

The thought of “benchmarking” makes many librarians nervous. The Total Quality Management (TQM) term is intimidating to some, however when they realize that a large part of benchmarking is statistic keeping, then they begin to relax. As Sarah Pritchard (1995) discusses, statistic keeping is something libraries have done for the better part of a century. However, we often aren’t sure what to do with all the numbers we keep and we don’t always keep them in consistent ways to make them useful to us or other institutions. That is where more formalized benchmarking comes into play. Taking the numbers and seeing how your institution compares with its peers – in terms of input, output and productivity.

### Introduction

For this benchmarking exercise I examined the Massachusetts Institute of Technology (MIT) Libraries. I decided to benchmark the MIT Libraries against the schools that MIT historically benchmarks against. These schools are known as the “SHYMP” group – standing for Stanford, Harvard, Yale, MIT, and Princeton. I talked with one of the Associate Directors of the MIT Libraries and he suggested this group. He said that while these are the peers that MIT benchmarks against, the Libraries have never done a benchmarking project that he is aware of.

### Background

MIT admitted its first students in 1865. The Institute was started in response to the increasingly industrialized America. Education and research are MIT’s main focuses.

MIT is independent, coeducational and privately endowed. The organization of the Institute breaks down into five schools, which contain 27 academic departments. In addition to these traditional structures there are also countless interdepartmental programs, labs, and centers.

The MIT Libraries follow suit in regards to their structure. There are five main libraries: Science, Engineering, Urban Planning & Architecture, Social Sciences & Management, and Humanities. In addition there are five branch libraries, and an onsite storage (lovingly referred to as the “RetroSpective Collection (RSC).

### *The Numbers*

This project allowed me to survey several tools that deal with academic library statistics. I used both ARL statistics (compiled via the University of Virginia’s Geostat Center - <http://fisher.lib.virginia.edu/arl/index.html> ) and the “Academic Library Peer Comparison Tool” maintained by the National Center for Educational Statistics (NCES). (<http://nces.ed.gov/surveys/libraries/academicpeer/index.asp> ).

Each resource had its pros and cons. The ARL data is more up to date – containing data from 2002. NCES most recent data is from 2000. NCES allows you to manipulate the data much more easily than does ARL, as well as compiling a summary report. NCES also has interesting data pertaining to particular electronic services that ARL does not appear to collect at this time. In the end I decided to use NCES as my primary tool. However, as I was analyzing some of the data for MIT – I noticed a glaring inaccuracy in the NCES data. This sent me back to the ARL statistics, with a rather horrified feeling. I did a variety of data comparisons (using FY 2000 data from ARL)

and found there were several discrepancies between the two sets of data. Some of this can be explained by varying definitions of variables. Some of it just doesn't match up. This either puts the fault with ARL, NCES, or the reporting library. This exemplifies the very murky world of library statistics.

With a variety of statistics in hand, (all of which can be found in the Appendix) it was now time to see how MIT compared to its SHYMP brethren. Some feel the MIT Libraries were the neglected child of MIT for many, many years. Scientists don't like to come out of their labs and go to the library. MIT students and faculty dislike (more than your average academic) admitting that they don't know something – sometimes in fact, it doesn't even occur to them. Couple this with the social awkwardness that sometimes comes from too much brain power – and the libraries have had quite a challenge put to them.

### Enrollment

MIT has the smallest Undergraduate population with 4,260 FTE students, but it is not far off the peer group average of 6,248. Their graduate population is also strong with 5,536 FTE students, compared to the high of Harvard with close to 12,000 and the low of Princeton with fewer than 1,800. The student population size is therefore quite comparable with members of the peer group.

### Staffing

The average librarian/professional staff per 1,000 FTE enrolled for the peer group is 20.28, however it is only 8.68 for MIT. MIT has 58 librarians, to a group average of

196.90. Granted, this number is inflated due to Harvard's astounding 387 librarians, but even without Harvard, the average is well over 100. Total staff at MIT is 201 – versus a peer average of 750! It becomes clear that staffing is a huge issue. How can you have a world-class library at a world-class institution without the staff? Perhaps this is why staff often feels overworked, and why Harvard can have several staffs member create hundreds of pages of training resources for their new system.

