A Bibliometric Analysis of Dropbox on Scopus Publication

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Abstract

Having a considered that online storage and sharing has becoming an essential to organised, stay focused and get in sync contents for all team members to enlighten way to work. Dropbox is the world's first smart work space which bring content of all team members together whilst letting users use the tool they want. Dropbox was initiated in 2008. Based on the usefulness and benefits of Dropbox, there are many kinds of research has been conducted on this topic. Therefore, this paper aims to analyse the scientific literature and report various types of published documents related to the Dropbox based on the data obtained from the Scopus Database by using Perish software to combine the obtained data, VOS Viewer Software to visualize the obtained data and Microsoft Excel to analysis the obtained data analysis. As of 27thApril 2020, there are 506 documents were retrieved and analysed based on the 'key words' search result thru database. By using standard bibliometric indicators, this paper reports the documents types, source types, publication years, language of publications, subject area, most active source title, keywords, distribution of publications by countries, authorship, text analysis, most active institutions and citation analysis. As the result show that 1) 81% of the articles were published in conferences proceedings and journals articles. 2) 91% of the articles were published in English. 3) There is an increased growth rate of literature on Dropbox since 1985. However, the growth rate is slightly lower from 2016 until 2018. 4) Computer Science is the most popular subject category with respect to the frequency of citations, Halevi, Harnik, Pinkas and Shulman-Peleg (2011)'s article appears as the most cited paper with an average of 30.44 citations per year. 5) Keywords of the Digital Storage, Cloud Storages and Cloud Computing were the top three keywords used in the database which represented the main areas of about Dropbox. 6) An analysis by country, The United States (US) is first country published most articles about Dropbox with 138 (27.27%).Meanwhile, 6) a total of 446 (88.14%) articles were published as multi-authored with a mean index of 3.55 authors per paper. Therefore, this research reviews of Dropbox published articles and delivers details of

growth of Drop box for these35 years. This may help in potential directions or reference for future research.

Keywords

Dropbox, Bibliometric, Scopus, VOS Viewer, Perish.

Introduction

Dropbox is one of the popular file hosting services that allows users tostore, share and retrieved files and folders through multiple computer, smartphone or other device by using a web browser, mobile application or desktop software [1]. The available of Dropbox client software are Microsoft Windows operating system (OS), Apple Mac OSX, Linux OS, Apple iOS, Android, Blackberry and Windows Phone devices [2]. Dropbox also offers cloud storage and file/folder synchronization to any other linked computers. This shows that Dropbox facilitate out-of-office work, easy to use, free, allows you to "beany where" and has most up-to-date copy. Besides that, Dropbox has feature that allow some mobile apps to link the apps to Dropbox account as storage [3].

As Dropbox was initiated in 2008, it was used by most of researchers to study the growth of technologies in their research. Therefore, the plan of this examine is to review and analyse the articles published about Dropbox using bibliometric analysis. Based on Pritchard [4], bibliometric is defined as the purpose of statistical and mathematics methods to books of communication. While, bibliometric analysis is a quantitative and qualitative method are helps to study the knowledge organization and development based on analysis of article publications indexed by databases [5]. This technique was used frequent to describe the knowledge details in a certain discipline and measure the performance of various disciplines effectively [6, 7].

The goals of this study include identifying the basic characteristics of the literature such as the number of articles, number of citations, research subject categories and representative journals. This paper also aimed in identifying the research influence of this research area such as representative countries, institutions and authors [6].

Literature Review

Dropbox was developed on June 2207 by two MIT graduates who are Drew Houston and Arash Ferdowsi [1]. On September 2008, Dropbox was released to the public and used by over 50 million users worldwide until now [8]. Dropbox is a storage services that offers

sharing and synchronization features which allow multiple users edit files without overwriting versions [1]. On April 2012, Dropbox announced a feature to allow users upload their filesby using a mobile device such as smartphone or tablet.

One of the Drop box attraction is the usability and simple interface design [1].This can be proved the number of searches for Dropbox at Google search engine on 2010 where Dropbox has beat the number of search for other similar services. This shows that Dropbox was the popular cloud storage service and act as one of the main players in the cloud storage market. This also can be prove by the number of traffic generated by the Dropbox is increasing rapidly [9]. According to Li, as cloud storage service, Dropbox has two different cloud computing infrastructures to store and synchronize files, which are1) Amazon S3 storage service which handle the files hosting physically such as handle a unique root namespace and the contents of user. Each user will have interface in their OS to upload, update and retrieve a given file thru Amazon 3 storage service. This lead to the synchronization of all remote servers by using‘ librsync’ function and 2) Amazon data centre which store data file for Dropbox as a user upload data to the cloud and the other user can retrieves that data as long it has Internet connection [10, 11].

Methods

This study aims to examine the trend and productivity of research on Dropbox using bibliometric analysis. Some of the bibliometric indicators will be presented in this study.

Bibliometric Analysis

Nowadays, a bibliometric study gains popularity as one of the methods in revealing the trend of studies [12]. Bibliometric methods initiates from all previous research in the selected database that contain large number of of bibliographic materials [13]. According to Sweileh and Waleed, bibliometric analysis is used in evaluating the quantity and quality of the published materials to monitor the trends or pattern of a specific research area [14]. Bibliometric analysis also can provide more detailed information and descriptive patterns related to the publications based on a year, source type, country, author type, keywords used, most articles published and number of citations [15, 16]. Hence, this bibliometric analysis help in identifying the growth and future paths of selected research [17].

There are various common indicators that have been used in bibliographic studies such as type of publication, authorship, affiliation and country [12]. These indicators can be a descriptive analysis collected based on the data sets provided from the chosen databases.

