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Ranking Operations Management Conferences

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Abstract

The purpose of this paper is to present a ranking of operations management conferences. Several publications have appeared in the field of Operations Management which rank related journals. Many academics also publish at conferences but we have not come across publications that rank conferences. Several ranking systems exist for journals based on, for example, perceived relevance and quality, citation, and author affiliation. . In this paper the first attempt is made in developing an operations management conference ranking based upon author affiliation. This is done in two steps. First, based on an analysis of contributions to operations management journals a ranking of affiliations is established. Then, this ranking is used to determine the author affiliation index for several conferences such as from the Production and Operations Management Society (POMS), European Operations Management Association (EurOMA), Operations and Supply Chain Management (OSCM), and the Operations Management Division of the Academy of Management (AoM). The results provide information for authors that help in deciding which operations management oriented conferences to attend. It was found that the AoM conference is on average the conference with the highest First Author Affiliation Index (FAAI) scores. It also scores the highest for the six journals combined in four of the six years. The POMS conference scored highest in three of the six years for the three US-based journals while the EurOMA conference scored highest in four of the six years for European-based journals. The findings can be used to make more informed decisions related to which operations management conference to attend based upon the assumption of quality of presented papers.

Keywords: *operations management, conference rankings, journal rankings*

1. Introduction

Most faculty members are required to publish research as part of their yearly workload. For example, faculty at Association to Advance Collegiate Schools of Business (AACSB) accredited institutions are required to maintain intellectual qualifications through, among other things, journal publications. Colleges can determine their own definitions of what is acceptable and what is not. At many institutions this has developed into categories of journals, such as an A-list, B-list, etc. These lists are often based upon published ranking lists and are extremely important not only in determining faculty qualifications but also for retention and promotion decisions. Although maybe less regarded, conference publications are another method of intellectual contributions that can be evaluated for performance. To the best of our knowledge, no

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rankings have been published on operations management conferences. The intent of this paper is to contribute in this area.

The paper is developed by first discussing different journal ranking systems. The type of ranking system provides insight into how conferences can be ranked. After this, the literature on conference rankings is discussed. This includes the selection of a method and what the result, i.e. the rankings, mean. This is followed by a discussion of university rankings which serve as a base for the conference rankings and subsequently the comparative findings for several operations management oriented conferences. Finally, some conclusions are drawn.

2. Ranking Journals

Before discussing conference rankings in section three, this section will first look at journal rankings. The methods for journal rankings can provide insight into how conferences can be ranked. There are three different types of methods for determining journal rankings. Each of these ranking systems has a different orientation which can lead to different ranking results. The three ranking systems are: based upon perceived relevance and quality, based upon citation, and based upon author affiliation.

2.1 Perceived Relevance and Quality

One system for ranking journals is using perceived relevance and quality. With this method, a group of people is identified as well as a set of journals. People are then asked through surveys how these journals score on relevance and how they score on quality. Examples of these type of rankings are provided by Barman et al. (1991), Barman et al. (2001), and Soterou et al. (1999).

One of the subjective elements in this type of ranking is the initial selection of the respondents. For example, if POMS members are surveyed about operations management oriented journals then this ranking might differ from a survey of the Operations Management Division members of the Academy of Management. This explains how journals can be ranked differently even though the same survey instrument is used for ranking purposes.

2.2 Citation Based

Another system for ranking journals is by looking at citations. This method is based upon determining which journals have been the most influential in a discipline. With this method a set of journals (set A) is identified for ranking purposes and additionally a set of journals (set B, which can overlap set A) is identified for citations analysis purposes. The articles in journal set B are analyzed to determine which journals from set A are referenced most often. This determines the ranking of the journals in set A. Examples of this type of ranking are provided by Goh et al. (1997) and Vokurka (1996).

One of the subjective elements in this type of ranking is the initial selection of the journals used for citation analysis (set B). For example, authors that use mathematical modeling approaches are likely to cite articles that are also mathematical modeling oriented. Therefore, if more mathematical modeling oriented journals are in set B, then it is expected that mathematical oriented journals in set A will be referenced more often than non-mathematical oriented journals in set A and therefore will be ranked higher.

2.3 Author Affiliation

A third type of journal ranking is based upon author affiliation. This method is based upon ranking journals by examining who publishes in these journals and the affiliation of these authors. An example of this type of ranking, for operations management, is provided by Gorman and Kanet (2005).

One of the subjective elements in this type of ranking is the initial selection of author affiliations. In this system a ranking of affiliations is assumed and the journal ranking is based upon the relative number of authors from the ranked institutions.

