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AUTHORSHIP PATTERN IN CLOUD COMPUTING RESEARCH IN LIBRARY, INFORMATION SCIENCE & TECHNOLOGY ABSTRACTS (LISTA)

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Abstract:-Cloud computing, is a popular topic in recent days involves many aspects and various technologies that provides scalable IT related services over the internet. In last few years much has been written about concept and its applications in the IT and business fields. The aim of this study is to study authorship pattern in cloud computing research from 2009-2013 from library & information science abstracts (LISTA). The download 108 data were analysed with the help of SPSS software. The objective of the present study is to identify and analyses the growth rate of scholarly publication, analyses the authorship pattern, to identify the standard length of title, also to know the popularity mail domain used by authors and to examine the rank of journals in cloud computing research.

Keywords: Cloud computing; Authorship Pattern; Degree of Collaboration; LISTA; Bibliometrics; Scientometric.

1.INTRODUCTION

Scientific development is a continuous process attributed to theoretical and applied research conducted by scientists, academicians, professionals and researchers. They continuously aspire for doing perfectly in their research domain, by translating the research results as publications in discipline-specific international and national journals. Consequently, scientific productivity and visibility are enhanced globally, regionally and locally (Mishra, 2013).

In the field of information technology (IT); cloud computing has been become a principle for aria in recent days. In shortly, cloud computing is a new technology that changing the way of implementing information technology in organization today, thus the core mission of libraries are being to provide and delivering the best information services to users; and librarians have to be willing to capture the advantage of useful resources, including computer technologies (Thirumagal 2013).

Scientometrics: Is the study of measuring and analysing science research. In practice, scientometrics is often done using bibliometrics . Modern scientometrics is mostly based on the work of Derek. J. de Solla Price and Eugene. g. (http://en.wikipedia.org/wiki/Scientometrics).

Bibliometrics: Is a set of techniques to quantitatively analyze academic literature. While bibliometric techniques are most often used in the field of library and information science, bibliometrics have wide applications in other areas. Bibliometrics was found by Alan Pritchard in a paper published in 1969, titled Statistical Bibliography or Bibliometrics? He defined the term as "the application of mathematics and statistical methods to books and other media of communication". (http://en.wikipedia.org/wiki/Bibliometrics).

LIBRARY, INFORMATION SCIENCE ABSTRACTS (LISTA)

Library, Information Science & Technology Abstracts (LISTA) indexes more than 560 core journals,

nearly 50 priority journals, and nearly 125 selective journals; plus books, research reports and proceedings. Subject coverage includes librarianship, classification, cataloging, bibliometrics, online information retrieval, information management and more. Coverage in the database extends back as far as the mid-1960s (http://web.a.ebscohost.com).

REVIEW OF LITERATURE:

The relevant data was collected from various books and journal articles which were treated as a basis for the study. Review of relevant literature is an important step for research. After formulating research problem the process of reviewing the related literature was started.

Khaparde (2011) she studied the pattern of information use by researcher in the field of library and information science. It is based on the references appended to International Journal of "Library Hi Tech" during 2005-2009. The present study is based on 3876 references appended to 247 articles contributed by the authors in Library Hi Tech. In Authorship pattern it was found that Solo Research is Predominant than Collaborative Research. The degree of research collaboration was calculated and it was found that the single authorship trend increased gradually in Library Hi Tech.

Thirumagal (2013) this paper deals with bibliometric study on the publication of "Osteoarthritis" research. The Total number of 31.456 records is collected from PubMed resource MEDLINE during 2001 to 2012. The study found that there is a gradual growth in Osteoarthritis research, Also showed that joint authors produce more and more records than single authors.

Khaparde and Pawar (2013) studied the authorship pattern and author's collaborative research in Information Technology with a sample of 17917 articles collect from LISA during 2000-2009.The average number of authors per article is 1.80. In the study the degree of collaboration (C) during the overall 10 years (2000-2009) is 0.71, but the year wise degree of collaboration is almost same in all the years of mean value 0.49. According to 10 years of period, the multi- authorship articles are higher and predominant on single authorship. The study found that the researches in Information Technology are keep toward team research / group research rather than solo research.

Khaparde (2013) her paper conducted the Bibliometric Analysis of Research Publication of Department of Chemistry, Dr. Babasaheb Ambedkar Marathwada University, from 1975 to 2012. 774research publications were analysed from 144 journals. The study examines year-wise distribution of papers, authorship pattern, journal in which author publish. Results revealed that the number of publications was increasing consistently from 1975 to 2012. Out of 774, there are 25% of publications made in 2009, 2010, and 2011. The majority of the publications are made with 4 authors. And also the majority of the research paper published in journal of heterocyclic chemistry.