Specifically, bibliometric help in analyse and categorize bibliographic material by outlining descriptive reviews of the existing research. It also lead to previous researches applied this technique to analyse journals [18], universities [19], countries [20], topics, citation and c-citation analysis, co-occurrence analysis of keywords used and analysis of co-authorship [22].

Source and Data Collection

This study used Scopus Database in order to meet the objective of this study as Scopus database is one of the largest number of searchable citation and abstract source of literature [24] compared to Web of Science [14]. It also the largest number of single indexing database of literature [23]. Based on Rusly, Scopus Database contains about 36,000 titles of articles with 11,000 publishers that has beedn cited as references mostly in journals or literature in various subject fields such as social, computer science, physical, engineering, health, social science and life sciences [16]. Scopus Database also widely known and frequently used to retrieve forr quantitative analyses [25]. To further specify appropriate studies on the research area studied, this study limited the search of based on the title. The search keyword of 'Dropbox' was applied to the article title, keyword and abstract within the Scopus database on 27th April 2020. This keyword produced a total of 506 documents to further analyse. Scopus Database reveals 506 documents published about Dropbox between 1985 and 2020 which contain305 conference paper, 158 articles, 17 book chapter, 7 reviews, 6 short survey, 5 conference review, 2 editorials and erratum for each, 1 book and letter for each. The collected data have been exported as CSV as part of the data sets and a few tools such as Microsoft was used to category and cleaning the data sets. However, there was a total of 506 documents to be analysis after data cleaning was conducted. There are few of the analytical results were found from the obtained documents for analysis which are document type, source type, publication year, language, most subject area, keywords used, most country published the similar articles and author.

Results

To achieve a summary of the research related to Dropbox, some of the general statistics of the collected data are presented. All the documents that met the search keyword were evaluated and analysed based on the certain aspects which are documents type, source types, year and annual growth, language of publications, subject area, most active source title, keywords, keywords analysis, distribution of publications by countries, authorship, most active institutions or organization and citation analysis.

The results of this findings was retrieved on 27th April 2020 and most of the findings of this study were presented in frequency, percentage based on frequency and cumulative percentage of the frequency. This study presented and calculated the obtained data by using the bibliographic method for further analysis by using the data collected from the Scopus Database.

Document and Source Types

Firs of the most, collected data were analysed based on its document type and source type. Document type refers to the originality of the document types whether it article, review, short survey, conference review, editorial, erratum, book and letter even as source type refer to the type of source document whether it is conference proceedings, journals, books, book series, and trade publications [14].

A conference paper of document type categorization might be not same with appears of the source type [14]. For example, a document presented in a conference will be categorized as conference paper for document type but it might be categorized as journal, conference proceeding or book for source type. This is because the source type is depending on the publication status of the document [12].

As summarizes in Table 1, this study found that documents published about Dropbox spread into 10document types which are conference paper, article, book chapter, review, short survey, conference review, editorial, erratum, book and letter.

It shows most of the total publications is in a conference paper represented by 60.28%, followed by an article (31.23%). Other type of documents collectively represented less than 10% of the total documents. The five lowest types of the total documents were conference review, editorial erratum, books and letters, with less than 1% of each document type.

Table 1 Document Type

Document Type	Frequency	% (N=506)
Conference Paper	305	60.28
Article	158	31.23
Book Chapter	17	3.36
Review	7	1.38
Short Survey	6	1.19
Conference Review	5	0.99
Editorial	2	0.40
Erratum	2	0.40
Book	1	0.20
Letter	1	0.20
Undefined	2	0.40
Total	**506**	**100.00**

Meanwhile, Table 2 shows that the documents maybe categorized into five different source types where the highest source type is conference proceedings with 252 documents representing 49.80%, followed by journal with166 documents representing 32.81%. Book series and books also contribute a quite significantly at 11.26% (57 documents) to the total number of the publications. The two lowest contribution were from books and trade publications.

Table 2 Source Type

Source Type	**Frequency**	**% (N=506)**
Conference Proceedings	252	49.80
Journals	166	32.81
Book Series	57	11.26
Books	19	3.75
Trade Publications	11	2.17
Undefined	1	0.20
Total	**506**	**100.00**

Year of Publications and Evolution of Published Studies

Table 3 summarizes the number of annual document publications about Dropbox from 1985 to 2020. Analysis of the documents based on year of publication can help researcher to observe the pattern and status of the research subject over time [12]. As per Scopus records, the first publication about Dropbox was published on 1985by Bolle, Li and Mundy with their paper titled “Comparison of two samplers for quantitatively collecting larval fishes in upper littoral habitats”.

Figure 1 shows the number of publications about Dropbox between 1985 and April 2020.The growth of the related publications increase in 2010 until 2015. But, the publication activity about Dropbox was slightly dropped since 2011 until it starts increase in 2019 with an average of 58 publications a year since then. The highest number of publications on 2015 with total of 79 documents (15.61%).

