985). By adopting the typologies for literature reviews proposed by Rowe (2014), an attempt has been made to uncover the topical foci with rigour (Brocke et al., 2009; Jackson, 1980; Müller-Bloch & Kranz, 2015). Aria &Cuccurullo (2017) proposed a "bibliometrix tool" (programmed in R) for performing comprehensive science mapping analysis.

Figure 1 shows the inclusion and exclusion criteria. The web of science database has been used to conduct this bibliometric study. The keywords have been used as "Fintech and innovation". We adopted the inclusion criteria "business, management, economics and business finance". The other social sciences disciplines were excluded. The total period was all years, but for this study, the time frame was 2017 to 2022 as the fintech development has taken place during this period. The 124 articles as the final sample were selected.

Search Criteria

Keywords: fintech and innovation (All Fields) and English (Languages) and Article (Document Types) and Business or Business Finance or Economics or Management (Web of Science Categories).

Figure 1: Selection Criteria
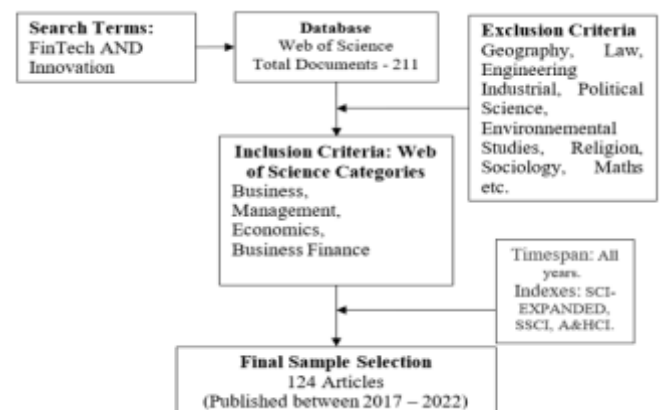
1. Data Analysis

Table 1 shows the key information about the web of science database search.

Table 1: Main Information about Data

| Description	Results
Timespan	2017:2022
Sources (Journals, Books, etc)	98
Documents	211
Annual Growth Rate %	103.62
Document Average Age	1.16
Average citations per doc	13.64
References	1
DOCUMENT CONTENTS	
Keywords Plus (ID)	631
Author's Keywords (DE)	735
AUTHORS	
Authors	571
Authors of single-authored docs	19
AUTHORS COLLABORATION	
Single-authored docs	19
Co-Authors per Doc	3.03
International co-authorships %	45.97
DOCUMENT TYPES	
Article	181
article; book chapter	2
article; early access	28

Source: Biblioshiny (Bibliomatrix r Studio Package)

Table 2 shows the total number of papers published from 2017 to 2021. The number of publications is increasing year by year with 103% growth rate.

Table 2: Annual Scientific Production

Year	Articles	Cumulative Records	Percent
2017	2	2	1.09
2018	12	14	6.56
2019	13	27	7.10
2020	30	57	16.39
2021	56	113	30.60
2022	70	183	38.25

Source: Biblioshiny (Bibliomatrix r Studio Package)

Figure2 shows the country-wise publication details and network visualization. We can see that the universities from China, the USA, and the UK are the major contributors to academic publications.

**Figure2: Country Wise Publication Details: Network Visualization**
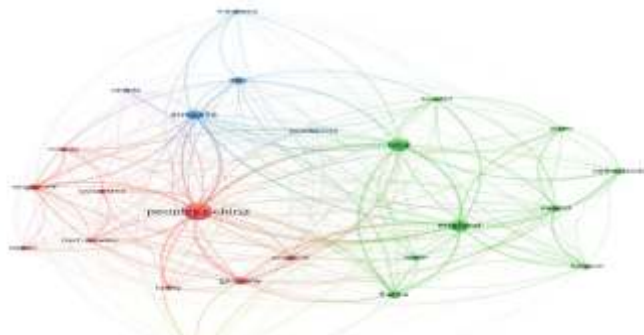
Source: Compilation from vosViewer

Table 3 and figure 3 show an account of sources of publications and total articles. According to Bradford's Law of Scattering (Andres, 2009; Drott & Griffith, 1978), the journal listed from Rank1 to 8 fall into zone 1 with 70 publications. The rest of the publications fall in zone 2.

