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Abstract

The paper discusses the Research Pattern and Publications trend on Information Management (IM) during 2000-2019. The data will be taken to analyze by Web of Science (WoS) database from Clarivate analytics for purpose of study during period. It has analysed the highest 441 (9.04%) of the publications appeared in the year 2018, it followed by , 423(8.67%) and 401(8.22%) of the publications have brought out in 2016 and 2017 respectively. Highest RGR observed that 1.277 and lowest 0.022 in 2019 and 2011 respectively. The majority 75.6 % of the publications appeared as Journal articles, it followed by 6.95% of the publications occupy Meeting abstract, others 6.27 % , 6.13%, 6.09%, 3.45% of the publications witnessed by Proceeding papers, Book Review, Editorial Material and review respectively. There are twenty authors have been ranked in the study, 30 (0.61%) of the publications do not find name of authors, it seems that anonymous authors hold the majority of the publications in the series. 1464 (30.18%) of the publications records contributed from USA, which one among the top country in terms distribution of more contribution in the field of information Management. The study found that there are twenty five institutions are listed, among them University of Washington has contributed highest 48 (0.98%) of the publications witnessed be a first position out of twenty five.

Keywords: Information Management, Scientometrics, Web of Science, Relative Growth Rate (RGR) , Doubling Time (Dt), Ranking of authors, Countries wise publications, Institutions wise publications.

Introduction

The Scientometrics is the Study of measuring and analysing science, technology and innovation. Major research issues include the measurement of impact, reference sets of articles to investigate the impact of journals and institutes, understanding of scientific citations, mapping scientific fields and the production of indicators for use in policy and management contexts. In practice there is a significant overlap between scientometrics and other scientific fields such as Bibliometrics, information systems, information science and science of science policy.

Information management (IM) concerns a cycle of organizational activity: the acquisition of information from one or more sources, the custodianship and the distribution of that information to those who need it, and its ultimate disposition through archiving or deletion. This

cycle of organisational involvement with information involves a variety of stakeholders, including those who are responsible for assuring the quality, accessibility and utility of acquired information; those who are responsible for its safe storage and disposal; and those who need it for decision making. Stakeholders might have rights to originate, change, distribute or delete information according to organisational information management policies.

Information management is closely related to, and overlaps with, the management of data, systems, technology, processes and – where the availability of information is critical to organisational success – strategy. This broad view of the realm of information management contrasts with the earlier, more traditional view, that the life cycle of managing information is an operational matter that requires specific procedures, organisational capabilities and standards that deal with information as a product or a service.

Review of Literature

Glänzel et.al (2006)[3] have discussed the evolution of publication activity and citation impact in Brazil is studied for the period 1991-2003. Besides the analysis of trends in publication and citation patterns and of national publication profiles, an attempt is made to find statistical evidences of the relation between international co-authorship and both research profile and citation impact in the Latin American region. John N. Parker (2010)[4] has explored the information on this understudied subject by examining the social characteristics and opinions of the 0.1% most cited environmental scientists and ecologists. Overall, the social characteristics of these researchers tend to reflect broader patterns of inequality in the global scientific community. However, while the social characteristics of these researchers mirror those of other scientific elites in important ways, they differ in others, revealing findings which are both novel and surprising, perhaps indicating multiple pathways to becoming highly cited. Alejandro M. Aragón, (2013)[5] studied the measure builds from a published manuscript, the literature's most basic building block. The *impact* of an article is defined as the number of lead authors that have been influenced by it. Thus, the measure aims at quantifying the manuscript's reach, putting emphasis on *scientists* rather than on raw citations. The measure is then extrapolated to researchers and institutions. Baskaran, C (2013) [6] has analysed the Relative growth rate (RGR) was found to be fluctuating trend during the study period. The doubling time (DT) was found to be increased and decreased trend in this study. Degree of collaboration and its' mean value is found to be 0.963. The top three institutions with Alagappa University are Central Electro Chemical Research Institute, National Cheng King University, and Anna University. Liu, N. & Guan, (2015) [7] have discussed Science Citation Index Expanded. Specifically, we mainly focus on two dimensions of ego network changes: network growth and diversity. Results demonstrate the recent remarkable growth of inter-organizational collaborative networks in the nano-energy field and empirically prove that the subsequent growth and diversity of ego networks are caused by three coexisting driving forces (collaborative capacity, network status position and cohesion) that act collectively. Saravanan and Baskaran (2018)[8] have discussed the number of publications, growth rate and doubling time, scattering of publication over journals, and its impact on publication output, authorship patterns and Global citation score of bioremediation research publication in India using the HistCite, VOSviewer software. Indian Institute of technology, Baba atomic research centre and CSIR are the major producers of research output in

