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Financial Reporting for Electronic Resource and Service Expenditures: The Case of University Libraries in Taiwan

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Abstract

Through a qualitative research procedure, this paper intends to explore useful accounting classification relating to electronic resource and service expenditures necessarily disclosed in a library annual report. As a result, based on line item structure emerged in this paper, an appropriate direction to develop library-specific Generally Accepted Accounting Principle for reporting electronic resource and service expenditures can be evolved in the future.

1. Introduction

Over the past five years, the number of electronic resources has substantially increased and that tendency becomes a paramount importance to library collection management. The negligible marginal costs of reproduction for electronic resources and the rapid development of information and communication technology have created new pricing strategies for information goods vendors through bundling, site licensing, subscriptions, rentals, differential pricing, per-use fees, and other various mechanisms. The complex pricing schemes have raised several issues to existing financial reporting: assets vs. expense, cost allocation of materials bundling, value reporting of electronics resources purchased via consortia, and accounting classifications. Among university libraries in Taiwan, accounting terminology and practices on electronic resources may vary widely from school to school. Ministry of Education (MOE) has conducted a survey for library materials budgeting for two decades. Nevertheless there still have such issues that both MOE and libraries need to find solutions.

In that sense this study addresses the following research questions: 1) how much expenditure that university libraries spend on electronic resources and services including electronic serials, monographs, audiovisual clips, bibliographic utilities and research database access respectively? 2) what is the current trend of using electronic resources and services in university libraries? 3) in terms of cost budgeting, how much expenditure is that for each individual library

spending on electronic resources and services while compared with other group member libraries? 4) after research database site license expired, in financial report, is it reasonable to claim on-line access fee as operating expenditure instead of capital expenditure and to classify those full text electronic journals (published during the term) as library assets and count them as serials holdings upon paying access fee for next year usage? 5) because of different pricing scheme for electronic resources and services, how do libraries count and allocate joint expenditures for the print-based and electronic-based subscriptions? 6) in order to seek for optimum cost-efficient purchasing solution, how do libraries disclose expenditure information and value holdings in the financial report under the structure of consortia? 7) in order not to under-value the holdings of e-version serials, how do libraries define and classify such serials for preparing financial statement?

Based on aforesaid research questions, from a financial and managerial perspective, this study intends to develop concepts of consistency and uniformity of financial reporting for electronic resource and service expenditures with a focus on simplicity, accuracy and flexibility as well as to construct a framework of accepted accounting principle for identifying accounting classification of electronic resource and service expenditures in university library. Thus this paper looks at the holistic view of electronic resource financial reporting model as opposed to the traditional approach of the library collection management.

In that proposition, a qualitative research procedure will be conducted. This study utilizes the in-depth interviews [6] to explore the phenomenon of financial reporting conflicts and discuss whether existing financial report is applicable to present electronic resource and service expenditures. In order to reflect realities of participants involved in the research environment, field notes analysis [14] and interview transcripts [16] will be also employed to guide the study and uncover critical issues from observations of interaction among participants whilst there have financial reporting conflicts within the library structure. As a result, through dialectic review with findings, this study will seek to

relevance and further contribute to its theory that constructs directions for new formats of financial statements for the desires of various audiences.

2. Starting with Essential Concepts

This paper expects to illustrate some concepts about some basic accounting terms, “what is financial report”, “who will need it”, “what is the relationship of financial reporting to library annual report” and “How does a library define its activities and materials involved”. Hence, this paper may apply such illustrations to library management and to have an effective communication both internally and externally.

2.1 Glossary of Some Basic Accounting Terms

In order to provide librarians’ concepts of basic accounting terms, some terminologies are described below.

Accrual Basis Accounting. In accrual accounting, income is recorded when it is earned rather than when the payment is received. With the use of that concept, expense is recorded when the item is purchased rather than the bill is paid.

Balance Sheet. It is a summary of an organization’s financial condition at a specific time point, including assets, liabilities and equity.

Budget. It is a process focusing on an itemized statement and forecast of an organization’s income and expenses expected for a period in the future.

Capital Expenditures. It is a category for long-term expenditures of depreciated items, such as equipment or furniture.

Cash Basis Accounting. In cash basis accounting, revenue is recorded when collected and expense is recorded when paid regardless of when the process was completed or the item purchased

General Accepted Accounting Principles (GAAP). GAAP are guidelines for preparing financial statements such as the balance sheet and the income statement external to the organizations. Such guidelines govern the recognition of revenue and the determination of whether a cost should be charged to expense or capitalized.

