

Global Activity, Impact and Collaborative Trends of Business Research – A Bibliometric Research

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Abstract:- An analysis of global publication productivity, impact and trend of collaborations in business research using Scopus database during the period 1998-2017 is presented. Bibliometric techniques are used for analysis of data. This study finds, 2016 and 2017 as productive and collaborative, whereas 2005, 2007 and 2006 as highly cited years. Collaborative papers are above 50% and Kasemsap, K. is the most productive author and all his papers are single authored. Hong Kong Polytechnic University of China has greater productivity, Collaborative papers and second highest citations gained. United States and United Kingdom leads for their productivity and citations received but their collaborative efforts are less than 50%. India has 7th position with 1538 (3.11%) publication share. Journal of Business Ethics is the highest productive journal. Harvard Business Review is the highly cited journal. Porter, M. E. is the highly cited author having 3389 citations for his single contribution. Out of top 10 highly cited papers six are single authored.

Keywords: Business productivity; collaborations; research impact; International Collaborations

I. INTRODUCTION

Business is an economic activity which is concerned with acquisition of money and wealth through production and exchange of goods and services. The prior concept of business¹ was based on gaining maximum profits as the slogan says “the business of business is to do business”. Later it was changed to “profit with service”. But the modern concepts of business rely on “profits through service”. There may be business for the benefits of society at no profit and no loss basis.

Many business industries like manufacturing, agriculture, information and communication technology, healthcare etc prefer high expenses on research and development (R&D) for better and innovative services. R&D² helps to succeed among competitors and can increase the revenue. R&D fulfills need of the society and supports country's financial condition. Hence evaluation of global business publications is important and reviews of previous literature indicate a research gap in this area. Bibliometrics is a research methods used to evaluate quantitative and qualitative performance of research. The study aims to analyse global performance of business research through three angles that is, Publication productivity, Impact through citation and collaboration trends, collecting data from Scopus database

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during 1998-2017. Analysis of productivity reflects research activity/ publication behavior and analysis of citation reflects research quality. As future success of business depends on collaboration and it increases visibility of research, analysis of collaborative efforts is intended.

II. REVIEW OF LITERATURE

Bhardwaj³ discussed the global publication trend of international business analysing 3131 journals and 1623 papers of Social Sciences Citation Index from 2004-2013. The study reveals that an average publication per year is 162.30. Highest 268 papers published in 2010. The study will assist the researchers, publishers and librarians in selecting prominent and demanded journals. Talukdar⁴ observed the productivity patterns of the business ethics research. Two leading business ethics journals are examined and Lotka's law is tested. Publication productivity in business ethics is consistently growing like other business areas. Dahlgard-Park and Anninos⁵ aims to examine ancient Hellenic philosophy, various schools of management thought and application of these in universities. Ancient Hellenes philosopher's 2,400 years ago writings indicate their considerable contribution towards the development of excellence and TQM concept. Iritani et al⁶ analysed theory and practice of (BPM) Business Process Management. The study confirms the multidisciplinary nature of BPM and it is practiced by different research areas. The study marked eight types of BPM practices. Sengar, Naqvi and Eqbal⁷ examines 213 articles of the management journal Pranjana for 2001 to 2010. The study reveals single authored papers are more than multi authored papers. Among the countries US contributes maximum. Calabretta, Durisin and Ogliengo⁸ examine Journal of Business Ethics to know its growth, trends and present status. The authors adopted citation and co citation analysis and able to recognize growth, significant papers and various business ethics schools. Jabeen et al⁹ tried to explore library scholar's productivity. Forty LIS journals from Journal Citation Report 2010 were collected and analysed using bibliometric techniques. Total 18371 articles published during 2003-2012. Highest growth rate of 11.37% was found in 2009. Trend of self citation has been increased in 36.56%. China has remarkable contribution in collaborative research. Fiala and Willett¹⁰ discussed degree of collaboration in computer science in Eastern Europe during 1989 to 2014. The study found that there are 7.2% collaborative papers of Slovak

with Czech authors, but 2.0% collaborative papers of Czech with Slovak authors.

III. OBJECTIVE

The objective of the study is to find out global Productivity, it's Impact and Collaborative trends of Business Research. The study proceeds on to uncover the followings:

- Annual Trend
- Productive Researcher's Trend
- Trend of Productive Institutions and countries
- Productive Journals and their Citation Impact
- Highly Cited Authors and Papers

IV. METHODOLOGY

Data source selected for the study is Scopus database. Data collected for the sample period is 1998 to 2017 on 7th March 2018. Data collection process consist of, within document search of Scopus, “business management” for Article Title, Abstract, Keywords is searched. Then Subject area “Business, Management and Accounting” and then year 1998 to 2017 is limited. Total 49417 data resulted. Whenever required, data is further refined as per different

available parameters like Author name, Source title, Affiliation, Country/territory, Source type etc. and exported/downloaded as CSV Excel file. The method of study is bibliometrics.