the area of bioremediation. Baskaran, (2018)[9] has analysed the majority of publications 44.15% representing by the two authors in the analysis BM. Guptha was published 18 papers in DJLIT, who is a ranked 1 author. It followed by Chenupathi K. Ramiah shored second his publications 11. University of Delhi, which is the top ranked institution. It is followed by NISTADS (24), DRDO (22), Pondicherry University (13), Banaras Hindu University (11), Indian Institute of technology (11) and University of Kashmir (10). Botao Zhong (2018)[10] analysed the top co-occurring keywords were "project management" at which ontology facilitates knowledge management and information retrieval. When the time factor was taken into consideration, keywords naturally evolved from "project management" and "knowledge management to "building information modelling", and "compliance control" with the successful adoption of information techniques in the construction industry. Four research themes were identified with the combination of cluster analysis and critical review: "Domain ontology", "Industry foundation classes", "Automated compliance is checking", and "Building information modelling". Liang Wang, et.al. (2018)[11] analysed that numerous studies in urban resilience have been published in the past decade. However, only a few publications have tracked the evolution trends of urban resilience research, the findings of which can serve as a useful guide for scholars to foresee worth-effort research areas and make the best use of precious time and resources. In order to fill the research gap, this study performed a Scientometric analysis on the evolution trends of urban resilience research using a versatile software package-Cite Space. Baskaran and Rameshbabu (2019)[12] have studied the growth of the publications, RGR and Dt of the research output, Collaboration of authors, Collaborative co-efficient etc. in the study. The result of the study found that publications growth rate between 11 (0.26%) in 1989 and 447 (10.76%) in 201. The largest output in was found 447 publications in 2013. It is found the DC between 0.64 and 0.94 and overall DC measured to be 23.08 throughout study period. The study could be found DC was an increased and a decreased trend appeared in the whole study period.

Objectives of the study

1. To find out the Year wise publications and Citations of Information Management during 2000-2019
2. To analyze the Relative Growth Rate (RGR) and Doubling time (DT) of the publications during period of study.
3. To find out the Ranking of sources wise, authors wise, country-wise distribution of publications in the field Information Management
4. To observe the Ranking of funding agency wise and Institutions wise distribution of publications in the field Information Management

Methodology

The present study has been analysed the research publications of Information Management during 2000-2019. The data retrieved from Web of Science database on the selected are of the research during period of study. The Global data searched key term '' Information Management'' using for retrieved data. Total no. 4877 records based on the search term for extracted data on the field. The data retrieved and exported in the Excel sheet for tabulation to draft for using various analyses. The analyses made on the data in respect of year-wise, author-wise, Source wise, Institutions wise and Journal wise during specifies time period.

Data Analysis

Table 1 Year wise publications of Information Management (IM)

Year	No. of records	Percent
2000	170	3.486
2001	160	3.281
2002	150	3.076
2003	175	3.588
2004	201	4.121
2005	177	3.629
2006	209	4.285
2007	204	4.183
2008	228	4.675
2009	206	4.224
2010	227	4.655
2011	232	4.757
2012	240	4.921
2013	250	5.126
2014	272	5.577
2015	388	7.956
2016	423	8.673
2017	401	8.222
2018	441	9.042
2019	123	2.522
	4877	

Year wise publications of Information Management (IM)