Income Statement. It is a report of sales, expenses and net profits for a given period of time.

Operating Expenses. It is a category for costs that are budgeted and expanded on an annual basis, such as salaries, subscriptions and continuations.

2.2 The Objectives of Financial Report and Its Users

Financial report is defined as a tool of financial reporting covering methods and accounting principles developed within a business framework. It is important to report to users inside or outside a business framework about the financial events of that business and in relation to communication of accounting information appropriate to users’ interests. As such, various types of users can determine the different objectives of a financial report. In the private sector, for example, either existing or potential equity investors need a financial report to whether invest in a business. The lenders, another example, need to ensure their exposure to a minimum risk through financial reports of the borrowers. In the public sector, an example is where the government needs a financial report for the purpose of taxation and economic decision-making. Specifically, the fundamental objective of a financial report is to communicate economic measurements of information about resources and performance of a business [1]. However, it is noted that different users, with different purposes, may require different information about the same items [9]. Thus, to have effective communication with users, such information further revealed in a financial report is often determined by the characteristics of usefulness underlined such as relevance, reliability, completeness, objectivity, timeliness and comparability [2].

Following the concept of effective communication, the effectiveness of a financial report is concerned with its users. In that sense, in addition to comply with the characteristics of usefulness, it requires a financial report different degree of complexity and depth for different users since not all the information required is likely to be included. An example is where based on users’ ability of understanding accounting information; a financial report must be geared to the knowledge of users.

2.3 Financial Reporting and Library Annual Report

In practice, there has no independent library-specific financial report but annual report for libraries services, particularly for library materials, in Taiwan. Conventionally, based on different report audiences, there have three objectives for an annual report. First, it shows MOE competitive information about the status of materials and services for funding. Second, it is used as a benchmark for MOE while evaluating University library performance. Third, it is a tool for University Board of Directors and University financial controller overseeing library administration and communicating with other library directors.

However, with the continuously strained financial situation of libraries and the advent of information technology that intensifies such budget restrictions, the information of an annual report needs to be extended to,

at either a internal or external level, provide them more accurate electronic information costs for effective communication and efficient decision making in a justifiable and comprehensive manner. Accordingly, from a financial accounting perspective, with the basic features of financial reporting in mind, whether an organizational context is profits-oriented or non profits-oriented, the standard format or principle (GAAP) of financial reporting can be applied to library annual report for the purpose of effective communication.

Given that purpose, as previously highlighted, various users determine types of accounting information disclosed in a financial report. Hence, in terms of non profits-oriented, considering the uniqueness of a library and objectives aforementioned, cost containment becomes very important if a library needs to remain viable. In that sense, activity-based cost accounting [15] is the most useful tool for analyzing the cost structures of a library [3] since library services can be illustrated by many activities, particularly for those focusing on electronic resources and services. Thus, with the use of such an accounting technique and following the concept of GAAP, information can be more accurate and comparable. In consequence, internally, cost performance and higher-level administrators like library directors, department heads and other supervisors can be fairly evaluated. Externally, an easy and better communication with relevant parties such as MOE and cross-campus library directors can be achieved.

2.4 The Definition of Library Activities

Obviously, to determine types of information disclosed in an annual report by using financial reporting, activities like library services and materials associated need defined. In general, in terms of practical connected sequences of work processes, library services may include enquiry, interlibrary loan, information dissemination (circulation and acquisition) and document provision. Each of those activities may consist of many sub-activities. An example is where electronic documents delivery may consist of several processes such as the original document access, the document scanning, the delivery procedure initiation, account process and order delivery system administration. In that sense, to reflect library activities, an annual report shows the status of FTE (student and faculty), collection and circulation statistics with FTE, usage and reserve, loan transaction and inventory of collection.

Fundamentally, library materials associated with services are generally divided into books, periodicals, audiovisuals, CD, microforms, vertical file, etc. In particular, for those electronic resources, based on ARL (Association of Research Libraries) definition, they are deemed as electronic indexes and reference tools, electronic full-text periodical collections and electronic journal back-files and on-line searches of remote

databases where are whether assessed remotely or installed locally from CD-ROM, magnetic tapes and magnetic disks. In contrast to electronic resources, electronic services are deemed as materials purchased jointly with other institutions if such expenditure can be separated from other charges for joint services, bibliographic utilities if the portion paid for computer files and search services can be counted, and equipments that are inseparably bundled their costs into the price of the digital products.