Table 3 Year of Publications

Year	Frequency	% (N=506)	Cumulative Percent
2020	6	1.19	1.19
2019	52	10.28	11.46
2018	51	10.08	21.54
2017	55	10.87	32.41
2016	75	14.82	47.23
2015	79	15.61	62.85
2014	68	13.44	76.28
2013	63	12.45	88.74
2012	26	5.14	93.87
2011	20	3.95	97.83
2010	4	0.79	98.62
2008	1	0.20	98.81
2007	1	0.20	99.01
2006	1	0.20	99.21
2005	1	0.20	99.41
2004	1	0.20	99.60
1989	1	0.20	99.80
1985	1	0.20	100.00
Total	**506**	**100.00**	

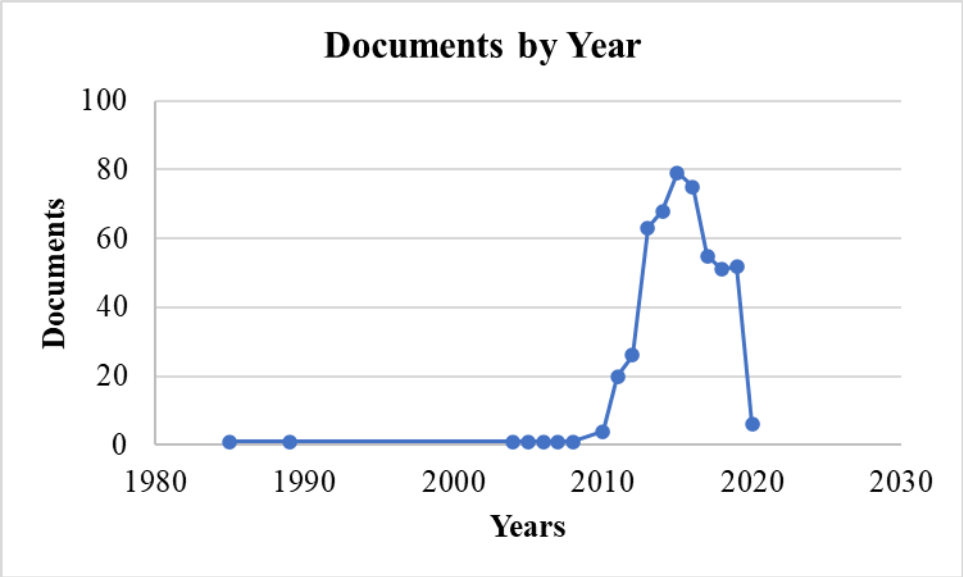

Figure 1 Document by Year

Languages of Documents

Table 4 shows that English is the common language used fromt he retrieved documents in this research area representing 492; 97.01% of the total documents. Some of the documents were published in a common encountered languages which are Spanish (4; 0.79%). However, there are 1 document were published in dual languages. Chinese, Japanese and Turkish languages were the last three unpopular languages used in the previous documents.

Table 4 Languages Used for Publications

Language	Frequency*	% (N=507)
English	492	97.04
Spanish	4	0.79
French	3	0.59
Italian	3	0.59
Portuguese	2	0.39
Chinese	1	0.20
Japanese	1	0.20
Turkish	1	0.20
Total	**507**	**100.00**

*1 document have been prepared in dual languages

Subject Area

Table 5 shows the categorises of the documents based on the subject area. As Dropbox is more focus on studies related to computer science, it can be found that subject area representing 43.43% of the total publications, followed by engineering (15.20%) and mathematics (10.01%). Other significant contributing subject areas include Social Sciences, Medicine, Decision Sciences and Business, Management and Accounting. The other subject areas covered about Dropbox research are shown in Table 5.

Table 5 Subject Area

Subject Area	Frequency	% (N=829)
Computer Science	360	43.43
Engineering	126	15.20
Mathematics	83	10.01
Social Sciences	50	6.03
Medicine	44	5.31
Decision Sciences	17	2.05
Business, Management and Accounting	32	3.86
Biochemistry, Genetics and Molecular Biology	13	1.57
Arts and Humanities	11	1.33
Materials Science	11	1.33
Physics and Astronomy	11	1.33
Earth and Planetary Sciences	9	1.09
Health Professions	9	1.09
Agricultural and Biological Sciences	8	0.97
Multidisciplinary	8	0.97
Economics, Econometrics and Finance	7	0.84
Environmental Science	7	0.84
Energy	6	0.72
Psychology	6	0.72
Chemical Engineering	4	0.48
Nursing	3	0.36
Chemistry	1	0.12
Immunology and Microbiology	1	0.12
Pharmacology, Toxicology and Pharmaceutics	1	0.12
Undefined	1	0.12
Total	**829**	**100**

*The publications are classified based on the source title categorisation. Some documents are categorized as more than one subject area

Most Active Source Titles

Table 6 shows that this paper also presents the most active source title that has three or more publications on Dropbox. The 506 documents appeared in 160 journals. It also shows the lists the journals with the most articles on board diversity. The leading journals are ACM International Conference Proceeding Series, Lecture Notes in Computer Science

Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics, and Communications in Computer and Information Science.

Table 6 Most Active Source Title

Source Title	No. of Documents	%
ACM International Conference Proceeding Series	7	1.38
Lecture Notes in Computer Science Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics	33	6.52
Communications in Computer And Information Science	7	1.38
Conference on Human Factors in Computing Systems Proceedings	5	0.99
Proceedings of the ACM Conference on Computer and Communications Security	5	0.99
Digital Investigation	4	0.79
International Journal of Applied Engineering Research	4	0.79
Lecture Notes of the Institute for Computer Sciences Social Informatics and Telecommunications Engineering Lnicst	4	0.79
Procedia Computer Science	4	0.79
Proceedings IEEE INFOCOM	4	0.79
Proceedings of the ACM SIGCOMM Internet Measurement Conference IMC	4	0.79
Technology Review	4	0.79
35th International Conference on Information Systems Building A Better World Through Information Systems Icis 2014	3	0.59
Advances in Intelligent Systems and Computing	3	0.59
Concurrency Computation	3	0.59
Engineering and Technology	3	0.59
Frontiers in Artificial Intelligence and Applications	3	0.59
IEEE Internet Computing	3	0.59
Indian Journal of Science and Technology	3	0.59
Proceedings International Computer Software and Applications Conference	3	0.59
Proceedings of SPIE the International Society for Optical Engineering	3	0.59
Turkish Online Journal of Educational Technology	3	0.59

Keywords Analysis

In keywords analysis, this paper drawn the keyword of authors in their own document using VOS viewer to construct and visualize bibliometric networks [12]. Figure 2 shows a network visualization of the keywords of authors produced by VOS viewer. The strength of the relationship amongst the keywords were represents in different of colour, circle size, font size and thickness of connecting lines [14]. The purpose of co-occurrence and keyword analyses are to shows that the keywords used by author itself adequately represent the content of document [26].