### Print Collection

MIT has a notably smaller print collection than the other four schools. The group ranges from 2,605,490 volumes (MIT) to 14,437,361 volumes (Harvard). The average of the group is slightly over nine million. It should be noted that much of MIT's collection is in the fields of science and engineering – arguably one of the most complete collections in the world.

### Funding

MIT also spends much less money per person enrolled on library resources. The group average is roughly \$4,200 – MIT spends slightly over \$1,200 per student. This is an alarming difference. Total library budget for FY2000 was just over \$12 million, in comparison with a group average of almost \$54 million. This is really a huge difference. Granted, less staff requires a smaller budget – but at the same time, keeping a smaller budget requires less staff. I really see this as a problem for the MIT Libraries. There are so many great ideas and great minds here – the Institute really should take advantage of them. This clearly ties in with the ability to sell yourself to those controlling the money –

and in fairness, I think that this has gotten much better under our new Director. (But we clearly have a way to go).

### Electronic Services

Even with a glaring lack of staff and funds – the MIT Libraries are doing well to keep electronic services as a priority. Electronic access is big in academia, but it is huge at MIT. Finally we have the ability to give our patrons what they want – the answers without having to enter a library, or possibly ask a question of another human being. MIT students have long been more comfortable with machines than people, with teaching themselves instead of asking for help. In keeping with the technology trend, the MIT Libraries are quite competitive with their SHYMP counterparts. We spend a comparable amount of our much smaller budget on electronic resources. We are also competitive in terms of electronic services offered to patrons - the only things the Libraries are lacking (we now do have scanning equipment) are video conferencing and satellite broadcasting. MIT does this as an Institution on a daily basis, however the Libraries really haven't participated.

### Circulation & Reference Transactions

Interestingly, for having the lowest staff numbers, MIT has the greatest number of public service hours in a typical week. However, Harvard did not report numbers, so the numbers are not completely representative. MIT has an average of 115 hours a week, and the group average is just over 106. MIT has lower than average numbers in terms of weekly reference transactions, 1,181(MIT) vs. 3,116 (peer group) – again perhaps influenced by MIT's subject matter and stubborn clientele or perhaps showing that we

need more staff in order to market our services better. While they have lower numbers of circulation transactions than the others, their circulation transactions per 1,000 FTE students is right around the average of 69.

### Conclusion

This initial benchmarking of MIT against its peers show that the MIT Libraries do without the level of staffing and funding that the average SHYMP institution has. However, what it does not show is whether the patrons of the Libraries are happy with the service they receive. Related to this of course is whether the patrons of the peer libraries are happy with the level of service they receive from their respective libraries. Libraries keep many numbers, but do we keep the *right* numbers? Are there things we should be attempting to quantify that we simply are not? Most certainly, and as the role of libraries continue to change in the growing world of technology we will need to continue to redefine how we quantify and qualify what we do.

### **Bibliography**

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- Van Reenen, J. (2001). Library budgets and academic library rankings in times of transition. *Bottom Line: Managing Library Finances*, 14(4), 213-218.

(Fiscal Year 2000 data was used to generate these reports.)

## Appendix A: Summary Report

(Library of Interest: **MASSACHUSETTS INSTITUTE OF TECHNOLOGY, MA**)  
Peer Group: Stanford, Harvard, Yale, and Princeton

