# A Study of ILI Standards Database Cost Savings At Texas A&M University

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Abstract

As the cost of electronic databases continues to rise, some educational institutions are being forced to cancel some of their electronic database subscriptions, including standards services. Standards databases might be cancelled because of high prices and narrow user applicability. This paper will address how the ILI Standards database may be used in lieu of other alternatives to continue to give the engineering faculty and students access to industry standards on-line, while at the same time lowering the library's overall costs.

## Introduction

Sterling C. Evans Library is the main library of the Texas A&M University Libraries and holds most of the engineering and science collection. The Evans Library, like other libraries, is facing a tighter materials budget. Collection costs have gone up because of large increases in the cost of journal subscriptions and because many new electronic products cost more than the print versions. The materials budget of most academic libraries is never enough to cover the entire wish list of materials. Often items are cancelled because the prices are too high (to free up money to buy other materials), the content does not match the users' needs, or they do not offer broad user applicability.

Government and industry standards can be candidates for cancellation for the following reasons; (1) they may be perceived to have low usage given their high cost; (2) narrow user applicability; or (3) constant maintenance is required. In general it is difficult to accurately measure usage of collections. Unless a system is set up to accurately measure customer usage, librarians have to rely on perceived usage. The standards collection in the Evans library was usually used without assistance because the Information Handling Service (IHS) database allowed users to directly access records. Collection maintenance is a real issue when dealing with a standards collection. Often individual standards are sold as bound or loose-leaf collections by each organization. Many of the individual standards are not updated yearly, and it is tempting to go a few years before buying the latest edition. However, standards' collections need to be updated yearly to maintain a relevant overall collection. Another difficulty is that there are a large number of standards issuing organizations. Librarians would have to take time every year to identify the relevant organizations and refocus the collections as the faculty interest shifts. An exhaustive

standards collection also takes up considerable space and its maintenance and reshelving require more staff time.

The engineering college at the Texas A&M University in the College Station campus is large and has the largest student body. The faculty require a standards collection for their research and teaching needs. The students need the collection for homework assignments and research. For many years the Evans Library provided access to standards through the IHS database. Last year the Evans Library decided to cancel the IHS database to free up money to purchase other engineering and science databases and to rework the standards collection.

From 1975, when the Evans library cancelled much of the print standards collection, until this year the library depended heavily on the IHS database to provide standards coverage. The benefits were access to a large, organized, comprehensive, and current standards collection and improved accessibility because the standards were located in one place.[(3)] In addition, IHS provided a comprehensive index, first in print, then online. This effective system meant that the staff's time could be spent on other duties. Shelving space was also no longer a concern. Everyone seemed to be well served. The database's cost was the one draw back. Access for one user seat cost the Evans Library over $85,000 in the 2000/2001 fiscal year. This amount did not purchase the database (no perpetual access). The contract allowed the library to access all the files, unlimited number of times, and when the file was electronically available, to download it. Even though the IHS database fulfilled the needs of the science and engineering users, its cost was preventing the Evans Library from purchasing other relevant databases.[(1)] Also the one user seat was insufficient at peak times, but the library could not afford more seats.

Uses of Standards in the Engineering Curriculum

Before the IHS database was cancelled, other sources of standards were investigated. The usage of the standards collection was examined to determine which departments in the engineering and science colleges used standards in teaching and research. Civil engineering, engineering technology, mechanical engineering, and system safety engineering regularly had homework assignments on standards. The teaching faculty used them to instruct students on the government and industry standards. The students learned of the various organizations that pertained to their fields and the types of standards that are created and published.

All of the science and engineering departments had faculty and students who used the standards collection to conduct research. In general seniors and graduate students utilized standards more often than lower classmen. Seniors frequently used standards in their final design projects. Graduate students used standards for course projects and thesis or dissertation research.

By analyzing the engineering standards homework assignments, it was determined that the students' information needs could be met with the printed Annual Book of ASTM Standards and the ASME Boiler Pressure Vessel codes. These collections are often used as the initial exposure to the industry standards. The students learn how to use the index and discern the different types of standards contained in each organization.

We thought we understood how standards are used in research, what was not apparent to us was the breadth of the standards organizations that the Texas A&M University faculty needed access to conduct their research. Without conducting a survey it was impossible to find out which standards organizations needed to be available.

