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STUDY OF ANNUAL RESEARCH PRODUCTIVITY IN INDIAN TOP BUSINESS SCHOOLS

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Abstract:

Institutional Ranking in higher educational institutions became common practice and business schools are highly benefitted by announced ranks based on various ranking criterions. Ranking is usually announced based on the criterions like pedagogy, placement salary, research output, faculty-student ratio, international linkage, management of technology, infrastructural facilities etc. Recently, we have developed a model of calculating research productivity of higher educational institution based on calculating institutional research index and weighted research index. The institutional research productivity is calculated using a metric model called ABC model which consists of four institutional parameters identified as number of Articles published in peer reviewed journals (A), number of Books published (B), number of Case studies and/or Book Chapters (C) published, and the number of full time Faculty members (F) in that higher education institution during a given time of observation. In this paper, we have used ABC model of institutional research productivity to calculate research productivity of some of the Indian top business schools. The publication data is collected from institutional website for the year 2015. The research productivity of these institutions are determined and compared. Based on research productivity index, the Business Schools are re-ranked.

Index Terms: Business School Ranking, Faculty Productivity, Institutional Productivity & Institutional Publication Index

1. Introduction:

A Business School is a university-level institution that confers degrees in business administration or management. Such a school is also called as school of management, school of business, school of business administration, or, colloquially, b-school or biz school. A business school teaches various subjects such as accounting, management principles, business environment, administration, strategy, economics, entrepreneurship, finance, human resource management, information systems, logistics, marketing, organizational psychology, organizational behavior, public relations, research methods, decision science, e-business, international business, entrepreneurship, real estate etc. Business schools in general use different pedagogy to educate their students. Most of the business schools use the concept of lecture based method to give students a basic business education. Lectures are generally given from the professor's point of view, and rarely require interaction from the students unless note taking is required. Some business schools center their teaching around the use of case studies. Business cases are historical descriptions of actual business situations. Typically, information is presented about a business firm's products, markets, competition, financial structure, sales volumes, management, employees and other factors affecting the firm's success. Some business schools use a skills-based approach emphasizing quantitative methods, in particular operations research, management information systems, statistics, organizational behavior, modelling and simulation, and decision science. Some business schools, in addition to concept based teaching, use business games in different disciplines such as business, economics, management, etc. Some business schools are blending many of these approaches throughout their degree programs, and even blending the method of delivery for each of these approaches. Using

above pedagogy, business schools strive to meet two goals: knowledge exploration through research and knowledge exploitation through instruction. The instruction imparted in business schools are mainly derived from research and hence the knowledge exploration through research finds central activity in business schools.

Recently introduced business school ranking system based on various criteria and parameters is helpful to study and compare the quality of knowledge and skills imparted in these business schools. Business school ranking also help student aspirants to choose the school and the programme to pursue their education with required competitive edge to be suitable to get absorbed in industries. Ranking is based on pedagogy [1], placement [2], research output [3], faculty-student ratio [4], international linkage [5], management of technology [6] etc. The validity and relevance of rankings of business schools and programmes are directly related to the choice of criteria against which the ranking takes place [7]. Recently an Indian news firm, 'Business Today' announced Indian best schools ranking based on five criterions namely: learning experience, living experience, selection process and establishment, future orientation, and placement performance [8]. This is not a scientific way of measuring the higher educational institutions performance due to the fact that these parameters are not measurable and quantifiable systematically. These parameters used in various higher institutional (especially business schools) ranking depends on environmental factors and hence different at different locations and countries.

Institutional Ranking in higher educational institutions became common practice and business schools are highly benefitted by announced worldwide ranks based on various ranking criterions. Ranking is usually announced based on pedagogy, placement, research output, faculty-student ratio, international linkage, management of technology etc. Recently we have developed a model of calculating research productivity of higher educational institution based on calculating institutional research index and weighted research index. The institutional research productivity is calculated using a metric which consists of three institutional variables and one parameter. The three variables identified as number of Articles published in peer reviewed journals (A), number of Books published (B), and number of number of Case studies and/or Book Chapters (C) published during a given time of observation. The parameter used is number of full time Faculty members (F) in that higher education institution which remains constant during a given period of observation.