Related keywords with the same colour were usually listed together. Figure2 and 3 shows that some keywords have similar colour which are red, green, blue and yellow. It shows these keywords have are narrowly connected together. Based on the analysis, there are four clusters about Dropbox research has been developed based on the authors' keywords.

The first group which is coloured in red is the most commonly keyword used in the Dropbox Literature which are file sharing, information service, cloud storage services, information management. Personal clouds and synchronization. The second group which is coloured in green contain the keywords of cryptography, security, web services, mobile devices, cloud services and data privacy. The third group which is coloured in blue contain the keywords of cloud computing, internet, cloud, teaching, education and procedures. The fourth group which is coloured in yellow contain the keywords of cloud storage, Dropbox and Google Drive.

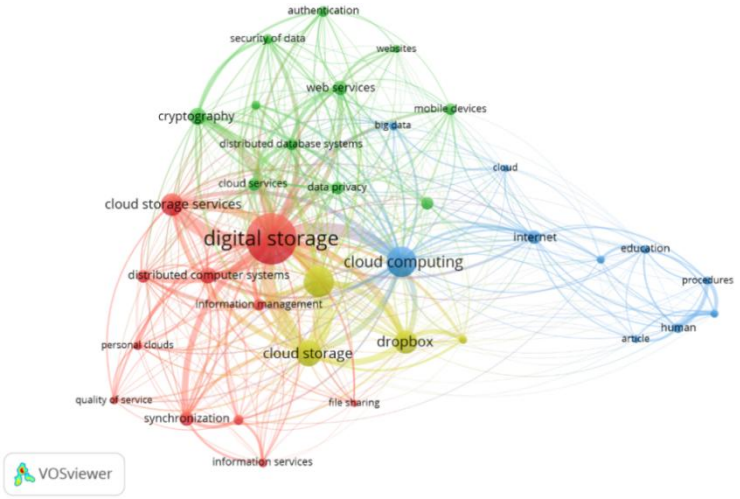

Figure 2 Network visualization map of the author keywords
Unit of analysis = Keywords
Counting method: Full counting
Minimum number of occurrences of a keyword = 15

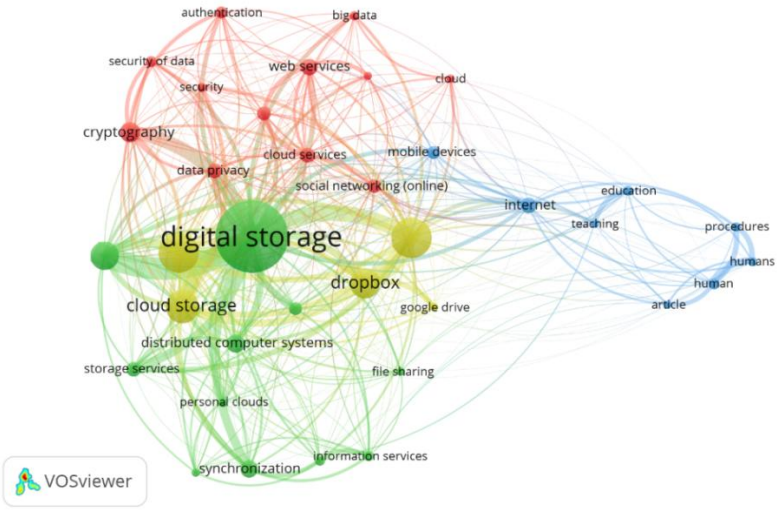

Figure 3 Network visualization map of the author keywords
Unit of analysis = Keywords
Counting method: Fractional counting
Minimum number of occurrences of a keyword = 15

Meanwhile Table 7 shows that keywords 'Digital Storage, Cloud Storages, Cloud Computing, Cloud Storage, Dropbox and Cloud Storage Services' were encounters as the highest occurrences authors' keywords after applied data cleaning by removing core keywords specified in the search. The core keywords related to a search query is 'Dropbox'. The top 20 keywords used in the Dropbox are shown in Table 7.

Table 7 Top 20 Keywords

Author Keywords	Frequency	Percent (%)
Digital Storage	163	32.21
Cloud Storages	85	16.80
Cloud Computing	84	16.60
Cloud Storage	69	13.64
Dropbox	60	11.86
Cloud Storage Services	58	11.46
Cryptography	40	7.91
Distributed Computer Systems	37	7.31
Synchronization	34	6.72
Web Services	32	6.32
Internet	31	6.13
Storage Services	29	5.73
Cloud Services	28	5.53
Data Privacy	28	5.53
Social Networking (online)	27	5.34
Distributed Database Systems	26	5.14
Information Management	25	4.94
Mobile Devices	25	4.94
Authentication	22	4.35
Human	21	4.15

Geographical Distribution of Publications - Most Influential Countries

Dropbox quite popular in research as contributed by 67 countries. This paper also analysis the number of publications by countries based on the affiliation institution of the author. Table 8 shows top 20 active countries that contribute to the publications in Dropbox research area are shown in Table 8. Based on the number of total citations of country, the United States (US) contributes the highest number of publication with a total of 138 documents representing 27.27% of the total publications about Dropbox, followed by China and India with a total of 45 documents representing 8.89%, Germany and Italy with a total of 30 documents representing 5.93%and the United Kingdom (UK) with a total of 28 documents representing 5.53%. While the top publishing countries in Asia are China.

