Is the Big Deal Mode of E-Journal Subscription a Right Approach for Indian Consortia ? A Case Study of Elsevier's ScienceDirect Use at Indian Institute of Technology Roorkee

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Abstract

Big deal or the consortia site licensing is the most preferred way of e-journal subscription for Indian Consortia be it INDEST or the UGC Infonet. In the big deal model all the journals published by a publisher or hosted by an aggregator on its web site are made available to the consortia members at a so called "highly reduced" price. It has been seen that the librarians throughout the world haves been raising objections to this mode since beginning. There are various concerns which have been identified such as monopoly of the publishers, use of a limited number of titles, effect of citation ranking of journals published by the small publishers and the fear of death of journals published by the developing countries. Though a number of articles have been published on this topic but most of them have been on the qualitative aspects of such deals. There are a few studies that have been conducted on quantitative aspects. In this paper a study of use of Elsevier's ScienceDirect at IIT Roorkee has been presented which clearly shows that a very limited number of titles are frequently used in the Institute. This data clearly indicates that the Big Deal mode of subscription is not at all in the favour of the consortia. Supports an alternate model for subscription which should be based on the fixed fee access to the limited set of journals which are frequently used and pay for use for the journals which are less frequently used.

Keywords : Consortia, Consortia Model, Survey, E-Resources

0. Introduction

Consortia site licensing model of subscription to electronic journals is the most common model or the so-called Big Deal being followed by the consortia throughout the world. In this model a publisher or an aggregator enters into the contract with the consortium for allowing access to the whole set of electronic journals being published or being hoisted by the said publisher or the aggregator. Most of the time the publishers offers a very wide range of subjects. A substantial portion of such collection may not be of any use for the consortia members. The publisher or the aggregator offers this access at a (so called) heavy discounted price. However, the librarians have through the world shown their concerns about the usefulness of this big deal to their respective libraries and continuously the voices are being raised to find the alternative models of subscription to scholarly journals. The main argument behind this thought is the fact that a major portion of the journals being offered by the publisher/aggregator is never used. This paper presents an analysis of the usage statistics of Elsevier's ScienceDirect (1) which bundles about 1800 journals together and make available to Consortia members.

1. Indian Institute of Technology Roorkee (IIT, Roorkee)

The IIT Roorkee is one of the oldest engineering educational Institute in the world. It was established in the year 1847 as Roorkee College of Civil Engineering and became the first ever such college in the whole British Commonwealth (2). The Roorkee College was renamed as Thomason College of Civil Engineering in 1854. After Independence of the country in 1947, a wider role was envisaged for the

Thomason College and therefore, in 1949 it was made a first ever Engineering University in the country and University of Roorkee came into existence. Recognizing its national importance the University of Roorkee was converted into Indian Institute of Technology Roorkee in 2001. The Institute imparts education and research in most of the branches of Science and Technology. It has a separate department for Humanities and Social Science also(3) . Further information about the Institute may be obtained at www.iitr.ac.in or www.iitr.ernet.in

1.1 Library and Information Services (LIS) at IIT Roorkee

The library services of the Institute has its origin with the establishment of College Library in January 1848 as a subsidiary department of the College. Later on the collection of Adiscombe College London and also of the Ganges Canal Library was merged into it and it came to be known as Central Library (4). After the conversion of Thomason College into University of Roorkee, departmental libraries were also established which contains the core collection to meet the day to day requirement of the various departments. The information requirement of the departmental library is also met through Central Library. Therefore, the Central Library has the overall responsibility for the development of LIS in the Institute.

To provide effective service through the use of latest available technologies has been the 'Mool Mantra' of the Central Library since beginning. It has started using computers in the early 1990s and by the year 1994 it has started providing CD-ROM search services and e-mail services to its users. The Central Library had computerized most of its functions by 1997 and established its own LAN in 1999 where all the CD-ROMs and OPAC were made available. In the year 2000 the Institute Fibre Optic Network (IFON) was established and the Library LAN was integrated with it. Thus all the electronic resources of the Central Library became available throughout the Institute campus. At present Central Library itself maintains a network of 52 modes with 5 servers. It has its own web portal and all the services are available through Intranet as well as Internet. For more information http://www.iitr.ac.in/resources/library/ may be visited (5).