2.4 Conclusion on Journal Rankings

Journal rankings have been determined to aid, among other things, tenure and promotion decisions by providing a sense of 'quality' of publications. There are at least three different methods for ranking journals. Each of these methods is based upon certain assumptions which influence the ranking outcome. In the discussion above, only highlights of pros and cons per method are provided to

illustrate that there is not one best method but that each method has its limitations. More detailed information related to the issue of journal rankings and concerns about these rankings can be found elsewhere in the literature. For example, Theoharakis et al. (2007) found that operations management journal rankings are particularly influenced by differences between empiricists and modelers, the geographic location of researchers, membership of professional society, and the self-selection bias stemming from publishing in a specific journal. Adler and Harzing (2009) provide a more general discussion of academic rankings, including journals, and the dysfunctionality of current rankings. Nkomo (2009) also discusses problems with rankings of scientific journals. However, as stated by Worrell (2009: 129): "Like them or not, academic ranking systems are a reality, and they are not very likely to go away anytime soon." Hence, it is worthwhile to do research in this area.

3. Ranking Conferences

Although publications about journal rankings are relatively common, this is quite a different matter for conferences. Part of the problem with conferences is that conference attendance and conference publications serve more roles than just an intellectual contribution. For example, one motive to participate in an operations management conference can be to meet colleagues in the area of operations management. Other motives can be to learn about new developments in an area of interest, to satisfy publishing requirements, the specific conference theme is of specific interest, the review process, and the international nature (number of countries represented). Getting feedback and/or validation for on-going research can also be factors in the decision as well as the amount of time allocated for discussions. Lastly, in some instances, the specific location of the conference and the choice venue and related events can be an incentive to participate. Overall, it is therefore much harder to develop a conference ranking than developing a journal ranking due to the number of different factors involved for participation.

In this paper a ranking of conferences is developed based upon the assumption that it relates to scientific 'quality'. In other words, this assumption is similar to the system for ranking journals. Obviously, if these methods are used for a conference ranking then the concerns as expressed in section two for journal rankings apply here as well. The choice to focus on 'scientific quality' means that the ranking system is not comprehensive but instead should be viewed as a first step towards developing a more comprehensive ranking.

To the best of our knowledge, a ranking for operations management conferences has not yet been published. Nevertheless, some conference rankings in other disciplines have been published, in particular in the area of computer science. An example is provided by Citeseer (http://citeseer.ist.psu.edu/impact.html.) This ranking is based upon the citation analysis method. Another ranking is provided by Computer Science Conference Ranking (http://www.cs-conference-ranking.org/). They use an estimated impact of conference that uses the following weights: 40% for citation of papers, 20% for quality of referees' reports, 20% for availability of resources for students, 10% for indexing and 10% for the percentage of conference papers that are accepted or appeared in reputable journals. This type of ranking combines some of the different types of motives for attending a conference, for example financial support for students and quality of papers. Much of the weight is contributed to the citation of papers similar to the citation method for journal rankings. A study by Mathis and Zech (1992) looked at regional economics conferences and ranked based upon two indicators. First, they looked at the proportion of papers that were subsequently published in journals and second, they looked at the number of economists from top-rated universities who participated. This latter aspect is similar to the author affiliation method.

In this paper the first attempt to rank operations management conferences is made. For this ranking, the intent is to stay focused rather than combine multiple aspects such as by Computer Science Conference Ranking. Combining different aspects introduces the aspect of weight. Determining weight is difficult because not all attendees attend a conference for the same reason and at this point not enough is known about the participants' motives. The primary focus will be one of 'quality'. This means a more limited scope. The advantage of this

is that the ranking will be more straightforward. The disadvantage is that the ranking will only be relevant to those attendees who are interested in the quality aspect of a conference.

In this paper a choice is made to use the author affiliation method. Each method has pros and cons for ranking as described in section 2. The advantage of the author affiliation method is that it gives an indication of who is attending these types of conferences. Author affiliations provide two indications for quality. First, with the underlying assumption that affiliation is related to quality research, the authors from these affiliations are expected to present high quality research. Second, it indicates that researchers from top-affiliates are interested in a particular conference which is, assuming that these researchers are mainly interested in high quality research from others as well, another indication that the conference is of high quality. Note that high quality is equated here with the quality of the papers.

4. Step One: Developing a Ranking of Affiliations

In order to develop a conference ranking list based upon author affiliation, it is a requirement to have a ranking list of affiliations for operations management. Some affiliation rankings exist. For example the Financial Times publishes regularly a ranking list of the top-100 full time global Master of Business Administration (MBA) programs. However, to determine a conference ranking for operations management, by utilizing the author affiliation index, a discipline specific ranking of affiliations is required, not a ranking of educational programs.

