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# Report of the Portal Pricing Model Committee

February 13, 2002

## Committee Members

Bob Allen,	Publications Board
Jim Cohoon,	Publications Board
Alain Chesnais,	SIG Governing Board
Alan Berenbaum,	SIG governing Board
Bernie Rous,	ACM Headquarters
John White,	ACM Headquarters

## Executive Summary

Two distinct business models have been proposed for the ACM Portal: one developed by ACM Headquarters prior to the launch of the Portal and adopted as part of the FY '02 budget; and one developed and endorsed by the SGB (SIG Governing Board) after the budget was adopted. The two models differ primarily in the level of free access they provide to Guide.

The ACM Executive Committee established the Portal Pricing Model Committee to resolve the disconnect between these two models and to make recommendations that would achieve a correct balance between providing a community service and the implications on ACM finances.

The Committee reviewed the goals of the Portal, costs, and the financial implications of proposed changes. The Committee unanimously reached consensus on the following points and recommendations:

- 1) Providing a bibliographic database for computing (Guide) is important, but a high-quality Guide has real and significant costs,
- 2) ACM cannot afford to ignore potential revenue streams,
- 3) The Guide revenue stream is real,
- 4) The SGB proposal is not financially viable in the long run.
- 5) However, a better balance between community service and revenue streams for ACM can be achieved. The Committee, therefore, unanimously recommends that:
  - The pricing strategy for individual, member subscriptions to the Digital Library should be developed independently of the pricing/access model for Guide and reflect current market research.
  - Full free access to Guide should be opened to all 80,000 ACM members and SIG members. The public should continue to have free, but limited access to Guide.

The Committee feels the above change would meet, to a significant extent, the goal of providing a community service, sustain the Guide revenue stream with institutions, and provide a new benefit for both ACM members and SIG-only members. Both the Publications Board and the SGB Executive Committee have endorsed this recommendation.

## Background

A major enhancement to the ACM Digital Library was launched in July 2001. Called the ACM Portal to Computing, this enhancement included a complete redesign and implementation of the under-pinnings of the Digital Library and the introduction of a number of new features and functions. From a user's perspective the major, visible enhancements comprised:

- The addition of a significant bibliographic database to computing (Guide) with 350,000 entries.
- Implementation of citation/reference-linking across the collection.
- Introduction and use of DOI's (Digital Object Identifiers) to link to the source of non-ACM content.
- A significant enhancement of searching capabilities.
- Completion of the retrospective capture of the bulk of ACM published material.

Prior to the launch of the Portal, Headquarters developed a new business model for individual and institutional subscriptions and access. The key aspects of the model were:

- Access to the Guide bibliographic database
  - Free access to bibliographic entries, abstracts, and tables of contents via browsing of publication type (books, journals, proceedings, theses) or a fixed set of indices (author, subject)
  - Subscription-based (individual or institutional) access to advanced search, citation/reference-links, and reviews.
- Access to the Digital Library
  - Free access to bibliographic entries, abstracts, tables of contents, and reviews via browsing or basic search.
  - Subscription-based (individual or institutional) access to advanced search, citation/reference-links, and full text.
- Electronic services
  - Individual subscriptions required for access to electronic services: binders, bookshelf, forums, peer-to-peer references
- Pricing
  - Individual Portal subscription (Guide and DL) : \$110 - \$125  
\$125 (for new subscriptions)  
\$110 (for existing subscribers during FY '02)
  - Institutional subscription to Digital Library (unchanged): \$4,495 - \$7,845
  - Institutional subscription to Guide: \$1,200

The objective of the model was to maintain the kind of access available with the original DL while providing a mix of free and fee-based access to the new Guide. The goal was to reach a balance between providing a community service and growing ACM's most significant, new revenue stream. Council approved the model and associated revenue plan in June for FY '02.

In reaching the above balance, the model fell short of the expectation that all aspects of the Guide bibliographic database would be freely available to the community, with fees only associated with downloading full-text from the DL and using advanced electronic services such as binders and bookshelves. As a result, an alternative model was developed and endorsed by the SIG Governing Board in August.

In the SGB proposal:

- All aspects of the Guide bibliographic database would be freely available.
- The price of the DL would be reduced to \$99 (the original price planned for the DL for FY '02 prior to the completion of the Portal).
- Institutional subscriptions to the DL would be increased an additional \$1,200 (beyond the price increases already in place for FY '02).
- An individual subscription would still be required for access to advanced electronic services (e.g., binders and bookshelf)
- The SIGs would provide \$1M over two years to fund development of the Guide

The objective of the SGB proposal was to provide a full, rich bibliographic service to the community. The proposal argued that free access to Guide would: 1) drive more activity to the ACM site resulting in more subscriptions to the DL; and 2) provide an incentive to other publishers to contribute their meta-data to the Guide bibliographic database. In addition, the proposal argued that the Headquarters model was flawed in seeking to provide services for a fee that were partially available for free on the web.