Table 3: Sources of Publications

	Most Relevant Sources					
Rank	**Sources**	**Articles**		**Rank**	**Sources**	**Articles**
1	FINANCIAL INNOVATION	20		14	ACCOUNTING AND FINANCE	3
2	TECHNOLOGICAL FORECASTING AND SOCIAL CHANGE	16		15	EMERGING MARKETS FINANCE AND TRADE	3
3	FINANCE RESEARCH LETTERS	8		16	JOURNAL OF CULTURAL ECONOMY	3
4	EUROPEAN BUSINESS ORGANIZATION LAW REVIEW	6		17	JOURNAL OF INNOVATION & KNOWLEDGE	3
5	ELECTRONIC COMMERCE RESEARCH AND APPLICATIONS	5		18	MANAGERIAL AND DECISION ECONOMICS	3
6	INTERNATIONAL REVIEW OF FINANCIAL ANALYSIS	5		19	NEW POLITICAL ECONOMY	3
7	JOURNAL OF BUSINESS RESEARCH	5		20	NORTH AMERICAN JOURNAL OF ECONOMICS AND FINANCE	3
8	REVIEW OF FINANCIAL STUDIES	5		21	PACIFIC-BASIN FINANCE JOURNAL	3
9	SMALL BUSINESS ECONOMICS	5		22	REVIEW OF INTERNATIONAL POLITICAL ECONOMY	3
10	EUROPEAN JOURNAL OF FINANCE	4		23	ECONOMIC MODELLING	2
11	INTERNATIONAL JOURNAL OF BANK MARKETING	4		24	ECONOMIC RESEARCH-EKONOMSKA ISTRAZIVANJA	2
12	RESEARCH IN INTERNATIONAL BUSINESS AND FINANCE	4		25	ECONOMICS OF INNOVATION AND NEW TECHNOLOGY	2
13	TECHNOLOGY ANALYSIS & STRATEGIC MANAGEMENT	4				

Source: Biblioshiny (Bibliomatrix r Studio Package)

Figure3: Bradford's Law of Scattering
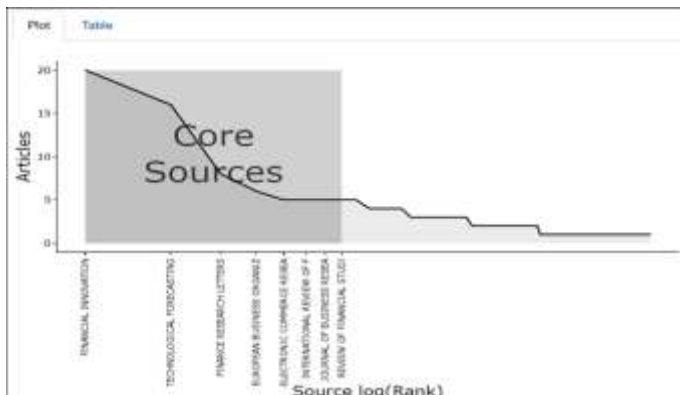
Source: Biblioshiny (Bibliomatrix r Studio Package)

Below figure 4 shows the prominent university in publishing on fintech innovation.

Figure4: Most Relevant Affiliations
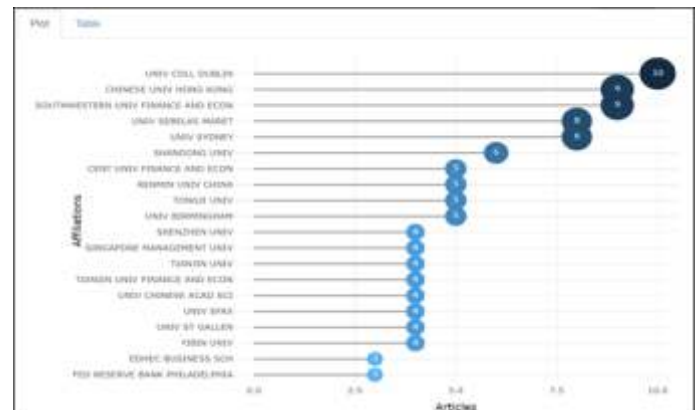
Source: Biblioshiny (Bibliomatrix r Studio Package)

Table 4 and **Figure 5** shows the corresponding authors' country. We can see that China, USA,UKand Australia are the major contributers to the theme of fintech innovation.

