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Bibliometric Analysis of Literature Published in Emerald Journals on Cloud Computing

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Abstract

The present study is based on the bibliometric analysis of publications on cloud computing appeared in the emerald journals from 2000 to 2014. The bibliographical details of each publication on a cloud computing were downloaded from the emerald website and recorded in MS-excel for calculation. This study has undertaken total 781 publications, published on cloud computing which were appeared in different journals of emerald publication. Maximum number of articles 287 (37%) contributed by single author. Majority of the contribution among the published literature to cloud computing is from Library Hi Tech News and Library Hi Tech journals respectively.

Keywords: Cloud Computing, Bibliometric Analysis, Authorship Pattern, Emerald journals.

1. Introduction:

The widespread proliferation of the Internet has given rise to several innovative computer applications especially for the consumer use. The term Cloud refers to a Network or Internet. In other words, we can say that Cloud is something, which is present at remote location. Cloud computing is the delivery of computing services over the Internet. The concept of Cloud Computing came into existence in 1950 with the implementation of mainframe computers, accessible via thin/static clients. Since then, cloud computing has been evolved from static clients to dynamic ones from software to services. This dream of Cloud Computing of enabling computing, infrastructure as a utility has become a reality in just over twelve to fifteen years.

Emerald is a global publisher linking research and practice to the benefit of society. The company manages a portfolio of nearly 300 journals and over 2,350 books and book series volumes, as well as providing an extensive range of online products and additional customer resources and services. Its commitment to quality and relevance is reflected by a growing network of more than 106,000 advisers, authors and editors and nearly 5,000 customers in 130 countries worldwide. Its specialist collections are in the field of Library Studies, Education and Engineering build on this strength; offering focused international research in a range of subject fields. In 2013, more than 21 million Emerald articles were downloaded.

Bibliometrics is a set of methods used in the study or measure texts and information. Such studies have been applied mainly to scientific fields and are based principally on various metadata elements such as author, title, subject, citations, etc. related to scholarly publication within a discipline. It is a branch of Library and Information Science (LIS).

In this article we have analysed the publications on cloud computing published in various emerald journals, how cloud computing is emerged in the last fourteen years and so on.

2. Objectives:

2.1. To compile a bibliography on cloud computing published in emerald journals;

2.2. To find out the contributions on cloud computing from the discipline of Library and Information Science in emerald journals.

2.3. To know the authorship pattern in the publications of cloud computing in the emerald journals.

2.4. To study the growth of literature in the field of cloud computing as reflected in the emerald journals.

3. Methodology:

The available literature in emerald journals has been searched through advanced search option with the term "Cloud Computing" in content item title and period from 2000 to 2014. Bibliographic information was downloaded like title, author, and publication type, year of publication and source of publication. Totally 781 publications were identified on "Cloud Computing". The bibliographic details of collected publications were pasted in to excel and classified for the purpose of analysis.

4. Analysis and Discussion

Table – 4.1
Year-wise distribution of publications

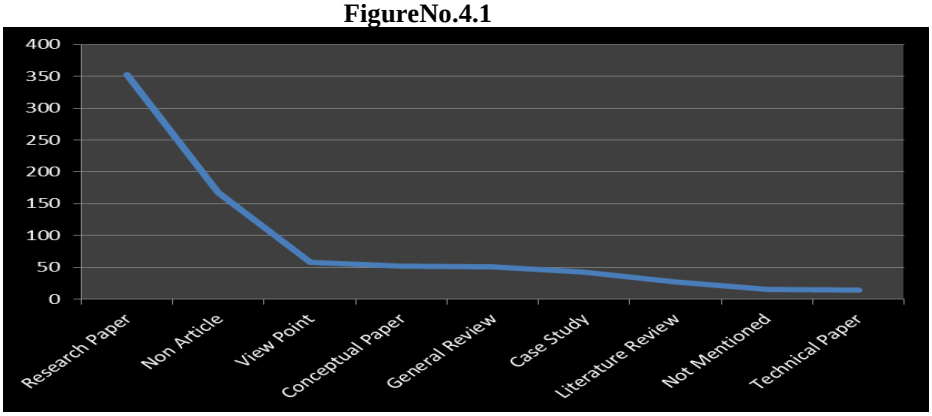
Sl. No.	Year	No. of Articles	%age
1.	2002	04	0.51
2.	2003	05	0.64
3.	2001	06	0.76
4.	2007	07	0.89
5.	2004	08	1.02
6.	2006	08	1.02
7.	2000	09	1.15
8.	2005	10	1.28
9.	2008	18	2.30
10.	2009	57	7.29
11.	2010	93	11.90
12.	2011	97	12.41
13.	2012	126	16.13
14.	2014	152	19.46
15.	2013	181	23.17
Total		781	100

Table-4.1 represents the year-wise distribution of publications on 'Cloud Computing' published in emerald journals. Total of 781 publications were published in the last fourteen years during 2000 to 2014. One hundred and eighty-one (23.17%) articles were published in the year 2013, followed by one hundred and fifty-two (19.46%) in the year 2014 till the month of July, and one hundred and twenty-six (16.13%) articles were published in the year 2012. It shows that, in the last three years publication of articles on ‘cloud computing’ is more compared to earlier years. Further it revealed that in the year 2002 lowest number of articles are published in different emerald journals.