Business Week and U.S. News & World Report publish these types of rankings but their rankings only include U.S. institutions (see for example U.S. News & World Report, 2009). The School of Management at the University of Texas at Dallas provides a method for ranking operations management affiliations (see: http://citm.utdallas.edu/utdrankings). Their system allows selecting a range of journals and then a ranking is determined by looking at who publishes in operations management journals for a specific time period. Seven journals were selected that were considered appropriate for operations management. These also appeared in operations management journal rankings such as by Barman et al (2001). The seven journals were: Management Science, Operations Research, Journal of Operations Management, Manufacturing and Service Operations Management, Production and Operations Management, Academy of Management Journal and Academy of Management Review. This leads to a top-10 ranking as shown in table 1.

Table 1. Top-10 operations management affiliations based on University of Texas system

Rank	Affiliation	Country
1	University of Pennsylvania	USA
2	Columbia University	USA
3	University of Maryland at College Park	USA
4	Duke University	USA
5	Massachusetts Institute of Technology	USA
6	Stanford University	USA
7	INSEAD	France
8	New York University	USA
9	Michigan State University	USA
10	University of Minnesota at Twin Cities	USA

This ranking by the University of Texas has two disadvantages. First, the journals that were analyzed are all US-based journals, this might create a US bias in the affiliation ranking. Second, the list includes journals that are more operations research oriented than operations management oriented. Because of these concerns a new affiliation ranking is developed here based on US and European journals and primarily dealing with operations/manufacturing management.

Six journals were selected. Three were US-based journals (Journal of Operations Management, Production and Operations Management, and Manufacturing & Service Operations Management) and three were European-based journals (International Journal of Operations and Production Management, Journal of Manufacturing Technology Management, and International Journal of Manufacturing Technology and Management). Similar to the method by the University of Texas, an analysis was made for articles published in these journals for the last six years, i.e. 2002-2007. For each article one 'point' was assigned to the affiliation of

the author(s). So, if there was only one author, then the affiliation of this one author received one point. If an article had four authors from four different institutions, then each institution received 0.25 points.

Bengtsson et al. (1997) discussed the publishing gap between European and American management research. This gap is a gap a gap between methodological approaches. They state: "While European studies run the risk of being regarded as weird and "unscientific" by North Americans, many Europeans may feel that North American research leans too much towards rigorous but rather uninteresting statistical exercises" (Bengtsson et al., 1997: 473). It can therefore be expected that the US-based journals attract different types of authors than European-based journals based upon the methodological assumptions used by reviewers and editorial boards. The analysis will therefore not only determine an affiliation ranking based upon the combination of European and US journals but also separately look at the different geographical areas.

A total of approximately 1800 articles appeared in the six journals for the six year period. Authors from roughly 830 universities made contributions to those articles. For ease of the analysis only the top-100 institutions will be used for determining the conference rankings in section 5. These lists can be found in appendix A (combined journals), appendix B (US-based journals), and appendix C (European-based journals). The top-10 of each list is provided in tables 2, 3 and 4.

Table 3. Top-10 operations management affiliations based on US journals

Rank	Affiliation	Country
1	Michigan State University	USA
2	Columbia University	USA
3	University of Minnesota	USA
4	Georgia Institute of Technology	USA
5	Arizona State University	USA
6	University of Maryland	USA
7	Indiana University	USA
8	University of Padua	Italy
9	University of Bradford	UK
10	Duke University	USA

Compared to the top-10 list from the University of Texas which included only US-based universities, the top-10 list in table 2 is more international with only five US-based universities. This illustrates how including European-based journals influences the ranking that is achieved.

3 illustrates that if only US-based journals are included, the list becomes dominated by US-based affiliations. Appendix B provides a further illustration of this and for example 34 out of the top-50 institutions in appendix B are US-based.

Table 4 shows an opposite effect as table 3, i.e., European journals are not dominated by authors from the US. The list is also not conclusive to European affiliations. Four out of the top-10

Table 2. Top-10 operations management affiliations based on US and European journals

Rank	Affiliation	Country
1	Michigan State University	USA
2	Cranfield University	UK
3	Hong Kong Polytechnic University	China
4	Columbia University	USA
5	University of Minnesota	USA
6	Arizona State University	USA
7	Aalborg University	Denmark
8	University of British Columbia	Canada
9	Georgia Institute of Technology	USA
10	Helsinki University of Technology	Finland

Table 4. Top-10 operations management affiliations based on European journals

Rank	Affiliation	Country
1	Cranfield University	UK
2	Aalborg University	Denmark
3	Hong Kong Polytechnic University	China
4	University of British Columbia	Canada
5	Cardiff University	UK
6	Aston University	UK
7	Chalmers University of Technology	Sweden
8	University of Granada	Spain
9	Monash University	Australia
10	University of Tokyo	Japan

affiliations are not from Europe. Twenty-eight out of the top-50 institutions in appendix C are European-based.