Table 4: Top 10 Corresponding Author's Country

Sl. No.	Country	Articles	SCP	MCP	Freq	MCP_Ratio
1	CHINA	61	44	17	0.289	0.279
2	USA	24	11	13	0.114	0.542
3	UNITED KINGDOM	23	11	12	0.109	0.522
4	AUSTRALIA	14	4	10	0.066	0.714
5	GERMANY	9	5	4	0.043	0.444
6	ITALY	9	7	2	0.043	0.222
7	FRANCE	8	1	7	0.038	0.875
8	SPAIN	7	5	2	0.033	0.286
9	NETHERLANDS	4	2	2	0.019	0.5
10	SOUTH AFRICA	4	2	2	0.019	0.5

Figure 5: Corresponding Author's Country
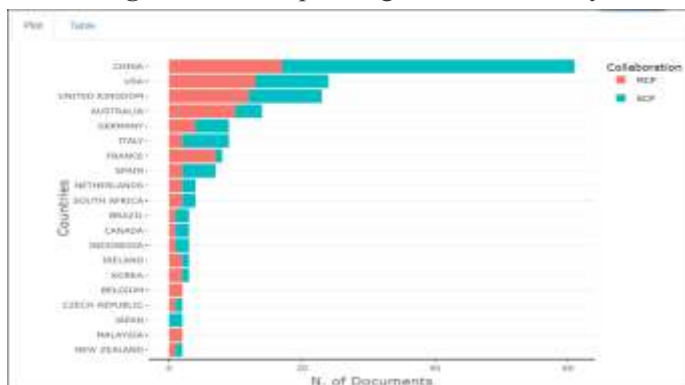
Source: Biblioshiny (Bibliomatrix r Studio Package)

Word cloud is shown in figure 6. A "word cloud" is a graphical depiction of the frequency of individual words. When a term is found inside the text being analyzed more often, it results in a more excellent representation of that term in the picture created. Word clouds are increasingly being used as a straightforward instrument to determine the primary topic of written content.

Figure6: Word Cloud

Source: Biblioshiny r Package

Figure 7 discusses the thematic analysis of the selected articles. The figure has been obtained from the Biblioshiny r studio package. Thematic analysis is locating, investigating, and reporting on recurrent topics or themes within a body of data under study. It organizes data collection and explains it in rich detail (Braun & Clarke, 2006).It is possible to investigate the conceptual development of a study topic using a thematic map derived from co-word network analysis and the clustering of author keywords. Each cluster's centrality value, density value, and occurrence (represented by the bubble size) are used to depict author keyword clusters on the map(Andres, 2009; Mas-Tur et al., 2021). The below map can then be used to make inferences about the structure of the field. The results are interpreted based on the relative positions of the points and their distribution along the dimensions; as words are more similar in distribution, the closer they are represented on the map.

Figure7: Thematic Map
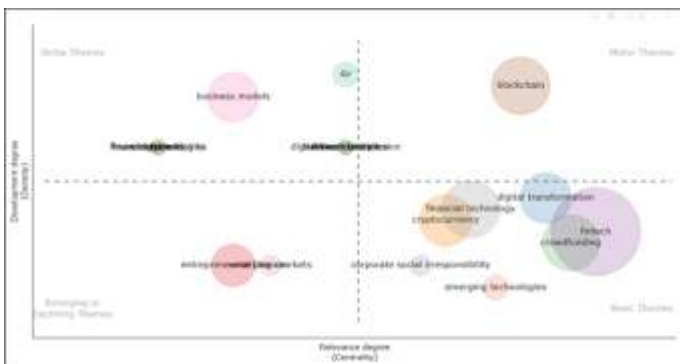
Source: Biblioshiny r Package

There are two distinct methods to describe what is known as a cluster. It may be seen as a point inside a more extensive network, one distinguished by its location, which means the collection of connections that connect it to other clusters and issues within the more prominent network position. Second, it may be seen as a collection of words that are related to one another; in and of itself, it defines a network that is either more or less dense, as well as one that is either more or less coherent and solid (Courtial et al., 1991).