In this paper, we have used ABC model of institutional research productivity to calculate research productivity of some of the Indian top business schools. The publication data is collected from institutional website for the year 2015. The research productivity of these institutions are determined and compared. Based on research productivity index, the Business Schools are re-ranked.

2. ABC Model of HE Institutional Productivity:

Recently the Ministry of Human Resource Development, Govt. of India has developed a National Institutional Ranking Framework [9] which uses various criteria and parameters that have global appeal e.g. research output, research impact, learning environment, etc. The framework has also considered parameters like infrastructure, facilities for differently-abled persons, percentage of students from other states and other countries, percentage of women students and faculty, and percentage of economically and disadvantaged students. The framework has also given weightage to the sports and extra-curricular facilities available in the campuses of universities, which supports overall development of a student in a Business school or a University. But we argue that all other facilities like infrastructure, student development facilities, library

and laboratory facilities, faculty-student ratio etc. are already standardized by national accreditation bodies and the graduation outcome cannot be quality measurement criteria for autonomous institutions. The Outreach and Inclusivity parameters depends on the objective of the organization and the perception parameter depends on the innovation ability and research productivity of the organization and hence the only criterion which should be used to decide the quality and hence the ranking of the organization should be institutional research productivity which is a measure of institutional effectiveness.

In our model of studying institutional effectiveness, which in turn depends on institutional research productivity of both faculty and students of higher educational institution (figure 1), we have developed a scheme of measuring institutional performance based on following postulates.

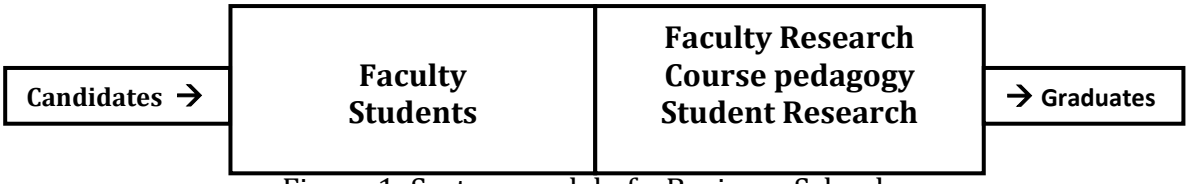

Figure 1: System model of a Business School

Postulate 1:

The Quality in higher education depends on the ability of the institution in new knowledge creation.

Postulate 2:

The ability of new knowledge creation of the institution depends on the institutional research and publications by both faculty members and students.

Postulate 3:

The institutional publication is measured by calculating its annual average publications.

Postulate 4:

The institutional publication ability is measured by its annual publications in terms of number of Articles published in Journals (A), number of Books published in the subjects/Edited volumes (B), and number of Business cases and Book chapters (C) published.

Postulate 5:

The Research productivity (P) of the institution can be measured by knowing research index (α) and weighted research index (β), which shall be calculated using average publications in Journals, average publications of books and average number of publications of Business cases. The research index per year (α) is calculated using the formula $\alpha = (2A + 5B + C)/F$, and the weighted research index (β), per year is calculated using the formula $\beta = (2A + 5B + C)/8F$, where A = No. of publications in Journals in that year, B = No. books published in that year, C = No. of Publications of Business Cases published in that year, and F = No. of fulltime Faculty members in that institution during that year. In the above formula the weightage for a research article A is two and that of book B is five and the case study is one, based on an quantified assumption of the relative significance & efforts involved in generating it arrived at through a summated scaling technique.

Postulate 6:

The annual research productivity (research index α) of the organization decides institutional ranking. If $\alpha < 2$, the Business school is poor in Research Productivity, if $\alpha \geq 3$, the Business School is sustainable, if $\alpha > 3$, the institution is good and the business

schools with $\alpha \geq 4$ should only be considered for national/global ranking process. The last postulate will give an idea for Institutional administrators of what productivity level the organization should maintain to improve its brand. The faculty members who fail to contribute to the research in addition to their teaching workload, to improve annual research productivity to desired level should be relieved from the job. Since the annual research productivity decides the quality of higher educational institution, there is a continuous pressure on all the faculty members to involve in research activities and best performers in the team should get incentives from the organization.

