Research in electronic publishing field: A scientometric assessment of publications output during 2005-14

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The paper presents an analytical study of the research output in e-publishing field on a series of scientometric indicators. As seen from Scopus database the total world output was 7010 publications published in 10 years during 2005-2014. The study found that e-publishing is still a young subject field growing at a slow pace, 3.41% CAGR growth and averaged 1.08 citations per paper. The body of research literature in this field is still in the early stage of its growth. Publication scatter in this field is still very high. The top 15 most productive organizations accounted for as small global publication share as 5.72% and as small global citation share as 12.73% during 2005-14. The average productivity rate per organization in 10 years was as low as 26.7, citation impact per paper was 2.41, h-index was 6.93 and international collaborative share as 23.44% during 2005-14. To build top research centres in e-publishing field, it is important that funding agencies at national and international level should aggressively start providing planned funding support to research organizations.

Introduction

Electronic publishing (e-publishing) has emerged as a powerful tool in offering comprehensive opportunities to access information online and it is all about generating information in electronic media[1] and hosting the resultant e-information products such as e-journals, e-books, e-theses, e-newspapers, e-magazines, and library catalogues on the Web servers, providing remote accessibility to information online on the internet but within the framework of copyright provisions, laws and contractual agreements. The rise of e-publishing technology has ushered a sort of revolution in publishing world and is considered as a movement from print to digital publishing[2]. It has changed the ways in which the publishing industry nowadays processes, publishes, and distributes electronic information and as result the distinction between author, publisher, reader or user, and library is getting blurred[3]. For authors, e-publishing is a new media; they can themselves publish on the web. For editors, it is a new approach for peer review process; for publishers, it offers new means for instant distribution of scholarly journals; for libraries, it provides instant means of remote accessibility to published information, information dissemination and faster resource discovery across library clusters. Because of their rapid peer review and publication capabilities, e-publications are often viewed as the best sources of information on current research and developments in the field. The ongoing transition from the traditional print era to e-publication era is attributed to constant developments in computers, telecommunications, storage, and networking technologies. The other drivers of change are new business models, new e-information products, services, copyright regime, and changes in information seeking behaviors of users. The major advantages of e-publishing include universal accessibility, usability, resource sharing, increased communication and collaboration between authors and readers, dissemination, technological capabilities, facilitation of scholarly work and cost. Online remote accessibility to information gives users a rich reading experience. E-publishing has inspired a

paradigm shift in the economics of information from ownership of a local print copy to remote accessibility to an electronic copy online on the web. It has made distinct impact on the ways libraries select, acquire, catalogue, share, circulate, and store their e-resources. Subscription models for selection and acquisition of e-products in libraries have moved to consortium platforms such as, in India, National Knowledge Resource Consortium (NKRC) and e-Shodhsindhu. These consortia platforms are offering library groups services such as acquiring, sharing, and circulating e-resources to participating libraries as a common resource. However, there are concerns associated with business model of e-publications marketing which has strong implications on pricing structures, remote access and indexing, aggregation and archiving issues. Publishers tend to dictate subscription prices, sell journals in bundles, and keep increasing prices year after year. The issue of great concern is that the cost of access to scholarly journals has increased to unsustainable levels[4]. Monopolistic control that commercial STM publishers exercise on scholarly communication include complete lack of transparency in subscription costs, impenetrable licensing practices, digital rights management, technologically locked collections, curtailing legitimate use of licensed digital collections for interlibrary loan or such other means of research support are other major concerns of libraries. Besides, there are issues associated with standards, technologies, publishing processes and roles.

E-publishing has also deeply impacted library roles. Until the emergence of e-publishing, libraries used to be the sole repository of information and knowledge. But with the emergence of the e-publishing era, libraries are no longer the sole owners of information since the ownership rights have by default moved to e-publishers. Publishers exercise absolute authority on e-content; they own copyright of electronic information. Libraries role in the e-era is limited only to information access. Libraries which account for more than 2/3rd market segment of STM publishers are now at the receiving end in the e-publishing landscape. Copyright and technical issues need to be resolved in order to allow every reader open access to scholarly journals, theses, book chapters and monographs. Likewise, the convergence of formats and emergence of standards are essential to provide uniformity and to allow the publishers, authors and readers to adopt e-publications on a wider

scale. Besides, e-publishing is being viewed as a big threat to print model, wherein materials are printed, distributed, bound, and retained locally. Many libraries are questioning the need to retain print copies locally when material is reliably available online.

