Visualization of Fintech Research Trends (Financial Technology) Using VOSViewer

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Abstract. Nowadays technology in the field of economics and financial services, almost everything can be done by users with the help of gadgets, such as payments, fund transfers, loans, fundraising, to asset management can be done quickly and briefly thanks to modern technology. Fintech or an abbreviation of financial technology is very popular among those who are active in finance and technology. Studies related to fintech research trends on the role or influence of fintech in financial services from 2010 to 2020 are still very limited. Therefore, this study aims to show trends in the last 10 years of articles regarding fintech (financial technology) in financial services. The trends in question include (1) authors, (2) author affiliations, (3) keywords, (4) research topic relationships with keywords, (5) citations, (6) popular websites, and (7) citation collaborations.. Publish or Perish software is used to search for articles in Crossref, Scopus, Google Scholar, Web of Science, Microsoft Academic and IEEE databases. Mendeley software is used to process references that have been collected and then extracted into a file with RIS format, then the RIS file is processed using VOSViewer to visualize fintech research trends about the role or influence of fintech in financial services from 2016 to 2021.

Keywords: Financial technology · VOSViewer · Fintech research trends

1 Introduction

When services are digitized, their once money-based business operations are converted into technology-based processes [1]. FinTech is the name given to the digital technology that is being used to accelerate the development of innovations in areas such as savings and loaning services, peer-to-peer (P2P), usage of social media, investing, financial markets, trading, and risk management [2]. In the period of the technological and economic revolution, the term "fintech" may refer to a technology as well as an invention that is geared toward the provision of superior services and technology within the financial services industry [3]. The fields of payment startups (payment gateways), financial management (wealth management), finance (crowdfunding), and lending are just few of the many areas that are experiencing rapid expansion because to advances in fintech (loans).

The application of technological fintech innovations may be a brand new break-through for promoting property method} and increasing money services to many millions [4]. FinTech permits businesses to gather and process info resources a lot of quickly to get information [5].

In addition to this, financial technology will make it easier for people to gain access to financial services and will encourage healthy competition among new companies [6]. There are three primary elements that contributed to the birth and growth of the financial technology industry [7]. The first factor is the recent development of innovative technologies such as huge data, distributed ledger technology, cloud computing, artificial intelligence, and machine learning [8]. The second problem is the decrease in trust that customers, businesses, and governments have had in large banks ever since the financial crisis of 2008 [9]. The acceptability of contemporary technologies, particularly among the younger generation of people who grew up with technology [10] is the third element that is discussed [11]. Therefore, efficient financial regulation is obviously important for the innovation and development of the long-term financial services company, particularly the financial services sector [12]. This is notably the case in the financial services industry. Due of the various improvements offered by fintech developers with the ongoing advances in technology [3].

Several previous studies have shown that FinTech is extremely important for financial services, however discussions on FinTech research trends are still terribly limited. There's no analysis on FinTech research trends regarding money services or FinTech' role and impact in financial services. Supported the above, i'm inquisitive about investigation FinTech research trends regarding the role and impact of FinTech in financial services from 2016 to 2021. Visualize 2021 in 2016.

2   Methodology

The technique utilized in this study adapts the variation of the bibliometric analysis method employed by Fahimnia et al. [10, 13]. The bibliometric method may be a method of evaluating analysis from varied literatures collected [14, 15]. The bibliometric method is additionally enclosed in quantitative research as a result of the measuring of the literature is dole out employing a applied mathematics approach [16, 17]. However, as a step to sharpen the results of the research similarly on answer the formulation of the matter during this research to be carried out, a bibliometric analysis will be carried out and explained qualitatively. The thought of analysers to look at issues in bibliometric analysis that's not solely quantitative however conjointly qualitative is predicated on the research of Velasco et al. [18] that states that the topics in bibliometric analysis are dole out and explained qualitatively and quantitatively. The outline of the steps that researchers can apply to research exploitation bibliometric analysis ways is as follows;

2.1   Keyword Definition

Keyword searches are adjusted to the research background and research titles, namely "fintech", "research of fintech" and "trend research of fintech".