The ACM Executive Committee discussed the SGB proposal at its conference call in September and decided to leave the model adopted with the FY '02 budget in place pending further research on the pricing of similar offerings in the marketplace.

A study was commissioned to compare the content, features, and pricing of the ACM Portal with other web-based offerings. A total of 13 sites were reviewed and compared: 6 from professional/scholarly societies; 3 from commercial publishers; and 4 free sites. The study focused on three major factors: size of the collection; pricing for both institutions and individuals; and access (free/fee).

The results of the study were discussed with the EC and Council in November and showed that

- There is tremendous variation in offerings and pricing
- Most sites provide some form of limited, free access
- Few individuals get full access
- ACM is at the low end of the scale from the perspective of price

The study was inconclusive relative to the question of whether the business model in place for the Portal should be changed and, thus, whether key elements of the SGB proposal should be accepted.

The Executive Committee wanted the disconnect between the SGB proposal and the current model resolved, ideally with the major stakeholders (Publications, SIGs, and Staff) reaching consensus on a recommendation. Thus, the Executive Committee asked Bob Allen (Publications Board Chair), Alain Chesnais (SGB EC Chair) and John White (ACM CEO) to constitute a committee representing the stakeholders that would:

- Revisit the goals of the Portal and the question of achieving a correct balance between community service and the financial implications for ACM, and
- Make a recommendation

The three individuals charged by the EC with this task invited three additional individuals, one from each stakeholder group: Jim Cohoon (Publications Board); Alan Berenbaum (SGB); and Bernie Rous (Staff) to join the effort. The Committee held a conference call in December where it: 1) reviewed the task and the two models; and 2) identified a set of action items largely centered on data collection to understand the financial implications of a change and to test assumptions. The action items from the first meeting were:

- Assess institutional uptake on Guide
- Assess financial impact of changing Guide/DL pricing
- List sustainable, alternative revenue streams
- Distinguish the costs of completing and growing Guide
- Discuss appropriate responses to the SGB proposal
- Investigate how free bibliographic services (e.g., ResearchIndex) are funded
- Test the assumption that a “free” Guide is an incentive for publishers to provide meta-data

In January the Committee held a face-to-face meeting to review the data collected and address key issues in deciding upon recommendations for changing the Portal business model.

## **The Issues Addressed**

### **The Goals and Costs of Guide**

#### *Goals*

The goal of including the Online Guide to Computing as part of ACM’s digital offerings was to provide a high-quality bibliographic database for computing. The issue of quality is important and requires that in building and sustaining Guide attention be given to:

- Completeness
- Features
- Quality Assurance

The issue of completeness is critical. Guide must include relevant computing literature from the past and grow each year to include the new relevant computing literature published. If one searches Guide, there must be a high degree of confidence that what is found indeed covers the relevant literature on the subject of the search.

Early on it was estimated that the relevant, past computing literature comprises on the order of 1 million bibliographic items. With Guide at 350,000 entries, completing the “retrospective” capture of past computing literature involves adding on the order of 650,000 bibliographic items. Furthermore, it is estimated that to keep Guide current between 25,000 and 40,000 entries must be added each year.

In addition to completeness, the Guide bibliographic database should provide a rich set of features based on leading-edge thinking regarding digital collections. Today this goal demands that to the extent possible and affordable, Guide supports citation-linking across the collection, utilizes DOI’s (Digital Object Identifiers) to identify the location of non-ACM articles, provides a rich search capability, and supports the community in using and contributing to the collection (e.g., reviews, forums, peer-to-peer, binders, bookshelves, etc.)

Finally, ACM must constantly and explicitly assess the quality of the collection to ensure that: the collection is complete; entries are accurate; and all features and functions do indeed work.

#### *Costs*

There are real costs associated with achieving the above goals for the Online Guide to Computing. With the benefit of six-plus months of experience in building and growing Guide, the committee felt it was important to analyze further the real costs associated with Guide. Understanding these costs is important in understanding the overall financial picture associated with a Portal business model.