Tables 2, 3 and 4 confirm Bengtsson et al. (1997) by demonstrating how US-based authors publish more in US-journals while European journals attract more European and other non-US-based authors.

5. Findings

The author affiliation index for conference x is computed based upon Gorman and Kanet (2005), as follows. Let n(i) is total number of authors for article I, A(i) is the number of authors for article I from the top university set, B(i) is the number of authors not from the top university set, M is the set of conference articles for conference x, then the author affiliation index for conference x is:

$$AAI(x) = \frac{\sum_{i \in M} A(i)/n(i)}{\sum_{i \in M} [A(i) + B(i)]/n(i)}$$

In other words, the author affiliation index is the ratio of authors from top-schools divided by the total number of authors that appear on papers. As indicated before, one element for conferences is also who attends the conferences. Earlier analysis for the annual US-based POMS conference (Steenhuis, de Bruijn and Gupta, 2006) as well as for the annual European based EurOMA conference (Steenhuis and de Bruijn 2006) has shown that in some cases over ten authors appear on a conference paper. To control for this aspect only the first author will be used. The first author affiliation index (FAAI) is computed as follows:

$$FAAI(x) = \frac{\sum_{i \in M} A_i}{M}$$

Where; FAAI(x) is first author affiliation index for conference x. A_i is a first author from the top-100 affiliations and M is the total number of articles at conference i. For the analysis, the FAAI index is calculated for four conferences with a primary focus on operations management in the last six years. Although more conferences exist which include a focus on operations management, they often are not primarily or only focused on operations management but are also for example oriented towards quality management which makes the less comparable to the 'pure' operations management conferences. Examples of these types of conferences are the International Conference on Supply Chain Management and Information Systems (SCMIS), International Conference on Quality, Innovation and Knowledge (QIK), Decision Sciences (DSI), and the Australian and New Zealand Academy of Management (ANZAM).

The first two conferences are POMS and EurOMA which are annual conferences, specifically aimed at operations management and organized by respectively the US-based operations management society and the Europe-based European operations management association. In addition, an Asian conference is also analyzed. For this, the Operations and Supply Chain Management (OSCM) conference was selected. Lastly, a more general management oriented conference was added that has a specific operations track, i.e., the operations management division of the US based Academy of Management. The results are provided in table 5. For each year, and by category the highest FAAI score is highlighted.

Table 5 shows that for four of the years, the Academy of Management conference scored highest for the percentage of first authors from top-100 affiliations based on how many papers from those affiliations were published in the combined six journals. In the other two years the Production and Operations Management conference scored highest. For the percentage of first authors from top-100 affiliations based on how many papers from those affiliations were published in the three US-based journals, in three of the years the Academy of Management scored the highest while in the other three years, the Production and Operations Management Conference scored the highest. The EurOMA conference scored highest in four of the six years for the highest percentage of first authors from top-100 affiliations based on how many papers from authors from those affiliations were published in the three European journals. The Academy of Management conference scored highest in two of the

Table 5. Conference FAAI scores for four conferences in six years based upon FAAI.

Conference	Year	Total papers presented	Papers with first authors from top-100 affiliations			F A A I		
			Combined	US	Europe	Combined	US	Europe
AoM-OM	2003	27	11	13	4	0.407	0.481	0.148
EurOMA	2003	319	69	49	60	0.216	0.154	0.188
POMS	2003	414	108	135	48	0.261	0.326	0.116
AoM-OM	2004	29	12	14	7	0.414	0.483	0.241
EurOMA	2004	213	60	37	57	0.282	0.174	0.268
POMS	2004	525	113	133	73	0.215	0.253	0.139
AoM-OM	2005	48	15	16	11	0.313	0.333	0.229
EurOMA	2005	243	65	41	71	0.267	0.169	0.292
OSCM	2005	150	13	8	17	0.087	0.053	0.113
POMS	2005	550	164	212	73	0.298	0.385	0.133
AoM-OM	2006	110	31	37	19	0.282	0.336	0.173
EurOMA	2006	242	50	29	49	0.207	0.120	0.202
POMS	2006	618	189	223	83	0.306	0.361	0.134
AoM-OM	2007	92	27	23	24	0.293	0.250	0.261
EurOMA	2007	304	60	32	50	0.197	0.105	0.164
OSCM	2007	117	9	5	8	0.077	0.043	0.068
POMS	2007	696	223	272	101	0.320	0.391	0.145
AoM-OM	2008	92	37	44	29	0.402	0.478	0.315
EurOMA	2008	241	59	47	55	0.245	0.195	0.228
POMS	2008	668	198	222	116	0.296	0.332	0.174

six years. However, it is noticeable that these were the two most recent years. The OSCM conference did not score highest in any of the rankings.