2.2   Article Search

Search articles based on keywords that have been determined at the keyword definition stage and are searched in various journal indexing databases such as Crossref, Scopus, Google Scholar, Web of Science, Microsoft Academic and IEEE with the provisions of articles published a maximum of the last 5 years.

2.3   Classification of Article Search Results

This study solely analyzes articles from journals and proceedings in order that search results that seem like books, magazines et al. aren't analyzed. Then this study conjointly issued articles that weren't in English. The classification of article search results is meted out by analysis assistants with the availability of 1 publisher one day, this aims to get correct article classification results regarding the theme of fintech research trends (financial technology).

2.4   Classifying Articles Based on Publisher

After the article search results were met, this study analyzed solely articles revealed within the Elsevier, IEEE, Sagepub, Papers.ssrn, Springer, Taylor & Francis, and Wiley on-line Library journals. The selection of publication location for this text is meant to keep up the standard of the article from the published publication. In addition, articles that don't contain the keyword "Fintech" and don't seem to be regarding the subject "Research of Fintech" won't be analyzed.

2.5   Compiling Articles

All things analyzed are keep within the Mendeley software. Recheck all necessary data concerning the article, together with title, author name, summary, keywords, journal details (year of publication, year of publication, volume, issue, page) to make sure that the analyzed article is complete. confirm. The cross-checked articles are then exported to RIS and CSV formats and analyzed supported the placement and year of publication classification.

2.6   Data Processing Using Software

Articles that are compiled in RIS and CSV formats are then foreign into BibExcel and VOSViewer software package to see a listing containing title, author, journal name, year of publication, citations, affiliations, references and analysis topics. Then the ensuing output is within the variety of colored clusters that show the connection between each article and also the number of keywords. Thus from the coloured clusters it may be seen the quantity of keywords that seem in each article to understand the correlation of every revealed article and to draw conclusions from numerous studies on fintech trends.

2.7   Analysis Research Trend Fintech (Financial Technology)

The results of the image are then analyzed for author influence, affiliation statistics, keyword statistics, analysis topic analysis, citation analysis, PageRank analysis and co-citation analysis. Then more analysis was allotted on the articles that had passed the bibliometric analysis stage to induce an outline of the 2016–2021 Fintech (Financial Technology) analysis Trends.

3   Results and Discussion

3.1   Article Search

Initial search results for articles from various databases were 996 articles.

3.2   Classification of Article Search Results

Article search classification results provided articles that **weren't** recorded by the place of publication. Not **solely** to publish articles in non-English. This study **additionally** publishes non-minutes or journal articles **resembling** books and journals. In addition, this study analyzes only articles that contain citations (See Table 1).

3.3   Classifying Articles Based on Publisher

After the initial search results were met, this study analyzed solely articles printed in journals and minutes published in Elsevier, IEEE, Sagapub, Papers.ssrn, Springer, Taylor & Francis, and therefore the Wiley on-line Library. The selection of publication location for this journal is meant to keep up the standard of articles from published publications.

Table 1. Classification of article search results

Search Screening	Number of articles
Artikel not Publication	288
Artikel not In English (Indonesia, Arabic dan Chines)	20
Artikel not identified (journal/proceeding)	351
Articles that haven't any citation	149
Initial Search screening criteria	188
Total	996

Table 2. Comparison metrics

Source	Defining search keywords	Initial search results	Refinement of the search results
Papers	996	188	39
Citations	7432	4073	2122
Cites/Year	218.59	814.6	424.40
Cites/Paper	7.48	21.66	54.41
Author/Paper	2.00	2.35	2.36
h-index	38	31	20
g-index	80	60	39
hI-norm	28	22	17
hI-annual	0.82	4.40	3.40

3.4 Data Processing Using Software

Following the completion of the investigation, Citation/Paper 21.66 was comprised of a total of 188 publications. There were thirty-nine papers on Fintech-related themes and journals that were published by Elsevier, IEEE, Sagapub, Papers.ssrn, Springer, Taylor & Francis, and also the Wiley online Library. These articles were included in Citation/Paper 54.41. According to the findings of this study, when compared to other journals, the journals published by Elsevier, IEEE, Sagapub, Papers.ssrn, Springer, Taylor & Francis, and WileyOnlineLibrary have the greatest influence on the number of times their articles are cited in other works. The whole set of findings from the comparison of the metrics, both before and after the search was narrowed down, are presented in Table 2.