Figure 8: Thematic Network Map
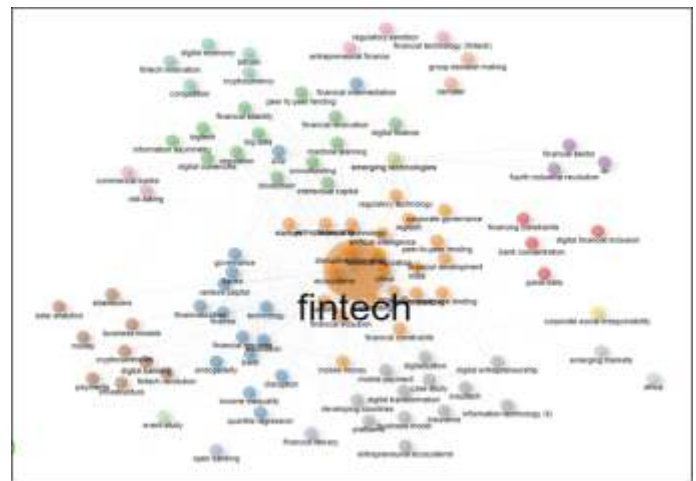
Table 5: Clusters

Sl. No.	Cluster	Keywords
1.	Innovation	Innovation, information, technology, competition, transformation, internet, blockchain, services, trust
2.	Impact	Impact, performance, growth, model, risk, fintech, market, ownership, determinants, models, strategies, industry
3.	Adoption	Systems, adoption
4.	Management	Governance, management, credit, finance, networks and markets
5.	Firms	Investment, evolution
6.	Strategy	Business, strategy

Below, Figure 8 presents the conceptual structure of the keywords connected with the publications on fintech innovations included in this research. It condenses a large amount of data containing several keywords into a space with a lower dimension, producing an understandable graph that is either two or three-dimensional. It uses the distance between the keywords to show the degree of similarity between them. The closer a keyword is to the centre of the circle, the more attention that keyword has received during the last several years (Xie et al., 2020). The significance of the findings is determined by looking at how the points are distributed throughout the dimensions and their relative locations. When two words have a distribution that is more like one another, the map will reflect them more closely (Aria &Cuccurullo, 2017).

Refer Table 6 in Appendix
Figure. 8: Conceptual Structure Map
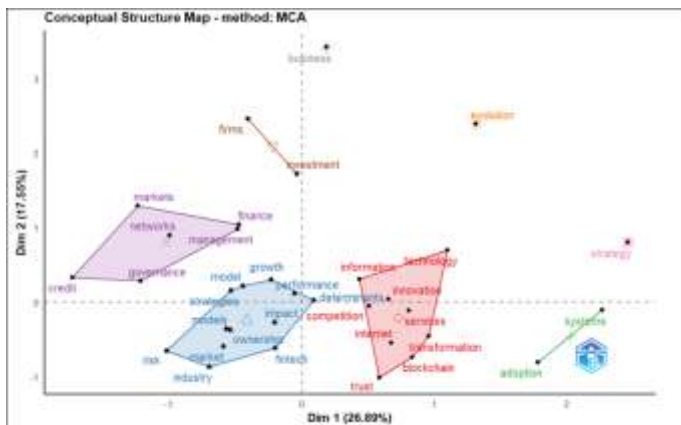
Source: Biblio shiny r Package

Summary & Conclusion

This bibliometric study intends to map the academic output during 2017-2021. This review article attempts to answer the following questions: what is the trend of scholarly publications in fintech innovation? Which county and university are contributing the most to developing literature? What are the major themes regarding fintech innovations in Finance and banking? The study followed Rowe's (2014) approach to uncovering the body of knowledge on fintech innovation. Table 6 tracks the argumentative strategy regarding theoretical background,

methodology and outcome (refer to table 6).