1.2 E-journal Subscription at IIT Roorkee

The Central Library subscribes to about 7000 electronic journals through following two modes (6).

1.2.1 Through INDEST

IIT Roorkee being level one member of INDEST Consortium all the resources being subscribed to by the INDEST are available. To it. The major full text packages include about 1800 journals through Elsevier's ScienceDirects, more than 500 titles through Springer's SpringerLink, the whole database of ACM's ACM Digital Library, IEEE'S IEL, fulltext collection of ASME and ASCE. The aggregator services include EBSCOhost and ABI/Information. Secondary resources available through INDEST are Compendex, Inspec, MathScinet , ScifinderScholar etc.. There are factual data bases available such as Euromonitor, Capitaline etc. The access to all these services are authenticated through the IP address.

1.2.2 Own Arrangement

Besides the INDEST Consortium the Central Library also subscribes to a number of e-journals. All the journals which give free online with print are available to the users. Further most of the journals where online is available at an extra payment are also subscribed on line along with the print subscription. Some of the major publishers whose journals have been subscribed by the Library are Institute of Physics Publishing (IOP), American Physical Society (APS), Royal Society of Chemistry (RCS), American

Chemical Society (ACS), American Institute of Chemical Engineers (AICHE), Science Online etc. The access to these resources are IP authenticated in most of the cases except a few cases where access is ID and pass word authenticated.

2. Review of Literature

A search on big deal or consortia site licensing in Library and Information Science Abstract retrieved 31 records of which ten were found to be relevant to the topics likewise search on the same topic in ABI/ Inform a full text database in management related information retrieved four relevant articles. A other management database Emerald also specialized management information produced 5 relevant articles. This clearly shows that the debate on big deal is on.

It appears that a detailed discussion on "big deal" took place first time in January 1999 at Mid Winter Meeting of American Library Association (ALA where first of all the issues like a panel of these speakers addressed the topic of Electronic Journal Pricing : What is the Big Deal? The issues which were discussed were economic pricing and current perspective and preferred practices for the selection and purchase of electronic information. (7,8).

The issue of monopoly in the general subscription policy over the UK's National Electronic site Licensing Institution (NESLI) by one of the four served agents i.e. SWETS was raised wayback in 2000 (9). This agreement forced the participating libraries to terminate the arrangement with other subscription agents in order to access NESLI.

Frazier (10) has suggested that "academic library directors should not sign on to the Big Deal or any comprehensive licensing agreement with commercial publishers". He gave the different reasons for that. The push to build an all electronic collection can not be undertaken at the risk of (a) weakening that collection with journals we never need or want and (b) it will increase our dependence on publishers who have already started sharing their determination to monopolize the market". He further suggested the alternative like subscribing access to only those journals which are most needed by us.

Bergstrom and Bergstrom (11) infers that in the process of shift from paper to electronic format societies and not for profit organizations may transfer the savings i.e. publishing to users in the form of reduced pricing but the commercial publishers may not do so. Indeed many commercial publishers have placed their electronic versions at par with print versions. They have stressed that the scientific community will only be benefited by licensing the sites on the basis of pay per view basis. The success of "Big Deal" has serious repercussions for smaller society publishers which make scholarly communication very hostile for these publishers. They will only be able to survive by changing their business models like Open Access (12).

Friend (13) argues that purchasing models so called Big deal is not in favour of small publishers and for large libraries even is in short term may be good for large publishers and small libraries. He further stresses that both the publishers and libraries should find an alternative models for small publishers and large libraries.

Quint (14) discusses the targeting of large institution, particularly academic libraries. In this respect she emphasizes on the librarians support on open access and reports that Association of Research Libraries has made a serious commitment to moving its members to open access scholarly models. She has also said that Big Deal may come to an end very soon.