Over the years e-publishing has emerged as a subject of research within the domains of library and information science and computer science. The e-publishing landscape nowadays covers several issues and trends such as history of e-publishing, framework for analyzing developments in e-publishing, advantages and disadvantages of e-publication formats, ways information technology has changed publishing process, standards and technologies in e-publishing, business model of e-publishing, emerging alternatives to scholarly publishing such as open access journals, implications of e-publishing for publishers, aggregators, vendors, libraries and end-users. It will be worthwhile analyzing bibliographic data on e-publishing, discovering current trends covering its rich literature from the past, and making efforts to understand its strong and weak areas of research using various bibliometric indicators.

Literature review

No publication is available till today on the scientometric assessment of global electronic publishing literature. However, publications on the related areas are documented here. Tsai and Chiang[5] surveyed electronic commerce technology trends and forecasts using bibliometric analysis of 2655 publications from 1989 to 2009, using SSCI database. The analysis focused on research output distribution by publication year, citation, country/territory, institute name, document type, language and subject area in order to explore how EC technology, trends, and applications have developed in this period. Wang and Chen[6] presented analyses of electronic commerce (EC) research 4,948 publications listed in the SCI and 2,875 articles in the SSCI during 1999-2008. The results revealed that EC literature can be classified into seven categories: business and management; computer and information science; industrial engineering and operation research; engineering; economics; law; and others. The study also examined the country distribution of authors. Yu, Lee and Mclee[7] used bibliometric and social network analysis techniques to investigate the intellectual pillars of the electronic commerce literature. By

analyzing 28,470 citations of 1,333 articles published in SSCI and SCI journals in electronic commerce area between 2000 and 2006, this study maps an invisible network of knowledge of electronic commerce studies. Dias[8] presented a bibliometric analysis of journal articles, conference papers and book chapters published internationally by researchers affiliated to Portuguese institutions in the subject of e-government, using Scopus database in the past ten years. The authors analyzed year of publication, citations, topics addressed, scope, methods used, and authors and their affiliation institutions. A benchmark exercise was also performed by comparing Portuguese bibliometrics with all the other countries in the European Union. Singh and Yoshik[9] presented a bibliometric analysis (772 papers with 7,313 citations) on "Online Shopping" research area, using WoS database during 2000-14. The authors evaluated the research performance of journals, authors, and papers on the three evaluation criteria of productivity, sustainability, and impact. Huang[10] investigated the longitudinal trends of e-learning research (689 publications), using SCI/SSCI database during 2000-2008 The publications were grouped into two domains with four groups/15 clusters based on abstract analysis. Three additional variables: subject areas, prolific countries and prolific journals were applied to data analysis and data interpretation.

Objectives of the study

The main objective of this study is to analyse the performance of global research on electronic publishing reported during 2005-14 and indexed in Scopus database. In particular, the study focused on the following objectives:

- To study the growth of world literature on e-publishing and study its distribution by type of documents and sources;
- To study the citation pattern of the global research output;
- To study the contribution, global share and citation impact of top 10 most productive countries;
- To study the distribution of global research output by broad subject areas and identification of significant keywords;
- To study the publication productivity and citation impact of most productive organization; and
- To study the leading medium of communication.

Methodology

The study sourced publications data of the world and of 10 most productive countries on electronic publishing from the Scopus database (http://www.scopus.com) covering data period 2005-14. A number of significant keywords related to electronic publishing were identified and used them in combination under tags such as "title, abstract and keyword" and restricting search period to 2005-14 in "date range tag" for searching the global publication output data. The main search string was restricted to countries one by one in "country tag", to find publication data on 10 most productive countries. Besides, the main search string was further restricted to "subject area tag", "country tag", "source title tag", and "affiliation tag", for distribution of publications data by subject, collaborating countries, organization-wise and journal-wise, etc. The citation data was collected from date of publication till the end of April 2015. The study used few indicators, including Relative Citation Index, which is defined as the ratio of global share of citations to the global share of publications. The main search string used for searching total records on e-publishing is as follows:

