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The Challenge of Calculating Value: ROI in Academic Libraries

(Obliczanie wskaźnika ROI w bibliotekach akademickich)

Słowa kluczowe: ROI, biblioteki akademickie
Abstrakt: Zauważalną ostatnio w bibliotekarstwie i zarządzaniu informacją tendencją jest badanie wzrostu zwrotu z inwestycji (ROI). Wiarygodne wskaźniki ilościowego badania jakości i wartości są jak dotąd znacznie mniej rozwinięte niż ciągle rosnące wymagania związane z ich stosowaniem. Celem niniejszego artykułu jest omówienie i wyjaśnienie problemów oraz możliwości badania ROI, ze szczególnym uwzględnieniem jednej z niedawno opracowanych metodologii ROI.

Keywords: ROI, academic libraries
Abstract: An increase in return on investment (ROI) studies is a recent trend in library and information management research. At the same time, reliable metrics for quantifying value and worth are far less developed than the increasing demands for them. The purpose of this article is to discuss and clarify the problems, along with the potential, of ROI studies in relation to one recently developed ROI methodology.

Introduction

An increase in return on investment (ROI) studies is a recent trend in library and information management research. During the past decade, the pressures of rapid technological change, stagnant or decreasing budget lines, increased competition by profit-based institutions, and adoption of business models has created an environment where "increased accountability, assessment, and measurement are now pervasive in American higher education" [2, s. 340]. For academic libraries that have built vast networks of largely invisible electronic resources, the drive to provide tangible evidence of value is of escalating importance. At the same time, reliable metrics for quantifying value and worth are far less developed than the increasing demands for them.

A sub-category of economic valuation methodologies frequently associated with cost-benefit analyses, ROI studies generally seek to support a specific approach to data analysis wherein value is measured "as a result of an amount invested in an asset" [3, s. 227]. While ROI is utilized as a methodology in both corporate and public library environments [8, 13], valuation studies of this type are relatively new and largely untested in the higher education sector as a whole. Similarly, for academic and research libraries that are more familiar with input and output measures, quantifying and communicating library value as a cost-benefit ratio is a new and somewhat radical concept.

Despite emerging interest in the methodology and results by librarians and library managers, return on investment studies are not without controversy. Recently, the value of ROI studies has been challenged with the argument that ROI instruments and calculations fundamentally do not work for academic libraries" [6, s. 424]. Although the desire to connect budget expenditures to research productivity have made ROI an increasingly popular research tool, making those connections is not without problems, as the authors of this paper discovered during their own cost-benefit ratio analysis.

The purpose of this article is to discuss and clarify the problems, along with the potential, of ROI studies in relation to one recently developed ROI methodology and how it was employed in a pilot study conducted in 2011. The authors looked at faculty research outcomes in terms of successful external grant funding in relation to the use of library resources, especially those found in electronic journal collections. Based on a metric developed at the University of Illinois Urbana-Champaign (UIUC), the objective was to test this research methodology against data at Washington State University Vancouver (WSU Vancouver) to calculate a reliable return on investment that could then be communicated to library and campus administrators.

Literature Review

Curious as to the extent of ROI use in library settings the authors conducted a literature review in three library specific databases. It was discovered that ROI studies have been used in libraries since the early 1990s with the interest of academic libraries revolving around issues with clear fiduciary measures. Internal studies of the allocation of the funds for book purchases [1] or the cost benefit of consortial subscriptions versus the cost of subscriptions by individual institutions [7] are two examples. One exception to this early trend was an article in *Information Outlook* [8] urging library managers to develop and collect ROI data that could demonstrate the library's value to a larger audience.