Given that electronic resource and service being identified, expenditures can be deemed as costs spending on such products in bibliographic utilities, networks and consortia. However, such costs do not include expenditures for those not related to end-user database access and library system software only used by library staff. Specifically, expenditures can be divided into four major categories which are computer files, electronic serials and books, bibliographic utilities / networks / consortia, and computer hardware / software.

3. Background

The digital and network technology have provided an excellent channel for distribution and transaction of electronic resources. Over the past five years, the number and importance of electronic resources has increased. *ARL Statistics 1999-2000* reveals that ARL university libraries reported spending almost \$100 million on electronic resources, an increase of \$23 million from the previous year. Currently most of university libraries have owned more titles of electronic serial than those of print-on-paper serial. How much are university libraries spending for electronic serials, monographs, audiovisual clips, and bibliographic utilities respectively? What are the trends of electronic resources in university libraries? How does an individual library's expenditure for electronic resources compare with other libraries? It sounds very simple, but in reality these questions are quite complicated. Such questions are to be expected as university libraries move into the digital era. However, acceptable and accurate answers still remain elusive. University libraries have suffered from the information disclosure on disbursement of electronic resources and services. That is because they had not found a reconcilable way and the general agreement of reporting those library materials.

Financial reporting shows the results of the budget and account operations. In that sense the above stated three questions are all integral parts of the one problem for financial management. The library materials and operating budgets are primary financial statements for university libraries, which are used by its intended audience to evaluate and ensure the best use of resources. The records in library materials and operating budgets maintained by the accounting procedure provide a

financial picture of historical collections and activities and are used to modify and clarify the budgetary plan for future collection development and operation. Holleman [10] argued that collection development was turning into collection management. University libraries have been positioning themselves with their library material budgets in regard to the access vs. ownership debate. The disbursement of electronic resource and service has become the one of major categories in the materials budget report. Of ARL member libraries, the average percentage of library materials budget devoted to electronic resources and services has increased from 3.6% in 1992-1993 to 13.5% in 1999-2000. Electronic resources and services are characterized by large fixed costs of production and near-zero marginal cost. The negligible marginal costs of reproduction for electronic resources make many types of bundling more attractive. Information goods were previously aggregated to save on transaction or distribution costs, but new aggregations of information goods will come out to extract more consumer surplus and create new profit opportunities. Because different libraries may have drastically different values and their willingness to pay for a particular electronic resource, values-based pricing and differential pricing schemes make more feasible and popular than cost-based pricing. As noted by Chuang and Sibru [5] and Ching, Shih and Chang-Chien [4], the Internet has created new pricing strategies for information goods vendors through bundling, site licensing, subscriptions, rentals, differential pricing, per-use fees, and various other mechanisms. Knight and Hillson [11] interviewed number of publishers, vendors, and agents and identified 16 pricing models. These complex pricing models in the electronic resources have raised several issues to existing financial reporting.

3.1 Asset or Expense

In Taiwan, many database vendors charge libraries fixed fee or unit pricing for the usage of electronic resources and services. Since the uncertainty associated with usage-related expenditures, conventionally, some libraries classify such costs as operating expenses instead of capital expenditures while recorded in the report. And upon the license expired or terminated, they would not continuously count operating expenses recorded electronic resources and services as library assets and / or holdings like volumes, serials and numbers of databases. Nevertheless, that accounting method is only acceptable to library materials, which are primarily tangible and obviously providing contributions to the library assets and holdings.

In contrast to tangibility, however recently some vendors, *Wiley InterScience*, for example, define their licensed electronic journals as online editions of their journals. In that sense, the Licensee has the access to such journals including retrospective and current electronic contents. After the license expired or

terminated, vendors would provide the License with access to the full text of the Licensed Electronic Journals published during the Term of this license by continuing online access to the same materials on vendors' server. In consequence, there raises several questions such as "is it still reasonable to claim such expenditures as operating expenses" and "can libraries report such electronic journals as library assets and / or serials holdings after the termination of the License?"

3.2 Cost allocation of materials bundling

Many electronic subscriptions such as *SDOS*, *Academic IDEAL*, and *EBSCO Online* include the print publication. Electronic resources may be main and joint products of publishing production process in the digital era, and the print publications may be byproduct. In that sense products can change from byproducts to joint products while their relative sales values increase sizably or change from joint products to byproducts as their relative sales values decrease sizably. There have three kinds of pricing schemes for electronic resources: print subscription plus add-on surcharge for the e-version, the electronic subscription plus add-on surcharge for the print or free (charged for the print only). In practice, the invoices issued by vendors don't need split off such two subscriptions. How do we count and allocate the joint cost for the print and the electronic subscriptions? In the case of free charge for electronic resources, would we only count and report the print subscription because that is what we purchased?