3.5 Fintech Research Trend Analysis (Financial Technology)

VOSviewer analysis is supported title and summary. The link with the things inside the VOSviewer user was set to five and sixty of the eleven02 items and variety of things hand-picked once analysis in VOSviewer. There are half-dozen clusters, and every cluster features a totally different number of keywords. That is, fourteen red clusters, twelve inexperienced clusters, 11 blue clusters, ten yellow clusters, and eight purple clusters. A cluster of 5 terms. (Illustration 1. Branch of knowledge mental image with VOSviewer with network visualization).

From Fig. 1, we are able to conclude that the ofttimes occurring keyword "fintech" is closely involving the keywords "bank", "innovation", and "research". This shows that analysis within the fintech field is usually related to banking and innovation that befell prior fintech technology, that is closely joined to the money system. Therefore, attention ought to be paid to those keywords for any research covering FinTech topics.
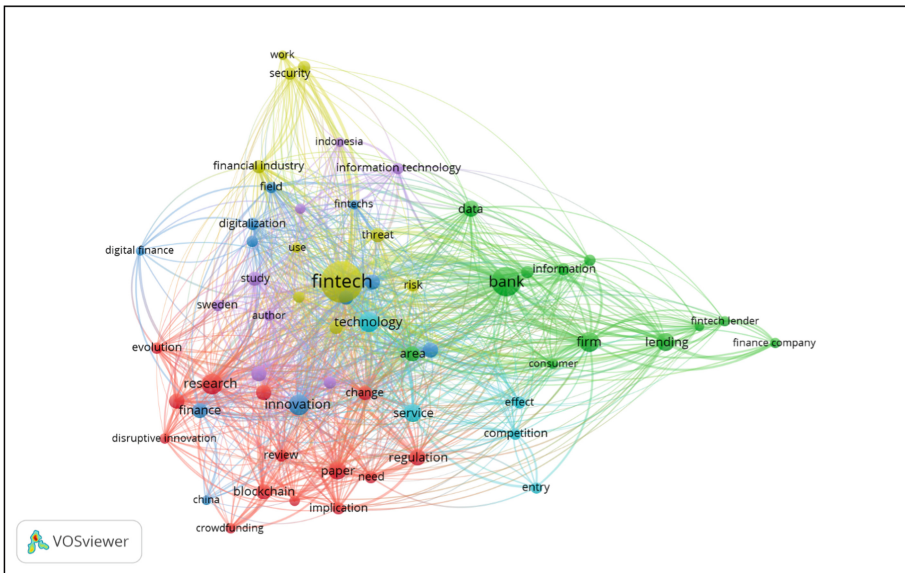
Fig. 1. Visualization topic area using VOSviewer using network visualization.

4 Conclusion

This survey uses bibliographical indicators to report on previous survey trends, with thirty-nine articles in journals printed by Elsevier, IEEE, Sagapub, Papers.ssrn, Springer, Taylor & Francis, and also the Wiley on-line Library, alongside topics concerning Fintech. I analyzed it. Overall, 996 bibliometric details were collected from the Google Scholar information victimization PoP software. The results of the survey show that the FinTech topic has become a brand new topic since 2016 and has accumulated dramatically in 2018 with published articles. In addition, articles published in publications cherish Elsevier, IEEE, Sagapub, Papers.ssrn, Springer, Taylor & Francis, and the Wiley on-line Library have the best impact on citations compared to alternative journals. This could be seen from the quantity of citations from thirty-nine articles/paper 54.41 compared to citations from 188 articles/paper 21.66.

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