Overall, these findings confirm Bengtsson et al.'s (1997) observation about a transatlantic divide. That is, the US conference shows a higher FAAI score for affiliations ranked for US journals while the European conference shows a higher FAAI score for affiliations ranked for European journals. In table 6 the averages for each conference are shown.

Table 6. Average FAAI scores for four conferences

Conference	F A A I		
	Combined	US	Europe
POMS	0.283	0.341	0.140
EurOMA	0.236	0.153	0.224
AoM-OM	0.352	0.394	0.228
OSCM	0.082	0.048	0.091

Table 6 shows that on average the Academy of Management conference shows the highest percentage of authors from the top-100 affiliations regardless of whether the ranking of affiliations is based upon the three US journals, the three European journals or their combination. It also shows that the OSCM conference scores the lowest. This is not surprising since this is an Asian conference and the number of Asian universities in the affiliation rankings is lower than US and European universities.

6. Conclusions

In this paper a first attempt has been made to develop a ranking list for operations management conferences. A review of the literature revealed that no such ranking list exists. One of the methods used to rank journals, which has also been used in other fields to aid the development of conference rankings, is the author affiliation index. A similar

approach was used here but limited to the first author. To apply the author affiliation index, it was first necessary to develop an affiliation ranking list. This was done by selecting three US-based and three European-based operations and manufacturing oriented journals.

It was found that the AoM conference scored most often the highest on the FAAI. This indicates that when academics are looking for conferences in the field of operations management, and if they are primarily interested in the quality of papers that are presented, then based upon the FAAI, the AoM conference is the best conference to attend. Also, POMS conferences scored higher for the top-100 ranked affiliations based on the three US-based journals while EurOMA conferences scored higher in each of the years for the top-100 ranked affiliations based on the three Europe-based journals. This signifies that academics who publish in European-based journal tend to favour the Euroma conference more while academics who publish in the US-based journals tend to favour the POMS conference more. It also confirms that at conferences there is a transatlantic divide similar as for journals as indicated by Bengtsson et al. (1997) and also found by Theoharakis et al. (2007). The OSCM conference received lower FAAI scores than the other conferences but this can be explained by the base for ranking affiliations which is more biased towards US and European affiliations. Currently, the number of Asian journals that appear in any of the published journal rankings is limited. Once Asian journals become more recognized it would be worthwhile to include them in the analysis.

A limitation to this research was that it focused on 'scientific quality' of the conference. In order to develop a more comprehensive conference ranking system, other motives for attending conferences can be added to this approach in future research. One of the issues with this will be the weight that needs to be attributed to the different motives. Future research can also include other conferences. In that case an aspect that needs attention is the difference between conferences that are solely or primarily oriented on operations management versus conferences that have slightly different orientations such as operations research or management research or conferences that have multiple orientations for example an emphasis on quality management or information technology.

Lessons for the future are that the FAAI index is only as useful as the affiliation ranking that is used. The affiliation rankings that were used in this paper were very much oriented on US and European universities because they were determined by analyzing US-based and European-based journals and therefore might have biased the findings towards the US and Europe based conferences compared to OSCM.

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Appendix A: Top-100 affiliations based upon number of publications in six selected journals

Rank	Affiliation	Country	Score
1	Michigan State University	USA	**32.84**
2	Cranfield University	UK	**26.08**
3	Hong Kong Polytechnic University	China	**23.16**
4	Columbia University	USA	**20.76**
5	University of Minnesota	USA	**20.50**
6	Arizona State University	USA	**19.66**
7	Aalborg University	Denmark	**19.42**
8	University of British Columbia	Canada	**16.67**
9	Georgia Institute of Technology	USA	**15.49**
10	Helsinki University of Technology	Finland	**15.34**
11	Cardiff University	UK	**15.24**
12	Aston University	UK	**13.25**
13	Indiana University	USA	**12.33**
14	University of Maryland	USA	**12.33**
15	University of Granada	Spain	**12.08**
16	Chalmers University of Technology	Sweden	**11.83**
17	University of London	UK	**11.33**
18	University of Louisville	USA	**11.24**
19	University of Padua	Italy	**11.17**
20	Monash University	Australia	**11.00**
21	University of Tokyo	Japan	**11.00**
22	University of New Hampshire	USA	**10.00**
23	Nanyang Technological University	Singapore	**9.16**
24	University of Bradford	UK	**9.16**
25	University of Melbourne	Australia	**9.16**
26	Sri Ramakrishna Mission Vidyalaya Polytech	India	**9.00**
27	National Chiao Tung University	Taiwan	**8.92**
28	University of Salamanca	Spain	**8.91**
29	Duke University	USA	**8.83**
30	University of Bologna	Italy	**8.74**
31	University of Oslo	Norway	**8.67**
32	Pisa University	Italy	**8.66**
33	University of Western Ontario	Canada	**8.58**
34	University of Manchester	UK	**8.33**
35	Eindhoven University of Technology	The Netherlands	**8.30**
36	University of Valencia	Spain	**8.25**
37	Ohio State University	USA	**8.24**
38	Stanford University	USA	**8.17**
39	Ghent University	Belgium	**8.00**
40	Harvard University	USA	**8.00**
41	University of Calgary	Canada	**7.83**
42	Texas A&M University	USA	**7.58**
43	University of Texas - Dallas	USA	**7.58**
44	University of Sussex	UK	**7.57**
45	Manchester Metropolitan University	UK	**7.50**
46	Thunderbird	USA	**7.50**
47	University of South Dakota	USA	**7.50**
48	Massachusetts Institute of Technology	USA	**7.49**
49	Pennsylvania State University	USA	**7.41**
50	University of Pennsylvania	USA	**7.33**