Helfer (15) has presented the excerpts of statement from Cornell University Libraries (CUL, New York which explains why the CUL has decided to cancel over 200 titles from Read-Elsevier. Pickering (16) has stated that there is a growing revolt among academic libraries unhappy with the Big Deal schemes that force them to take many periodicals that force them to take them many periodicals that are seldom used. He (has reported that in ULC an investigation out the scientific publishing is being conducted by the Members of Parliament as a backlash against the escalating academic periodicals subscription costs. The investigation would focus on publishers pricing policy for scientific journals, particularly the Big Deal schemes and the impact of open access initiatives. He foresees that the out come of the investigation will have major impact on main publishers including Elsevier, Springer, Wiley, Wolt Kluwer etc. and it will encourage open access projects (17).

Ball (18) examines the Big Deal in the light of fundamental market conditions and suggests alternative models for electronic resources. He has defined the role and strength of various players in information supply chain. Special emphasis has been laid on the dangers of such big deals mainly monopolistic position of the publishers. He has also suggested ways to minimizing these dangers – such as consortia, alternative publishing models and new economic models to promote competition.

Dyer(19) has stated that the several of the United State's most prestigious universities are threatening to cancel their subscriptions to scientific journals published by Elsevier, in protest at what they call exorbitant pricing. Unversities are advising their faculty to consider placing their research in "open access" journals. Other universities to pass similar resolutions in recent months include Harvard, Massachusetts Institute of Technology, Duke, Cornell, the University of Connecticut, the University of California, and North Carolina State University. University librarians say that journal price hikes combined with a weak dollar and falling budgets leave them no choice but to cancel subscriptions. Several other US universities threaten to cancel subscriptions to Elsevier journals.

While there are a number of articles on the pros and cons of the big deal, on its quantitative analysis at micro level i.e. up to the use of individual titles seem to be a few. Hamaker (20) did an analysis of the use of Elsevier' ScienceDirect on 864 titles available online to the Universities in North Carolina and found that 28% (102) titles accounted 47% usage. There were 274 titles that were accessed only 5-times or less. Similarly Nicholas and Hurtington (21) have found that in case of Emerald 43% of the subscribers viewed only one and 40% of the subscriber viewed only 2 to 5 titles out of 118 licensed. Thus 83% of the users used only less than 5% of the titles available. They further argues that why to pay for 95% and why not to revert to the basic core collection which is alive in electronic format also.

3. Data Collection and Methodology

The main reason for selecting the Elsevier's ScienceDirect was that it covers about 25% of the total e-journals available to the library being the largest STM (Science Technology and Medicine) publisher of the world. In terms of expenditure also a major portion of the Consortium Budget is spent on Elsevier. Further it has put a condition that no consortia member will drop the print subscription below a level that was being subscribed to during 2002. Thus the Elsevier's ScienceDirect is a major stake holder in the whole process.

The data for this study was taken from the usage reports of Elsevier's ScienceDirect for the year 2003 as this is the year for which whole year's data was available. The usage reports provided by Science Direct are very exhaustive and are available in COUNTER Compliance format (22,23). These reports may be easily manipulated with Microsoft Excel worksheet for further analysis. The data so obtained was down loaded into the Microsoft Excel worksheet and sorted according to the ascending order of the full text requests made to a particular title. Thus titles were arranged according to the ascending order of the usage. Data was also available as per the monthly access. The further analysis was also done using Microsoft Excel.

4. Analysis of Data

4.1 Average Monthly Access

A total number of 95,787 requests for full text access were made from IITR to Elsevier's ScienceDirect during 2003. The minimum of requests were made during February (2949, 3%) and the maximum requests were made during July (12,156, 12.2%). The average monthly access was 2982 requests. The usage was slow in the first few months. The reason for slow usage in the first half the year may be attributed to the fact that the service has started but it pictured up gradually. July being the month of new students and research scholar has shown maximum number of requests.(figure1, Table1).

