SIGMOD Program Review

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Note: This report was submitted to the SIG Governing Board in October, 2000, as part of the viability assessment undertaken for each SIG every four years. Its structure is dictated by the SGB.

1 Mission

The ACM SIGMOD (Special Interest Group on Management of Data) is concerned with the principles, techniques and applications of database management systems and data management technology.

In February 1998 the SIGMOD executive committee meeting attempted to identify the "SIGMOD community". We came up with the following characterization.

The overarching goal of SIGMOD is to enable the production and dissemination of science and technology.

- SIGMOD should be careful not to stretch itself too thinly. The current community that SIGMOD serves is the "database research-oriented community": those producing the research results (academicians and research lab members), those utilizing the research results (DBMS, middleware, and tool vendors), and those interested in where the field is going (forward-looking users and consultants). At the present time, conventional database application developers and users of such applications are not SIGMOD's primary focus.
- The area of relevance of SIGMOD is "data management technology." SIGMOD should focus on concepts and systems that manage data.
- As SIGMOD's membership fee is so low ($20 per year), SIGMOD should focus first on providing member benefits, and secondarily on providing benefits to non-members.

This orientation has been the basis for all the decisions made the last few years.

2 New Initiatives

SIGMOD is a thriving, very active SIG which has put into place a number of initiatives since the last program review.

SIGMOD Online —The online component (`www.acm.org/sigmod`) has grown from a few text-based web pages to 4GB of information, including

- digitized papers of the SIGMOD and PODS conference proceedings (now released simultaneously in print and electronically),
- *SIGMOD Record*, also released simultaneously in print and electronically; available in html/PDF and XML versions),
- full video of the four one-hour plenary talks at the SIGMOD conference,

- *SIGMOD Digital Review*, an on-line collection of reviews of extant literature contributed by the community,
- *DBLP*, a bibliography of 170,000 database and logic programming papers,
- *dbworld*, a very popular mailing list with web-based posting and archives,
- web-based repositories of information on graduating database students, database events, database research groups, database publications servers, and free/public domain software.

SIGMOD Anthology —This is a collection of approximately 110,000 digitized pages of the database research literature, including back issues of three journals (IEEE TKDE, ACM TODS and VLDBJ), 27 conferences (ADBIS, CIKM, CoopIS, DASFAA, DBPL, DL, DOLAP, EDBT, ER, GIS, Hypertext, ICDE, ICDT, KRDB, MFDBS, MobiDE, NPIV, PDIS, PODS, SIGBDP, SIGIR, SIGMOD, SIS&R, SSDBM, VLDB, WIDM and WorkshopOODS), five newsletters (SIGBDP DATA BASE, SIGFIDET Newsletter, SIGKDD Explorations, SIGMOD Record and IEEE Data Engineering), several books, and meta-data (DBLP). Five CDRoms were sent free to all members in June, 1999; another 10 CDROMS are scheduled to be sent in November, 2000, and a 2-disk DVD version is planned for Spring, 2001. This represents about 10GB of data, all fully searchable.

SIGMOD Digital Symposium Collection (DiSC) —This is an annual CDROM publication containing the proceedings for that year for a dozen conferences, several newsletters, as well as ancillary material from those conferences, such as powerpoint slides, demoed software, and video of plenary sessions. Two CDRoms were sent free to all members in June, 1999 and two more in April, 2000; two more are expected in Spring, 2001.

New SIGMOD Record columns —Several new columns have been added to this high quality newsletter:

- Influential Papers (descriptions by well-known researchers of papers that influenced their work),
- Database Principles (a column on database theory),
- Systems and Prototypes (a column on database experimental research), and
- Standards.

Conference registration fee —This fee, which has been monotonically increasing for the last decade, has been reduced the last two years. In 1998 the fee was \$525; in 1999 that was reduced to \$425 and in 2000 to \$400, while services at the conference increased.

SIGMOD conference scholarships —This year we awarded six undergraduate scholarships to attend the conference, and hooked each up with a prominent researcher of their choice during the conference.