The committee looked at two basic costs: the cost of acquiring a bibliographic entry for a new publication/article to keep Guide up-to-date in the current year; and the cost of acquiring an entry to complete the retrospective capture of previous computing literature. The two costs differ primarily in the nature of the entry and whether or not references are extracted. For entries associated with new material, we need to extract and incorporate references as part of the metadata, as we have done (and are doing) for all ACM publications. For entries associated with older material (completing the Guide retrospective) we are not currently planning on extracting and incorporating references. Access to older source is problematic, formats vary, and the costs are viewed as prohibitive.

The committee looked at an analysis of the cost of acquiring the full metadata (citation, subject categories, abstract, references) for a new bibliographic item. For these items, metadata is being created in different ways: some of it is keyboarded from hard copy; some is extracted from author source files; some is derived from Quark composition files; some is derived from PDF files; some is received electronically from publishers; and some is mined from BibTeX files in free bibliographic databases. Despite the path, there is almost always a mix of manual and automatic processing to produce correctly formatted, classified, and proofed metadata for a bibliographic entry. An analysis of current charges from our multitude of vendors indicates that the average cost of producing the metadata for a new bibliographic entry is \$10.

ACM's in-house experience indicates that cost of creating metadata for a bibliographic entry without references (Guide retrospective) is about 50% of the above cost, or \$5 per entry.

### *Conclusions*

From the above, the Committee's consensus conclusions regarding Guide were:

- ACM's goal in creating the Online Guide to Computing has been, and should continue to be, to produce a high-quality bibliographic database for computing literature.
- For the Online Guide to Computing to be a high-quality bibliographic database it must be complete, full-featured, and accurate.
- The cost of a high-quality Online Guide to Computing is real
  - The cost of growing Guide and, thus, sustaining its completeness is estimated to be \$250,000 to \$400,000 annually.
  - The cost of completing the retrospective capture of missing bibliographic entries is estimated to be \$3,500,000.

### **Financial Issues**

The ACM EC asked that in reaching a recommendation the Committee consider the financial implications of any recommended changes to the current Portal business model. To accomplish this the Committee felt it was important to:

- Review how the current Portal business model was expected to impact ACM's financial outlook.
- Assess how significant the impact is in the larger context of ACM finances
- Assess how realistic the expected impact is given six-plus months of experience
- Assess the impact of proposed changes to the business model
- Consider alternative models or revenue streams to reach a balance between free community services and ACM financial health.

*Impact of the Portal Business Model*

The budget adopted by Council for FY '02 distinguished between base Digital Library revenue (based on the pre-Portal business model) and the revenue and expense expected from introducing Guide and its associated business model.

Revenue	FY '02	FY '03	FY '04
Digital Library Revenue	3,675	4,050	4,460
Guide Increment	244	800	800
<b>TOTAL</b>	<b>3,919</b>	<b>4,850</b>	<b>5,260</b>
<b>Expense</b>			
Guide Increment	244	394	394

The major components of the “incremental” Guide revenue of \$244K in FY '02 and \$800K in FY '03 and '04 were:

- The increase in individual DL subscription rates attributed to Guide
  - \$11 for current subscribers in FY '02 (the \$110 transition price)
  - \$26 for new subscribers in FY '02 and all subscribers in FY '03-'04 (the \$125 rate)
- Individual member subscriptions to Guide, but not the DL (\$55)
- Institutional subscriptions to Guide (\$1,200)
- Non-member institutional subscriptions to Guide, but not the DL (\$2,000-\$3,000)

The “incremental” Guide expense for FY '02-'04 (a total of \$1,032,000 over three years) was an estimate based very much on what ACM could afford to spend on Guide and the assumption from the early Portal work that much of the Guide would come with minimal expense, an assumption that has turned out not to be true.

*How Significant is the Expected Guide Increment In the Context of ACM Finances?*

Below is a summary of the ACM General (i.e., non-SIG) portion of the budget and plan for FY '02-'04 adopted by Council:

ACM-General	FY02-B	FY03-Pln	FY04-Pln
<b>MPO Revenue</b>	<b>15,013</b>	<b>15,999</b>	<b>16,364</b>
<b>MPO Expense</b>	<b>13,607</b>	<b>14,172</b>	<b>14,494</b>
<b>MPO Net</b>	<b>1,406</b>	<b>1,827</b>	<b>1,870</b>
<b>VM Revenue</b>	<b>737</b>	<b>553</b>	<b>553</b>
<b>VM Expense</b>	<b>1,893</b>	<b>1,679</b>	<b>1,679</b>
<b>VM Net</b>	<b>(1,156)</b>	<b>(1,126)</b>	<b>(1,126)</b>
<b>General Net</b>	<b>250</b>	<b>701</b>	<b>744</b>

From the above charts, two important facts stand out. First, the most significant factor in year over year revenue growth is the Digital-Library/Guide revenue. Second, incremental Guide revenue accounts for the net positive outlook for the next three years.

