

An Apples-to-Apples Comparison of Two Database Journals

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Abstract

This paper defines a collection of metrics on manuscript reviewing and presents historical data for *ACM Transactions on Database Systems* and *The VLDB Journal*.

1. Introduction

The editors of *TODS* and *The VLDB Journal* have collaborated to generate historical data based on common definitions of relevant metrics. The data reported here was first presented, in preliminary form, at a VLDB panel [1]. This data has been updated in the intervening time to fix inconsistencies and improve clarity.

We found this to be a useful process, as the underlying data was cleaned and as we were able to observe some trends in metrics that had never before been computed. Additionally, we feel that such historical data is important for the community, authors, editors, and readers alike. The most recent data on manuscript processing times and rates is of interest to potential authors, some of the metrics are of interest to readers in judging the timeliness of the material published by the journal, and the historical trends are of interest to the database community at large, as it helps us to understand how scientific publishing is evolving.

This paper begins with a definition of nine metrics. Historical data for *TODS* and for *VLDB J.* for these metrics is given in the following two sections. We conclude with some possible next steps.

2. Manuscript Flow Model and Journal Metrics

The process flow model is oriented around the events that submitting authors' and subsequent readers' experience.

The following is a high-level summary of the manuscript review process used by most database journals. A *round* is one of the following: either (a) a manuscript (original submission or revision) is submitted and an editorial decision is made (i.e., accept, reject, or minor/major revision) after gathering one or more external reviews, or (b) a manuscript is submitted and an editorial decision is made without going to reviewers. A manuscript that is accepted and subsequently published and appears in an

issue of the journal is termed an *article*. Manuscripts that are withdrawn during the first round are not counted as submissions. Manuscripts that are withdrawn at some point after the first round are counted as rejections.

There are 9 metrics. Metrics 1–4 and 8 include average and maximum figures, and minimum figures when meaningful numbers are available.

1. *First-round turnaround time*: The time for the first round, measured from the manuscript's submission date to the journal to the date that an editorial decision is sent to the author(s). The X axis is the year of the submission. We report the average for that year and the maximum, both in months. The minimum is not reported because these make little sense due to desk rejects.
2. *Overall turnaround time*: Same as first-round turnaround, but measured for *all rounds* that were initiated in a given year (i.e., for both original submissions and revisions). The X axis is the year the round was initiated. The overall turnaround time is generally shorter than the first-round, because revisions are sent to the reviewers of the original manuscript. Again, average and maximum, in months, for that year are reported.
3. *Acceptance Time*: The difference between the date of the accept decision and the date of initial submission, in months. The X axis is the year of the initial submission. We only report on years in which all submissions have been finalized (accepted or rejected), and report the average per year, the minimum, and the maximum.
4. *End-to-end time*: The difference between the date of the issue in which the article eventually appeared and the date of the initial submission. The X axis is the year of publication (note that this differs from acceptance time, which is based on the year of the initial submission). The date of an issue is generally a month; if it is a range such as January/March, then the last date is used as the issue date.
5. *Number of submissions*: The absolute number of submitted manuscripts in each year.
6. *Acceptance rate*: The percentage of those manuscripts submitted that year that were ultimately accepted. The X axis is the year the manuscript was initially submitted. Only years for which all submitted

manuscripts have been accepted or rejected (that is, are not still in review or revision) are included.

We also provide some publication metrics. In metrics 7–9, the X axis is the year the volume covered (for most of the time, a volume represented the issues published that year).

7. *Number of articles per volume.*
8. *Article length per volume:* The number of formatted pages of an article, including bibliography and printed appendices, but not electronic-only appendices. We report the average article length and the length of the shortest and longest article that appeared that year.
9. *Total page length per volume:* The sum of the lengths of the articles of that volume.

We did not include metrics that relate to internal journal processes that are not visible to authors and readers, such as editor responsiveness, reviewer responsiveness, and number of reviews originally requested.