3.3 Value reporting of electronics resources purchased via consortia

As vendors have aggregated large collections of full-text journals, electronic resources are sometimes quite expensive, and easily drain out a large chunk of the library acquisition budget. As Poon [13] noted that by cooperating with other libraries, resources can be pooled together and shared, so that the "whole is greater than the sum of its parts". Under the limited budgets constraints, libraries consider that it would be in their best interest to form consortia to leverage their collective purchasing power. As a group, they have worked deals for huge databases and purchased them via consortia agreements. Would libraries count only the electronic titles for which they don't have the print subscription? In the case of consortia agreements, individual library could get access to all electronic subscriptions even if it doesn't have a print subscription for a specific title. How would member libraries of the consortia report the value of their holdings with the most cost-efficient purchasing solution?

3.4 Accounting classifications

As the information and communication technology enabled vendors to aggregate and disaggregate information goods, university libraries are not sure how to classify them properly and are struggling with the traditional uniform blanks for a variety of electronic

resources. In Taiwan, MOE conducts the library materials budget survey annually. To count electronic resources and services, MOE has constructed a new classification “Databases” which consists of two subset categories: “Bibliography” and “Full-text Journal”. In an accounting context, this development is reflected in transformations of library materials such as intangibles, hybrid, and immaterial assets. To classify something also implies defining it. In fact, “intangibles” have no generally accepted meaning. Electronic full-text journal keeps the nature of serial. As university libraries shift the serial subscriptions from the print to the e-version, the holdings of serials in the financial statements will underreport due to classify them as database. When libraries employed a wide variety of funding and budgeting strategies to purchase electronic resources, it is very difficult for university libraries to find adequate definitions to classify data and disclosure financial information in a standard and comprehensive way. In the existing MOE’s library materials budget survey, there is no accounting classification for monograph or serial received and not purchased.

With these issues illustrated, this paper actually focuses on how to alleviate such problems and report electronic resource and service expenditures by adding the framework of financial reporting within a library annual report.

4. Methodology

Ontologically, in qualitative paradigm, the realities of things be investigated are mentally constructed and multi-subjective [7]. Following the assumption of epistemology [8], this study will report these realities relying on languages (voices) and interpretations of informants involved. Furthermore, through continuous interactions, this study will seek different perspectives of informants [6] and will observe the realities by acting as an insider that has subjective, interpersonal and value-laden view [12]. Thus, methodologically, a qualitative approach that emphasizes authenticity, relevance and contextual applicability is used.

Six library director (three public and three private schools) and their financial controllers are selected to be the informants in this paper. Structured interview and fieldnotes analysis is conducted. In order to verify trustworthiness, peer review and cross checking with CPAs external to the university libraries are also utilized.

5. Discussion and Suggestions

Each of informants demonstrates an overall subjective response to issues, reflecting environmental and contextual factors that eventually determine the reality informants have. Accordingly, findings and discussion will be followed with suggestions.

5.1 Findings and Discussions

In examining issues mentioned about reporting electronic resource and service expenditures, the following findings are discussed.

5.1.1 Lack of GAAP for Categorizing Library Electronic Resource and Service Expenditures.

The finding shows that there have two accounting principles for public and private schools respectively in Taiwan, when preparing annual reports for the various purpose of budgeting funding and performance evaluation. However, that leads to an inconsistency for reporting electronic materials among university libraries since categories are not unified and not generally accepted. In consequence, the lack of GAAP, which primarily emphasizes guiding university libraries when stating electronic materials either in quantity or dollar spent within their annual reports, is noted. Hence, through the finding, it is observed that the clear definition of electronic materials category is central to responding to set out its accounting classification following GAAP in the future.

5.1.2 Unclear Category Basis for Accounting Classification.

Traditionally, categories often reflect materials by type (Seer 2000). An example is where this line item structure in which categories may include books, supplementation, periodicals, looseleaves and CD-ROMs, etc. The finding shows that existing electronic materials categories for two groups of public and private schools are not meaningful enough to reflect electronic resource and service expenditures since increasingly library materials become a hybrid nature as stated previously, such as the combination of books and CD-ROMs and the combination of print and Web publication. In addition to that, an argument of “intangibles” such as digital right and “consortia purchase” such as collective resource sharing is raised. Hence, again, it is noted that clear definition of electronic materials category is essential.