V. RESULTS AND DISCUSSION

Annual Trend

Bibliometrics is vital for funding decisions regarding research and development. Bibliometric techniques are not only used to measure quantitative aspect of research through publication count but also uncover the quality/ impact of research areas, researchers and research articles. Analysis of citation is a means to evaluate quality of research performance. It is based on citation count of researchers, institutes etc. There is a theme or subject relation between the citing and cited document. It reflects influential contributions and contributors. As collaboration increases visibility and sharing of research is a part of communication process. There may be collaborations among authors, subjects, institutions and nations. Since last twenty years collaborative trend has been increased and turned into a requirement of modern scientific communication.

Table 1. Annual trend of Productivity, Impact and Collaboration

Year	Papers (P)	%age	Cit	Impact (C/P)	Coll Papers	%age
1998	721	1.46	32433	44.98	377	52.29
1999	792	1.60	32072	40.49	450	56.82
2000	881	1.78	36020	40.89	460	52.21
2001	936	1.89	46385	49.56	489	52.24
2002	1128	2.28	39690	35.19	637	56.47
2003	1519	3.07	46878	30.86	826	54.38
2004	1609	3.26	49712	30.90	836	51.96
2005	2141	4.33	60566	28.29	1166	54.46
2006	2312	4.68	56496	24.44	1405	60.77
2007	2501	5.06	59156	23.65	1569	62.73
2008	2794	5.65	54614	19.55	1869	66.89
2009	3190	6.46	47347	14.84	2118	66.39
2010	3465	7.01	51615	14.90	2375	68.54
2011	3651	7.39	38619	10.58	2538	69.52
2012	3196	6.47	34709	10.86	2260	70.71
2013	3593	7.27	29539	8.22	2606	72.53
2014	3272	6.62	21060	6.44	2421	73.99
2015	3622	7.33	17175	4.74	2716	74.99
2016	4349	8.80	9612	2.21	3371	77.51
2017	3745	7.58	3348	0.89	2864	76.48
Total	49417	100	767046	15.52	33353	67.49
Correlation of productivity and citations						0.98
Correlation of citations and collaborations						0.98

Table 1 displays annual publication productivity, its impact through citation and collaborative efforts of business researchers during 1998-2017. Out of total 49417 papers highest contribution is found in 2016 is 4349 (8.80%). Except the years 2012, 2014 and 2017 positive growths are recorded. For the year 2017 we can say that data may be added later in Scopus database Average growth per year is 2470.85. The citation pattern reveals that up to 2005 citation increases and highest 60566 citations are received in the year 2005 following 59156 in 2007. Where as in 2001 highest citation per paper (49.56) are found following 1998 (44.98). Upward annual trend of collaborative efforts are found. Highest collaborative papers 3371 in 2016 and 2864 in 2017 are noticed. During the study period collaborative papers are above 50%. It means since 1998 researchers in this field had shown their interest towards collaborative works. Total 49417 papers received 767046 citations and out of them 33353 (67.49%) papers are collaborative.

The statistical technique Correlation (r) ¹¹ signifies the degrees of relationship between two distinct variables. It ranges between -1 to +1. When r= +1, it means there is positive and strong relationship, when r= -1, it means there is strong and negative relationship. When r= 0, it indicates there is no relationship between two variables. Here the

inbuilt Karl Pearson correlation formula in Excel has been applied on the data of productivity and citations, and between citations and collaborations which resulted as 0.98 each. It is very close to +1, which means there exist significant positive relationship between productivity and citations and also between citations and collaborations. It means both the values increase together.

Productive Researcher's Trend

Table 2 shows trend of productive business researchers. Kasemsap, K. of Thailand is the rank one author with 54 papers, following Smith, A. D. of United States with 52 and Mendling, J. of Austria with 43 papers. H- index¹² is introduced by J. E. Hirsch in 2005 is a metric which measure an author's publications as well as citations. An author has index h if h of his papers has been cited at least h times. Here we find Gunasekaran, A. who is rank 4th author has highest h-index of 22 following Mendling J. , Kumar, S. and Svensson, G. with 12 h-index each. Kasemsap, K. and Annon who is rank 1 and 5th author have no collaborative papers. Kodama, M. who is ranked 6th has only one multi author paper. On the other hand, Weske, M. and Helo, P. have no single authored papers means all their papers are multi authored.