It can further be argued and concluded that financial market flaws, i.e., particularly information asymmetries, market segmentation, and transaction costs, restrict financial access to one stratum of society. In contrast, emerging Fintech allow financial inclusion (Demir et al., 2022).Value creation is done with the help of technological disruptions in banking and financial services. Conventional financial service providers are facing stiff competition from Fintech and BigTech firms. There are opportunities and space available in financial markets because many untapped consumers may not have a credit history but have mobile phones and internet access. Fintech firms are exploring the opportunity by delivering financial services on mobile phones. Consumer adoption is further fuelling tech-based disruptions.

Limitations and future research directions

Academic writings are unique in nature but not without certain limitations. (i) The present study is based on a search on the web of science database. Future studies can also incorporate the Elsevier database and others to have a more refined and extensive literature search. Since technological disruptions are a recent phenomenon, not much literature could be explored. (ii) Over a period, as the trend indicates, publications will be done to advance the body of knowledge; future research can be directed to country-specific fintech innovations. (iii) The regulatory framework and market environment deviations may cause different types of financial products and services. Researchers can consider the regulatory sandbox a potential area for further exploration. (iv) The present study is limited to bibliometric review only. Future research can be based on empirical evidence ina different context. (v) There is ample scope to explore consumer adoption and fintech services. The present study is helpful for policymakers, banks and fintech professionals, researchers, and academicians.

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Table 6: Review of Selected Papers

Sl. No.	Theoretical Perspectives	Authors	Nature of the study	Methodology	Method	Context	Implications / Findings
1	Business model	(Jocevski et al., 2020)	Exploratory	Multiple Case Study	Semi-structured (face to face)	Two Case - SEQR, and Beam Wallet (Dubai)	The emergence of small competitors across several market segments supplying current and unique services utilizing emerging technologies is transforming an established industry with huge players. As a result, the collaborative and competitive fabric of the broader ecosystem is being altered.
2	Concourse theory	(Wingreen et al., 2020)	Qualitative	Q-methodology (Mixed method)	Q-sort as the means of measurement.	Values and value systems held by the Bitcoin community about Bitcoin.	There are five distinct types of value systems for bitcoin (Fintech, Libertarians, Purists, Average Joe, and Gentrifier).
3	Disruptive Innovation	(M. A. Chen et al., 2019)	Valuation approach	Valuation method	Patent filings data is the Bulk Data Storage System (BDSS) provided by the U.S. Patent and Trademark Office (USPTO).	Organizations (e.g., banks and private investors) and institutions (e.g., governments and international regulatory agencies).	The value derived from advancements in Fintech is enormous, with blockchain proving to be especially useful. The Internet of Things (IoT), Robo-advising, and Blockchain are the Most Valuable Types of Innovations for the Overall Financial Sector. When innovations involve disruptive technology developed by non-financial startup companies, the value of such innovations has a larger negative influence on the financial industry.
		(Stoeckli et al., 2018)	Exploratory (interpretivism paradigm)	Multiple Case Study	Grounded theory	208 InsurTech innovations from a market analysis based on Twitter data.	The model incorporates pre-existing value networks and intermediation literature, consisting of 52 characteristics and 14 transformational capabilities. InsurTech influences the generation of value at the company level and indicates that disruptive potentials come from aligning the transformative capabilities along three activities that depend on one another. The latter helps to understand the emergence of digital intermediaries and their functions in the personal insurance market.
		(Li et al., 2017)	Quantitative approach	Experimental	Panel data	dollar-volume of FinTech funding on incumbent banks' stock returns.	There is a favourable correlation between the stock returns of incumbent retail banks and the financing or agreements involving FinTech companies.
		(Palmié et al., 2020)	exploratory qualitative	Constant comparison techniques (empirical patterns in a large and complex data	Seventy-eight expert interviews with senior-level executives. White papers,	organizations (e.g., banks and private investors) and institutions (e.g., governments and international regulatory	Crowdfunding and blockchain technology both result in the creation of new intermediaries. The factor of trust has a favourable influence in some aspects of Finance, but not all.