Table 1 analyzed that total no. 4877 records were published in the area of Information Management (IM) during 2000-2019. It is observed that highest 441 (9.04%) of the publications appeared in the year 2018, it followed 423(8.67%) and 401(8.22%) of the publications have brought out in 2016 and 2017 respectively. Further, it could be witnessed that 44.59% percent of the publications would be more than five percent in the total records during 2013-2018. On the other hand, 55.40% of the publications share appeared less than five percent 2000-2012 and 2019 (Fig.1).
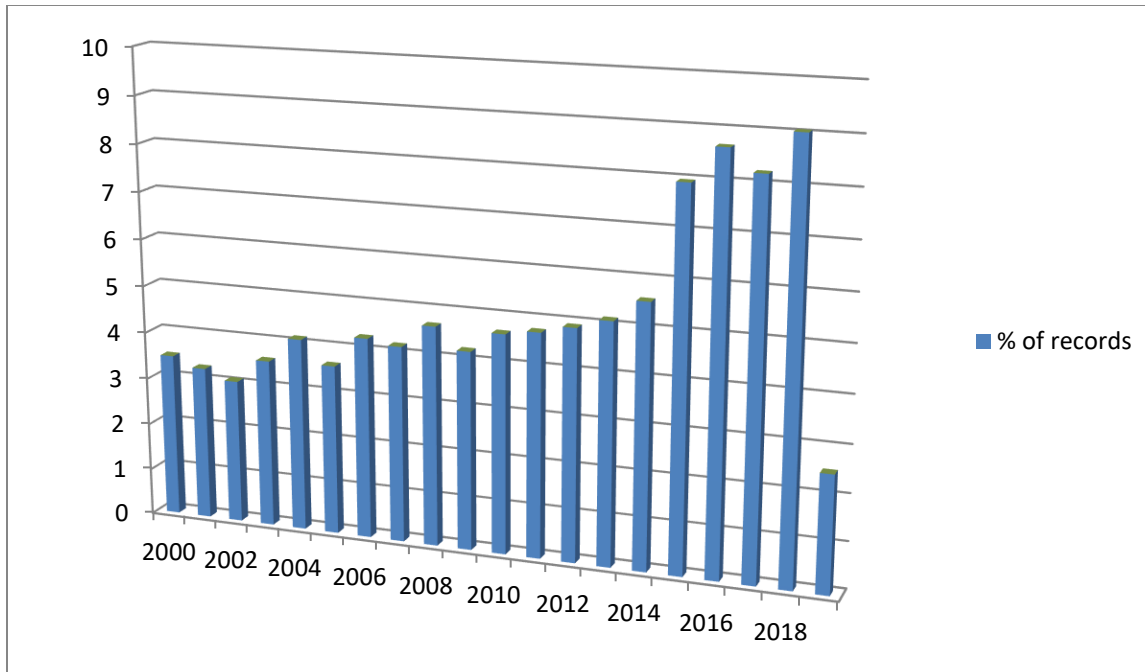
Fig-1 Year wise publications of Information Management (IM)

Table 2 Year wise publications Vs. Citations in Information Management (IM)

Year	No. of records	No. of Citations
2000	170	9
2001	160	70
2002	150	138
2003	175	222
2004	201	361
2005	177	643
2006	209	1003
2007	204	1136
2008	228	1751
2009	206	2043
2010	227	2425
2011	232	2928
2012	240	3008
2013	250	3585
2014	272	4041
2015	388	4565
2016	423	4948
2017	401	5748

2018	441	5761
2019	123	1794
	4877	46179

Year wise publications Vs. Citations in Information Management (IM)