Table 8 Top 20 Countries contributed to the publications

Country	Frequency	% (N=655)
United States	138	27.27
China	45	8.89
India	45	8.89
Germany	30	5.93
Italy	30	5.93
United Kingdom	28	5.53
Canada	22	4.35
Australia	20	3.95
Spain	20	3.95
Taiwan	20	3.95
Brazil	16	3.16
Switzerland	15	2.96
Malaysia	13	2.57
Singapore	13	2.57
Portugal	10	1.98
South Korea	10	1.98
France	9	1.78
Japan	9	1.78
Austria	8	1.58
Sweden	8	1.58

Authorship

Table 9 shows the number of author(s)based on per document. There are159 unique authors contributes to a total of 506 publications about Dropbox. There are51 (10.08%) documents were published as a single-authored while the remaining documents (446;

88.14%) were as multi-authored publications with the number of authors more than two. The highest number of authors written the publications about Dropbox is three (22.53%). Most of the articles about Dropbox were co-authored by two (21.74%) and four (19.57%) number of authors. There are some documents collected had no information about the author in this study. The document types are 5 conference review, 1 article, 1 erratum and 2 short survey document.

Table 9 Number of Author(s) per Document

Author Count	Frequency	% (N=506)
1	51	10.08
2	110	21.74
3	114	22.53
4	99	19.57
5	53	10.47
6	28	5.53
7	12	2.37
8	14	2.77
9	4	0.79
10	3	0.59
11	1	0.20
12	2	0.40
13	1	0.20
14	2	0.40
15	2	0.40
21	1	0.20
0*	9	1.78
Total	**506**	**100.00**

*No author is listed for this type of document

This study also shows the most active authors that published the documents about Dropbox, with a minimum of four publications. Based on the table, Li, Z. are among the most active author in this field of research that publish more than 10 publications about Dropbox.

Table 10 Most Productive Authors with a more than three publications

Author's Name	No. of Documents	Percentage (%)
Li, Z.	13	2.57
Drago, I.	9	1.78
Choo, K.K.R.	7	1.38
Dai, Y.	7	1.38
Farina, J.	5	0.99
Kechadi, M.T.	5	0.99
Liu, Y.	5	0.99
Liu, Y.	5	0.99
Nanni, L.	5	0.99
Scanlon, M.	5	0.99
Almeida, J.M.	4	0.79
Brahnam, S.	4	0.79
Mellia, M.	4	0.79
Ng, A.	4	0.79
Sun, C.	4	0.79
Sánchez-Artigas, M.	4	0.79
Vieira, A.B.	4	0.79
Xu, T.	4	0.79
Zhai, E.	4	0.79

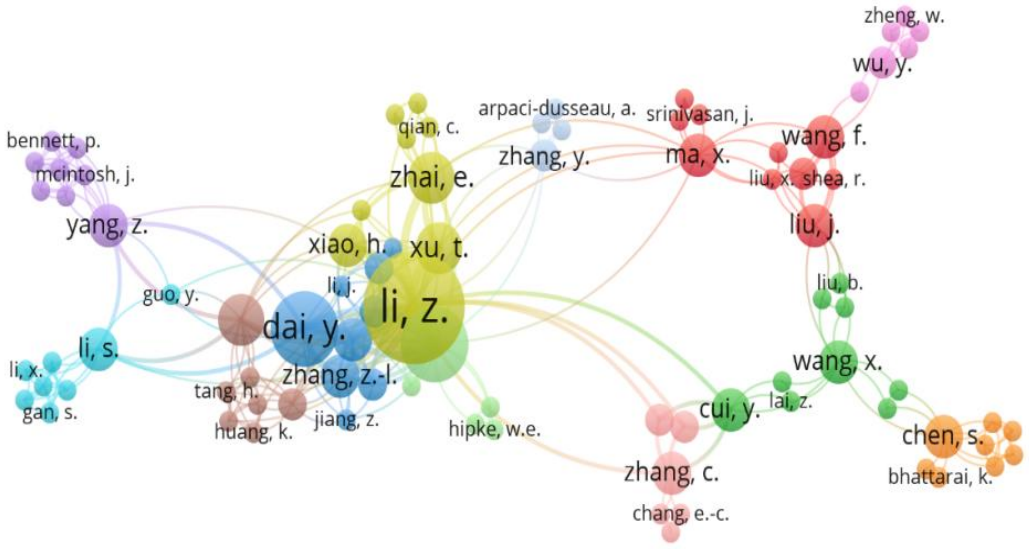

Figure 4 Network visualization map of the co-authorship
Unit of analysis = Authors
Counting method: Full counting
Minimum number of documents of an author = 1