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					set)	reports, and blogs	agencies).	
		(Gruin& Knaack, 2020)	exploratory	Review	Narrative	China's financial system	It is possible to trace the expansion of shadow banking and Fintech—which facilitates nonbank credit intermediation through wealth management products and online lending platforms—back to the same reform and development arc.
		(Cai, 2018)	exploratory		402 papers published between 2010 and 2018,	Economics and Finance research regarding two applications of FinTech:	Crowdfunding and blockchain - are two innovations that may disrupt traditional financial intermediation in different ways; (i) crowdfunding platforms substitute for traditional financial intermediaries and serve as a new intermediary without eliminating the need for intermediation; (ii) similar to crowdfunding, blockchain also creates new intermediaries; and (iii) the trust element inheres in both innovations.
4	FinTech Ecosystem	(Basole& Patel, 2018)	exploratory	Descriptive insight into the structure of the FinTech ecosystem using data-driven visualizations.	Data from Crunchbase, a socially curated (wiki style) directory of global technology companies, people, and investors.	FinTech ecosystem using data-driven visualizations of 6,493 global companies across 24 market segments.	Introducing small firms across several market categories that supply current and unique services utilizing emerging technology is transforming an established industry with giant players, altering the broader ecosystem's collaborative and competitive fabric.
		(Mamonov & Malaga, 2018)	-	-	Project success is the dependent variable	One hundred thirty-three ventures attracted more than $11 million in funding commitments across sixteen Title III equity crowdfunding platforms.	The impacts of market risk, execution risk, and agency risk in equity crowdfunding as outlined.
5	Technological Innovation	(Bernards& Campbell-Verduyn, 2019)	Review	Review	Narration	Studying technological change through infrastructures. Materiality, Spatiality, Power	Infrastructures either facilitate operations in disparate locations by linking them or permit transactions that span geography and time in a specific manner.
		(Wang et al., 2021)	Quantitative approach	Experimental	DEA - Malmquist non-parametric method to evaluate the multi-input	banking industry and to calculate the TFP of commercial banks, then analyze the impact of Fintech on the efficiency	The rise of fintech results in higher profitability, financial innovation, and enhanced risk control for commercial banks.

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					and multi-output effects	of commercial banks.	
		(Kimani et al., 2020)	Review	SLR	-	-	The potential applications of blockchain technology across various business domains, including corporate governance, international commerce, taxes, and banking and capital markets. Blockchain technology may be leveraged by businesses and regulators to improve the efficiency of corporate activities, hence lowering the costs of such operations.
		(Gozman et al., 2018)	exploratory	Multiple Case Study	semi-structured interviews interpretive techniques	402 fintech startup firms	Fintech may be characterized by its core services, business infrastructures, and underlying component technologies, all of which should be categorized through developing fintech clusters. Fresh insights were provided into the huge variety of emerging innovations and technology that are currently transforming the global financial services business.
6	Innovation Adoption	(Iman, 2018)	exploratory	Mixed Methods (Multiple Case Study) Oi Paggo (Brazil), TCASH (Indonesia), and M-PESA (Kenya)	In-depth interviews (19) Pattern-matching strategy (Yin, 1994, 2003) Comparing empirical patterns with an alternative or estimated one.	Secondary sources and analyzed 126 patents on mobile payment systems worldwide. Primary quantitative data sources came from a sector specific database, GSMA and the International Telecommunication Union (ITU).	Hundreds of mobile payment options that had been tested but were unsuccessful emerged, alongside a few new mobile payment ideas for the future that had some potential but were still unsure.
7	Innovation Mapping	(Gomber et al., 2018)	Review	Innovation mapping	Narrative	Operations management in financial services, technology innovations (payments), cryptocurrencies, blockchain, and cross-border payments;	The analytical lens of the innovation mapping technique is another helpful lens through which to examine recent developments in Fintech concerning international payments, global remittances, and Forex applications.
8	Institutional theory	(Cojoianu et al., 2021)	Quantitative approach	Experimental	Patent filings (PatSeer-links patents with the companies that own them)	21 OECD countries, 226 regions and over the 2007-2014 period.	"A beneficial and dynamic influence may be seen throughout the entrance and funding phases of startups when new information is developed in various diverse situations. The knowledge developed in the information technology sector is far more relevant for encouraging