Table 1. Monthly access of ScienceDirect during 2003 in IIT Roorkee

Month	Requests recd	%age of total requests recd	Month	Requests recd	%age of total requests recd
January	5272	5.50	July	12156	12.69
February	2949	3.08	August	8463	8.84
March	8109	8.46	September	11318	11.82
April	5234	5.50	October	9253	9.66
May	4328	4.52	November	9427	9.84
June	8474	8.85	December	10804	11.28
Total	34366	35.88	Total	61421	64.12

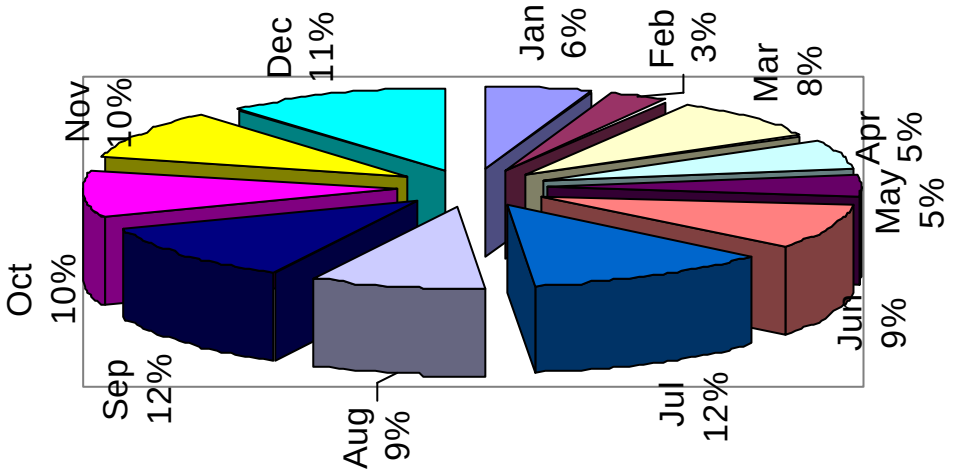

Figure 1. Monthly fulltext requests made to Sciencedirect during 2003

4.2 Analysis of Titles Accessed

The further analysis of titles has shown very interested trend as it was found that the requests were mostly centered around a limited number of titles. The number of requests ranged from zero to 3974. Whole data was divided into four groups. The group I contained the data about the journals that received

access in single digit in whole year i.e. for zero to nine. Group 2 contains the data receiving requests in two digit i.e. for 10 to 99. Likewise group 3 contains the data about titles receiving requests in three digits (100 to 999) and group 4 in four digits i.e. 1000 onwards. Group 1 contains 785 titles responsible for 1.99% access, Group 2 contains 476 titles responsible for 17.35% access, Group 3 contains 213 titles responsible for 60.34% of access and Group 4 contains 12 titles responsible for 20.39% access.(Fig.2)

4.2.1 Titles in Group 1

It was found that there were 251 titles which received no request at all which constitute about 16.89% of the total titles (1486) available online during 2003. There were 145 titles which received single requests each. The number of title started declining and the number of requests per title made started increasing except in case of nine requests made per title where it was slightly higher than its predecessor i.e.number of eight requests made per title. It was found that this group contains 785 titles