((((TITLE-ABS-KEY("Electronic journal*" or "E-journal*" or "ejournal*") AND PUBYEAR > 2004 AND PUBYEAR < 2015) or (TITLE-ABS-KEY("Electronic serial*" or "E-serial*" or "eserial*") AND PUBYEAR > 2004 AND PUBYEAR < 2015))) or (((TITLE-ABS-KEY("Electronic book*" or "E-book*" or "ebook*") AND PUBYEAR > 2004 AND PUBYEAR < 2015) or (TITLE-ABS-KEY("Electronic textbook*" or "E-textbook*" or "etextbook*") AND PUBYEAR > 2004 AND PUBYEAR < 2015) or (TITLE-ABS-KEY("Electronic encyclopedia*" or "E-encyclopedia*" or "eencyclopedia*") AND PUBYEAR > 2004 AND PUBYEAR < 2015))) or (TITLE-ABS-KEY("Electronic newspaper*" or "E-newspaper*" or "enewspaper*") AND PUBYEAR > 2004 AND PUBYEAR < 2015) or (TITLE-ABS-KEY("Electronic magazine*" or "E-magazine*" or "emagazine*") AND PUBYEAR > 2004 AND PUBYEAR < 2015) or (TITLE-ABS-KEY("Electronic publishing" or "E-publishing" or "ePublishing") AND PUBYEAR > 2004 AND PUBYEAR < 2015))

Analysis
Growth trends

The world output in electronic publishing field was 7010 publications during 2005-14; it witnessed 3.41%

CAGR growth (compound annual growth rate) and 45% quinquennial growth rising from 2861 papers (in 2005-2009) to 4149 papers (in 2010-14).

The citation performance, measured on 10 years citation data (2005-2014), averaged to 1.08 citations per papers. Quinquennial citation performance was measured as 1.43 citations per paper (2005-09) but in next five years it dropped to 0.84 citations per paper (2010-14) (Table 1). The drop in citations per paper by 22% is inevitable because citations data used in this metric are not comparable. Citation data used here refers to citations since publication and not to a specific 'citation window' defined citations.

Table 1—Annual publications output & citations data in electronic publishing field

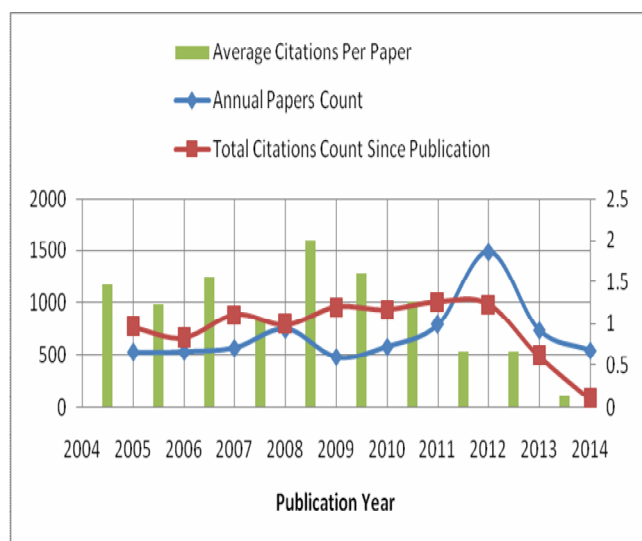| Publication Year	Total papers	Total citations	Average citations per paper
2005	528	769	1.46
2006	533	663	1.24
2007	570	889	1.56
2008	749	796	1.06
2009	481	961	2.0
2010	582	935	1.61
2011	796	1011	1.27
2012	1489	987	0.66
2013	739	485	0.66
2014	543	83	0.15
2005-09	2861	4078	1.43
2010-14	4149	3501	0.84
2005-14	7010	7579	1.08
CAGR	3.41%		

Fig. 1—Comparative performance in e-publishing field on select indicators

Publication type

Journal articles dominate global research output in e-publication field accounting for nearly 50% share. Of the total publications, 49.02% had appeared as research articles, 34.89% as conference papers, 7.17% as reviews, 1.80% as books, 1.457% as book chapters, 1.43% as editorials, 1.04% as conference reviews, 0.93% as short surveys, 0.86% as notes, 0.66% as articles in press, 0.34% as erratum's and 0.30% as letters during 2005-14.