Table – 4.2
Distribution of Publications by Nature of Record

Sl. No.	Nature of Articles	No. Of Articles	%age
1.	Research Paper	353	45.19
2.	Non Article	168	21.51
3.	View Point	58	7.42
4.	Conceptual Paper	52	6.65
5.	General Review	51	6.53
6.	Case Study	42	5.37
7.	Literature Review	27	3.45
8.	Not Mentioned	16	2.04
9.	Technical Paper	14	1.79
Total		781	100

FigureNo.4.1



Publications identified through search on 'Cloud Computing' which published in various emerald journals were categorized by nature of record as given in the table 4.2. It shows that, three hundred and fifty-three (45.19 %) publications are research papers, followed by one hundred and sixty-eight (21.51%) are non-article publications and fifty-eight numbers of (7.42%) view point publications. Sixteen (2.04%) articles are not mentioned which nature of article it is belonged. It is understood that, more number of Research Papers and non-article papers were published in the various emerald journals compared to other type of articles. Very few that is, fourteen publications are belonged to technical papers.

Table-4.3
Ranking of Journals by number of papers published

Sl. No.	Title of the Journal	No. of articles	%age
1.	Library Hi Tech News	87	10.92
2.	Kybernetes	36	4.60
3.	Library Hi Tech	26	3.32
4.	Info	25	3.20
5.	International Journal of Pervasive Computing & Communication	22	2.81
6.	Electronic Library	21	2.68
7.	Strategy & Leadership	21	2.68
8.	Online Information Review	20	2.56
9.	Information Management & Computer Security	19	2.43
10.	Journal of Enterprise Information Management	19	2.43
11.	Records Management Journal	19	2.43
12.	International Journal of Web Information Systems	15	1.92
13.	Strategic Direction	14	1.79
14.	New Library World	12	1.53
15.	Sensor Review	12	1.53
16.	3 Journals in which 11 articles each were published	33	4.22
17.	3 Journals in which 10 articles each were published	30	3.84
18.	5 Journals in which 9 articles each were published	45	5.76
19.	4 Journals in which 8 articles each were published	32	4.09
20.	5 Journals in which 7 articles each were published	35	4.48
21.	5 Journals in which 6 articles each were published	30	3.84
22.	10 Journals in which 5 articles each were published	50	6.40
23.	6 Journals in which 4 articles each were published	24	3.07
24.	16 Journals in which 3 articles each were published	48	6.14
25.	18 Journals in which 2 articles each were published	36	4.60
26.	50 Journals in which 1 article each were published	50	6.40
Total		781	100

781 identified publications on cloud computing were published in different emerald journals is shown in table-4.3. Highest number of papers eighty-seven in numbers (11.13%) publications were published in Library Hi Tech News and Kybernetes with thirty-six (4.60%) respectively, followed by twenty-six (3.32%) papers in Library Hi Tech. This table also shows that, fifty journals published only one publication each in the last twelve years. Further, it shows that, majority of the articles one hundred and thirteen (14.45%) were published from Library and Information Science (Library Hi Tech News & Library Hi Tech) subject journals.

Table-4.4
Subject-wise distribution of Journals

Sl. No.	Subject	Main Subjects	No. Of Jnls	%age
1.	Economics	Social Science 2.29	02	0.25
2.	Education		16	2.04
3.	Accounting	Commerce 2.04	07	0.89
4.	Finance		09	1.15
5.	Civil	Engineering 17.15	05	0.64
6.	Electrical & Electronic Engineering		09	1.15
7.	Engineering		18	2.30
8.	Information Technology		102	13.06
9.	Business Management	Management 35.54	20	2.56
10.	Corporate		03	0.38
11.	E-governance		11	1.40
12.	Entrepreneurship		04	0.51
13.	Hospitality		08	1.02
14.	Human Resource Management		10	1.28
15.	Industrial Management		18	2.30
16.	Information & Knowledge Management		64	8.19
17.	Management		108	13.82
18.	Marketing		12	1.53
19.	Rapid Prototyping Journal		08	1.02
20.	Organisation Management		12	1.53
21.	Computer Science	Science 42.97	42	5.37
22.	Electronics		34	4.35
23.	Environment		01	0.12
24.	Healthcare		01	0.12
25.	Innovation		02	0.25
26.	Library & Information Science		243	31.11
27.	Mathematics		08	1.02
28.	Science & Technology		03	0.38
29.	Textile		02	0.25
Total			**781**	**100**

Table-4.4 represents subject-wise distributions of 29 emerald journals in which 781 publications were grouped into five core subjects, published on Cloud Computing. Further it shows that, highest number of journals 336 (42.97 %) were found under the discipline of Science Subject, followed by Management subject having 262 (35.54%) journals published on cloud computing, and then 134 (17.15%) journals in engineering subject. Further it revealed that, Science and Technology journals together are contributing more number of articles on cloud computing.