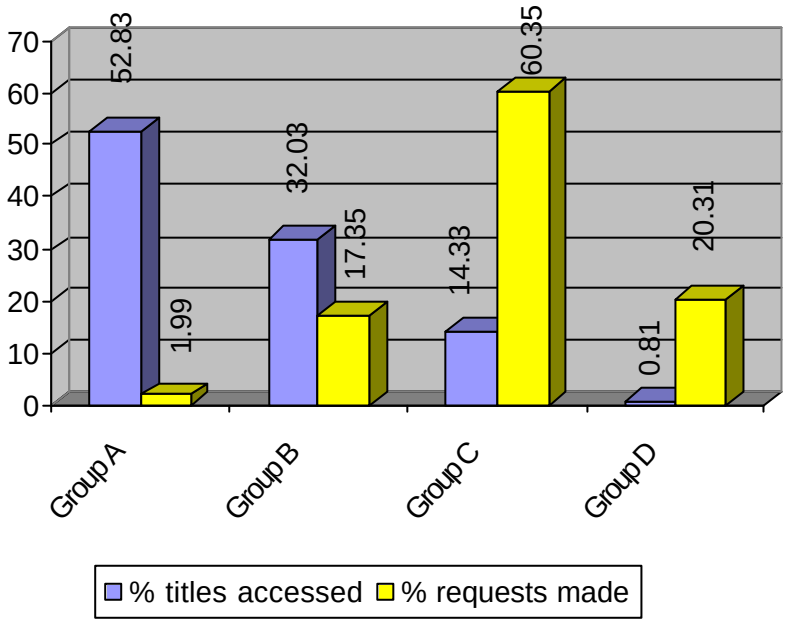

Figure 2. Requests made in different groups

which is about 52.82% (more than half) of the total tittles available but contributed to only 1.99% (less than two percent) of the usage. (Table 2 and Figure.3).

Table 2. Details of requests made and titles accessed in Group 1

No. of Requests Made	Titles accessed	% age of total titles available	Requests made	% age of total requests made
0	251	16.89	0	0.00
1	145	9.76	145	0.15
2	101	6.76	202	0.21
3	64	4.31	192	0.20
4	53	3.57	212	0.22
5	39	2.62	195	0.20
6	43	2.89	258	0.27
7	35	2.36	245	0.26
8	25	1.68	200	0.21
9	29	1.95	261	0.27
Total	785	51.00	1910	1.99

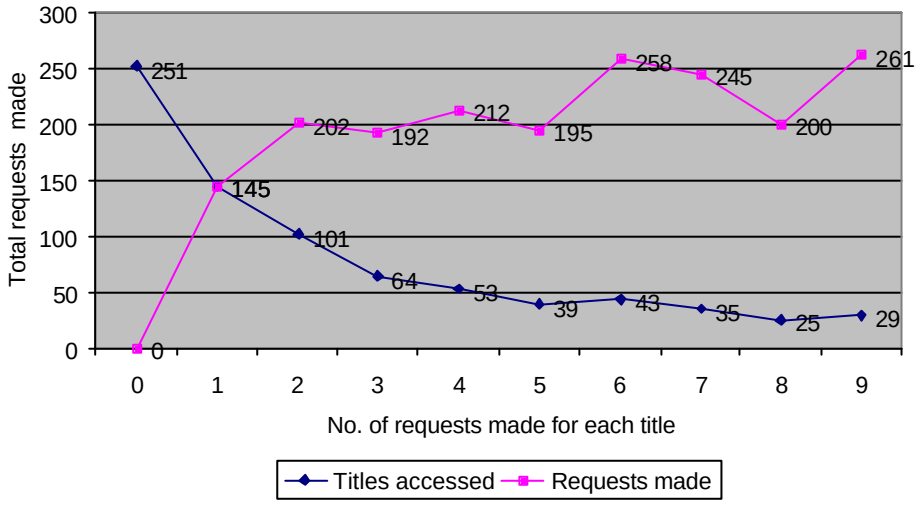

Figure 3. Detail of requests made and titles accessed in Group 1

4.2.2 Titles in Group 2

The same phenomenon i.e. decreasing of number of titles and increasing of number of requests was shown by group 2. There were 175 titles receiving requests between 10-19 and 12 titles receiving requests between 90-99. The total 476 titles of this group which is about 32.03% of the total titles available received 16622 requests which is about 17.35% of the total requests made. The total 82% of the titles in the group 1 and 2 received about 19.34% requests. The famous 80-20 rule looks to be prevailing here (Table 3 and Figure 4).

Table 3. Details of request made and titles accessed in Group 2

Range of Requests Made	Title Accessed	%age of tota title available	Requests made	% of total Requests Made
10-19	173	11.64	2477	2.86
20-29	79	5.32	1895	1.98
30-39	58	3.90	2008	2.10
40-49	45	3.02	2002	2.09
50-59	39	2.62	2113	2.21
60-69	34	2.29	2165	2.26
70-79	23	1.55	1724	1.80
80-89	13	0.87	1103	1.15
90-99	12	0.81	1135	1.18
Total	476	32.03	16622	17.35