As librarians began reporting "that their administrators were asking for research performance measurement, cost justification, and return on investment" [5, s. 1] for the library, a group of colleagues at Elsevier discussed the need for a Return on Investment study and proposed the idea at a North American Advisory Board meeting. Paula Kaufmanfrom the University of Illinois at Urbana-Champaign (UIUC) volunteered to conduct a case study at her institution with the help of Carol Tenopir,

Judy Luther, and Kira Cooper [5]. The goal was to demonstrate that grant income was brought into the university by faculty, at least in part, through the use of library materials. With no extant exemplars for calculating a return on investment in academic libraries, the Strouse corporate library model was adapted to create a formula to calculate the value of the library in the external grant funding process. This unique UIUC model quickly drew the attention of the library community.

Those involved in designing and conducting the original study suggested it would be useful for other institutions to test the model by replicating the study in other library systems. Through this call for replication a second phase of what had come to be known as the Lib-Value study to include eight more libraries from eight different countries was arranged. The outcomes of these studies showed a positive return on investment that ranged from 15.54:1 to 0.66:1. This wide range of results is discussed in the Phase II publication [11] and is explained by whether an institution has a purely research mission or if they are a teaching institution or a combination of the two. Differences may also vary depending on whether there is a strong science and technology focus on the campuses and whether external funding is a priority in the institution's country [9]. Given these factors, the authors of this paper became interested in learning what the return on investment at WSUV might be, given that the faculty at this institution are frequently awarded grants for research and that the faculty also use library resources routinely.

Overview/Background

Washington State University (WSU) is a multi-campus public land grant and research university system located in the Pacific Northwest region of the United States. WSU Vancouver, located near Portland, Oregon, is a non-residential campus with more than 3,000 students and 130 full-time Ph.D. faculty, currently offering 18 bachelor's degrees, 9 master's degrees, 2 doctorate degrees and more than 37 fields of study. Supporting the university's commitment to excellence in research and scholarship across all disciplines, the WSU Vancouver Library provides access to a vast collection of print and electronic resources and materials through a complex array of campus, university-wide and regional consortial purchases, subscriptions, contracts, and licensing agreements.

The WSU Vancouver Library is a well-used space, both physically and virtually, as measured by various assessment tools employed throughout the year. However, there is a growing sense that much of what the library does may be invisible to our stakeholders and that we must, therefore, become more rigorously proactive in demonstrating the value that accrues to the university for providing budget funding to the library. As a result, in early 2011, the authors commenced an experimental study to investigate the use of library resources, particularly electronic journal subscriptions that contributed to faculty research outcomes as measured by successful external grant funding. The project was based on the formula developed and tested at the University of Illinois, Urbana-Champaign then revised for Phase II of the Lib-Value project [11].

Methodology and Results

As previously mentioned, the UIUC model was adapted from a corporate library model [8] to apply to an academic environment. According to Tenopir et al [10] the corporate library model is based on three variables: 1) the percent of survey respondents who generated revenue using the library; 2) percent of instances when library use generated revenue; and 3) the median revenue generated with each library use. The adapted model used in the UIUC case study is based on the following four variables: 1) the percent of faculty who secure grants using citations from library collections in their proposals; 2) percent of grant proposals that are successful; 3) the average grant income; and 4) the average grant income generated using resources from the library's collection. After revisions to the original formula the ROI model used for Phase II of the Lib-Value study is shown in Figure 1.

Figure 1. ROI Calculation

$$\frac{\frac{\text{Number of grant awards X \% Of faculty who say citations are important to grant awards}}{\text{number of grant proposals X \% of proposals that include citations obtained through the library}}}{\text{X}} \times \frac{\text{average size of grant X number of grants expended in one year}}{\text{total library budget}}$$

Source: http://libraryconnect.elsevier.com/university-investment-library-phase-ii-international-study-librarys-value-grants-process.

The Lib-Value researchers collected data for their calculations through a faculty survey to ask about the use of library resources in grant proposals. Additionally, institution-wide data on the number of grant proposals submitted and received as well as total library budgets were compiled [10]. Although the WSUV study collected data using the same methods, one difference to note is that whereas the Lib-Value study used faculty survey results to determine the number of grant proposals that included citations, the WSU Vancouver researcherslooked at all of the grant applications for the year 2010 and counted the number of grant applicants that used citations in their proposals.