OBJECTIVE OF THE STUDY:

The objectives of the present study are:

1.To find out the Year-wise distribution of publications.
2.To find out the Relative Growth Rates [R(c)] and Doubling Time [Dt(c)] of publications.
3.To identify the group Co-efficient value for collaborative authors of publications.
4.To find out the Year-wise length of pages.
5.To find out the Relative Growth Rates [R(c)] and Doubling Time [Dt(c)] for pages.
6.To identify the length of the title of each papers.
7.To identify the popularity of the domain of email ID as used by the contributors.
8.To identify the core journals of publications.

METHODOLOGY:

The data pertaining to Library, Information Science & Technology Abstracts (LISTA) regarding 108 articles on cloud computing made from 2009 to 2014. The analysis conducted relative growth rate, authorship pattern, and degree of collaboration. K. Subramaniam's formula is been used to analyze the degree of collaboration in quantitative terms. Data were subsequently examined, observed, analyzed by Statistical Package for Social Sciences (SPSS) Software, and tabulated for making observations.

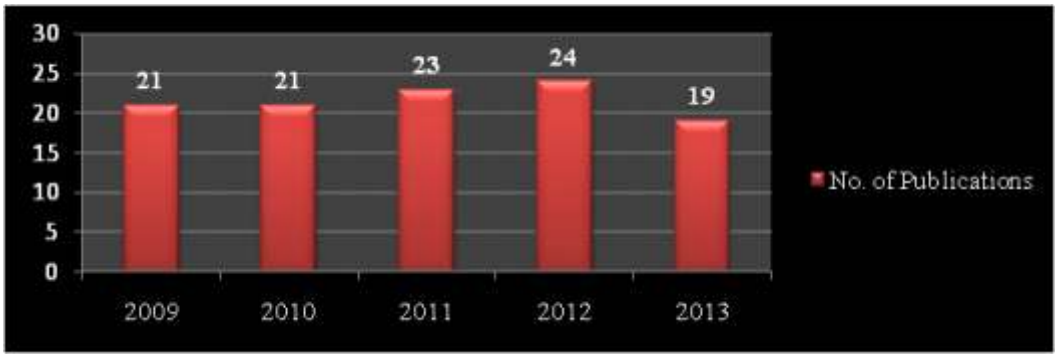
ANALYSIS AND INTERPRETATION:

According to objectives of the study, analysis and interpretation are outlined below.

Table No. 1: Year-Wise Distribution of Publication

Year	No. of Articles	Percentage
2009	21	19.4
2010	21	19.4
2011	23	21.3
2012	24	22.2
2013	19	17.6
Total	**108**	**100**

Fig No.1: Year-wise distribution for publication



From Table No. 1 and Fig No.1 Attempt was made to find out the number of articles published during 2009 to 2012. Out of 108 articles, there are equal numbers 21(19.4%) articles were published in 2009 and 2010. 24 (22.2%) articles were published in 2012 and 23 (21.3%) articles in 2013 and 19 (17.6%) articles in 2014.

Table No.2: Shows Relative Growth Rate [RG(P)] and Doubling Time[Dt(p)] of Publications

Year	No. of articles	Cumulative	Loge1P	Loge2P	[R (P)]	Mean [R(P)]	[Dt(P)]	Mean Dt(P)
2009	21	21	-	3.045	-		-	
2010	21	42	3.045	3.738	0.693		1	
2011	23	65	3.738	4.174	0.436	**0.327**	1.589	**1.748**
2012	24	89	4.174	4.489	0.315		2.200	
2013	19	108	4.489	4.682	0.193		3.951	