The researchers can be achieved the publications by witnessing through impact of citations on way contributions of good research in every domain. Table 2 analyzed the citations accountability of publications by the researchers in the field of Information Management during period of study, the majority of 5761 Cited documents found in the year 2018 out of 45179 total citations on core area of Information Management. Further, it could be analyzed that 7048 citations accumulated for 1797 publications in the field of Information Management shows above thousand citations recorded during 2000-2008 and 2017. Sum of 24584 citations recorded out of 2874 publications shows over two thousand citations during 2009-2018 (Fig.2).
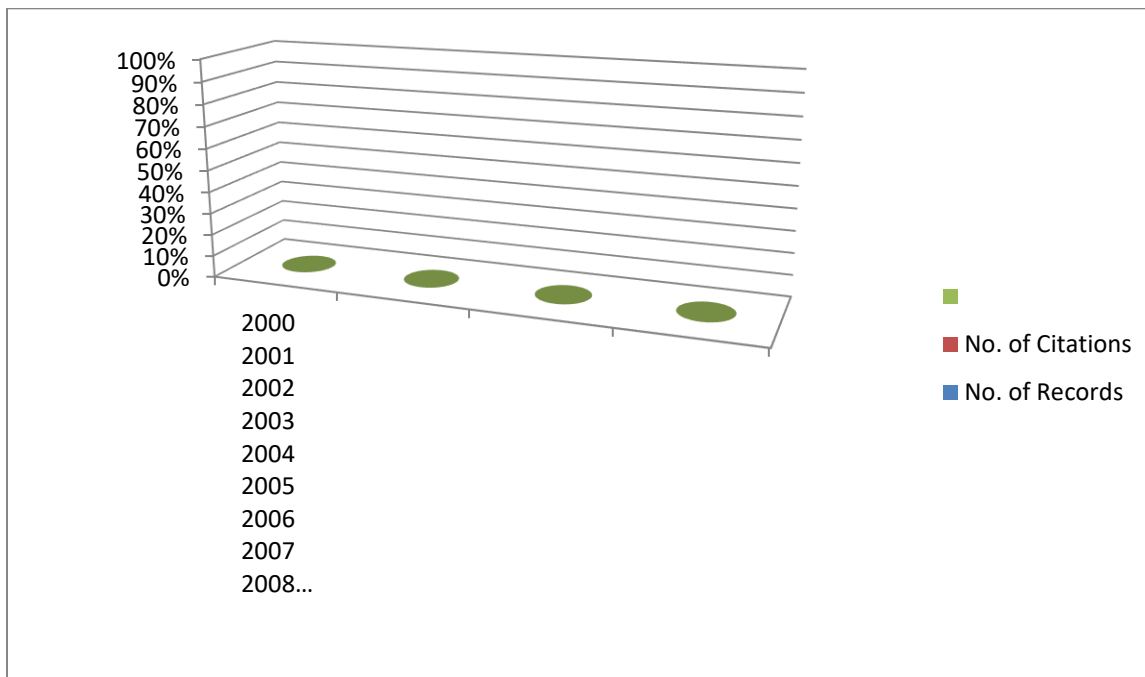

Fig.2 Year wise publications Vs. Citations in Information Management (IM)

Relative Growth Rate (RGR) and Doubling time (Dt)

Relative Growth Rate (RGR) The mean Relative Growth Rate (R) over the specific period of interval can be calculated from the following equation by Mahapatra (1985),[13]

$$1\text{-}2^{\overline{R}} = \frac{\log e_2\,W - \log e_1\,W}{2^T - 1^T}$$

Whereas, $1\text{-}2`R=$ mean relative growth rate over the specific period of interval

$\log_e {}_1W=$ log of initial number of articles/pages

$\log_e {}_2W =$ log of final number of articles/pages after a specific period of interval

${}_2T - {}_1T =$ the unit difference between the initial time and the final time,

The year can be taken here as the unit of time. The RGR for both articles and pages can be calculated separately.

Therefore

1- 2 R(aa -1 year -1) can represent the mean relative growth rate per unit of articles per unit of year over a specific period of interval and

1 - 2 R (pp -1 year -1) can represent the mean relative growth rate per unit of pages per unit of year over a specific period of interval,

Doubling time

There exists a direct equivalence between the relative growth rate and the doubling time. If the number of articles/pages of a subject doubles during a given period then the difference between the logarithms of numbers at the beginning and end of this period must be the logarithms of number 2.

If natural logarithm is used this difference has a value of 0.693. Thus the corresponding doubling time for each specific period of interval and for both articles and pages can be calculated by the following formula:

Doubling Time (Dt) = $\dfrac{0.693}{R}$

Therefore

Doubling time for articles Dt (a)= $\dfrac{0.693}{\text{1-2 R (aa-1 Year-1)}}$

and

Doubling time for papers Dt(P)= $\dfrac{0.693}{\text{1-2 R(pp-1 Year-1)}}$

Relative Growth Rate (RGR) and Doubling time (DT) of the publications

Table 2 presents on Relative Growth Rate (RGR) and Doubling time (Dt) of the publications of Information Management during 2000-2019. The study analysis the records witnessed the RGR an increasing and suddenly decreasing trend was appearing throughout study period, similarly

the study finds doubling time trend being that fluctuates trend over all study period. Further, the highest RGR observed that 1.277 and lowest 0.022 in 2019 and 2011 respectively. Similarly, the highest doubling time 1.842 and lowest 0.031 in 2019 and 2011.