Topic Name	Library of Interest (MIT)	Peer Group Avg.	State Avg.	National Avg.
Serial Subscriptions - Electronic	\$889,313	\$936,727	\$108,535	\$66,567
<b>Total Library Expenditures Per Person Enrolled (FTE)</b>	<b>\$1,227.44</b>	<b>\$4,243.33</b>	<b>\$939.25</b>	<b>\$536.78</b>
Total FTE 12 month Undergraduate Enrollment	4,260.00	6,248.08	2,194.48	2,522.06
<b>Librarians and Other Professional Staff Per 1,000 Enrolled (FTE)</b>	<b>8.68</b>	<b>20.28</b>	<b>8.22</b>	<b>4.76</b>
Student Assistants	21.00	105.81	10.79	8.19
<b>Librarians and Other Professional Staff</b>	<b>\$3,758,037</b>	<b>\$11,030,007</b>	<b>\$570,415</b>	<b>\$556,041</b>
Books - Papers and Microforms	\$953,781	\$7,843,333	\$185,952	\$167,534
<b>Total Library Expenditures</b>	<b>\$12,024,841</b>	<b>\$53,822,940</b>	<b>\$2,611,164</b>	<b>\$1,532,643</b>
Total FTE 12 month Post-Baccalaureate Enrollment	5,536.67	6,686.92	571.85	370.68
<b>Librarians</b>	<b>58.00</b>	<b>196.90</b>	<b>12.78</b>	<b>7.61</b>
Student Assistants	\$315,616	\$1,236,261	\$138,314	\$119,898
<b>Serials</b>	<b>20,207</b>	<b>81,885</b>	<b>4,362</b>	<b>3,101</b>
Circulation Transactions (Including Reserves)	610,137	1,011,029	86,391	62,209
<b>Total FTE 12 month Enrollment</b>	<b>9,796.67</b>	<b>12,935.00</b>	<b>2,766.33</b>	<b>2,892.74</b>
Total Staff Per 1,000 Enrolled (FTE)	20.52	57.72	18.39	12.29
<b>Preservation</b>	<b>\$200,846</b>	<b>\$634,866</b>	<b>\$20,808</b>	<b>\$14,918</b>
Gate Count Per Typical Week	18,839.00	23,660.00	5,306.68	6,238.70
<b>Number of Branch Libraries</b>	<b>15</b>	<b>19.33</b>	<b>1.11</b>	<b>0.88</b>
Other Professional Staff	27.00	72.50	3.32	1.97
<b>Computer Hardware and Software</b>	<b>\$441,262</b>	<b>\$953,711</b>	<b>\$50,610</b>	<b>\$49,654</b>
Print Material - Paper Titles	Unknown	Unknown	168,883	153,416
<b>Total Interlibrary Loans Received</b>	<b>12,763</b>	<b>17,689</b>	<b>2,533</b>	<b>2,506</b>
All Other Paid Staff	95.00	375.16	19.75	11.90
<b>Print Material - Paper Volumes Per Person Enrolled (FTE)</b>	<b>265.96</b>	<b>754.84</b>	<b>191.16</b>	<b>104.92</b>
Total staff	201.00	750.37	45.25	29.03
<b>All Other Paid Staff</b>	<b>\$2,828,353</b>	<b>\$10,278,102</b>	<b>\$614,624</b>	<b>\$454,723</b>
Serial Subscriptions - Paper and microforms	\$181,059	\$6,347,656	\$361,532	\$292,984
<b>Circulation Transactions (Including Reserves) Per Person Enrolled (FTE)</b>	<b>62.28</b>	<b>68.88</b>	<b>33.78</b>	<b>22.52</b>
Print Material - Paper Volumes	2,605,490	9,383,895	443,622	286,256
<b>Reference Transactions Average Per Week</b>	<b>1,181.00</b>	<b>3,116.50</b>	<b>433.92</b>	<b>490.68</b>
Public Service Hours Per Typical Week	115.00	106.33	87.43	77.88
<b>Total Interlibrary Loans Provided</b>	<b>13,708</b>	<b>68,597</b>	<b>4,838</b>	<b>3,147</b>

### Appendix B: Services Data

Libraries by State	Public Service Hours Per Typical Week	Gate Count Per Typical Week	Circulation Transactions (Including Reserves) Per Person Enrolled (FTE)	Circulation Transactions (Including Reserves)	Reference Transactions Average Per Week	Total Interlibrary Loans Provided	Total Interlibrary Loans Received
<b>MIT</b>	115	18,839	62.28	610,137	1,181	13,708	12,763
<b>STANFORD UNIVERSITY</b>	98	23,660	67.01	968,107	2,233	N/A	N/A
<b>YALE UNIVERSITY</b>	111	N/A	80.78	886,945	4,000	27,044	18,343
<b>HARVARD UNIVERSITY</b>	N/A	N/A	101.30	2,020,975	N/A	165,493	27,797
<b>PRINCETON UNIVERSITY</b>	110	N/A	26.42	168,087	N/A	13,254	6,928