Rank	Affiliation	Country	Score
51	University of Ulster	UK	**7.33**
52	Erasmus University Rotterdam	The Netherlands	**7.16**
53	INSEAD	France and Singapore	**7.16**
54	Cornell University	USA	**6.91**
55	University of Virginia	USA	**6.83**
56	University of Cincinnati	USA	**6.74**
57	University of South Carolina	USA	**6.74**
58	Linkoping University	Sweden	**6.67**
59	Clemson University	USA	**6.66**
60	National Cheng Kung University	Taiwan	**6.50**
61	University of Tampere	Finland	**6.50**
62	University of Toledo	USA	**6.50**
63	University of Victoria	Canada	**6.50**
64	DePaul University	USA	**6.49**
65	McGill University	Canada	**6.42**
66	New York University	USA	**6.41**
67	Lund University	Sweden	**6.33**
68	Northwestern University	USA	**6.25**
69	Lappeenranta University of Technology	Finland	**6.17**
70	North Carolina State University	USA	**6.01**
71	Boston College	USA	**5.99**
72	University of Arkansas	USA	**5.99**
73	City University of Hong Kong	China	**5.91**
74	Brunel University	UK	**5.83**
75	University of Applied Sciences	Germany	**5.83**
76	Wake Forest University	USA	**5.83**
77	National Sun Yat-sen University	Taiwan	**5.75**
78	Northern Illinois University	USA	**5.75**
79	Emory University	USA	**5.74**
80	National Chengchi University	Taiwan	**5.58**
81	University of Cambridge	UK	**5.58**
82	University of Auckland	New Zealand	**5.50**
83	University of Geneva	Switzerland	**5.50**
84	University of Warwick	UK	**5.42**
85	National University of Singapore	Singapore	**5.33**
86	University of Nebraska	USA	**5.33**
87	University of Florida	USA	**5.17**
88	University of Laval	Canada	**5.16**
89	University of Siena	Italy	**5.00**
90	University of California	USA	**4.99**
91	University of Memphis	USA	**4.75**
92	Copenhagen Business School	Denmark	**4.67**
93	Hong Kong University of Science and Tech	China	**4.66**
94	University of Magdeburg	Germany	**4.66**
95	National Tsing Hua University	Taiwan	**4.58**
96	University of California at Los Angeles	USA	**4.50**
97	University of Rochester	USA	**4.50**
98	Renssleaer Polytechnic Institute	USA	**4.49**
99	Kansas State University	USA	**4.43**
100	Rutgers University	USA	**4.41**

Appendix B: Top-100 affiliations based upon number of publications in three US-based journals