3. Calculation of Institutional Research Index:

The institutional research performance can be calculated by considering the different way of new knowledge creation. All institutional effort to improve teaching-learning process should be focused towards developing students' research and innovating ability which in turn depends on faculty guidance on creating new idea, concept, methods and analysing ability of problems for effective decision making. Students through theoretical study of concepts, experimental study through projects/fieldwork should be capable to publish research papers, book chapters and/or case studies. Through forming research teams which includes both faculty members and students, the higher educational institution has responsibility towards creating new knowledge, developing new skills and imparting new experience through research and innovation. All other aspects and parameters for enhanced performance in higher educational institutions like obtaining project funding, providing industry consultation, applying patents are subsidiary requirements because their further effectiveness also depends on the research outcome of the organization in the form of publications. In this model, we have four types of research publications as Journal publications, Book publication, Book chapter publication and business Case publication. Any other type of publication like publication of papers in conferences/proceedings require to be further improved and converted as journal publication and hence such a publications are not counted for calculation of the index. By considering such effective research publications called ABC model [8] the institutional research productivity can be calculated. In ABC model, A stands for number of research articles published in reviewed journals, B stands for number of Books published with unique ISBN number, and C stands for number of business cases and/or number of book chapters published by the institution during a given year. Research index is calculated using following formulae:

Research index of the Higher Education Institution = (2A + 5B + 1C) / F, where A is number of papers published in reviewed & indexed Journals with ISSN number during a given year, B is number of books published with ISBN number during a given year, and C is sum of number of business cases and book chapters published during a given year. F is number full time faculty members of the institution during a given year.

$$\text{Research index} = [(2A + 5B + 1C) / F] \quad \text{----} \quad (1)$$

Weighted average is an average in which each quantity to be averaged is assigned a weightage. These weightages determine the relative importance of each quantity on the average. Weightages are the equivalent of having that many like items with the same value involved in the average. Weighted Research index of the Higher Education Institution are calculated using following formula:

$$\text{Weighted Research index} = [(2A + 5B + 1C) /8] / F \quad \text{---------} \quad (2)$$

Where A is number of papers published in reviewed & indexed Journals with ISSN number during a given year, B is number of books published with ISBN number during a given year, and C is sum of number of business cases and book chapters published during a given year. F is number full time faculty members during a given year.

By examining the value of calculated weighted Research index, we can classify a given higher education institution as five categories as Best, Better, Good and Satisfactory and Non-performer as shown in Table 1.

Effect of Number of Ph.D Research Scholars of the Organization on Research Index:

Institutions which have Ph.D./FPM programme will get benefit in research publications compared to the institutions which offer only under-graduation and Post-graduation programmes. This is due to the fact of the contribution of Ph.D./FPM scholars contribution to the institution publication along with faculty members. In such cases a correction can be made in organizational research index and weighted research index calculation formula by correcting the total number of faculty from F to F* where F* = (F + N/3). Here, a general assumption is made by considering three research scholars are equivalent to one faculty member.

Thus the corrected research index $\alpha^* = (2A + 5B + 1C) / F^*$ -------- (3)

And the corrected weighted research index $\beta^* = [(2A + 5B + 1C) /8] / F^*$ ------- (4)

Table 1: Institutional Grading based on Research Productivity & Weighted research productivity

Value of research index (αor α*) ≥	Value of weighted research index (βor β*) ≥	Institutional Grade
16 - 24	2 - 3	Optimum Performer
8 - 16	1 - 2	Best Performer
4 - 8	0.5 - 1	Better Performer
3 - 4	0.375 - 0.5	Good Performer
2 - 3	0.25 - 0.375	Satisfactory
1 - 2	0.125 - 0.25	Poor Performer
0 - 1	0 - 0.125	Very Poor Performer

4. Study of Top Business Schools in India:

In this research, we have applied ABC model of research performance to calculate research productivity index of top Indian business schools. We have identified 50 top Indian business schools based on recent institutional ranking announced by Human Resource Development Ministry of Government of India [9]. Table 2 contains the list of top 50 business schools in India under research category institutions. The table also contains the number of full time faculty members and the full time research scholars working in those institutions. Table 3 contains some of additional top business schools missing in Table 2, but identified in other surveys [10].