Table 3 Relative Growth Rate (RGR) and Doubling time (DT) of the publications

Year	No. of Records	%	W1	W2	RGR	DT
2000	170	3.486	0	5.135	0	0
2001	160	3.281	5.135	5.075	0.06	0.086
2002	150	3.076	5.075	5.01	0.065	0.093
2003	175	3.588	5.01	5.164	0.154	0.222
2004	201	4.121	5.164	5.303	0.139	0.200
2005	177	3.629	5.303	5.176	0.127	0.183
2006	209	4.285	5.176	5.342	0.166	0.239
2007	204	4.183	5.342	5.318	0.024	0.034
2008	228	4.675	5.318	5.429	0.111	0.160
2009	206	4.224	5.429	5.327	0.102	0.147
2010	227	4.655	5.327	5.424	0.097	0.139
2011	232	4.757	5.424	5.446	0.022	0.031
2012	240	4.921	5.446	5.48	0.034	0.049
2013	250	5.126	5.48	5.521	0.041	0.059
2014	272	5.577	5.521	5.605	0.084	0.121
2015	388	7.956	5.605	5.961	0.356	0.513
2016	423	8.673	5.961	6.04	0.079	0.113
2017	401	8.222	6.04	5.993	0.047	0.067
2018	441	9.042	5.993	6.089	0.096	0.138
2019	123	2.522	6.089	4.812	1.277	1.842
	4877					

Table 2 Ranking of sources wise distribution of publications

S.No	Name of the Sources	No. of records	percent
1	ARTICLE	3687	75.6
2	MEETING ABSTRACT	339	6.951
3	PROCEEDINGS PAPER	306	6.274
4	BOOK REVIEW	299	6.131
5	EDITORIAL	297	6.09

	MATERIAL		
6	REVIEW	169	3.465
7	LETTER	45	0.923
8	CORRECTION	18	0.369
9	NEWS ITEM	9	0.185
10	REPRINT	5	0.103
11	BIOGRAPHICAL ITEM	4	0.082
12	SOFTWARE REVIEW	3	0.062
13	RETRACTION	2	0.041
14	BOOK CHAPTER	1	0.021

Ranking of sources wise distribution of publications

Table 4 analyzed the ranking of sources wise distribution of publications in the field of Information Management during 2000-2019. It is analyzed that   Majority 75.6 % of the publications appeared as Journal articles , it followed by 6.95% of the publications occupy Meeting abstract, others 6.27 % , 6.13%, 6.09%, 3.45% of the publications witnessed by Proceeding papers, Book Review, Editorial Material and review respectively.   Further, it is analyzed that below one percent of the records holding by Letter, Corrections, News Item, Reprint, Biographical item, Software review, Retraction and Book chapter respectively.

Table Ranking of the funding agency wise publications of Information Management (IM)

S.No	Name of the institutions	No. of records	Percent
1	NATIONAL NATURAL SCIENCE FOUNDATION OF CHINA	56	1.148
2	NATIONAL SCIENCE FOUNDATION	20	0.41
3	MEDICAL RESEARCH COUNCIL	18	0.369
4	EUROPEAN COMMISSION	13	0.267
5	CHINA POSTDOCTORAL SCIENCE FOUNDATION	12	0.246
6	FUNDAMENTAL RESEARCH FUNDS FOR THE CENTRAL UNIVERSITIES	11	0.226
7	BIOTECHNOLOGY AND BIOLOGICAL SCIENCES RESEARCH COUNCIL	9	0.185
8	NATIONAL INSTITUTE FOR HEALTH RESEARCH	9	0.185
9	AUSTRALIAN RESEARCH COUNCIL	8	0.164
10	ENGINEERING AND PHYSICAL SCIENCES RESEARCH COUNCIL	8	0.164
11	EU	8	0.164
12	EUROPEAN UNION	8	0.164