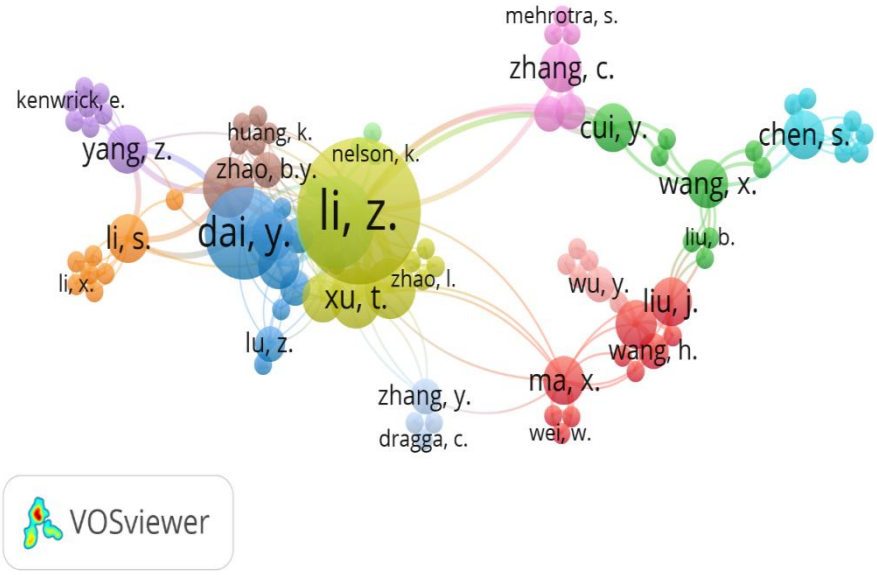

Figure 5 Network visualization map of the co-authorship
Unit of analysis = Authors
Counting method: Fractional counting
Minimum number of documents of an author = 1

Text Analysis

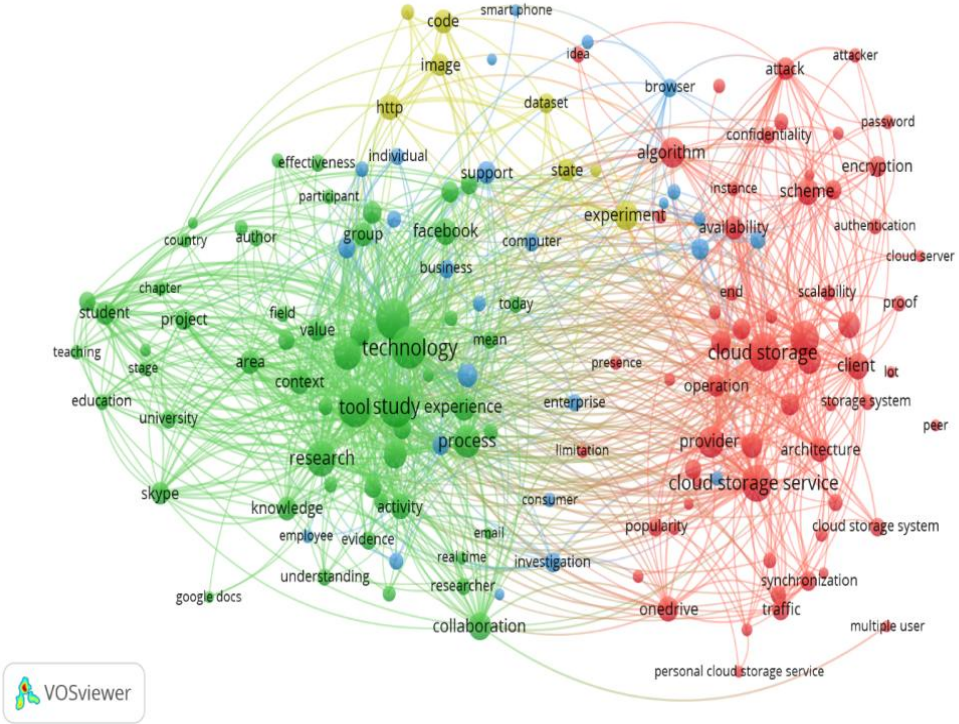

Figure 6 VOS viewer visualization of a term co-occurrence network based on title and abstract fields (Binary Counting)

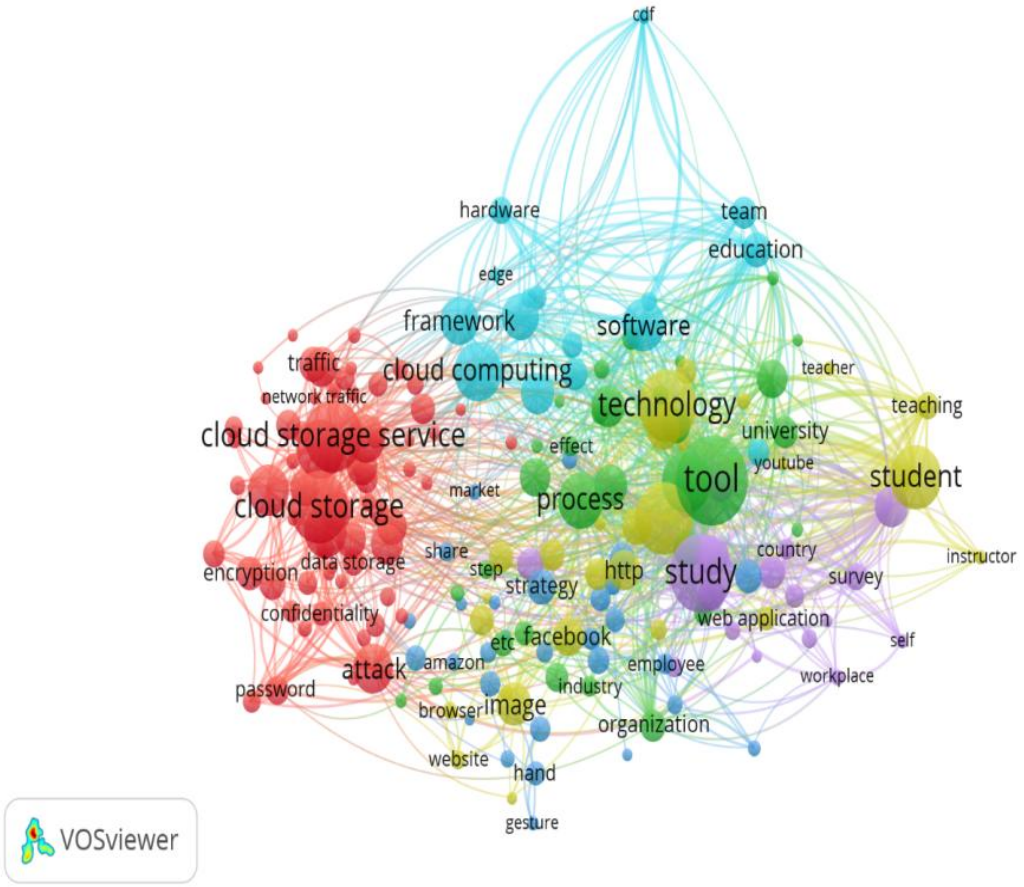

Figure 7 VOS viewer visualization of a term co-occurrence network based on title and abstract fields (Full Counting)