Table 2. Top 10 productive Researchers and their trend

Rank	Author Name	Affiliating Instituions	Paper	cit	h-index	Coll Work
1	Kasemsap, K.	SuanSunandha Rajabhat University, Bangkok, Thailand	54	372	11	0
2	Smith, A.D.	Robert Morris University, Pittsburgh, United States	52	48	11	21
3	Mendling, J.	Wirtschaftsuniversitat Wien, Vienna, Austria	43	942	12	42
4	Gunasekaran, A.	California State University Bakersfield, School of Business and Public Administration, United States	41	2578	22	39
5	Anon	Al-Quds University, Bethlehem, Palestine	38	5	1	0
6	Kodama, M.	Nihon University, College of Commerce, Tokyo, Japan	35	449	11	1
7	Kumar, S.	University of St. Thomas, Minnesota, United States	34	706	12	33
8	Svensson, G.	Oslo School of Management, Oslo, Norway	32	557	12	15
8	Weske, M.	Hasso-Plattner-Institut fur Softwaresystemtechnik GmbH, Germany	32	241	6	32
9	Helo, P.	University of Vaasa, Finland	31	353	7	31

Trend of Productive Institutions

In table 3 top 10 productive institutions are displayed with their citations and collaborations. These top 10 institutions are from seven countries and contribute 5% of the total productivity, 7.65% of the total citations received and 4.30% of the total collaborated papers. Hong Kong Polytechnic University of China has highest productivity

with 353 papers following Aalto University with 297, University of Manchester with 265 papers. Highest citations of 9630 are received by Cranfield University of UK, following Hong Kong Polytechnic University with 8117 and



Erasmus University Rotterdam with 7836. Hong Kong papers following Copenhagen Business School and Erasmus Polytechnic University again has highest collaborating University Rotterdam.

Table 3. Top 10 Productive Institutions, their Impact and Collaborative efforts

S N	Inst	Country	Papers	Cit	Coll Papers
1	Hong Kong Polytechnic University	China	353	8117	237
2	Aalto University	Finland	297	7426	157
3	University of Manchester	U K	265	6488	138
4	Cranfield University	U K	258	9630	137
5	The University of Warwick	U K	237	6657	110
6	Monash University	Australia	235	4771	118
7	Erasmus University Rotterdam	Netherlands	231	7836	173
8	Copenhagen Business School	Denmark	200	4276	174
9	University of South Australia	Australia	197	2120	86
10	Universidade de Sao Paulo - USP	Brazil	196	1338	105
Total			2469	58659	1435

Trend of Productive Countries

Table 4 shows productive countries performance. They contribute 68.67% of the total productivity, 95.08% of the total citation received and 48.01% of the total collaborating papers. It means these countries are not only highly productive but also highly cited countries. United States is rank one productive country followed by United Kingdom, Australia and Germany. India has 7th position with 1538 (3.11%) publication share. The top three productive countries are also top three cited country. Like United States

is the highly cited country with 323294 citations and its citation per paper is 26.90. It is followed by United Kingdom and Australia. China has the lowest citation per paper. The Internationalisation Index of Netherlands is higher with 88.81. It is followed by Canada, Germany and Australia. The countries United States and United Kingdom are highly productive and highly cited countries in global scenario in business research but their collaborative trend is less than 50%.

Table 4. Top 10 Productive Countries, their Impact and International Collaborations

S N	Countries	Papers	%age	Cit	Impact C/P	Int. Coll Papers	Internationalisation Index
1	United States	12019	24.32	323294	26.90	4227	35.17
2	United Kingdom	6404	12.96	151195	23.61	3048	47.60
3	Australia	2952	5.97	54813	18.57	1675	56.74
4	Germany	2594	5.25	36903	14.23	1487	57.32
5	China	2541	5.14	19942	7.85	1172	46.12
6	Canada	1740	3.52	46291	26.60	1273	73.16
7	India	1538	3.11	17013	11.06	427	27.76
8	Spain	1535	3.11	27259	17.76	829	54.01
9	Italy	1350	2.73	18181	13.47	757	56.07
10	Netherlands	1260	2.55	34435	27.33	1119	88.81
Total		33933	68.67	729326		16014	

Trend of productive Journals

Table 5 displays leading 10 productive journals which contribute 8.75% of the total productivity, published by five publishers from four countries. Journal of Business Ethics accounts for 2.22% contributions, following Strategic Direction with 1.30%, Business Process Management Journal with 0.80%. Out of these, journals published by Emerald have 1661 (3.36%) and journals from UK have

1937 (3.92%) papers. Impact Factors of three journals are not available. And among the rest journals, Journal of Cleaner Production of Elsevier has greater IF of 5.715, following Elsevier's International Journal of Production Economics with 3.493 and Harvard Business Review published by Harvard Business School Publishing with 3.227.