*Is the Incremental Guide Revenue Real?*

The planned incremental Guide revenue is significant in the ACM plan. Thus, it was important to understand if the incremental Guide revenue plan was real, given a few months of actual experience (October through January).

There were four components noted above contributing to incremental Guide revenue plan. Of these four components, two are proving significant and two are not. Specifically, there has been little individual member pick-up of Guide-Only subscriptions and little institutional pick-up of Guide-Only subscriptions (that is, institutions without a DL subscription taking Guide); however, the following two components are proving real.

- Institutional subscriptions to Guide (i.e., institutions with a DL subscription adding Guide for \$1,200)
- The increase in individual DL subscription rates attributed to Guide

The institutional pick-up of Guide appears real. In the period October through January, 43 institutions subscribed to Guide, yielding an average up-take rate of 10.3 institutions per month. This compares favorably with the original up-take of the Digital Library with institutions. Over the four-year period 1998-2001, an average of 12 institutions per month have added the Digital Library (from 14.5 per month in 1998 to 11.6 per month in 2001). Thus, there is a realistic expectation of achieving 100 institutional Guide subscribers by the end of FY '02 and 200 and 300 subscribers by the end of FY '03 and '04 respectively.

Regarding individual DL subscriptions at the increased rates of \$110 for renewals and \$125 for new subscriptions, the retention rate for the past for months is similar to a year ago; however, there has been a drop-off in the number of new subscribers. There are two major factors influencing individual subscription levels: increasing institutional access; and price. A serious price sensitivity study is underway and there is general agreement that the results of this survey should be used to determine the price of the Digital Library. The study will be completed prior to, and reported at, the EC and Council meetings.

The incremental Guide revenue is real. Even with a drop of 1,000 individual subscribers per year over the next three years (FY '03-'05), we would expect:

<b>Incremental Guide Revenue</b>	<b>FY '03</b>	<b>FY '04</b>	<b>FY '05</b>
Institutions/Consortia/Site-Licenses	\$322K	\$442K	\$562K
Individual subscriptions (18,000, 17,000, 16,000 @\$26 increment over \$99)	\$468K	\$442K	\$416K
<b>TOTAL</b>	<b>\$790K</b>	<b>\$884K</b>	<b>\$978K</b>

*Financial Impact of the SGB Proposal*

At the core of the SGB proposal is the notion of full public access to the Guide bibliographic database and the concomitant elimination of the Incremental Guide Revenue Model. This would have an estimated financial impact of \$2,652K (an average of \$884K per year) in lost revenue over the next three years.

In addition, the SGB proposal suggests increasing the institutional price for the DL by an additional \$1,200 beyond planned price increases to help offset lost institutional Guide revenue. This would, however, represent an 80% increase in the price of the Digital Library option to institutions and, we believe, have a severe negative impact on overall institutional DL revenue.

Finally, the SGB proposal would provide \$1,000K to support completion of the retrospective capture of missing bibliographic entries for Guide. The cost of the Guide retrospective, however, is estimated at \$3,500K. At this point there is not a financially viable plan in place for completing the retrospective in a reasonable timeframe, and this should be addressed.

## *Conclusions*

From the above the Committee's conclusions regarding financial issues were:

- The "incremental" Guide revenue stream is significant in the context of ACM General Revenue and Net. In particular, the incremental Guide revenue accounts for the net positive outlook for the next three years
- The "incremental" Guide revenue stream is real and estimated at \$2,652K over the next three years, somewhat higher than the plan approved by Council.
- The SGB proposal would cost an average of \$884K per year in lost revenue. Given the costs associated with Guide and the important role of the Guide revenue stream, the SGB proposal is not considered to be financially viable in the long run.

## **Other Issues**

The Committee considered a number of other issues in its discussion.

There was an explicit assumption that if Guide were freely available and not a commercial product, there would be more incentive for publishers to contribute metadata. While there is some indication that societies (e.g., IEEE-CS) may be willing to exchange metadata, our experience to date with commercial publishers is that they are not. By and large, most commercial publishers sell their bibliographic metadata to secondary publishers (e.g., ISI, STN). Moreover, free metadata still has significant costs associated with ensuring the Guide has accurate, full-featured entries. There is increasing awareness across the publishing community that metadata is expensive.