Figure 8 VOS viewer visualization of a term co-occurrence network based on title fields (Binary Counting)

Figure 9 VOS viewer visualization of a term co-occurrence network based on title fields (Full Counting)

Most Influential Institutions

The contribution of the institutions is the research related to Dropbox also has been counted in this paper such as based on a minimum of five publications. Table 11 shows that Tsinghua University has the highest number of publications about Dropbox. TPolitecnico di Torino become the second highest followed by Nanyang Technological University and Universitat Rovirai Virgili.

Table 11 Most influential institutions with minimum of five publications

Institution	Frequency	% (N=506)
Tsinghua University	17	3.36
Politecnico di Torino	9	1.78
Nanyang Technological University	8	1.58
Universitat Rovirai Virgili	8	1.58
Peking University	7	1.38
University of South Australia	7	1.38
National Chung Hsing University	6	1.19
Universidade Federal de Minas Gerais	6	1.19
University of California, San Diego	6	1.19
Universitàdegli Studi di Padova	5	0.99
University College Dublin	5	0.99
Chinese Academy of Sciences	5	0.99
Georgia Institute of Technology	5	0.99
European Organization for Nuclear Research	5	0.99
Binghamton University State University of New York	5	0.99
Microsoft Research	5	0.99

Citation Analysis

Table 12 reviews the citation metrics from the collected documents. Perish software is used to search for the citation metrics for the obtained documents. Collected data should extracted in RIS formatted from the Scopus database then imported into Perish software to produce the raw citation metric. It shows the average citation per year, citations per paper and author per paper for all retrieved documents. As shown, there are 4349 citations stated in 35 years (1985 – 2020) about Dropbox for 506obtained articles with an average of 124 citations per year.

Table 12 Citations Metrics

Metrics	Data
Reference Date	27/04/2015:31
Publication years	1985-2020
Citation years	35 (1985-2020)
Papers	506
Citations	4349
Citations/year	124.26
Citations/paper	8.59
Authors/paper	3.55
h-index	34
g-index	54
hI, norm	15
hI, annual	0.43
Papers with ACC>= 1,2,5,10,20	197,114,43,17,5

While Table 13 shows the Top 20 most cited documents about Drop box based on the number frequent document being cited per year. The document entitled "Proofs of ownership in remote storage systems" by Halevi, Harnik, Pinkas and Shulman-Peleg has acknowledged the highest number of citation with a total of 274 citations (30.44 citations per year).

Table 13 Highly cited articles - Most Influential Papers

No.	Authors	Title	Source	Year	Cites	Cites per Year
1	S. Halevi, D. Harnik, B. Pinkas, A. Shulman-Peleg	Proofs of ownership in remote storage systems	18th ACM Conference on Computer and Communications Security, CCS'11	2011	274	30.44
2	I. Drago, M. Mellia, M.M. MunafÃ², A. Sperotto, R. Sadre, A. Pras	Inside dropbox: Understanding personal cloud storage services	2012 ACM Internet Measurement Conference, IMC 2012	2012	248	31.00
3	M. Bellare, S. Keelveedhi, T. Ristenpart	Dup LESS: Server-aided encryption for deduplicated storage	22nd USENIX Security Symposium	2013	183	26.14
4	M. Mulazzani, S. Schrittwieser, M. Leithner, M. Huber, E.	Dark clouds on the horizon: Using cloud storage as attack	20th USENIX Security Symposium	2011	124	13.78

	Weippl	vector and online slack space				
5	K. Krombholz, H. Hobel, M. Huber, E. Weippl	Advanced social engineering attacks	Journal of Information Security and Applications	2015	122	24.40
6	D. Quick, K.-K.R. Choo	Dropbox analysis: Data remnants on user machines	Digital Investigation	2013	106	15.14
7	I. Drago, E. Bocchi, M. Mellia, H. Slatman, A. Pras	Benchmarking personal cloud storage	13th ACM Internet Measurement Conference, IMC 2013	2013	84	12.00
8	D. Quick, K.-K.R. Choo	Forensic collection of cloud storage data: Does the act of collection result in changes to the data or its metadata?	Digital Investigation	2013	83	11.86
9	L. Nanni, S. Ghidoni, S. Brahnam	Handcrafted vs. non-handcrafted features for computer vision classification	Pattern Recognition	2017	80	26.67
10	S. ArgimÃ³n, K. Abudahab, R.J. Goater, A. Fedosejev, J. Bhai, C. Glasner, E.J. Feil, M.T. Holden, C.A. Yeats, H. Grundmann, B.G. Spratt, D.M. Aanensen	Microreact: visualizing and sharing data for genomic epidemiology and phylogeography	Microbial genomics	2016	71	17.75
11	T. StÃ¶ber, M. Frank, J. Schmitt, I. Martinovic	Who do you sync you are? Smartphone fingerprinting via application behaviour	6th ACM Conference on Security and Privacy in Wireless and Mobile Networks, WiSec 2013	2013	69	9.86
12	C. Giardino, M. Unterkalmsteiner, N. Paternoster, T. Gorschek, P. Abrahamsson	What do we know about software development in startups?	IEEE Software	2014	61	10.17
13	W. Hu, T. Yang, J.N. Matthews	The good, the bad and the ugly of consumer cloud storage	Operating Systems Review (ACM)	2010	61	6.10
14	M.T. Scott, L.A. Nielsen	Young fish distribution in backwaters and	Journal of Fish Biology	1989	59	1.90