Note: "N/A" means the data are not available; "D/S" means data suppressed

### Appendix C: Collections Statistics

Libraries by State	Print Material - Paper Volumes	Print Material - Paper Volumes Per Person Enrolled (FTE)	Serials
<b>MIT</b>	2,605,490	265.96	20,207
<b>STANFORD UNIVERSITY</b>	7,286,437	504.38	43,778
<b>YALE UNIVERSITY</b>	10,496,451	955.93	55,606
<b>HARVARD UNIVERSITY</b>	14,437,361	723.65	190,528
<b>PRINCETON UNIVERSITY</b>	5,315,332	835.39	37,629

### Appendix D: Expenditures

Libraries	Books - Papers and Microforms	Total Library Expenditures	Books - Electronic	Serial Subscriptions - Paper and microforms	Serial Subscriptions - Electronic	Computer Hardware and Software	Librarians and Other Professional Staff	All Other Paid Staff	Total Library Expenditures Per Person Enrolled (FTE)
<b>MIT</b>	\$953,781	\$12,024,841	\$63,463	\$181,059	\$889,313	\$441,262	\$3,758,037	\$2,828,353	\$1,227.44
<b>STANFORD UNIVERSITY</b>	\$8,415,658	\$57,815,112	N/A	\$7,875,679	N/A	\$1,543,512	\$15,627,459	\$10,549,320	\$4,002.06
<b>YALE UNIVERSITY</b>	\$9,976,134	\$47,251,528	\$439,468	\$7,294,494	\$1,023,678	\$1,317,621	\$10,591,229	\$8,295,612	\$4,303.29
<b>HARVARD UNIVERSITY</b>	N/A	\$80,862,137	N/A	N/A	N/A	N/A	N/A	\$16,703,295	\$4,053.10
<b>PRINCETON UNIVERSITY</b>	\$5,138,208	\$29,362,982	\$87,557	\$3,872,795	\$849,776	\$0	\$6,871,334	\$5,564,181	\$4,614.89

### Appendix E: Staff & Enrollment Statistics

Institution Name	Total FTE 12 month Undergraduate Enrollment	Total FTE 12 month Post-Baccalaureate Enrollment	Total Staff Per 1,000 Enrolled (FTE)	Librarians and Other Professional Staff Per 1,000 Enrolled (FTE)	Librarians	Other Professional Staff	All Other Paid Staff	Student Assistants	Number of Branch Libraries
<b>MIT</b>	4,260.00	5,536.67	20.52	8.68	58.00	27.00	95.00	21.00	15
<b>STANFORD UNIVERSITY</b>	6,866.67	7,579.67	43.61	16.68	112.00	129.00	287.00	102.00	22
<b>YALE UNIVERSITY</b>	5,413.00	5,567.33	59.65	20.86	187.00	42.00	340.00	86.00	20
<b>HARVARD UNIVERSITY</b>	8,118.00	11,832.67	66.56	24.31	387.00	98.00	702.00	141.00	N/A
<b>PRINCETON UNIVERSITY</b>	4,594.67	1,768.00	61.05	19.27	101.60	21.00	171.64	94.23	16

### Appendix F: Electronic Services

Institution Name	Access to Full Text Course Reserves	Scanning Equipment for Patron Use	Services to Institution's Distance Education Students	Technology to Assist Patrons with Disabilities	Electronic Document Delivery	Video/Desktop Conferencing	Satellite Broadcasting By/For Library	State-Subsidized Consortium for Access to Electronic Resources	Library Participates in Other Consortia for Access to Electronic Resources
<b>MIT</b>	Yes	No	Yes	Yes	Yes	No	No	No	Yes
<b>STANFORD UNIVERSITY</b>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
<b>YALE UNIVERSITY</b>	Yes	Yes	N/A	Yes	Yes	Yes	No	Yes	Yes
<b>HARVARD UNIVERSITY</b>	Yes	No	N/A	Yes	Yes	No	No	No	No
<b>PRINCETON UNIVERSITY</b>	Yes	Yes	N/A	Yes	Yes	No	No	Yes	Yes