Publication output by type of media

Research publications in e-publishing field appeared both in print (32%) and e-media (68%). Of the total publications in the field, 2752 (39.26%) appeared as e-books, 1858 (26.50%) in e-journals, 97(1.38%) in e-newspapers and 57(0.81%) as e-magazines during 2005-14. E-books rose from 712 to 2040 (186.52% quinquennial growth), e-journals from 910 to 948 (4.18% quinquennial growth), e-newspapers rose from 46 to 51 (10.87% quinquennial growth) and e-magazines rose from 27 to 30 (11.11% quinquennial growth) during 2005-09 to 2010-15. In contrast, average quinquennial citations per paper dropped from 1.56 to 1.02 in the case of e-books and from 1.77 to 1.16 in the case of e-journals (Table 2).

Distribution of publications by country

The top 10 most productive world countries in e-publishing field together contributed 4769 publications (68% global share) during 2005-14. They differ widely in the scale of their publications output, ranging from 219 to 1735 papers. The USA contributed the highest global share in e-publishing (24.75%), followed by China (10.17%), U,K, (7.27%), Germany (4.75%), and India, Italy, Canada, Taiwan, Spain and France (from 3.12% to 3.91%) during 2005-14. Taiwan registered largest quinquennial increase in its publication share by 2.99% (from 2005-09 to 2010-14), followed by Germany 2.83%, France 2.27%, India 2.12%, Italy 1.95% and Spain 1.51%. In contrast, China's publication quinquennial share dropped by 7.26%, USA by 3.36%,, U.K by 3.12%, and Canada by 0.73% in five years from 2005-09 to 2010-14.

Canada averaged highest citation per paper (2.33) followed by U.K. (2.28), USA (1.87), France (1.68), Spain (1.19), Italy (1.18), India (1.17), Taiwan (1.01), Germany (0.87), and China (0.36) during 2005-14. The USA registered highest h-index (37) followed by U.K. (27), Canada (19), Germany and India (14 each),

China, Taiwan and France (11 each), and Italy (10) during 2005-14. Italy registered highest share of international collaborative publications (35.29%) followed by France (30.14%), Germany (29.73%), Canada (27.95%), Spain (25.99%), U.K. (24.51%), USA (11.59%), India (11.31%), Taiwan (8.19%) and China (&.01%) during 2005-14. The USA registered the highest share of highly cited papers (0.52%), followed by France (0.46%), U.K. (0.39%) and Canada (0.39%) during 2005-14 (Table 3).

Table 2—Distribution of annual publication output in electronic publishing field by publication type

Period	E-Journals			E-Books			E-Newspapers			E-Magazines		
	TP	TC	ACPP	TP	TC	ACPP	TP	TC	ACPP	TP	TC	ACPP
2005	149	452	3.03	117	108	0.92	10	15	1.5	5	1	0.20
2006	171	265	1.55	101	107	1.06	6	1	0.17	16	8	0.50
2007	183	240	1.31	129	154	1.19	14	13	0.93	1	0	0.00
2008	220	280	1.27	190	247	1.3	9	18	2.00	2	2	1.00
2009	187	373	2.00	175	497	2.84	7	8	1.14	3	0	0.00
2010	203	355	1.75	298	524	1.76	16	32	2.00	7	4	0.57
2011	231	373	1.61	372	541	1.45	11	6	0.50	8	4	0.50
2012	193	283	1.47	497	605	1.22	8	6	0.75	6	1	0.17
2013	184	74	0.40	487	355	0.73	8	28	3.50	6	5	0.83
2014	137	17	0.12	386	50	0.13	8	4	0.50	3	0	0.00
2005-09	910	1610	1.77	712	1113	1.56	46	55	1.19	27	11	0.41
2010-14	948	1102	1.16	2040	2075	1.02	51	76	1.49	30	14	0.47
2005-14	1858	2712	1.46	2752	3188	1.16	97	131	1.35	57	25	0.44