13	NSF	8	0.164
14	BRITISH HEART FOUNDATION	6	0.123
15	HONG KONG POLYTECHNIC UNIVERSITY	6	0.123
16	MINISTRY OF EDUCATION SCIENCE AND TECHNOLOGY	6	0.123
17	NATIONAL INSTITUTES OF HEALTH	6	0.123
18	ACADEMY OF FINLAND	5	0.103
19	BBSRC	5	0.103
20	ECONOMIC AND SOCIAL RESEARCH COUNCIL	5	0.103
21	FCT	5	0.103
22	JSPS KAKENHI	5	0.103
23	NATURAL ENVIRONMENT RESEARCH COUNCIL	5	0.103
24	NATURAL SCIENCE FOUNDATION OF CHINA	5	0.103
25	NCI NIH HHS	5	0.103

Ranking of the funding agency wise publications of Information Management (IM)

Table 5 analyzed that ranking of the funding agency wise publications of Information Management (IM) during period of study. The top ranked funding agency has National Natural science foundation of china published with 56 (1.14%) of the publications among twenty five agencies. It followed by, National Science foundation was a second position and it has 20 (0.41%) of the Publications. Further, the study discussed that exclude the first position institution, rest of the twenty four funding agencies have less than one percentage of the publications brought out in the field of Information Management. On the other hand, eighteen funding agencies, each of them hold less than ten publications in field of study

Table 6 Ranking of authors wise publications.

S.No	Name of authors	No. of records	Percent
1	ANONYMOUS	30	0.615
2	EPSTEIN RH	20	0.41
3	KIM S	12	0.246
4	WANG J	12	0.246
5	DEXTER F	11	0.226
6	BENSON M	10	0.205
7	EHRENFELD JM	10	0.205
8	FOURIE I	10	0.205
9	JUNGER A	10	0.205
10	LI Y	10	0.205
11	LOVE PED	10	0.205
12	ZHANG Y	10	0.205

13	MACEVICIUTE E	9	0.185
14	OGIELA MR	9	0.185
15	HEMPELMANN G	8	0.164
16	KIM J	8	0.164
17	QUINZIO L	8	0.164
18	AHMADI M	7	0.144
19	GARCIA G	7	0.144
20	LI J	7	0.144
21	LIU Y	7	0.144
22	ROCHA A	7	0.144
23	SIMPAO AF	7	0.144
24	BERGMAN O	6	0.123
25	HWANG Y	6	0.123

Ranking of authors wise publications.

Table   witnessed the Ranking of authors wise publications were contributed in the field of Information management. It is observed that there are twenty authors have been ranked in the study, 30 (0.61%) of the publications do not find name of authors, it seems that anonymous authors hold the majority of the publications in the series. It can find that Epstein RH has 20 (0.41%) of the publications contributed in the field of Information Management who ranked second in the series. Further, it has been recorded that only 3.17% shared by twelve authors out total no. of s 4877 of publications have above ten publications each authors. Others thirteen authors recorded less than ten publications also less than one percent of publications.

Table 6 Ranking of country wise publications

S.No	Name of country	No. of records	Percent
1	USA	1464	30.018
2	ENGLAND	421	8.632
3	PEOPLES R CHINA	335	6.869
4	AUSTRALIA	264	5.413
5	GERMANY	237	4.86
6	CANADA	193	3.957
7	SPAIN	185	3.793
8	BRAZIL	148	3.035
9	SOUTH KOREA	148	3.035
10	ITALY	137	2.809

11	FRANCE	136	2.789
12	NETHERLANDS	132	2.707
13	TAIWAN	117	2.399
14	JAPAN	94	1.927
15	INDIA	88	1.804
16	SOUTH AFRICA	73	1.497
17	IRAN	72	1.476
18	SCOTLAND	66	1.353
19	SWEDEN	61	1.251
20	RUSSIA	59	1.21
21	POLAND	56	1.148
22	SWITZERLAND	56	1.148
23	GREECE	55	1.128
24	FINLAND	52	1.066
25	TURKEY	52	1.066

Ranking of country wise publications

Table 6 analyzed the Ranking of the country wise publications; the authors could be brought out research in the field of Information management. It has studied that 1464 (30.18%) of the publications records from USA, which one among the top country in terms distribution of more contribution in the field of information Management. The rest of the countries hold the publications and ranking in the series, England (8.63%), People R China (6.86%), Australia (5.41%)   and Germany (4.86%) of publications stands second , third , fourth and fifth ranked, these counties each of them have more than 200 publications. Further, the study could find that rest of the twelve counties with less than hundred publications of each.