Table 2: List of Top Business Schools in India as per NIRF, HRD Ministry, Govt. of India.

S. No	Business School	Programmes	No. of Full time Faculty Members (F)	No. of Ph.D./FPM scholars (N)
1	Indian Institute of Management, Bangalore	PGP, Ex-PGP, FPM,	97	72
2	Indian Institute of Management, Ahmadabad	PGP, Ex-PGP, FPM, AFP, FDP	143	55
3	Indian Institute of Management, Kolkata	PGP, Ex-PGP, FPM, PGDBA	89	53
4	Indian Institute of Management, Lucknow	PGP, Ex-PGP, FPM	81	74
5	Indian Institute of Management, Udaipur	PGP, Ex-PGP, FPM	29	0
6	Indian Institute of Management, Kozhikode	PGP, Ex-PGP, FPM, FDP	89	33
7	International Management Institute,	PGDM, Ex-PGDM,	44	24

	New Delhi	FPM		
8	Indian Institute of Forest management, Bhopal	PGDFM, M.Phil., FPM	33	0
9	Indian Institute of Technology, Kanpur	MBA, M.Tech., Ph.D.	20	0
10	Indian Institute of Management, Indore	PGP, Ex-PGP, FPM, FDP, IPM	86	46
11	Management Development Institute, Gurgaon	PGPM, Ex-PGPM, FPM, FDP	80	64
12	International Management Institute, Kolkata	PGDM	19	0
13	Xavier Labour Relations Institute (XLRI), Jemshedpur	PGDM, FPM, Ex-FPM	82	20
14	Indian Institute of Management, Thiruchirapalli	PGPM, PGPBM, FPM	30	14
15	Thiagarajar School of Management	MBA, PGDM	29	0
16	S. P. Jain Institute of Management & Research, Mumbai	MBA, PGPDM	44	0
17	Vellore Institute of Technology, Vellore	BBA, MBA, Ph.D.	26	24
18	Indian Institute of Management, Raipur	PGP, FPM, Ex-PGP, Ex-FPM	20	37
19	Indian Institute of Management, Rohtak	PGPM, Ex-PGPM, FPM	18	15
20	Rajiv Ghandi Institute of Management, Shillong	PGP, FPM	28	11
21	Indian Institute of Management, Kashipur, Uttarakhand	PGP, Ex-PGP, FPM, Ex-FPM	29	28
22	Indian Institute of Information Technology & Management, Gwalior	MBA Ph.D.	10	40
23	Fore School of Management, New Delhi	PGDM, Ph.D.	41	0
24	Lal Bahadur Shastri Institute of Management, New Delhi	PGDM	34	0
25	Birla Institute of Technology, Ranchi	MBA, Ph.D.	19	2
26	Jaipuria Institute Of Management, Noida	PGDM, Ph.D.	36	21
27	Department Of Business Administration - Tezpur University	MBA, PGDTM, MTTM, Ph.D.,	13	18
28	Indian Institute Of Management, Ranchi	PGDM, PGDHRM, FPM	19	14
29	Institute Of Management, Nirma University, Ahmedabad	BBA, MBA, Ph.D.,	37	20
30	Xavier Institute Of Management & Entrepreneurship, Bangalore	PGP, Ex-PGP, Ph.D.	25	0
31	Great Lakes Institute Of Management, Tamilnadu	PGDM, PGPM,	32	0
32	ITM University, Gwalior	BBA, MBA, Ex-MBA	13	0
33	Ssn School Of Management Tamilnadu	MBA	15	0
34	Department Of Management Studies, NIT, Thiruchirapalli	MBA, Ph.D.	18	20
35	Army Institute Of Management & Technology, Noida	MBA	12	0
36	Rajagiri College Of Social Sciences, Cochin	MBA, MHRM, PGDM	19	0
37	Rajagiri Business School, Cochin	-	17	0