TP=Total Publications; TC=Total Citations; ACPP=Average Citations Per Paper

Table 3—Publications, citation impact and international collaborative publications of top 10 countries on electronic publishing field

Sl. no.	Name of the country	Number of publications			Share of publications			TC	ACPP	HI	ICP	%ICP	HCP	%HCP
		2005-09	2010-14	2005-14	2005-09	2010-14	2005-14	2005-14	2005-14	2005-14	2005-14	2005-14	2005-14	2005-14
1	USA	765	970	1735	26.74	23.38	24.75	3245	1.87	37	201	11.58	9	0.52
2	China	414	299	713	14.47	7.21	10.17	257	0.36	11	50	7.01	0	0
3	U.K.	261	249	510	9.12	6.00	7.27	1164	2.28	27	125	24.51	2	0.39
4	Germany	88	245	333	3.07	5.90	4.75	289	0.87	14	99	29.73	0	0
5	India	76	198	274	2.66	4.77	3.91	320	1.17	14	31	11.31	0	0
6	Italy	78	194	272	2.73	4.67	3.88	322	1.18	10	96	35.29	0	0
7	Canada	116	138	254	4.05	3.33	3.62	593	2.33	19	71	27.95	1	0.39
8	Taiwan	44	188	232	1.54	4.53	3.31	235	1.01	11	19	8.19	0	0
9	Spain	67	160	227	2.34	3.85	3.24	271	1.19	12	59	25.99	0	0
10	France	51	168	219	1.78	4.05	3.12	367	1.67	11	66	30.14	1	0.46
	Total of 10 countries	1960	2809	4769				7063						
	Global total	2861	4149	7010				7579		166			13	0.27
	Share of Top 10 countries in global output	68.51	67.70	68.03				93.19						

TP=Total Publications; TC=Total Citations; ACPP=Average Citations Per Paper; ICP=International Collaborative Papers; HCI=High Cited Papers; HI=h-index

Subject-wise distribution of publications

Using Scopus classification scheme, world output in e-publishing was classified by main subject areas.

Computers science accounted for the largest publication share (42.25%) followed by publications in social sciences (36.18%), engineering (16.83%), medicine (7.42%), business, management & accounting (6.15%), arts & humanities (2.0%), physics & astronomy (4.92%), etc during 2005-14. Research performance by subject areas was compared on activity index metric (index value 100 is the world average). Quequennial publication activity index of computer science was below average (97) in 2005-2009 but went above average (115.2) in 2010-14. Activity index for social sciences, business, management and accounting, physics & astronomy
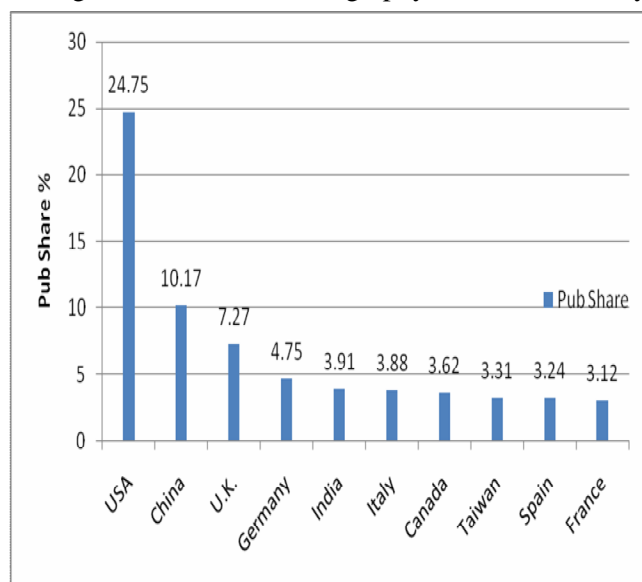

Fig. 2—Publication outputs in e-publishing in developing and developed economies

and engineering was above average in 2005-09 but went below average in 2010-14. Citation performance in social sciences was the highest, 1.42 citations per paper, followed by business, management and accounting (1.06), computer science (0.915), physics & astronomy (0.69%) and engineering (0.67), etc. (Table 4).