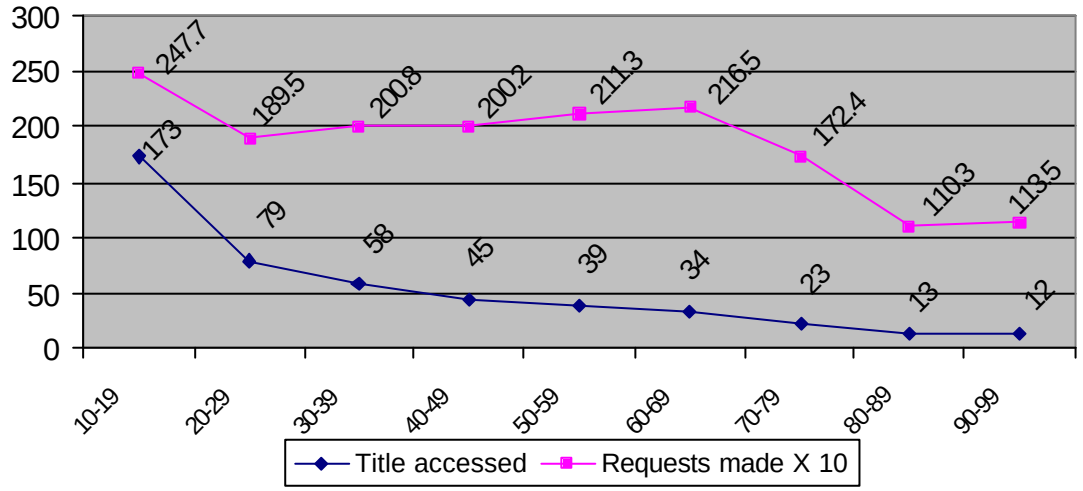

Figure 4. Detail of request made and titles accessed in Group 2

4.2.3 Title in Group 3

Group 3 has also shown the same pattern as shown by Group 1 and 2. There were 99 titles in this group that received requests between 100 and 199. The number of titles started decreasing as the number of requests started increasing except a small variation as the requests made to 7 journals were in the range of 700-799 while only 5 titles received requests in the range of 600-699. The 213 titles (14.33% of titles) received 57800 (60.34% of the total) requests. (Table 4 & Figure 5). This was the group receiving maximum number of requests.

4.2.4 Titles in Group 4

Titles in Group 4 received 1000 or more requests. It was found that there are only 12 titles in this group that received 19455 requests. Thus 0.82% of the titles in this group received 20.39% of the total requests. (Table 5 and Figure.6). Individual requests received by the top 12 journals are shown in figure 7.

Table 4. Details of request made and titles accessed in Group 3

No. of Requests Made	Title Accessed	%age of total titles available	Requests made	% of total requests made
100-199	99	6.65	14098	14.72
200-299	48	3.23	11651	12.16
300-399	28	1.87	9510	9.93
400-499	14	1.44	6306	6.58
500-599	8	0.54	4405	4.60
600-699	5	0.37	3211	3.35
700-799	7	0.46	5141	5.37
800-899	3	0.20	2572	2.69
900-999	1	0.07	906	0.95
Total	213	14.33	57800	60.34