38	Institute of Public Enterprise-Hyderabad	PGDM, MBA, Ph.D.	47	0
39	Institute Of Management Technology, Nagpur	PGDM	41	0
40	Lingaya's University	BBA, MBA, Ph.D.	17	42
41	Sri Krishna College Of Engineering And Technology-Coimbatore	MBA	13	0
42	Adhiyamaan College Of Engineering (Mba Programme)	MBA	23	0
43	Jagan Institute Of Management Studies Technical Campus	BBM, BCA, PGDM, MCA	42	0
44	B.N. College Of Engineering & Technology(Bncet), Lucknow	MBA	8	0
45	Entrepreneurship Development Institute Of India, Bhat, Gujrat	PGDM, FPM	23	5
46	Institute of Management & Entrepreneurship Development Pune	MBA, PGDM, Ph.D.	44	78
47	RVS Technical Campus, Coimbatore	MBA	06	0
48	University School Of Management, Kurushetra, Haryana	MBA, PH.D.	13	14
49	Jaipuria Institute of Management, Lucknow-Lucknow	PGDM, Ph.D.	41	0
50	SCMS School of Technology & Management (MBA)-Cochin	PGDM, Ph.D.	16	0

Table 3: List of Top Business Schools in India missed in Table 2 as per ref [10].

S. No.	Business School	Programmes	No. of Full time Faculty Members (F)	No. of Ph.D./FPM scholars (N)
1	Indian Institute of Foreign Trade (IIFT) New Delhi	PGP, Ex-PGP, FPM,	56	10
2	Indian School of Business (ISB), Hyderabad	PGP, Ex-PGP, FPM, Post Doc.	45	11
3	IMT, Ghaziabad	PGP, Ex-PGP, FPM, PGDBA	69	0
4	T.A. Pai Management Institute(TAPMI), Manipal	PGP, Ex-PGP, FPM	32	0
5	DMS, IIT Delhi	PGP, Ex-PGP, FPM	19	35
6	SDM IMD, Mysore	PGP, Ex-PGP, FPM,	18	0
7	XIM, Bhubaneswar	MBA, Ex-MBA, Ph.D.	57	30
8	KIAMS, Harihar	PGDM	14	0
9	DMS, IISc., Bangalore	PG, Ph.D.	10	34
10	Great Lakhs Institute of Management, Chennai	PGPM. PGDM,GEMBA,	35	0
11	Srinivas Institute of Management Studies	MBA	24	0

5. ABC Model Applied to Top Business Schools in India:

The institutional ranking for the year 2015 is determined based on ABC model by studying their corrected research productivity index α*. Table 6 contains the information about the re-ranking of top Indian business schools and their grade. The grades are given based on the model shown in Table 1. The result shows that only one institution out of 50 institutions has secured the annual research productivity grade of 'Good Performer' for the year 2015. Two institutions could able to reach satisfactory level and all other business schools have maintained either poor or very poor grade. Even through some of the faculty members are very good researcher in top level

business schools in India, the overall averaged team performance is very low and is reflected in the present research based on ABC model. Even if each and every faculty members publish two research papers per year, the average research productivity index will be four and hence an institution can easily reach the grade of 'Better Performer'. Based on our calculations using ABC model of institutional research productivity, it is observed that many of top level business schools which enjoy huge amount of subsidy from the government are failed to adopt a concrete plan of fixing target on faculty research and making them accountable to achieve the target.