3. ACM Transactions on Database Systems

Metrics 1 and 2 are provided in Figure 1, metric 3 is in Figure 2, and metric 4 is in Figure 3. Some of these metrics are shown as tables due to lack of detailed data. For manuscripts for which only the submission or acceptance month was known (all papers prior to 2001 and eight papers after 2001), the first day of the month was assumed. The data points in Figure 3 do not include about 23 papers during 1976–1998, about one a year, for which detailed data is not known. Almost all accepted papers go through two rounds of reviewing and a revision, the latter averaging around four months.

Metrics 5 and 6 are shown in Figure 4. The acceptance rate for 2004 is not given, as there are seven submissions still in review (all as revisions). Metrics 7–9 are in Figures 5–7. There was one volume per year (four issues, March, June, September, and December).

Year	First Round		Overall	
	Avg	Max	Avg	Max
2002	3.4	7.1	3.4	7.1
2003	2.9	6.5	2.9	6.5
2004	3.0	5.0	2.9	5.0

Figure 1 TODS Turnaround Time in Months

Year Initially Submitted	Min	Avg	Max
2002	5.5	12.8	31.7
2003	4.0	10.1	19.5

Figure 2 TODS Acceptance Time in Months

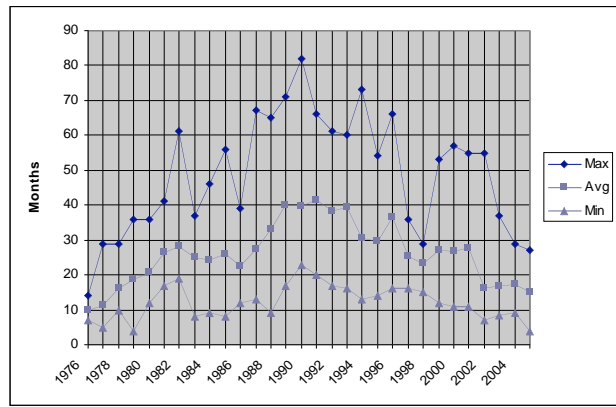


Figure 3 TODS End-to-End Time

Year	Number Submitted	Acceptance Rate
2002	60	38%
2003	72	36%
2004	79	---

Figure 4 TODS Submission and Acceptance Rate

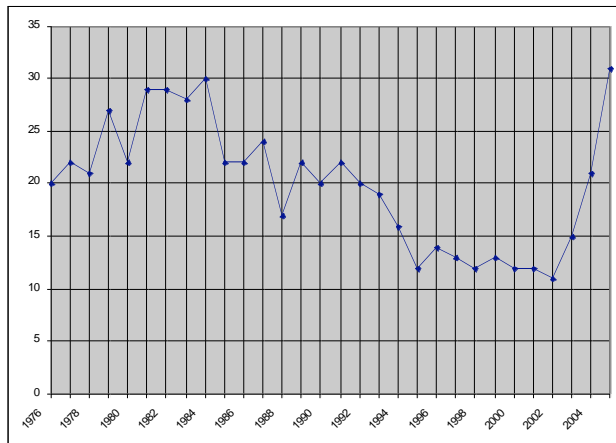


Figure 5 TODS Number of Articles per Volume

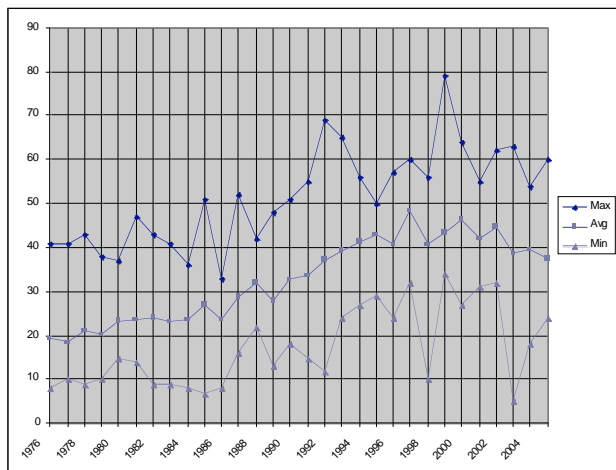


Figure 6 TODS Article Length per Volume

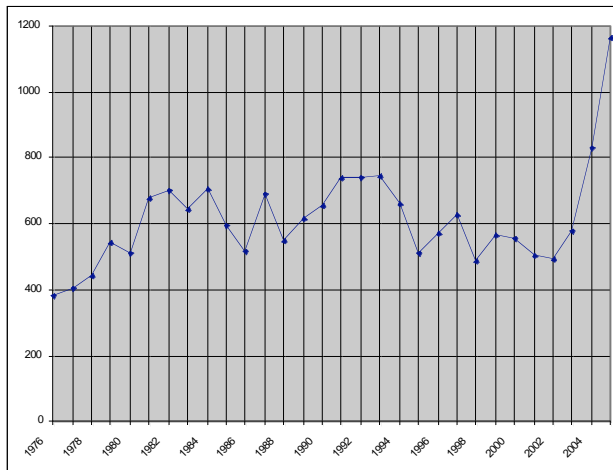


Figure 7 *TODS* Total Pages per Volume

4. The VLDB Journal

Metrics 1 and 2 are in Figure 8. Metrics 3–9 are in Figures 9–15 respectively.

- In Figures 8 and 9, we have reported the median instead of the average because that is the way such data has traditionally been reported to the VLDB Endowment’s Board of Directors.
- Figure 10 does not include minimums because that data is not available.