Most significant keywords

In all, 51 keywords were identified for the papers in e-publication field (Table 5). Their frequency of appearance in research publications varying between 48 and 2581. These keywords included electronic publishing including e-publishing (2581), electronic books including e-books (1148), world-wide web (580), electronic journals including e-journals (445), internet (379), electronic document exchange (344), digital libraries (315), etc., during 2005-14.

Leading organizations

The top 15 organizations pursuing research studies in electronic publishing contributed 20 to 48 publications each and together they contributed 401 publications (5.72% global share) and received 965 global citations (12.73% share) since publication during 2005-14. Five organizations contributed papers above the average productivity (26.7) of all organizations during 2005-14. These are i) University College London (48), ii) Peking University, China (37), iii) Tsinghua University, China (33), iv) University of Toronto, Canada (30) and v) National Cheng Kung University, Taiwan (28).

Five organizations registered citation per paper above the average of all organizations (2.41) during 2005-14. These include i) Indiana University, USA

Table 4—Subject-wise distribution of publications on electronic publishing field

Sl. no.	Broad Subject	No. of Papers (TP)*			Activity Index		TC	ACPP	%TP
		2005-09	2010-14	2005-14	2005-09	2010-14	2005-14	2005-14	2005-14
1	Computer Science	941	2021	2962	77.84	115.28	2713	0.915	42.25
2	Social Sciences	1043	1493	2536	100.77	99.47	3603	1.42	36.18
3	Engineering	610	570	1180	126.66	81.61	790	0.67	16.83
4	Medicine	232	288	520	109.32	93.57	870	1.67	7.42
5	Business, Management & Accounting	210	221	431	119.38	86.63	458	1.06	6.15
6	Physics & Astronomy	180	165	345	127.84	80.80	238	0.69	4.92
	Total of World	2861	4149	7010	100	100			

TP=Total Papers; TC=Total Citations; ACPP=Average Citations per Paper

- There is overlapping of publications under the above six subjects and as a result the sum total of their papers will be more than the total publications (7010)

(6.26), ii) University College London (4.98), iii) University of Tennessee, USA (4.68), iv) University of North Carolina at Chapel Hill, USA (3.73) and v) Bar Ilan University, Israel (3.50).

Seven organizations achieved h-index above the average of all organizations (6.93) during 2005-14. These include i) University College London (16), ii) University of Tennessee, USA (10), iii) Bar Ilan University, Israel (10), iv) University of North Carolina at Chapel Hill, USA (8) v) Indiana University, USA (7), vi) University of Malaya, Malaysia (7) and, vii) University of Toronto, Canada (7).

Nine organizations registered international collaborative papers above the average of all organizations (23.44%). These include i) Indiana University, USA (43.48%), ii) University College London (37.50%), iii) Bar Ilan University, Israel (37.50%), iv) University of Tennessee, USA (31.82%), v) University of Toronto, Canada (30.00%), vi) Peking University, China (29.73%), vii) University of Malaya, Malaysia (29.17%), viii) University of North Carolina at Chapel Hill, USA (27.27%) and ix) University of Ljubljana, Slovenia (25.00%) during 2005-14 (Table 6).

Table 5—List of significant keywords along with their outputs

Keyword	Frequency	Keyword	Frequency	Keyword	Frequency
Electronic Publishing	2581	Websites	128	Collection Development	66
Electronic Books	1148	Metadata	122	Multimedia Systems	66
Worldwide Web	580	Mobile Devices	131	Web Publishing	64
Electronic Journals (E-Journals)	445	Electronic Textbook	129	Electronic Commerce	62
Internet	379	Database Systems	101	Digital Systems	50
Electronic Document Exchange	344	Online Systems	99	Learning Systems	50
Digital Libraries	315	Information Management	98	Web Services	48
Publishing	231	Newspapers	91	Digital Contents	44
Publishing	231	Newsprint	88		
Open Access	202	Information Dissemination	85	Artificial Intelligence	41
Information Technology	187	Information Science	84	E-Reader	41
E-Learning	171	Information Systems	77	I-Pad	36
Information Retrieval	161	Medical Literature	76	Electronic Media	37
Information Services	161	Computer Software	74	Books	35
Academic Libraries	147	Electronic Resources	72	Liquid Crystal Display	35
Textbook	140	Digital Publishing	68	Digital Devices	34
Electronic Textbook	129	Information Systems	77	Data Mining	34