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							new startups in the financial technology industry than the knowledge generated in the financial services sector. The total amount of fintech investment is lower in geographical areas with historically low average confidence levels in the incumbents of financial services."
9	Market power theory (Klein, 1971)	(Lu et al., 2020)	Quantitative approach	Experimental	Secondary Data	OTC market and the GEM in China from 2007 to 2017, covering the period of financial inclusion promotion.	When the structure of the banking industry altered, with new financial institutions participating in competition due to the promotion of financial inclusion, major banks had to engage in the match to maintain their market share.
10	Social Capital theory	(Alaassar et al., 2020)	Qualitative (exploratory-abductive approach)	Gioia method	Purposive sampling procedure semi-structured interviews conducted.	A total of 15 regulatory sandboxes were identified as relevant.	To comprehend the relationships between regulators and regulated, mainly because information transmission involves social contact
11	Strategy Adaptation	(Hammerschlag et al., 2020)	Exploratory qualitative	Thematic analysis	Semi-structured interviews at 14 African fintech firms.	African fintech firms (marketing strategy)	To effectively traverse the climate, African fintech companies use a marketing approach that is value proposition oriented and works from the bottom up.
12	TAM	(Contreras Pinochet et al., 2019)	Quantitative approach	Experimental	(SEM)	FinTechs in the context of Brazilian credit service.	The intention of prospective users to embrace new technology is jointly determined by two factors: how beneficial the technology is regarded to be and how easy it is believed to be to use.
		(Jonker, 2019)	Quantitative approach	Experimental	Survey	768 retailers in the Netherlands	Regarding e-commerce, third-party service providers that function as intermediaries play a significant role as facilitators of competition and innovation by making markets more accessible to consumers. Consumers' lack of demand for cryptocurrencies is the greatest challenge to their widespread adoption. Because of this, it does not seem that there will be significant growth in the use of cryptocurrencies by online shops in the foreseeable future.
		(Milian et al., 2019)	Review	SLR	Bibliometric analysis Content Analysis (WoS)	FinTech ecosystem using data-driven visualizations of 6,493 global companies across 24 market segments.	Focused on the invention of research subcategories (technology adoption/network externalities), blockchain, and security. These topics reflect the current most sensitive elements connected to the overarching subject of digital transformation.

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						179 publications	Companies that develop, market, and purchase financial technology services, as well as investors that provide funding and make these activities possible
13	Use-inspired	(Breidbach et al., 2020)	Use-inspired	discovery-oriented	computational text-mining approach LexisNexis database	1,545 published practitioner articles associated with Fintech,	By first recognizing the management obstacles or concerns linked with the phenomena of Fintech and the digital transformation of financial services, this article will discuss both topics.
14	UTAUT & Prospect Theory	(Senyo&Osabutey, 2020)	Exploratory	Experimental	Questionnaire PLSSEM.	Perception of respondents on each variable in the model (7 points), 294 respondents.	"The actual application of the advances made in Fintech will lead to an expansion of financial inclusion. Expectations about performance and amount of work put in considerably impact whether someone would utilize mobile money services."
15	Entrepreneurial cluster	(Gazel&Schwienbacher, 2021)	Quantitative approach	longitudinal (panel data)	negative binomial regressions, Cluster analysis	972 fintech startups in France	Failure rates are increased when there is more competition within a particular subfield of Fintech. Additionally, the probability of failure for fintech businesses formed in an incubator is substantially lower than for those not.
16	Incomplete contract theory	(Hornuf et al., 2021)	Quantitative approach	Experimental	probit panel regressions.	Using hand-collected data covering the most prominent banks from Canada, France, Germany, and the United Kingdom, we provide detailed evidence on the different forms ofalliances occurring in practice.	However, banks commonly create product-related partnerships with more prominent fintech companies and invest more frequently in smaller fintech companies.
17	Theory of the evolutionary game	(Bu et al., 2021)	Exploratory	dynamic adjustment between FinTech companies and regulatory authorities through the evolutionary game method	Two-player evolutionary game model to depict the evolutionary game behaviour	China's FinTech industry	Strategic decisions made by FinTech companies are primarily influenced by the additional benefits derived from non-compliance innovation, the rewards derived from compliance innovation, and the penalty intensity made by regulatory authorities. On the other hand, strategic decisions made by regulatory authorities are primarily influenced by the costs of regulation, social evaluation, and the negative externalities that result from their decisions.