Table Ranking of the Institutions wise publications

S.No	Name of the Institution	No. of records	Percent
1	UNIV WASHINGTON	48	0.984
2	HONG KONG POLYTECH UNIV	33	0.677
3	UNIV N CAROLINA	32	0.656
4	MICHIGAN STATE UNIV	30	0.615
5	HARVARD UNIV	28	0.574
6	UNIV TORONTO	28	0.574
7	UNIV WISCONSIN	28	0.574
8	PENN STATE UNIV	27	0.554
9	UNIV MARYLAND	26	0.533
10	UNIV MELBOURNE	25	0.513
11	UNIV SAO PAULO	24	0.492

12	UNIV FLORIDA	23	0.472
13	UNIV ILLINOIS	22	0.451
14	UCL	21	0.431
15	UNIV BRITISH COLUMBIA	21	0.431
16	UNIV MICHIGAN	21	0.431
17	VANDERBILT UNIV	21	0.431
18	UNIV PENN	20	0.41
19	UNIV SHEFFIELD	20	0.41
20	UNIV SYDNEY	20	0.41
21	NATL TAIWAN UNIV	19	0.39
22	UNIV CALIF LOS ANGELES	19	0.39
23	UNIV MINNESOTA	19	0.39
24	UNIV NEW S WALES	19	0.39
25	CHINESE ACAD SCI	18	0.369

Ranking of the Institutions wise publications

Table would be investigated the ranking of the Institutions wise publications in the field of Information Management during the period of study. There are twenty five institutions are listed, among them University of Washington has contributed highest 48 (0.98%) of the publications witnessed be a first position out of twenty five. The can be noticed that rest of the institutions ranked in the series. Hong Kong Polytech University (0.67%), University of North Caroline (0.65%), Michigan State University (0.61%) and Harvard University (0.57%) occupy Second, Third, fourth and fifth ranked whereas those publications found to be less than one percent out of overall publications 4877. Further, the study recorded that performance of the researchers are considerably weaker of those research potential, though the each institutions have less than fifty publications witnessed by twenty five institutions.

Major Findings

1. Highest 441 (9.04%) of the publications appeared in the year 2018, it followed by , 423(8.67%) and 401(8.22%) of the publications have brought out in 2016 and 2017 respectively.
2. Majority of 5761 Cited documents found in 2018 out of 45179 total citations on core area of Information Management.
3. Highest RGR observed that 1.277 and lowest 0.022 in 2019 and 2011 respectively. Similarly, the highest doubling time 1.842 and lowest 0.031 in 2019 and 2011.

4. Majority 75.6 % of the publications appeared as Journal articles, it followed by 6.95% of the publications occupy Meeting abstract, others 6.27 % , 6.13%, 6.09%, 3.45% of the publications witnessed by Proceeding papers, Book Review, Editorial Material and review respectively.

5. The top ranked funding agency has National Natural science foundation of china published with 56 (1.14%) of the publications among twenty five agencies.

6. There are twenty authors have been ranked in the study, 30 (0.61%) of the publications do not find name of authors, it seems that anonymous authors hold the majority of the publications in the series.

7. 1464 (30.18%) of the publications records contributed from USA, which one among the top country in terms distribution of more contribution in the field of information Management.

8. There are twenty five institutions are listed, among them University of Washington has contributed highest 48 (0.98%) of the publications witnessed be a first position out of twenty five.

Conclusion

The study discussed about the publication on the research trend focused that Information management embraces all the generic concepts of management, including the planning, organizing, structuring, processing, controlling, evaluation and reporting of information activities, all of which is needed in order to meet the needs of those with organisational roles or functions that depend on information. These generic concepts allow the information to be presented to the audience or the correct group of people. After individuals are able to put that information to use, it then gains more value. The result of the study `analysed that research growth of publication of Information Management as a fluctuate trend and year wise citation found to be also a fluctuates from 7 to 1794 during period of study. The study can be witnessed that RGR and Doubling time both observed as a fluctuate trend during period of study. The major records of Information management published as Journal articles in the core filed. The can be revealed that anonymous authors hold more papers, subsequently, Epstein RH with next highest papers. USA has witnessed more papers compare than other counties. Further, the study discussed that University of Washington proved the top ranked institution in the field of information management.

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