Table 6—Top 15 organizations in e-publishing field

Sl. no.	Organizations	TP	TC	ACPP	HI	ICP	%ICP
1	University College London (UCL)	48	239	4.98	16	18	37.5
2	Peking University, China	37	40	1.08	4	11	29.73
3	Tsinghua University, China	33	17	0.52	4	3	9.09
4	University of Toronto, Canada	30	29	0.97	7	9	30.00
5	National Cheng Kung University, Taiwan	28	43	1.54	4	2	7.14
6	Bar Ilan University, Israel	24	84	3.50	10	9	37.5
7	University of Malaya, Malaysia	24	40	1.67	7	7	29.17
8	University of Ljubljana, Slovenia	24	24	1.00	6	6	25.00
9	Texas A & M University, USA	23	43	1.87	6	1	4.35
10	Indiana University, USA	23	144	6.26	7	10	43.48
11	Loughborough University, U.K.	22	26	1.18	6	1	4.54
12	University of Tennessee, USA	22	103	4.68	10	7	31.82
13	University of North Carolina at Chapel Hill, USA	22	82	3.73	8	6	27.27
14	Rutgers, The State University of New Jersey, USA	21	23	1.09	4	1	4.76
15	University of Waikato, New Zealand	20	28	1.4	5	3	15
	Total of 15 organizations	401	965	2.41	6.93	94	23.44
	Total of the world	7010	7579				
	Share of top 15 organizations in global output	5.72	12.73				

Table 7—List of Top 15 most productive journals on electronic publishing during 2005-14

Sl. no.	Journal	Number of papers		
		2005-09	2010-14	2005-14
1	*Serials Librarian*	46	115	161
2	*Publishing Research Quarterly*	18	61	79
3	*Electronic Library*	47	29	76
4	*E-Contents*	30	37	67
5	*Serials Review*	30	35	65
6	*Journal of Electronic Resources in Medical Libraries*	33	30	63
7	*International Electronic Journal for Leadership in Learning*	52	0	52
8	*Inter-Lending & Document Supply*	33	18	51
9	*Information Services & Use*	24	21	45
10	*Communication in Computer & Information Science*	1	37	38
11	*Serials*	25	12	37
12	*Library Journal*	14	21	35
13	*Professional De La Informacion*	18	15	33
14	*Collection Building*	12	17	29
15	*Library High Tech*	12	17	29
	Total of 15 journals	395	465	860
	Total of the world	2861	4149	7010
	Share of top 15 journals in world total	13.81	11.21	12.27

Publications scatter by journals

Journals play an important role in the communication structure of research. Of the 7010 publications in e-publishing field, 49.02% (3436) had appeared as articles. The distribution of research output which appeared in top 15 journals in e-publishing field is given in Table 7. Most of these journals belong to the domains of computers science plus library and information science. *Serials Librarian* (with 161 papers) is the top most journal reporting e-publishing field, followed by *Publishing Research Quarterly* (79 papers), *Electronic Library* (76 papers), and *E-Contents* (67 papers), etc.

Conclusion

In conclusion it may be stated that e-publishing is still a young field, but growing at a slow pace of 3.41% CAGR. The USA is the world leader in e-publishing accounting for the largest 24.75% global publications share followed by China (10.17% global share). Whereas other major countries such as UK, Germany, India, Italy, Canada, Taiwan, Spain and France are distant cousins as they had accounted for comparatively smaller share ranging between 3% and 7%. Another important trend worth noticing is that citation impact of e-publishing papers has been significantly low between 0.36 and 2.33 citations per paper in 10 years. Certainly e-publishing research output world over has been neither very strong in terms of quality nor in terms of quantity of research. Given these observations and concerns it is important that India as well as other major countries must undertake proactive measures to catalyze e-publishing research globally. Academic research is increasingly collaborative across all scientific fields and the nature of scientific research means that much of the work involves spending a significant amount of time and money on joint projects. India must therefore encourage collaborative research at global level with key collaborating hubs in e-publishing at national and international level as well as provide planned funding support for the purpose and give priority to areas such as computer science, social science, and engineering as e-publishing output in these very areas had been reportedly the largest during 2005-16.

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