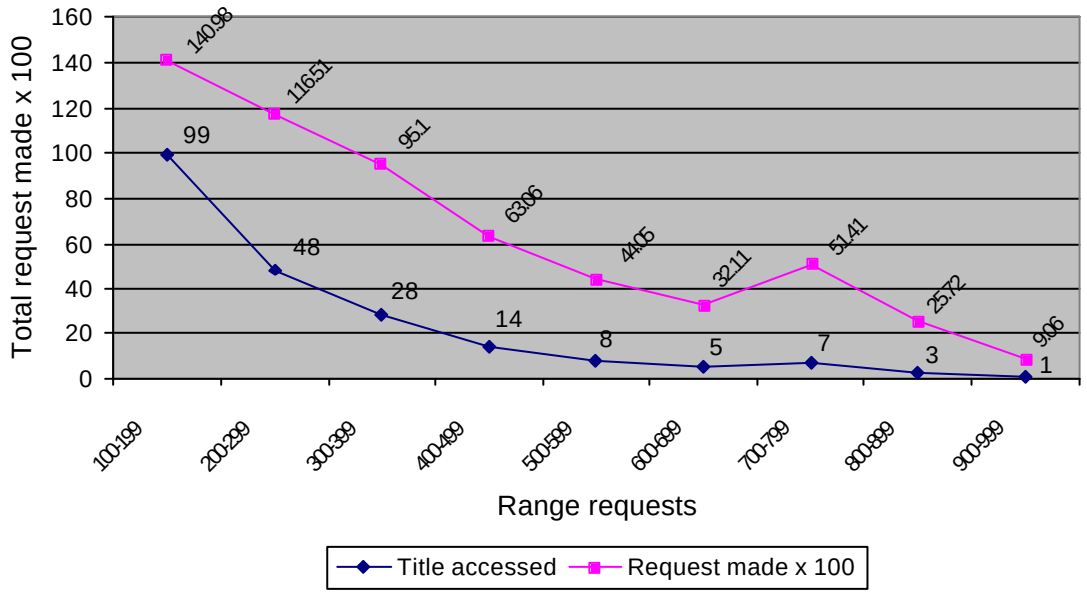

Figure 5. Details of request made and titles accessed in Group 3

Table 5. Details of requests made and titles accessed in Group 4

No. of Requests Made	Title Accessed	%age of total titles available	Requests made	% of total requests made
1000-1999	10	0.67	13123	13.79
2000-2999	1	0.07	2358	2.46
3000-3999	1	0.07	3974	4.19
Total	12	0.81	19455	20.31

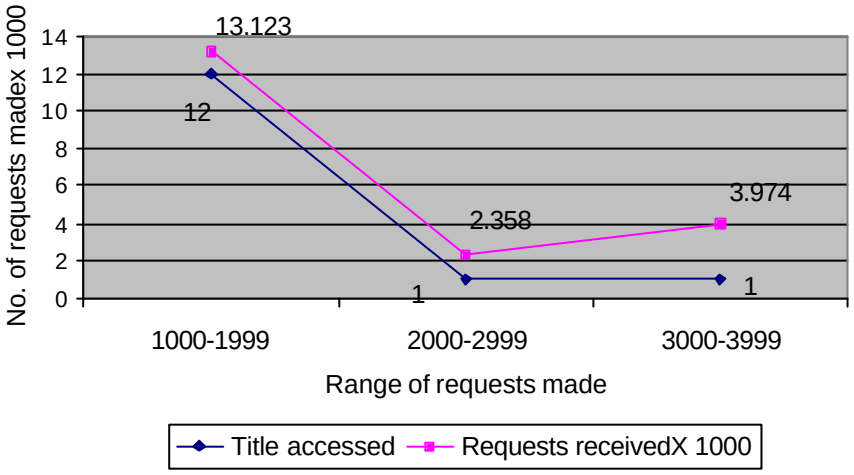

Figure 6. Details of requests made and title accessed in group 4

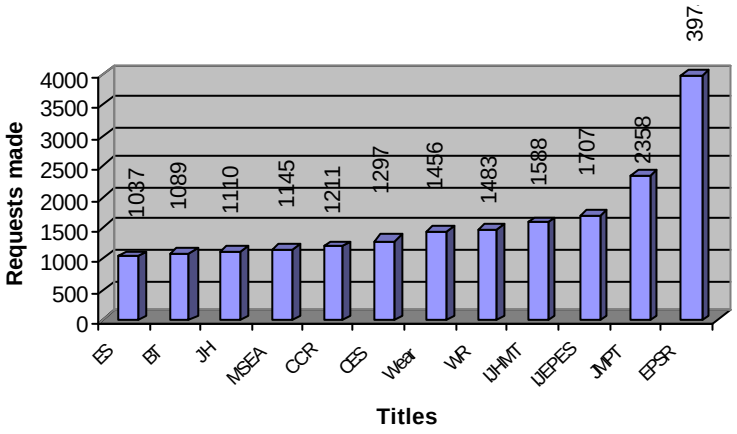

Figure 7. Top 12 Journals receiving more than 1000 requests during 2003

ES= Engineering structures	Wear=Wear
BT= Bioresource Technology	WR = Water Resources
JH=Journal of Hydrology	IJHMT= Int. Jl of Heat & Mass Transfer
MSEA= Material Science Engineering A	IJEPES = Int. Jl. of Electrical Power & Energy Systems
CCR=Coordination Chemistry Reviews	JMPT= Jl. Of Material Processing Technology
CES=Chemical Engineering Science	EPSR= Electric Power System Research