Fig No.2: Relative Growth Rate [RG(P)] and Doubling Time[Dt(p)] of Publications

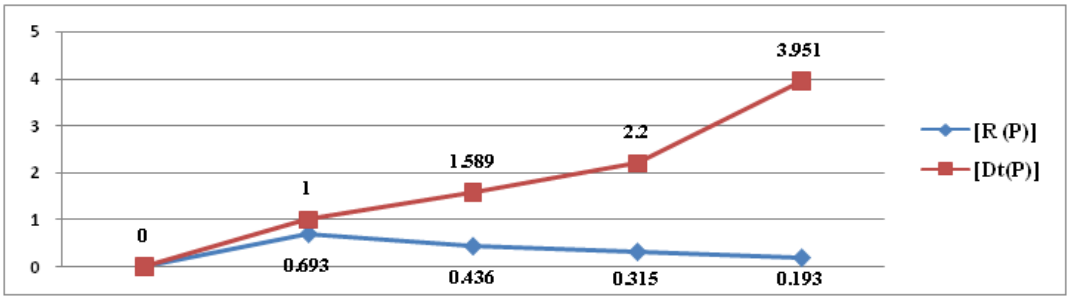


Table No.2 and fig No.2 shows Relative Growth Rate [RG(P)]and Doubling Time [Dt(P)] IN Cloud Computing Research In Library, Information Science & Technology Abstracts (LISTA). It can noticed that the Relative Growth Rate of Publication [RG(P highly decrease from the rate of 0.693 in 2010 to 0.193 in 2013. The mean relative growth (i.e. 2009 to 2013) showed a growth rate of 0.327. The corresponding Doubling Time for different years [Dt(P)])] gradually increased from 1 in 2010 to 3.951in 2013. Thus as the rate of growth of

publication was decreased, the corresponding Doubling Time was increased.

Categories of Authors and Collaborative Researches:

There is several of degree methods proposed to calculate the degree of research collaboration. Here in this study the formula proposed by Subramanyam (1983) has been used.

Formula,

$$C = \frac{NM}{NM + NS}$$

Where,

C= degree of collaboration
Nm= number of multi author
Ns = number of single author

Table No.3: Group Co-Efficient Value for Collaborative Authors of Publications

Number of authors' publications	Number of publication	Percentage for total publications	Value of per $C=\frac{NM}{NM+NS}$
Number of personal author publications	93	-	
Number of single author publications	74 (N_S)	79.57	
Number of co-authors publications	19 (N_m)	20.43	0.20
Two authors publications	9	9.67	0.09
Three authors publications	7	7.53	0.07
Three authors publications	3	3.23	0.03

Among the 108 articles of cloud computing of the Library, Information Science & Technology Abstracts (LISTA) published during 2009 to 2013, there were 79.57 percent were written by single authors, 20.43 percent belonged to co-authors and 15 articles not having name of any authors. Therefore, the extent of collaboration was not much popular among the Library, Information & Technology Science Abstracts (LISTA). The value of group co-efficient (gp) was only 0.20.

The degree of collaboration among the co-authors was minimum (0.14) in articles written by more than three authors and maximum (0.09) in two authors publications. So among the collaborative publications, the authors prefer to work jointly.

Table No.4: Year-Wise Distribution for Length of Pages

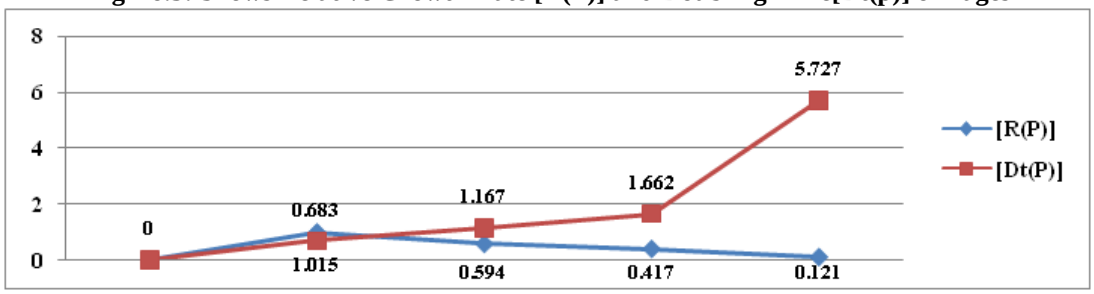
Length of pages	2009	2010	2011	2012	2013	Total	Percentage
1-3	16	16	13	13	13	71	65.7
4-6	5	2	4	3	4	18	16.7
7-9	0	1	3	4	2	10	9.3
10-12	0	0	1	3	0	4	3.7
>=13	0	2	2	1	0	5	4.6
Total	**21**	**21**	**23**	**24**	**19**	**108**	**100**

From the table No.4 It is seen that the majority 71 (65.7%) of publications have page length from 1 to 3. Followed by 28 (26.00%) have page length from 4 to 9. Whereas 9(8.30%) of publications have page length from 10 to 13.