- Overall turnaround times are measured for the first and the second rounds, but not for the third round, due to lack of detailed data. If the date of the revised submission is not available, we have used the first decision date (i.e., an upper bound) instead for calculating the second round turnaround time.
- One paper submitted in 2003 is pending in the second round; four submitted in 2004 are pending in the second round and two in the third round.
- In 1996, *VLDB J.* moved from Boxwood Press (roughly the *TODS* page format) to Springer-Verlag (in a larger format). We estimate the latter’s page size as 1.86 times the *TODS* page size. Figures 14 and 15 show curves normalized to the *TODS* format based on that factor.
- In Figures 13–15, years do not map exactly to volumes, e.g., for 1999 and 2000, when final issues of a volume were published late.

5. Next Steps

It would be useful to refine these metrics, based on input from the community. For example, are averages, medians, or both preferred? Should rounds that don’t go to reviewers, and thus are much quicker, be differentiated from rounds that utilize reviewers? What other metrics would be useful? One possibility is the *reference age*, the average interval from the citation of the most recent published paper to the print publication date [2].

It would also be useful to enlist additional database journals in this exercise.

References

1. Philip A. Bernstein, David DeWitt, Andreas Heuer, Zachary Ives, Christian S. Jensen, Holger Meyer, M. Tamer Özsu, Richard T. Snodgrass, Kyu-Young Whang, and Jennifer Widom, Database Publication Practices—Panel. VLDB 2005:1241–245. <http://www.vldb2005.org/program/manuscript/web/p1241-bernstein.pdf>
2. Richard T. Snodgrass, Journal Relevance, *SIGMOD Record* 31(3):11–15, September, 2003.

Year Submitted	First Round		Overall	
	Med	Max	Med	Max
2002	4.1	13.0	4.0	14.8
2003	5.1	13.9	3.9	13.9
2004	4.6	12.8	4.0	12.8