4.2.5 Distribution of titles in different quarters .

For the further analysis, four quarters containing the number of titles receiving 25% of the total requests were made. It was found that top 25% of the requests were made to only 17 titles i.e. 1.14% of the total titles available. Next 25% of the requests were received by 49 titles (3.3% of the total). Third 25% requests were made to 111 titles i.e. 7.47% and the last 25% of the requests were made to 1058 titles (71.20% of the total. 251 titles (16.89%) of the total titles available received no request at all, (Figure 7, Table 7).

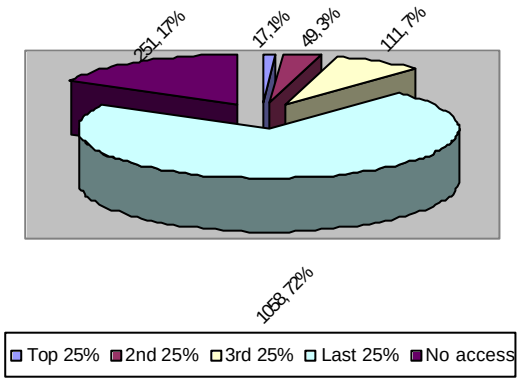

Figure 8. Titles accessed in different quarters

5. Discussion

The analysis of data in this study clearly shows that a very small fraction of the titles available are being heavily used and there is a very large portion which either not being used at all or being used rarely. The concentration of the requests around a limited number of titles clearly shows that the core collection is very much alive and active. If IITR subscribe to only 17(1.14% of the total available) titles than its 25% requirement can be met. Subscription to 66 (4.4% of the total available titles) alone can meet 50% requirement and subscription o 177 titles (only about 12% of the total) can meet its 75% requirement. Thus 88% of the titles are being subscribed to meet 25% of the total requirement. It is thus clear that by this arrangement consortia members are the losers and the publisher is winner as he gets the payment for the information which is never used. It clearly shows that there is an urgent need to look into the subscription model of big deals. Besides more revenue generation for the publisher the big deal model has certain other disadvantages for the information domain as a whole as panted out by Ball (18). On the top is the issue considering archival rights and licensing as the information being made available is licensed and not sold to the Consortia members. Another issue which is worth considering is that the big deal increases the citation ranking of the big publishers as after spending on big deal, hardly any budget will be left for the small publishers which will eventually lead to their death. Librarian will have no role in decision making about the subscription and last but not the least it will definitely lead to the monopoly of big publishers.

6. Conclusion

The highly core centered access to ScienceDirect in IIT Roorkee clearly points out that the renegotiation with the publishers is necessary as no mutually agreed contract can be successful if it is not equally balanced. At present the Big Deal arrangement seems to be in favor of publishers. Librarian have already started opposing it and with valid apprehensions. Some may argue that there is always 80-20 rule prevalent in the libraries but it may have been valid when the libraries have to keep stock in print. In case of electronic resources we have constant access to the information, which can always be accessed on payment. There is no need to pay in advance for information which is never used. A viable model will be that the both libraries and publishers are benefited equally. This can only be brought by increasing the use of the information and subscribe to only a core set. Rest of the information can be accessed in pay for use method.

Though the present study is based only on the data for one year that too for one institution which may not be representative of all members, but the data gives a sufficient insight into the state of affairs. It at least is sufficient enough to initiate further studies on this issue. It also gives the sufficient grounds to negotiate with the publishers.

Elsevier's ScienceDirect covers very broad spectrum of STM and therefore, may not be a true representative of all the publishers which are specialized such as AIP, IOP, ACS etc. Therefore individual study are necessary for individual publishers/aggregators.

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