Table 4: List top business schools with their research productivity index for the year 2015

S. No	Institution	Articles Published in Journals (A)	Books Published (B)	Case Studies & Book Chapters (C)	Institutional Research Index (α)	Corrected Research Index (α*)
1	Indian Institute of Management, Bangalore	21	6	34	1.09	0.88
2	Indian Institute of Management, Ahmadabad	61	4	79	1.55	1.37
3	Indian Institute of Management, Kolkata	40	4	10	1.23	1.03
4	Indian Institute of Management, Lucknow	62	1	15	1.78	1.43
5	Indian Institute of Management, Udaipur	06	0	0	0.41	0.41
6	Indian Institute of Management, Kozhikode	49	2	7	1.29	1.15
7	International Management Institute, New Delhi	44	0	10	2.23	1.88
8	Indian Institute of Forest Management, Bhopal	-	-	-	-	-
9	Indian Institute of Technology, Kanpur	10	0	0	1.0	1.0
10	Indian Institute of Management, Indore	28	1	22	0.97	0.83
11	Management Development Institute, Gurgaon	19	0	04	0.53	0.42
12	International Management Institute, Kolkata	03	01	0	0.58	0.58
13	Xavier Labour Relations Institute (XLRI), Jemshedpur	55	6	18	1.93	1,78
14	Indian Institute of Management, Thiruchirapalli	10	0	0	0.67	0.588
15	Thiagarajar School of Management	15	1	0	1.23	1.23
16	S. P. Jain Institute of Management & Research, Mumbai	13	2	5	0.934	0.934
17	Vellore Institute of Technology, Vellore	8	0	0	0.62	0.4
18	Indian Institute of Management, Raipur	03	0	0	0.30	0.20
19	Indian Institute of Management, Rohtak	40	1	5	5.0	3.91
20	Rajiv Ghandi Institute of Management, Shillong	11	01	01	1.0	0.9
21	Indian Institute of Management, Kashipur	15	02	0	1.38	1.14
22	Indian Institute of Information Technology & Management, Gwalior	06	0	0	1.2	0.6
23	Fore School of Management, New Delhi	24	01	0	1.29	1.29
24	Lal Bahadur Shastri Institute of Management, New Delhi	13	03	8	1.44	1.44
25	Birla Institute of Technology, Ranchi	15	0	0	1.58	1.5

26	Jaipuria Institute of Management, Noida	10	1	0	0.69	0.58
27	Department Of Business Administration - Tezpur University	9	1	8	2.38	1.63
28	Indian Institute of Management, Ranchi	10	0	0	1.05	0.87
29	Institute of Management, Nirma University, Ahmedabad	24	5	14	2.35	2.02
30	Xavier Institute of Management & Entrepreneurship, Bangalore	5	2	5	1.0	1.0
31	Great Lakes Institute Of Management, Tamilnadu	3	0	1	0.22	0.22
32	ITM University, Gwalior	5	0	0	0.77	0.77
33	SSN School of Management Tamilnadu	0	0	0	0.0	0.0
34	Department Of Management Studies, NIT, Thiruchirapalli	5	0	0	0.5	0.41
35	Army Institute of Management & Technology, Noida	3	0	0	0.5	0.5
36	Rajagiri College of Social Sciences, Cochin	7	0	0	0.74	0.74
37	Rajagiri Business School, Cochin	5	0	0	0.59	0.59
38	Institute of Public Enterprise-Hyderabad	< 5	0	0	0.21	0.21
39	Institute of Management Technology, Nagpur	< 5	0	0	0.24	0.24
40	Lingaya's University	< 5	0	0	0.59	0.25
41	Sri Krishna College of Engineering and Technology-Coimbatore	< 3	0	0	0.46	0.46
42	Adhiyamaan College of Engineering (MBA Programme)	< 5	0	0	0.435	0.435
43	Jagan Institute Of Management Studies Technical Campus	< 10	0	0	< 0.476	< 0.476
44	B.N. College Of Engineering & Technology(Bncet), Lucknow	< 5	0	0	< 1.25	< 1.25
45	Entrepreneurship Development Institute Of India, Bhat, Gujrat	< 5	0	0	< 0.435	< 0.37
46	Institute of Management & Entrepreneurship Development, Pune	-	-	-	-	-
47	RVS Technical Campus, Coimbatore	0	0	0	0	0
48	University School of Management, Kurushetra, Haryana	< 5	0	0	< 0.77	< 0.37
49	Jaipuria Institute of Management, Lucknow-Lucknow	< 5	0	0	< 0.24	< 0.24
50	SCMS School Of Technology & Management (MBA)-Cochin	< 5	0	0	< 0.625	< 0.625