SIGMOD Sister Societies —We have instituted close cooperations with a variety of other database societies, including the Database Society of the China Computer Federation (CCF DBS), the Extending Database Technology (EDBT) Endowment, the International Conference on Database Theory (ICDT) Council, the the IEEE Technical Committee on Data Engineering (TCDE), the Principles of Database Systems (PODS) Executive Committee, ACM SIGKDD, and the Very Large Databases (VLDB) Foundation. This approach of working together for the benefit of the community at large has paid many dividends, including enabling the *Anthology* and *DiSC*, which would not have been possible otherwise, and jointly scheduling the major conferences, to allow adequate time to revise a rejected submission for consideration by the subsequent conference.

Industrial Liaison Committee –This committee has been formed to provide feedback and advice on how SIGMOD can serve the industrial sphere. Members are from Amazon.com, Berlex, HP Labs, IBM, Informix, Lucent, Microsoft, Oracle and TimesTen.

Latin American Liaison Committee —This committee has been formed to encourage database research in this area of the world. Representatives hail from Argentina, Brazil, Chile, and Mexico.

Book donation program —Each year conference attendees are encouraged to donate a like-new copy of a database textbook, which are collected at the conference and sent to a deserving country, for distribution to schools and libraries. In 1998, we sent books to Indonesia; in 1999, to Romania; in 2000, China. Egypt is scheduled for 2001. Several hundred books have been distributed.

Library donation program —We have assembled a list of 100 libraries in undeveloped and emerging countries. We will be sending them the entire SIGMOD Digital Library (*Anthology* and *DiSC*) in the spring.

Mugs —A limited edition SIGMOD mug and letter of appreciation is sent to volunteers. To date over 250 mugs have been distributed.

3 International Efforts

SIGMOD (and indeed, ACM) is considered to be primarily a US-based organization. The SIGMOD conference is always in the US (except for once, in Montreal), and its officers and chairs also are from the US.

We have worked hard to increase international participation.

- We have established close relationships with societies in China (CCF DBS), Europe (EDBT, ICDT, Moscow ACM SIGMOD Chapter), and the far east (SIGMOD Japan Chapter).
- We are now focusing on our neighbors to the south (cf., the Latin American Liaison Committee).
- The library donation program is international in scope.
- We continue to allocate $5000 per year for international development. Traditionally this has gone to funding influential researchers in eastern Europe to attend the conference, but we hope to broaden this program to other areas.
- The SIGMOD'01 program chair is Timos Sellis, from Athens, Greece.
- The SIGMOD Advisory Board and program committees have international members.
- We've made an informal decision to host SIGMOD 2004 in Europe.

4 Educational, Conference, and Membership Activities

The primary educational materials are the *SIGMOD Anthology*, bringing an entire library of database literature to students (who can join SIGMOD for only $12 per year) and the *SIGMOD DiSC*, which brings them the proceedings of a dozen conferences, as well as much ancillary material from those conferences.

The SIGMOD conference continues to be very well attended. It is highly prestigious. In a list of the most referenced papers[1], papers from the SIGMOD conference appeared more often than any other conference, and more often than any journal except the *ACM Transactions on Database Systems*. Statistics on downloads from the ACM Digital Library for the year ending May, 1999 show that papers in the SIGMOD proceedings were more popular than those of all of the ACM transactions.

The SIGMOD conference continues to be co-located with the Principles of Database Systems (PODS) conference, bringing together theoreticians and experimentalists. We will further this cooperation by joining the Federated Computer Research Conference in 2003.

SIGMOD, like most other SIGs, has experienced a slow decline in membership over the past decade. We've worked hard to reverse this trend, and are now growing at a healthy clip. Had the trend continued, SIGMOD would now have a membership of about 1800, rather than its current 3000 members. Specific efforts to increase membership included

- Going well beyond the conventional benefits of a newsletter and reduced conference registration fee, to free copies of the *Anthology* and *DiSC* and a substantially increased online presence, a portion of which is accessible only to members,
- Targeted mailings (our close relationship to sister societies has been particularly helpful here),
- Sending a letter to each lapsed member, encouraging them to rejoin, and
- Free membership with conference registration (SIGMOD and SIGKDD) for non-members.

5 Collaborative Efforts

We've already mentioned our sister societies. Most have given permission for significant amounts of technical material to appear in the SIGMOD Digital Library. We've also cooperated closely with SIGIR in the DL, and, as mentioned, with SIGKDD in membership promotions.