		mainâ€• channel borders of the Kanawha River, West Virginia				
15	R. Gracia-Tinedo, M.S. Artigas, A. Moreno-Martinez, C. Cotes, P.G. Lopez	Actively measuring personal cloud storage	2013 IEEE 6th International Conference on Cloud Computing, CLOUD 2013	2013	53	7.57
16	S. Shah, B.A. Bellows, A.A. Adedipe, J.E. Totten, B.H. Backlund, D. Sajed	Perceived barriers in the use of ultrasound in developing countries	Critical Ultrasound Journal	2015	51	10.20
17	M.T. Braun, F.L. Oswald	Exploratory regression analysis: A tool for selecting models and determining predictor importance	Behavior Research Methods	2011	50	5.56
18	R. Wang, L. Xing, X. Wang, S. Chen	Unauthorized origin crossing on mobile platforms: Threats and mitigation	2013 ACM SIGSAC Conference on Computer and Communications Security, CCS 2013	2013	47	6.71
19	Z. Li, C. Wilson, Z. Jiang, Y. Liu, B.Y. Zhao, C. Jin, Z.-L. Zhang, Y. Dai	Efficient batched synchronization in dropbox-like cloud storage services	14th ACM/IFIP/USENIX Middleware Conference, Middleware 2013	2013	45	6.43
20	C.-K. Chu, W.-T. Zhu, J. Han, J.K. Liu, J. Xu, J. Zhou	Security concerns in popular cloud storage services	IEEE Pervasive Computing	2013	44	6.29

Discussion

This study aims to examine the trend of research about Dropbox using bibliometric analysis. By adopting this bibliometric analysis, it can evaluate the performance of particular research area [27], explain aspects that support the involvement of studies in a research area and help researchers in the direction of making impactful studies [28].

Therefore, this study focuses on the publications about Drop box collected from the Scopus data base. This study found 506 documents from the Scopus database using the defined search query. The study about Dropbox was initiated by Jr. La Bolle, L.D., H.W.

Li and B.C. Mundy (1985) with the title "Comparison of two samplers for quantitatively collecting larval fishes in upper littoral habitats" which at the same time has been cited by13papers. Since then, the number of publications about Dropbox has increased until 2015. The number of publications was slightly declined after that and started to increase from 2019. Almost 50% of the documents were published as conference proceedings compared to other types of documents.

Most of publications were published in English and originated from 8recognizedcountries. The research about Dropbox is frequently published in the publications that group under computer science, engineering and mathematics subject area. The focus area of Dropbox can be seen from the results collected from VOS viewer in the keywords analysis. For example, the keywords of Digital Storage, Cloud Storages and Cloud Computing are the most common keywords found in the collected documents. The United States (US), China and India are top three countries contributed studies about Drop box. The impact of publications about Dropbox can be seen from the citation metric revealed in this paper. Based on the 35 years of publications (1985-2020), there are 506 documents have been published with a total of 4349 citations. Overall, there are 124.26 citations per year, 8.59citations per paper and 3.55 authors per paper for documents gathered from the Scopus data base about Dropbox.

The study also has limitations found in this study. First, the results only occurred from the specific keyword which is 'Dropbox' based on the title, keyword and abstract of the documents. Therefore, future research probably can be expanded by filtering and cleaning before the analysis can be conducted. Second, this study is only focused on the Scopus database as the main source of the documents. Even Scopus is among the most extensive databases that index all scholarly works [14], it does not naturally cover all available sources. Therefore, other available data bases can be involved in future research such as Web of Science, Science Direct and Google Scholar. By combining these three databases, it might contribute more interesting and valuable results. Despite these two limitations, this study has help in knowledge or research field by presenting the current trend of research about Dropbox.

Conclusion

As Dropbox is one of the most popular file hosting services, this has attracted extensive attention from researchers worldwide to study and deal with issues about Dropbox. This study creates some contributions to the Dropbox research area. First, it study the publication patterns by analysing document and source type, yearly publications, languages, sub-

ject areas, country, author contribution, institution contributions and abstract. Second, this study recognize the most leading studies and authors by mapping citation. Lastly, this study record the knowledge able structure by recognizing the most knowledgeable structure using citation analyses. This can help other researchers to further study.

This study reports the trend by using certain bibliometric indicators as obtained from Scopus database. Overall, bibliometric specifics of 506 documents were collected from Scopus Database. The results indicate that English becomes a primary language about 9 out of 10 of the collected documents. And there are great contributions of researcher works on this research area from the United States (US) and Asian countries. Also about 10% documents are single authored and almost 50% of the documents have either two or three authors.

Hence, this study offers a clear representation of research about Drop box using a bibliometric analysis. However, like other studies, it has limitations. Despite valuable insights presented by this study, readers should take into account several limitations such as some authors might record more than one name into Scopus or having it spelled differently [12]. Therefore, this will be affect in accuracy of the output of authorship and affiliation details. Quite importantly, this study confirmed the previous findings of similar study in the field of mobile technology in terms of growth and author-ship trends [14], Bibliometric Analysis of Global Scientific Literature on Web Accessibility [12], Bibliometric Analysis of Published Literature on Industry 4.0 [29] and Examining the Trend of the Research on eXtensible Business Reporting Language (XBRL) [30].

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