Table 5: List top business schools listed in table 3 with their research productivity index for the year 2015

S. No	Institution	Articles Published in Journals (A)	Books Published (B)	Case Studies & Book Chapters (C)	Institutional Research Index (α)	Corrected Research Index (α*)
1	Indian Institute of Foreign Trade (IIFT)	22	3	0	1.05	1.0
2	Indian School of Business, (ISB), Hyderabad	30	2	32	2.27	2.13
3	IMT, Ghaziabad	48	8	33	2.45	2.45
4	TAPMI, Manipal	07	0	01	0.46	0.46
5	DMS, IIT Delhi	43	5	0	5.84	3.66
6	SDM IMD, Mysore	22	0	0	2.44	2.44

7	XIM, Bhubaneswar	34	0	2	1.23	1.04
8	KIAMS, Harihar	11	0	3	1.79	1.79
9	DMS, IISc., Bangalore	14	0	0	2.8	1.55
10	Great Lakhs Institute of Management, Chennai	4	0	1	0.26	0.26
11	SIMS, Mangalore	74	4	2	7.08	7.08

Table 6: Re-ranking of top ten business schools based on their research productivity index for the year 2015

S. No	Institution	Institutional Research Index (α)	Corrected Research Index (α*)	New Ranking based on ABC model	Research Grade
1	Indian Institute of Management, Bangalore	1.09	0.88	NINETEEN	Very poor
2	Indian Institute of Management, Ahmadabad	1.55	1.37	NINE	Poor
3	Indian Institute of Management, Kolkata	1.23	1.03	FOURTEEN	Poor
4	Indian Institute of Management, Lucknow	1.78	1.43	EIGHT	Poor
5	Indian Institute of Management, Udaipur	0.41	0.41	-	Very poor
6	Indian Institute of Management, Kozhikode	1.24	1.10	THIRTEEN	Poor
7	International Management Institute, New Delhi	2.23	1.88	THREE	Satisfactory
8	Indian Institute of Forest Management, Bhopal	-	-	-	-
9	Indian Institute of Technology, Kanpur	1.0	1.0	FIFTEEN	Poor
10	Indian Institute of Management, Indore	0.97	0.83	TWENTY ONE	Very poor
11	Management Development Institute, Gurgaon	0.53	0.42	-	Very poor
12	International Management Institute, Kolkata	0.58	0.58	TWENTY SEVEN	Very poor
13	Xavier Labour Relations Institute (XLRI), Jemshedpur	1.93	1.78	FOUR	Poor
14	Indian Institute of Management, Thiruchirapalli	0.67	0.588	TWENTY SIX	Very poor
15	Thiagarajar School of Management	1.23	1.23	ELEVEN	Poor
16	S. P. Jain Institute of Management & Research, Mumbai	0.934	0.934	SEVENTEEN	Very poor
17	Vellore Institute of Technology, Vellore	0.62	0.4	-	Very poor
18	Indian Institute of Management, Raipur	0.30	0.20	-	Very poor
19	Indian Institute of Management, Rohtak	5.0	3.91	ONE	Good
20	Rajiv Ghandi Institute of Management, Shillong	1.0	0.9	EIGHTEEN	Very poor
21	Indian Institute of Management, Kashipur	1.38	1.14	TWELVE	Poor
22	Indian Institute of Information Technology & Management, Gwalior	1.2	0.6	TWENTY FOUR	Very poor
23	Fore School of Management, New	1.29	1.29	TEN	Poor