Rank	Affiliation	Country	Score
1	Michigan State University	USA	**26.67**
2	Columbia University	USA	**20.76**
3	University of Minnesota	USA	**19.50**
4	Georgia Institute of Technology	USA	**13.33**
5	Arizona State University	USA	**13.25**
6	University of Maryland	USA	**11.83**
7	Indiana University	USA	**9.33**
8	University of Padua	Italy	**9.17**
9	University of Bradford	UK	**8.83**
10	Duke University	USA	**8.83**
11	Harvard University	USA	**8.00**
12	University of London	UK	**7.67**
13	University of Western Ontario	Canada	**7.58**
14	University of Texas - Dallas	USA	**7.58**
15	Cornell University	USA	**6.91**
16	University of South Carolina	USA	**6.74**
17	Ohio State University	USA	**6.66**
18	INSEAD	France & Singapore	**6.66**
19	Pennsylvania State University	USA	**6.41**
20	New York University	USA	**6.41**
21	University of Pennsylvania	USA	**6.33**
22	Northwestern University	USA	**6.25**
23	Stanford University	USA	**6.17**
24	University of Toledo	USA	**6.17**
25	Clemson University	USA	**6.16**
26	University of Cincinnati	USA	**5.74**
27	Massachusetts Institute of Technology	USA	**5.49**
28	Boston College	USA	**5.49**
29	McGill University	Canada	**5.42**
30	Hong Kong Polytechnic University	China	**5.33**
31	University of Melbourne	Australia	**5.33**
32	Helsinki University of Technology	Finland	**5.00**
33	Sri Ramakrishna Mission Vidyalaya Polytech	India	**5.00**
34	University of Calgary	Canada	**5.00**
35	Wake Forest University	USA	**4.50**
36	Emory University	USA	**4.49**
37	PSG College of Technology	India	**4.34**
38	University of North Carolina at Chapel Hill	USA	**4.25**
39	University of Sussex	UK	**4.24**
40	University of Florida	USA	**4.17**
41	University of Cambridge	UK	**4.08**
42	North Carolina State University	USA	**4.01**
43	University of Victoria	Canada	**4.00**
44	Texas A&M University	USA	**3.83**
45	University of Virginia	USA	**3.83**
46	University of California	USA	**3.83**
47	Hong Kong University of Science and Tech	China	**3.83**
48	Brigham Young University	USA	**3.83**
49	University of Notre Dame	USA	**3.58**
50	University of Nebraska	USA	**3.50**

Rank	Affiliation	Country	Score
51	University of California at Los Angeles	USA	**3.50**
52	Vanderbilt University	USA	**3.50**
53	University of Baltimore	USA	**3.34**
54	Southern Methodist University	USA	**3.16**
55	Case Western Reserve University	USA	**3.16**
56	University of Utah	USA	**3.07**
57	Eindhoven University of Technology	The Netherlands	**3.00**
58	University of Southern California	USA	**3.00**
59	Victoria University	Australia	**3.00**
60	Oregon State University	USA	**3.00**
61	Washington University	USA	**2.84**
62	DePaul University	USA	**2.83**
63	University of Lausanne	Switzerland	**2.67**
64	Erasmus University Rotterdam	The Netherlands	**2.66**
65	George Mason University	USA	**2.66**
66	Iowa State University	USA	**2.66**
67	University of Warwick	UK	**2.59**
68	Auburn University	USA	**2.58**
69	Chinese University of Hong Kong	China	**2.50**
70	University of Texas	USA	**2.50**
71	University of Michigan	USA	**2.50**
72	Renssleaer Polytechnic Institute	USA	**2.49**
73	Thunderbird	USA	**2.33**
74	University of Hawaii	USA	**2.33**
75	Lancaster University	UK	**2.33**
76	Boston University	USA	**2.33**
77	Tulane University	USA	**2.33**
78	Colorado State University	USA	**2.24**
79	University of Seville	Spain	**2.17**
80	Georgetown University	USA	**2.16**
81	Hamburg University of Technology	Germany	**2.08**
82	University of Salamanca	Spain	**2.00**
83	University of Magdeburg	Germany	**2.00**
84	Aristotle University of Thessaloniki	Greece	**2.00**
85	Santa Clara University	USA	**2.00**
86	University of Bath	UK	**2.00**
87	Naval Postgraduate School	USA	**2.00**
88	University of Alabama at Birmingham	USA	**2.00**
89	University of Versailles	France	**2.00**
90	University of Wisconsin - Madison	USA	**2.00**
91	University of Portsmouth	UK	**1.84**
92	Cleveland State University	USA	**1.67**
93	University of Central Florida	USA	**1.67**
94	Miami University	USA	**1.67**
95	University of Arkansas	USA	**1.66**
96	Purdue University	USA	**1.66**
97	Russian Academy of Sciences	Russia	**1.66**
98	University of Bologna	Italy	**1.58**
99	National University of Singapore	Singapore	**1.50**
100	University of Rochester	USA	**1.50**

Appendix C: Top-100 affiliations based upon number of publications in three European-based journals