5.2 Suggestions

As a result of findings, in fact, to alleviate issues of reporting electronic resource and service expenditures in a library annual report, as a financial reporting way, in Taiwan, the baseline work will be focusing on constructing an appropriate line item structure for the purpose of accounting classification so as to establish GAAP appropriate to library services when preparing annual report.

5.2.1 Reinforcing Line Item Structure.

Line item structure typically includes several broad categories, which are further divided into many sub-categories to fit the needs of the organizations. In reviewing existing two electronic material categories model required by MOE and Department of Higher

Education, in addition to the distinction in the definition of electronic materials categories, it obviously does not reflect the hybrid nature and the complex pricing of current electronic resource and service. In that sense, for example, for Department of Higher Education, the current line item structure of categories of CD-ROM, Web-based and Database for electronic materials is not broad enough and well established, not to mention MOE merely using Database to describe all electronic resource and service. Therefore, that leads to resources allocation distorted when making budget and / or evaluating performance.

Hence, this paper suggests that the line item structure for library materials should be more specific and divided into several layers in terms of material type, media type and source of such materials as shown in Table One (Appendix). From Table One, in general, the first layer is divided into two main categories of text and audiovisuals where include books / periodicals (serials) and CD / LCD / VCD / Web based respectively. Based on the first layer, the second layer will focus on the specific categories by type of media delivered, such as printed, CD-ROM, Web-based or microform, etc. When entering the third layer, library materials can be divided into different sub-categories based on the source of that material. For example, in each category from the second layer, it can be divided into subscription, exchange (loan) or collective shared from consortium.

5.2.2 Following GAAP.

To obtain the effectiveness of an annual report, upon accounting classification properly clarified, this paper suggests that an annual report matches GAAP for accounting practices, such as when reporting bundling (combination) expense, depreciation and intangibles. Normally, all categories and sub accounts tend to remain the same for the convenience of comparisons year to year. However, in order to reflect rapid changes in publishing industry and / or vendor ownership, in particular for electronic resource and service, adding new categories or eliminating existing ones are suggested to meet such changes. Nevertheless, it always bears in mind that no matter to what extent those changes may be; all categories adjustments must be in compliance with GAAP to ensure clear and comparable results.

5.2.3 Forming a Committee on Accounting Procedure.

Since the rapid changing nature of electronic resources no matter in format or delivery, another suggestion would be to erect an appropriate organization where can periodically review accounting practices and procedures so as to establish generally accepted practices for reporting library materials.

6. Concluding Remarks

In seeking to the effectiveness of a library annual

report showing electronic resource and service expenditure, an appropriate direction for accounting classification while preparing library annual report is paramount importance. In examining issues highlighted, it is noted that the baseline work to alleviate such issues would be relying on clarifying the accounting classification for electronic resource and service categories. In contrast to traditional category model, the new concept would focus on multi-layer structure wherein may have specific categories represented by type of materials, media for delivery and source of information. The structure also considers “intangibles” such as digital right incurred by the electronic resource transactions as well as the situation of complex pricing scheme under various combination of electronic resource purchased.

Based on that, it is concluded that an emerged framework of line item structure for library materials can be utilized as a guideline to set out a justified GAAP for non-for-profits organizations like library services. However, since the rapid changes of the information technology, a formal organization of committee on accounting procedure should be in place to accommodate accounting practices and support librarians' concern over the formulation and acceptance of Generally Accepted Accounting Principles. As a result, the effectiveness of a library annual report can be achieved to benefit library management where is in pursuit of continuous sufficient funding, high quality of service and better communication with all relevant parties internally and externally.

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Appendix

Table One The Emerged Framework of Library Materials Categories for Accounting Classification

By Material		By Media	By Source	
Text	1.books	Paper-Based	Subscription	
		Electronic		CD-ROM
			Online	Exchange (Loan)
		Microform	Microfiche	Consortium
		Microfilm		
	2.serials{including Periodicals, newspaper, annual report, conference proceeding, etc}	Same Above	Same Above	
3.others(manuscript、map, atlas、pamphlet, etc)	Same Above	Same Above		
(Audio/Video Materials)	1.Audio	Tape	Same Above	
		CD		
		LCD		
		Others		
	2.Video	Slide	Same Above	
		Projections		
		Others		
	3.Others	FILM	Same Above	
		VHS		
		VCD		
		DVD		
Others				