Table 5. Productive Journals and their Citation Impact

S N	Journal Name	Publisher	Country of Origin	of Papers	%age	IF (2016)
1	Journal Of Business Ethics	Springer Science+Business Media	Germany	1096	2.22	2.354
2	Strategic Direction	Emerald	UK	642	1.30	***
3	Business Process Management Journal	Emerald	UK	396	0.80	1.308 (2017)
4	Harvard Business Review	Harvard Bus School Publishing	US	381	0.77	3.227
5	Journal Of Cleaner Production	Elsevier	Netherlands	330	0.67	5.715
6	Management Decision	Emerald	UK	319	0.65	1.396
7	Journal Of Management Development	Emerald	UK	304	0.62	***
8	Industrial Marketing Management	Elsevier	Netherlands	297	0.60	3.166
9	International Journal Of Production Economics	Elsevier	Netherlands	282	0.57	3.493
10	Total Quality Management And Business Excellence	Taylor & Francis	UK	276	0.56	***

Highly Cited Authors

Table 6 reflects highly cited authors and papers. This list includes all document types. Here we find except sl no 9 which one is a review, rest of top 10 are articles. Porter, M. E. is the highly cited author having 3389 citations for his single contribution entitled "Clusters and the new economics of competition". Likewise Hansen, M.T., Nohria, N. & Tierney, T. are second highest cited authors having 2327 citations for their paper entitled "What's your strategy for

managing knowledge?", following Orlitzky, M., Schmidt, F.L. & Rynes, S.L. with 2266 citations for the paper entitled "Corporate social and financial performance: A meta-analysis". Among these top 10 cited papers four are published in Harvard Business Review, which is the highly cited journal and 9573 citations are received. On the other hand out of these 10 papers six papers are single authored papers.

Table 6. Highly Cited Authors and their Papers

S N	Authors and Publication Details	Paper Title	Cit
1	Porter M.E. Harvard business review, 76(6), 1998, 77-90p.	Clusters and the new economics of competition.	3389
2	Hansen M.T., Nohria N. & Tierney T. Harvard business review, 77(2), 1999, 106-116, 187p.	What's your strategy for managing knowledge?	2327
3	Orlitzky M., Schmidt F.L. & Rynes S.L. Organization Studies, 24(3), 2003, 403-441p.	Corporate social and financial performance: A meta-analysis	2266
4	Davenport T.H. Harvard business review, 76(4), 1998, 121-131p.	Putting the enterprise into the enterprise system.	1961
5	Porter M.E. Harvard business review, 79(3), 2001, 62-78, 164p.	Strategy and the Internet.	1896

6	Amit R. & Zott C. Strategic Management Journal, 22(7 Jun), 2001, 493-520p.	Value creation in e-business	1841
7	Gold A.H., Malhotra A. & Segars A.H. Journal of Management Information Systems, 18(1), 2001, 185-214p.	Knowledge management: An organizational capabilities perspective	1634
8	Teece D.J. Long Range Planning, 43(3 Feb), 2010, 172-194p.	Business models, business strategy and innovation	1524
9	Srivastava S.K. International Journal of Management Reviews, 9(1), 2007, 53-80p.	Green supply-chain management: A state-of-the-art literature review	1439
10	Sarasvathy S.D. Academy of Management Review, 26(2), 2001, 243-263p.	Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency	1408

VI. CONCLUSION

The study reveals average growth per year is 2470.85. Highest publications and collaborations are found in 2016 and 2017. Whereas highest citations received in 2005, 2007 and 2006. During the study period collaborative papers are above 50%. There exist significant positive relationship between productivity and citations and also between citations and collaborations. Kasemsap, K. is the most productive author with 54 papers which are all single authored. Among these top ten authors Gunasekaran, A. is highly cited author. Hong Kong Polytechnic University of China has highest productivity, Collaborative papers and second highest citations gained. The countries United States and United Kingdom are highly productive and highly cited but their collaborative trend is less than 50%. India has 7th position with 1538 (3.11%) publication share. Journal of Business Ethics is leading journal with 1096 papers and 2.354 Impact Factor. Porter, M. E. is the highly cited author having 3389 citations for his single effort entitled "Clusters and the new economics of competition". Harvard Business Review is the highly cited journal. Out of top 10 cited papers nine are articles and six papers are single authored papers.

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