Electronic Standards Databases

A few broad-based indexing services are available for standards. Most, if not all, of the standards producing organizations have their own Web pages where one can search and order standards. IHS, ILI Infodisk, Inc. (ILI), and the National Standards Service Network (NSSN) have broad-base indexing.[5] The ILI standards database provides indexing and abstracts for the standards of over 250 organizations.[2] Institutions can establish deposit accounts or be billed after the standards orders have been filled. All documents are available in print and some in PDF. NSSN provides a free search index.[4] The standards can be purchased through the standard's publisher or Global Engineering Documents. The NSSN database indexes standards from 600 developers.

Since the Evans Library wanted to set up a billing account and ILI had coverage of pertinent organizations, the decision was made to obtain the ILI database. Orders for standards are submitted on ILI's Web order form. ILI helps its customers who desire to do so to customize the Web order form. Depending upon the library's preference, requests may be sent directly to ILI by the end user, or they may be routed through an intermediary at the library, who will review and approve the requests and forward each request to ILI. We chose to mediate the requests, with two employees (a librarian and a staff member) being able to approve requested standards. The data collected will allow the library to maintain a database on current expenditures and users' requests.

Cost Savings

Upon the cancellation of the IHS database those funds immediately became available. The library reallocated the entire sum and the library's materials funding did not decreased. The ILI index subscription cost $5,000. An additional $20,000 was set aside to pay for on-demand standards orders. The IHS service has all of their standards available on-line. Their service is considered 'just in case'. On-demand orders must be requested and then the item can be delivered in an electronic file or through the mail. For the undergraduate classes the printed versions of the Annual Book of ASTM Standards ($6,000) and the ASME Boiler and Pressure Vessel Code ($5,000) were added. The total sum expended on the standards collection was $31,000. The remainder of the savings was expended on other library materials for the engineering departments.

Based on the data collected from the summer 2000 and fall 2000 semesters the cancellation of IHS service seems justified. Because of the lack of data from the previous provider, the library could not determine how many documents were accessed from the IHS database so no cost comparisons can be made. At the rate that the documents have been requested through the ILI database, it is doubtful that the $20,000 set aside for on-demand standards will be exhausted. Below are the usage and cost information from the past two semesters.

Database Usage

For the summer and fall semesters of 2001 the primary users of ILI were from the following departments in order of number of requests (highest first):

Mechanical Engineering
Civil Engineering
Texas Transportation Institute
Petroleum Engineering
Aerospace Engineering

Thirty standards were ordered in the summer semester. From the money set aside for on-demand orders ($20,000), $1,945 was spent on standards and under $65 was spent in shipping costs. The most expensive standard was $246 and the highest shipment cost was $21. There was often not a shipping cost since 63% of the orders were electronic files. In the fall semester 48 standards were ordered. The total was $4,760 for standards and $138 for shipment fees. Seventy-nine percent of the standards were electronic files. The most expensive standard cost $298 and the highest shipment cost was $26. The library expects the spring semester standards' orders to either match or be lower than the fall semester. At the end of the spring semester the data will be reevaluated.

Table 1 Usage & Cost Data of Standards Orders from the ILI Database

| Semester | Number of standards ordered | Total standards costs ($) | Total shipping costs ($) | % of electronic files | Most expensive standard ($) | Highest shipping cost ($) |
|---|---|---|---|---|---|---|
| Summer 2001 | 30 | 1945 | 61 | 63 | 246 | 21 |
| Fall 2001 | 48 | 4760 | 138 | 79 | 298 | 26 |
| Total | 78 | 6705 | 199 | | | |

The engineering librarian and a physical sciences librarian work together to identify possible standards collections and individual standards to add to the library collection. Given the savings that was realized when the IHS database was cancelled, the additional reference staff time required to monitor the orders generated by the ILI database is acceptable. Typically, the staff spends less than fours a month on ILI database orders.

The money that is left over in the standards account each year will be available to the science/engineering reference unit for current or future purchases. This year the library plans to spend the money in purchasing current 'hot issues' standards such as those that deal with lifelines, structural integrity, and anything else that may be pertinent to the issues presented by the events of September 11. In addition, the teaching faculty will be asked to identify standards that will be used in teaching so that they can be ordered and placed in the library reserves room for student use. Purchasing and placing individual standards in the reserves room will reduce duplicate standards orders. At this time the library plans to update the ASTM and ASME collections every four years. Users who need a current ASTM or ASME standard may order it

from ILI, but the bulk of undergraduates needing prototype standards will be able to use the print volumes even if they are several years old. There have only been two instances in which a standards request could not be fulfilled by ILI or any other resource at the library. The users were referred to interlibrary loan to determine whether another library could fill the standards request.