The Committee also considered alternative revenue streams that could offset the lost revenue from the SGB proposal. In reality, the only new revenue stream is the Digital Library, and the only possible new, incremental ACM General revenue stream would be to eliminate the current DL Revenue Sharing Plan (estimated at \$300-\$400K per year). There was, however, general agreement that the SIGs should indeed share in the revenue generated by the Digital Library.

## **Reaching A Balance**

The Committee was charged with making recommendations on reaching a balance between providing a service to the community and the financial impact on ACM. The Committee, however, felt this balance needed to honor the conclusions reported in the preceding sections, namely:

- A high-quality Guide has real, and significant, costs associated with it.
- ACM cannot afford to ignore potential revenue streams.
- The incremental Guide revenue stream is real.
- The SGB proposal is not financially viable in the long run.

There are two significant components to the incremental Guide revenue stream: institutional subscriptions to Guide; and the increase in individual subscription rates for the Digital Library attributed to Guide. The difference between bundling Guide for individuals and unbundling Guide for institutions seemed inconsistent. Moreover, the Committee felt the DL subscription price for individual members should primarily reflect the perceived value of the ACM digital collection and not try to incorporate some preconceived measure of the incremental value of Guide. Thus, the Committee agreed that:

- The pricing strategy for individual, member subscriptions to the Digital Library should be developed independently of the pricing/access model for Guide.
- The pricing strategy should reflect current market research.



With the price of individual DL subscriptions removed from the equation for incremental Guide revenue, that revenue stream was now solely dependent on the existence of the institutional business for Guide. Since that business had been shown to be real and increasingly significant, it was important to sustain it.

<b>Incremental Guide Revenue</b>	<b>FY '03</b>	<b>FY '04</b>	<b>FY '05</b>
Institutions/Consortia/Site-Licenses	\$322K	\$442K	\$562K

The Committee felt an appropriate balance to reach in making Guide more available to the community, while sustaining the Institutional Guide business, would be to make Guide fully available to the 80,000 ACM/SIG members.

Thus the final consensus of the Committee was:

- ACM/SIG members should have full access to Guide (citation-linking, author-linking, advanced search).
- The public should continue to have free, but limited access to Guide.

The Committee felt this would

- Meet a significant portion of the goal of providing a community service
- Sustain the Guide revenue stream with institutions
- Provide a new member benefit for both ACM members and SIG-only members

## **Summary and Recommendations**

The Committee has reviewed in detail the goals and costs of building the Guide bibliographic database and the financial implications of the Guide business model and proposed changes. In the process, consensus was reached on the following points:

- ACM's goal in creating the Online Guide to Computing has been, and should continue to be, to produce a high-quality bibliographic database for computing literature.
- For the Online Guide to Computing to be a high-quality bibliographic database it must be complete, full-featured, and accurate.
- The cost of a high-quality Online Guide to Computing is real
  - The cost of growing Guide and, thus, sustaining its completeness is estimated to be \$250,000 to \$400,000 annually.
  - The cost of completing the retrospective capture of missing bibliographic entries is estimated to be \$3,500,000.
- The "incremental" Guide revenue stream is significant in the context of ACM General Revenue and Net. In particular, the incremental Guide revenue accounts for the net positive outlook for the next three years
- The "incremental" Guide revenue stream is real estimated at \$2,652K over the next three years, somewhat higher than the plan approved by Council.

- The SGB proposal would cost an average of \$884K per year in lost revenue. Given the costs associated with Guide and the important role of the Guide revenue stream, the SGB proposal is not considered financially viable in the long run.
- The price of individual, member subscriptions to the Digital Library should be independent of the pricing/access model for Guide.
- That price should be based upon market research.

To achieve a better balance between providing a community service and maintaining important, new revenue streams, the Committee recommends that the business model associated with the Portal be changed so that:

- ACM members and SIG members have full access to Guide (including citation-linking, author-linking, advanced search).
- The public continues to have free, but limited access to Guide.
- The pricing strategy for individual, member subscriptions to the Digital Library should be developed independently of the pricing/access model for Guide and reflect current market research.

The Committee feels the above change would meet, to a significant extent, the goal of providing a community service, sustain the Guide revenue stream with institutions, and provide a new benefit for both ACM members and SIG-only members.

These recommendations were discussed with the Publications Board and the SGB EC. Both groups endorsed the proposed change.

Finally, the Committee felt that the above changes to the Portal model would not only achieve a better balance between community service and sustaining an important new revenue stream, but would also guarantee sufficient revenue to cover the cost of growing Guide annually. However, the issue of completing the retrospective capture of missing Guide entries (estimated at \$3,500,000) remains as a significant funding challenge and should be addressed by the Association.