If we see the individual publications of the articles in the emerald journals then, two hundred and forty-three (31.11%) are from Library and Information studies followed by one hundred and eight (13.82%) under the discipline of Management and then in Information Technology with one hundred and two (13.06%) journals. It was found that majority of publications were contributed by the Library and Information Science subject publications only.

Table – 4.5
Authorship Pattern

Sl. No.	Authors	No. of Papers	Percentage	Cumulative Percentage
1.	Single	287	36.74	36.74
2.	Double	169	21.63	58.37
3.	Three	123	15.74	74.11
4.	Four	68	8.70	82.81
5.	Five	22	2.81	85.62
6.	Six	09	1.15	86.77
7.	Seven	07	0.89	87.66
8.	Eight	03	0.38	88.04
9.	Anonymous Work	93	11.90	99.94
Total		781	100	100

Authorship pattern of articles published in 781 emerald journals are depicted in the table 4.5 which shows the 287 (36.74%) papers out of 781 were written by single author and 169 (21.63%) articles were written by two authors. Three authors contributed only 123 papers. 109 papers are contributed by more than four authors and anonymous authors published 93 papers on cloud computing in different emerald journals.

Figure No. 4.2

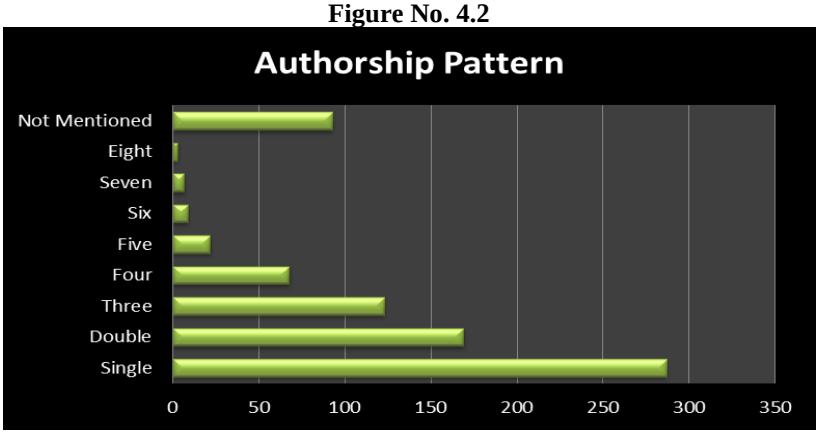


Table – 4.6
Value of Group Co-effective for Collaborative Authors Publications

No. of Authors Article	**No. of Publications**	**Percentage from Total Publication**	Value of per GP= Nm/ (Ns +Nm)
No. of Personal Author Publications	688		
No. of Single Author Publications	287 (Ns)	41.71%	
No. of Co-Author Publciations	401 (Nm)	58.28%	0.58
Two Author	169	24.56	0.24
Three Authors	123	17.88	0.18
Four Authors	68	9.89	0.09
FiveAuthors	22	3.19	0.03
Six Authors	09	1.31	0.01
Seven Authors	07	1.01	0.01
Eight Authors	03	0.44	0.004

Table – 4.6 shows that, the extent of collaboration was not much popular among the cloud computing scientists. The value of group co-efficient (Gp) was only 0.58. The degree of collaboration among the co-authors was minimum (0.004) in articles written by more than eight authors and maximum (0.24) in two author publications. Thus among the collaborative publications, the authors mainly prefer to work jointly.

5. Findings:

5.1 Study found that, in the last three years from 2012 to 2014 publication of articles on 'cloud computing' is more compared to the earlier eleven years.

5.2 Majority of the articles belonged to Research Papers and non-article papers were published in the various emerald journals compared to other type of articles. Technical papers were the lowest publications in the last fourteen years.

5.3 Majority of the articles one hundred and thirteen (14.45%) were published from Library and Information Science (Library Hi Tech News & Library Hi Tech) subject journals. Further it shows that, Library Scientists are contributing more and more to computer science field then the computer scientists.

5.4 Highest number of journals 336 (42.97%) were found under the discipline of Science subject, followed by Management subject having 262 (35.54%) journals published on cloud computing, and then 134 (17.15%) journals published in engineering subject. It shows that, Science and Technology journals together are publishing more articles on cloud computing.

5.5 It was found that majority of the publications were contributed by only Library and Information Science subject publications.

5.6 Single authorship dominates this field of research that is two hundred and eighty-seven (36.74%) articles out of 781 were written by single author.

5.7 Study found that extent of collaboration was not much popular among the cloud computing scientist.

6. Conclusion:

Based on the study it is concluded that, cloud computing is related to computer science subject, and very few publications are published in the science and technology journals compared to the articles published in the Library and Information Science journals in last fourteen years. There is a need to encourage research on cloud computing in these subjects. Further it revealed that, librarians are very active in adopting new technology to their field of study and writing articles on the new subjects.

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