Table No.5: Shows Relative Growth Rate [R(P)] and Doubling Time[Dt(p)] of Pages

Year	No. of pages	Cumulative	Loge1P	Loge2P	[R(P)]	Mean [RGR(P)]	[Dt(P)]	Mean Dt(P)
2009	46	46	-	3.829	-	0.429	-	1.848
2010	81	127	3.829	4.844	1.015		0.683	
2011	103	230	4.844	5.438	0.594		1.167	
2012	119	349	5.438	5.855	0.417		1.662	
2013	45	394	5.855	5.976	0.121		5.727	

Fig No.3: Shows Relative Growth Rate [R(P)] and Doubling Time[Dt(p)] of Pages



The Relative Growth Rate [R(P)]and Doubling Time [Dt(P)] of Pages in Table No.5and fig No.3. It can noticed that the Relative Growth Rate of Pages[R(P)] gradually decrease from the rate of 1.015 in 2010 to 0.121 in 2013. The mean relative growth (i.e. 2009 to 2013) showed a growth rate of 0.429. The corresponding Doubling Time for five years [Dt(P)] gradually increased from 0.683 in 2010 to 1.662 in 2012. It also shows that there is highly increased in Doubling Time 5.727 in 2014. Thus as the rate of growth of pages was decreased, the corresponding Doubling Time was increased.

LENGTH OF THE TITLE:

It is important to measure the length of the title to identify the preferred size of the title in the specific field. To note down the length of the title, the prepositions are not taken in the count. The fact may be represented with the help of the table No.6.

Table No.6: Year-Wise Distribution for Length of Title

No. of Words	2009	2010	2011	2012	2013	Total	Percentage
1	1	0	0	0	0	1	0.9
2	1	0	1	1	0	3	2.8
3	4	1	2	3	3	13	12.0
4	8	1	1	1	2	13	12.0
5	2	2	4	4	6	18	16.7
6	0	7	8	4	3	22	20.4
7	1	3	2	3	1	10	9.3
8	3	4	0	2	1	10	9.3
9	1	0	1	1	1	4	3.7
10	0	2	2	4	2	10	9.3
11	0	0	1	0	0	1	0.9
12	0	0	1	0	0	1	0.9
13	0	1	0	0	0	1	0.9
20	0	0	0	1	0	1	0.9
Total	**21**	**21**	**23**	**24**	**19**	**108**	**100**

From the table No.6 it may be stated that the preferred length of title contain (4) words in 2009, and 6 words in 2010 and 2011. Also the study revealed the preferred words of titles in 2012 are (5, 6 and 10). And also the preferred length of the title in 2013 is (5) words.

Popularity of the E-Mail Domain:

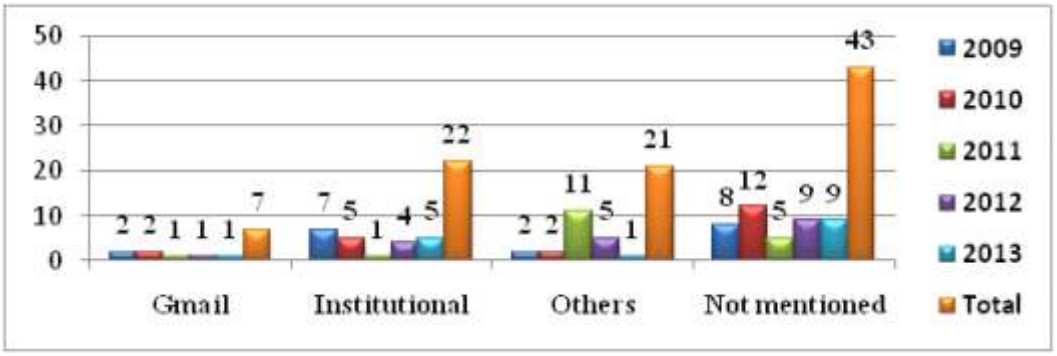
At now days, e-mail is considered as one of the best communication media for keeping literacy\academic communication for the betterment and development of the community as a whole. (Saha, 2013)

Table No.7: Domain of E-Mail ID of the Contributors

E-Mail ID	2009	2010	2011	2012	2013	Total	Percentage
Gmail	2	2	1	1	1	7	7.53
Institutional	7	5	1	4	5	22	23.65
Others	2	2	11	5	1	21	22.58
Not mentioned	8	12	5	9	9	43	46.24
Total	**19**	**21**	**18**	**19**	**16**	**93**	**100**

Note: 15 articles are not given the name of authors

Fig No.4: Domain of E-Mail Id of the Contributors



From the table No.7 and fig No.4 observed that maximum 43(46.24%) out of 93 of the authors are not mentioned their email address in their papers. It may be that they don't have mail address or not interest to mention it. Otherwise, there 22(23.65%) are using institutional domain in e-mail address. And others 21(22.58%) are using different mail addresses. While few authors 7(7.53%) are using Gmail.