	Delhi				
24	Lal Bahadur Shastri Institute of Management, New Delhi	1.44	1.44	SEVEN	Poor
25	Birla Institute of Technology, Ranchi	1.58	1.5	SIX	Poor
26	Jaipuria Institute of Management, Noida	0.69	0.58	TWENTY SEVEN	Very poor
27	Department Of Business Administration – Tezpur University	2.38	1.63	FIVE	Poor
28	Indian Institute of Management, Ranchi	1.05	0.87	TWENTY	Very poor
29	Institute of Management, Nirma University, Ahmedabad	2.35	2.02	TWO	Satisfactory
30	Xavier Institute of Management & Entrepreneurship, Bangalore	1.0	1.0	FIFTEEN	Poor
31	Great Lakes Institute Of Management, Tamilnadu	0.22	0.22	-	Very poor
32	ITM University, Gwalior	0.77	0.77	TWENTY TWO	Very poor
33	SSN School of Management, Tamilnadu	0.0	0.0	-	Very poor
34	Department Of Management Studies, NIT, Thiruchirapalli	0.5	0.41	-	Very poor
35	Army Institute of Management & Technology, Noida	0.5	0.5	TWENTY EIGHT	Very poor
36	Rajagiri College of Social Sciences, Cochin	0.74	0.74	TWENTY THREE	Very poor
37	Rajagiri Business School, Cochin	0.59	0.59	TWENTY FIVE	Very poor
38	Institute of Public Enterprise-Hyderabad	0.21	0.21	-	Very poor
39	Institute of Management Technology, Nagpur	0.24	0.24	-	Very poor
40	Lingaya's University	< 0.59	< 0.25	-	Very poor
41	Sri Krishna College of Engineering and Technology-Coimbatore	0.46	0.46	-	Very poor
42	Adhiyamaan College of Engineering (MBA Programme)	0.435	0.435	-	Very poor
43	Jagan Institute of Management Studies Technical Campus	< 0.476	< 0.476	-	Very poor
44	B.N. College of Engineering & Technology(Bncet), Lucknow	< 1.25	< 1.25	-	Poor
45	Entrepreneurship Development Institute Of India, Bhat, Gujrat	< 0.435	< 0.37	-	Very poor
46	Institute of Management & Entrepreneurship Development, Pune	-	-	-	-
47	RVS Technical Campus, Coimbatore	0	0	-	Very poor
48	University School of Management, Kurushetra, Haryana	< 0.77	< 0.37	-	-
49	Jaipuria Institute of Management, Lucknow-Lucknow	< 0.24	< 0.24	-	-
50	SCMS School Of Technology & Management (MBA)-Cochin	< 0.625	< 0.625	-	-

Table 7: Ranking and research grade of top business schools listed in table 5 based on their research productivity index for the year 2015

S. No	Institution	Institutional Research Index (α)	Corrected Research Index (α*)	New Ranking based on ABC model	Research Grade
1	Indian Institute of Foreign Trade (IIFT)	1.05	1.0	Nine	Poor
2	Indian School of Business, (ISB), Hyderabad	2.27	2.13	Five	Satisfactory
3	IMT, Ghaziabad	2.45	2.45	Three	Satisfactory
4	TAPMI, Manipal	0.46	0.46	Ten	Very Poor
5	DMS, IIT Delhi	5.84	3.66	Two	Good
6	SDM IMD, Mysore	2.44	2.44	Four	Satisfactory
7	XIM, Bhubaneswar	1.23	1.04	Eight	Poor
8	KIAMS, Harihar	1.79	1.79	Six	Poor
9	DMS, IISc., Bangalore	2.8	1.55	Seven	Poor
10	SIMS, Mangalore	7.08	7.08	One	Better performer

6. Conclusion:

In this paper, we have used ABC model of institutional annual research productivity to calculate research productivity of some of the Indian top business schools for the year 2015. The publication data is collected from institutional websites for the year 2015. The annual research productivity of these institutions are determined using the formula given in ABC model and compared. Based on research productivity, the Business Schools are re-ranked. The result shows that most of the top level business schools are poor or very poor performers in their research and publication activities. Even though there are individual star performers in these institutions, the average performance in publications is observed to be not satisfactory. This shows that unless there is a target, responsibility, and accountability based on institutional research policy, Indian organizations will continue in poor research performance.

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