Service Issues

The biggest challenged with switching from one standards provider to another was notifying the users about the changes that had occurred and about the reasons behind the changes. The aerospace engineering, civil engineering, industrial engineering, mechanical engineering departments and the Texas Transportation Institute were informed of the changes via e-mail. However, most users found out about the new arrangement when they tried to find the IHS database and were rerouted to the ILI database. Many of the users understood the budgetary constraints. The users were reassured that they could continue to search and order standards online. Five users regularly use the ILI database for their research. The undergraduate students were not really interested in the full text of the standard and only wanted to write down the facts necessary to complete their homework assignment. In this regard the Annual Book of ASTM Standards, ASME Boiler and Pressure Vessel Codes, and collected organization handbooks were well suited for this type of need. Last year's students would have downloaded the complete standards from IHS to obtain just a line or two of text. In the author's opinion, the current arrangement in which the library uses ILI for current standards and maintains a small print standards collection is a better use of financial resources.

All of the users who had to request print resources when an electronic file was not available were anxious about the shipment time. However, in most cases the standard arrived in two business days. The library paid for the two-day delivery option. Our users had become accustomed to IHS' 24/7 access and large selection of standards. The library's solution seems to have accommodated the access issues for the undergraduate standards homework assignments and to be providing a satisfactory "just-in-time" service for other uses.

User Guides

The print and electronic standards resources in the Evans Library were identified and listed in a subject guide Web page. This was done to facilitate the identification and location of standards by users and staff. The Science/Engineering reference desk personnel used this page to find standards quickly. For the electronic resources the URL links offered easy access. The print standards listings include location and call numbers. In addition the NSSN home page is listed to aid librarians and users in the identification of esoteric standards. When a standard does not show up on the ILI database, the librarian who orders the standards will look up the standard in NSSN to verify that the standard has been published.

Below is what appears on the Standard Guide page at **http://library.tamu.edu/se/subj-guides/cven/standardsguide.htm**.

**Electronic Databases on the Web:**

- **IEEE/IEE Electronic Library Online** - Full-text access to IEEE and IEE transactions, journals, magazines and conference proceedings since 1988 and **all current IEEE standards**.
- **ILI Standards** - Over 250 Standards-issuing authorities are represented, includes all of the major U.S. and international organizations. Use ILI to request that the Library order standards.
- **DoD ASSIST** U.S. Dept. of Defense Specifications and Standards in full-text PDF, see also:
- **DoD Specifications and Standards** ("MIL-SPECs") Full-text from the U.S. Dept.of Defense.
- **NSSN** - Database for identifying or verifying standards, not for requesting copies of standards from the TAMU Libraries.

**Print Standards (Science/Engineering Reference, 5th floor, Library ANNEX "SciRef"):**

- **Annual Book of ASTM Standards** SciRef TA 401 .A64 2000
- **ASME Boiler and Pressure Vessel Code** SciRef TJ 291 .A582 2001
- **Architectural Graphics Standards** SciRef TH 2031 .R35 2000
- **International & Uniform Plumbing Codes Handbook** SciRef TH 6125 .W54 2000
- **ISO Standards** (partial set) SciRef TA 404.5 .I5
- **National Plumbing Codes Handbook** 2nd ed. SciRef TH 6125 .W56 1998
- **NEC 2002 National Electrical Code** (NFPA 70-2002). SciRef KF 5704.N38 2002
- **RTCA. Radio Technical Commission for Aeronautics.** Click here for a list.
- **SAE Handbook**, 3 volumes (Society of Automotive Engineers) SciRef TL 151 .S62
- **Uniform Plumbing Code** SciRef TH 6164 .W4 2000

## Conclusions

In spite of rising costs, libraries can provide their users with access to standards at reasonable prices. Even though electronic standard services may facilitate access, providing users with unlimited access to electronic standards may be prohibitive to libraries with modest materials budgets. Instead, print standards collections can be used to fill the instructional needs of homework assignments and pay-on-demand electronic standards services can be used to fill the research needs of faculty and graduate students. As the Texas A&M experience shows, a carefully selected combination of print and electronic standard collections are quite affordable. Librarians should investigate the engineering departments' needs to select the most appropriate standards collections in order to support the research, teaching, and service goals of the engineering programs.

**Bibliography**

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