6 Leadership Development

The initiatives listed in Section 2 all require volunteers to accomplish, and leaders to organize. The number of people leading efforts, and the number of people in standing committees and editorial boards, have both more than doubled in the last few years. As mentioned, over 250 volunteers have actively helped with SIGMOD activities and deliverables since the last review.

7 Self Assessment

We feel that the number of members provides a useful and relevant metric for indicating the extent to which SIGMOD is meeting the needs of the community. The declining membership of the last

[1] http://www.informatik.uni-trier.de/~ley/db/about/top.html

decade, and indeed, over the first two years since the last assessment, signals to us that SIGMOD was in fact *not* doing an adequate job. So we have worked hard to increase member benefits (e.g., the SIGMOD Digital Library, the online material) as well as SIGMOD's perceived role in the community (e.g., through interactions with our sister societies, through targeted promotions). We interpret our rising membership as a concrete indication that the community values what SIGMOD offers.

Another major success has been to reorient to the new environment of cheap digital storage and the web. In the first twenty-five years of its existence, SIGMOD distributed about 60 million pages of material, all in print. Last year alone, SIGMOD distributed 2.7 million pages of paper, and 123 million pages on CDROM, twice as much as the previous total(!). In fact, SIGMOD distributed 9 terabytes of information last year, twice as much as the entire ACM Digital Library served over that same period. Clearly these new technologies enable much greater distribution of technical material.

SIGMOD also has been aggressive in putting its materials on the web; by the end of this calendar year *all* of SIGMOD's materials: almost 30 years of conference proceedings and newsletter issues, and video from the last few plenary sessions, will be on the web.

A third source of pride is the involvement of all of the major database societies in the SIGMOD Digital Library. This involvement was critical, for two reasons. One, we could include material only if we had permission. And two, SIGMOD could not afford to digitize all that material; we relied on the copyright owners to pay for the digitization. We now look forward to these organizations to put this material, which now exists in digital form, on the web, either on their web site, or, if they prefer, on ours.

8 Concerns for the Future

Looking ahead to the next few years, we need to continue to focus on delivering benefits that are valued to the membership. Given that SIGMOD had a membership of 3500 ten years ago, it seems that with the right mix of benefits that level could be attained again.

A continued frustration over the last four years has been ACM's antiquated membership database. It is surely a sign that something is wrong when people who join SIGMOD at its May conference do not appear in the ACM member database before September, or when membership statistics released in mid-September reflect July counts, or when members joining via the web have to await those records being printed out, to be reentered by hand into the member database. ACM may represent the future of information technology, but its databases are decades out of date, of particular embarrassment to SIGMOD.

Students are literally the future of our organization, and we need to do more than simply provide a low student membership rate and offer student scholarships. As one step, our publications should be enhanced to include more student-relevant content.

The future of the organization also lies in the international arena; there is great opportunity to get new members and deliver new services. However, supporting non-US members is more expensive than US members, so care is needed.

Finding good volunteers has recently been more difficult due to the large number of startups, which are often not amenable to time spent in professional societies, and which are now targeting our academic members, for whom SIG duties were valued and rewarded.

The fund balance grew considerably during the FY'96 and FY'97, then decreased the following two years; the fund balance at the beginning of FY'96 is almost identical to that at the beginning of FY'00. However, the required balance has increased significantly, because the contingency line item for the conference has moved from the conference budget (where it was pushing up the registration fee) to the required fund balance. Also, the fund balance is budgeted to take a significant hit when the next volumes of the *Anthology* are manufactured. This was intentional; we saw no need to retain a large fund balance (which hit a peak of $160 per member, eight times the annual membership dues). We feel strongly that this one-time expense of the *Anthology*, which will eventually exceed $200K, is what our members want. That said, we do realize that this reduction in the fund balance somewhat constrains the projects that the next set of officers may wish to initiate.

Longer term, there is the concern that databases are becoming a commodity item, an established technology. SIGMOD needs to continue to broaden beyond core DBMS topics, to consider database application development, unstructured databases such as the web, and legacy migration problems.

While these concerns are real, we feel that SIGMOD is a strong organization, and we have every expectation of it continuing to provide useful benefits to its members, and thereby to thrive and indeed continue to grow.