Rank	Affiliation	Country	Score
1	Cranfield University	UK	**25.08**
2	Aalborg University	Denmark	**19.42**
3	Hong Kong Polytechnic University	China	**17.83**
4	University of British Columbia	Canada	**16.67**
5	Cardiff University	UK	**13.83**
6	Aston University	UK	**13.00**
7	Chalmers University of Technology	Sweden	**11.83**
8	University of Granada	Spain	**11.08**
9	Monash University	Australia	**11.00**
10	University of Tokyo	Japan	**11.00**
11	University of Louisville	USA	**10.91**
12	Helsinki University of Technology	Finland	**10.34**
13	University of New Hampshire	USA	**9.50**
14	National Chiao Tung University	Taiwan	**8.92**
15	University of Oslo	Norway	**8.67**
16	Nanyang Technological University	Singapore	**8.66**
17	Pisa University	Italy	**8.66**
18	University of Valencia	Spain	**8.25**
19	Manchester Metropolitan University	UK	**7.50**
20	University of South Dakota	USA	**7.50**
21	University of Manchester	UK	**7.33**
22	University of Ulster	UK	**7.33**
23	University of Bologna	Italy	**7.16**
24	Ghent University	Belgium	**7.00**
25	University of Salamanca	Spain	**6.91**
26	National Cheng Kung University	Taiwan	**6.50**
27	University of Tampere	Finland	**6.50**
28	Arizona State University	USA	**6.41**
29	Michigan State University	USA	**6.17**
30	Linkoping University	Sweden	**6.17**
31	Lappeenranta University of Technology	Finland	**6.17**
32	Brunel University	UK	**5.83**
33	University of Applied Sciences	Germany	**5.83**
34	National Sun Yat-sen University	Taiwan	**5.75**
35	National Chengchi University	Taiwan	**5.58**
36	University of Auckland	New Zealand	**5.50**
37	University of Geneva	Switzerland	**5.50**
38	Eindhoven University of Technology	The Netherlands	**5.30**
39	Thunderbird	USA	**5.17**
40	University of Laval	Canada	**5.16**
41	Lund University	Sweden	**5.00**
42	Northern Illinois University	USA	**5.00**
43	University of Siena	Italy	**5.00**
44	City University of Hong Kong	China	**4.91**
45	Copenhagen Business School	Denmark	**4.67**
46	National Tsing Hua University	Taiwan	**4.58**
47	Erasmus University Rotterdam	The Netherlands	**4.50**
48	Kansas State University	USA	**4.43**
49	University of Arkansas	USA	**4.33**
50	University of Rome	Italy	**4.17**

Rank	Affiliation	Country	Score
51	Sri Ramakrishna Mission Vidyalaya Polytech	India	**4.00**
52	Mannheim University	Germany	**4.00**
53	University of Western Australia	Australia	**4.00**
54	University of Melbourne	Austria	**3.83**
55	National University of Singapore	Singapore	**3.83**
56	University of Connecticut	USA	**3.83**
57	Texas A&M University	USA	**3.75**
58	University of Memphis	USA	**3.75**
59	University of Southern Denmark	Denmark	**3.75**
60	University of Tokushima	Japan	**3.74**
61	Open University	UK	**3.67**
62	University of London	UK	**3.66**
63	DePaul University	USA	**3.66**
64	Loughborough University	UK	**3.66**
65	WHU - Otto-Beisheim Graduate School of Management	Germany	**3.50**
66	Deakin University	Australia	**3.50**
67	Delft University of Technology	The Netherlands	**3.50**
68	Federal University of Rio grande do Sul	Taiwan	**3.50**
69	Long Island University	USA	**3.50**
70	Nottingham University	UK	**3.50**
71	University of Leeds	UK	**3.50**
72	University of the Mediterranean	France	**3.50**
73	University of Sussex	UK	**3.33**
74	Indian Institute of Technology	India	**3.33**
75	Seoul National University of Technology	Korea	**3.33**
76	University of La Verne	USA	**3.33**
77	National Kaohsiung First University of Science and Technology	Taiwan	**3.25**
78	University of Southern Maine	USA	**3.25**
79	Chung-Yuan Christian University	Taiwan	**3.17**
80	University of Bielefeld	Germany	**3.17**
81	Rutgers University	USA	**3.16**
82	Florida Atlantic University	USA	**3.16**
83	University of Twente	The Netherlands	**3.08**
84	Indiana University	USA	**3.00**
85	University of Virginia	USA	**3.00**
86	University of Rochester	USA	**3.00**
87	University of Brighton	UK	**3.00**
88	Huazhong University of Science and Tech	China	**3.00**
89	Universidad Complutense de Madrid	Spain	**3.00**
90	University College of Boras	Sweden	**3.00**
91	University of Gavle	Sweden	**3.00**
92	University of Montreal	Canada	**3.00**
93	Bradford University	UK	**2.84**
94	University of Calgary	Canada	**2.83**
95	University of Warwick	UK	**2.83**
96	University of Ottowa	Canada	**2.83**
97	Michigan Technological University	USA	**2.83**
98	University of Nottingham	UK	**2.83**
99	University of Pompeu Fabra	Spain	**2.83**
100	University of Thessaly	Greece	**2.83**

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