Figure 8 *VLDB J.* Turnaround Time in Months

Year Initially Submitted	Min	Med	Max
2002	5.2	9.1	30.0
2003	5.9	8.1	20.6

Figure 9 *VLDB J.* Acceptance Time in Months

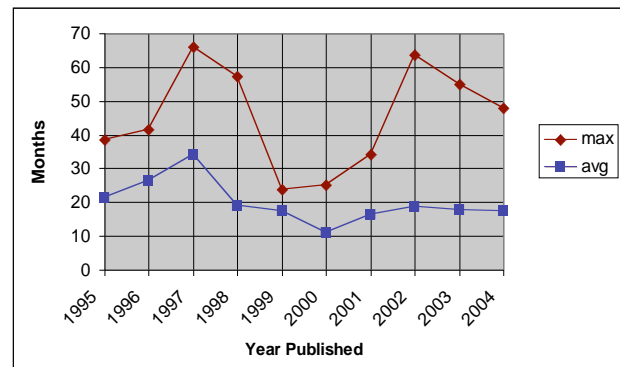


Figure 10 *VLDB J.* End-to-End Time

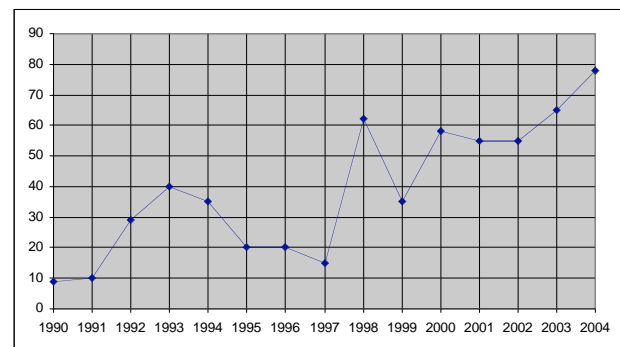


Figure 11 *VLDB J.* Number of Submissions

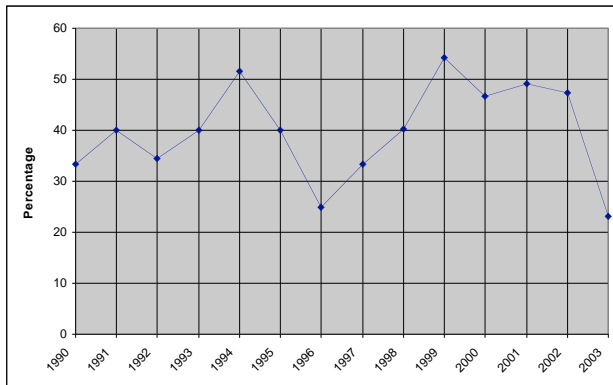


Figure 12 VLDB J. Acceptance Rate

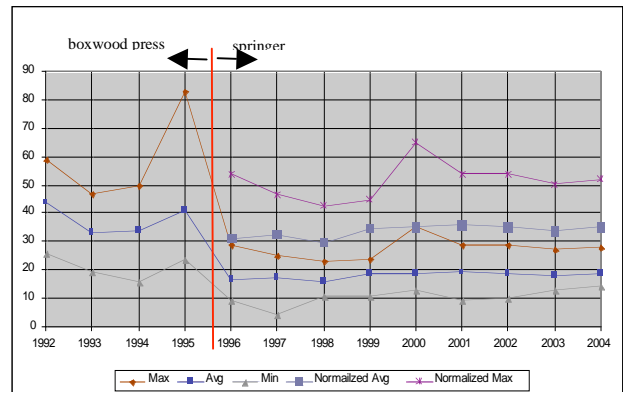


Figure 15 VLDB J. Total Pages per Year

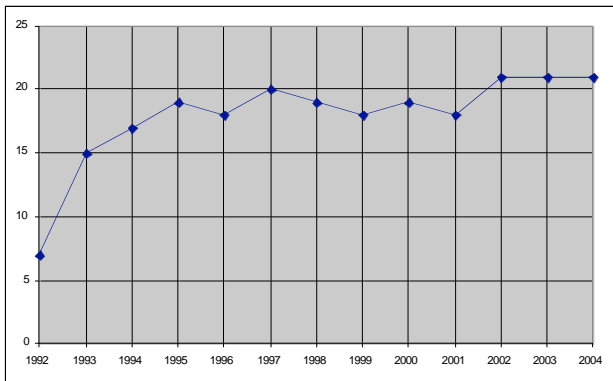


Figure 13 VLDB J. Number of Articles per Year