Ranking of Journals in Cloud Computing Research

Ranking of the journals based on published articles on cloud computing during the study period presented in the table No. 8.

Table No.8: Ranking of Journals in Cloud Computing Research

Journal Name	No. of records	%	Rank
Information Management Journal	16	14.81	1
Information Today	13	12.04	2
Computers in Libraries	9	8.33	3
EContent	9	8.33	3
Library Journal	6	5.55	4
American Libraries	5	4.63	5
El profesional de la información	5	4.63	5
Information World Review	5	4.63	5
Journal of Digital Information Management	4	3.70	6
Journal of Library Administration	4	3.70	6
Library Technology Reports	3	2.77	7
Australian Academic & Research Libraries	2	1.85	8
Information Systems Management	2	1.85	8

Information Technology & Libraries	2	1.85	8
Library Media Connection	2	1.85	8
Publishers Weekly	2	1.85	8
School Library Journal	2	1.85	8
Access	1	0.93	9
BMC Medical Informatics & Decision Making	1	0.93	9
Chief Learning Officer	1	0.93	9
Ciencias de la Información	1	0.93	9
Infonomics	1	0.93	9
Journal of Information Systems Education	1	0.93	9
Journal of Interlibrary Loan, Document Delivery& Electronic	1	0.93	9
Journal of Scholarly Publishing	1	0.93	9
Journal of the Society of Archivists	1	0.93	9
KM World	1	0.93	9
New Review of Information Networking	1	0.93	9
Online	1	0.93	9
Online Searcher	1	0.93	9
Pub Res Q	1	0.93	9
School Library Monthly	1	0.93	9
Teacher Librarian	1	0.93	9
Visual Resources Association Bulletin	1	0.93	9
Total	**108**	**100**	**/**

It was observed that the Information Management Journal ranked 1st in position than other journals with majority number of records i.e 16(14.81%). Followed by Information Today 13 (12.04).

FINDINGS:

The major findings of the study may be noted as under:

1)The number of contributions (cloud computing) found to be the highest is 24 in the year of 2012.
2)T Relative Growth Rate of Publication [RG(P)] highly decrease from the rate of 0.693 in 2010 to 0.193 in 2013. Whereas The corresponding Doubling Time for different years [Dt(P)])] gradually increased from 1 in 2010 to 3.951in 2013.
3)From authorship pattern it is found that maximum (74 out of 93) paper was single authored followed by the two authored papers (9 out of 108).
4)The extent of collaboration was not much popular among the Library & Information Science & Technology Abstracts (LISTA). The value of group co-efficient (gp) was only 0.20.
5)The standard length of pages as per the study is one to three pages. The shortest length of the pages contains one page and the longest length of pages contains thirteen pages.
6)The Relative Growth Rate of Pages[R(P)] gradually decrease from the rate of 1.015 in 2010 to 0.121 in 2013. Whereas the corresponding Doubling Time for five years [Dt(P)] gradually increased from 0.683 in 2010 to 1.662 in 2012. It also shows that there is highly increased in Doubling Time 5.727 in 2014.
7)The preferred / popularity length of title as per the study is 6 worded title. The shortest length of the title contains one word and the longest length of title contains twenty words.
8)43(46.24%) out of 108 of the authors have not mentioned their email address in their research papers. Otherwise, there are 22 (23.65%) who are using institutional domain in e-mail address. And also Gmail are not preferred/popularity used by the authors of the study.
9)Information Management Journal ranked 1st in position based on published articles on cloud computing than other journals during the study period.

CONCLUSION:

Cloud computing is a new technology which has recently attracted academically great attention. Total number research literature published in cloud computing from the LISTA database for the year 2009 to 2013 was 108. Single authors are more active and published in cloud computing more than jointly researchers. Now days, Mail ID is considered as one of the popularity communication media for keeping academic people communication for the improving and development of the community as a whole, but the study revealed that maximum 43 (46.24%) out of 93 of the authors are not mentioned their email address in the paper, and few authors 7 (7.53%) are using Gmail. For

cloud computing research the Information Management Journal got first rank with 16(14.81%).

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