According the WSU Vancouver Office of Graduate and Research Development (OGRD), a total of 82 grant proposals were made in 2010 with 39 grants awarded in a variety of disciplines and research areas. The total grant income for 2010 was $4,811,298 with the average grant award at $109,174. Thirty of the grants that were awarded included reference citations from journals owned by the library. In the qualitative portion of the WSU Vancouver study, 88% of tenured and non-tenured faculty that responded to our survey indicated that including citations in grant proposals is important, very important or essential. Using the Tenopir formula described above, the return on investment ratio at WSU Vancouver for 2010 was 3.75:1 . As it is a small

university, this figure is in line with other Lib-Value Phase II institutions wherein ROI values are dependent on the focus and size of the institution and external funding opportunities available [11, s. 8].

Discussion

The ROI process for libraries has not been without criticism in the library community. In his 2009 article, Mott Linn warned librarians about using a methodology that we do not completely understand. He states that without a basic understanding of the principles of cost benefit analysis the credibility of ROI studies can be destroyed. Though Linn describes ROI as an important tool to make informed decisions about capital investments, he warns that there are few articles written for librarians about how they can calculate ROI for services in the library [4].

More recently, at the Association of College and Research Libraries (ACRL) 2011 Conference, James Neal challenged ROI studies with the argument that "ROI instruments and calculations fundamentally do not work for academic libraries". Although he complimented the Lib-Value project, Neal suggested that libraries avoid "inappropriate, unsophisticated and exploitable ROI research as a miscalculated, defensive and risky strategy"[6]. If librarians are going to use ROI and cost-benefit analyses, understanding the methodology and the vocabulary is critical. Presentation of incomplete, inaccurate data or confused analysis to stakeholders does not accomplish the goal of demonstrating the value the library contributes to the academic community and may serve to harm the library's credibility.

In the beginning of the WSU Vancouver study there was an effort made to calculate a more precise ROI ratio by determining the actual cost of the resources cited in the successful grant proposals. Once the journal titles were collected it seemed like a simple task to calculate the cost of those specific journals; however, that was not the case. WSU Vancouver, like many other academic and research libraries, shares the cost of subscriptions with other campuses in our system. In addition, the library is a member of consortiums that share costs for access to other serials. In the end, determining an exact campus cost for a journal title or subscription proved to be impossible.

Larry Nash White encourages a new look at ROI as a potential tool for library valuation and assessment. He identifies three ways in which ROIs should be explored in libraries. First, he suggests it can be used as a tool to assess small scale projects such as space allocation, materials handling, or library services to special needs populations. Secondly, it could be used to evaluate internal performance or activities, such as printing services, computer support services, or administrative services. Finally, he says ROI can be used to evaluate intangible services and benefits the results of which would "provide a strategic advantage to the library administration and staff" [12, s. 8]. Phase III of the Lib-Value study has already begun to implement these types of valuation studies including one on the role of special collections on donations by alumni and the community; the value of e-books as used by faculty and graduate students; the contribution of information commons on student success; and the environmental value of the library among many others.

Conclusion

It is critical, especially in the current budget climate and data–driven environment, that academic libraries demonstrate how the resources and services that are funded by the parent institution have a direct connection to faculty research and external grant funding. Return on investment as a methodology for proving library value to the larger institution has increasingly found application in the library and information science field. These studies merit attention as valid and valuable outcome-measurement tools even as there is acknowledgement that considerable work remains to be done to test, apply and adapt the model in different environments and with different variables.

The intent of pilot study reported here was two-fold: to test a new type of methodology for determining library value and to discover the ROI ratio at WSU Vancouver. By focusing on the measurement of successful grant awards with citations assumed to have been retrieved from library resources, a tangible outcome was quantified through a methodology adapted from the UIUC study.

A question to consider is whether adaptability, rather than replication, of existing ROI models is a strength or weakness. Given the wide variety of differences between institutions and variables in library collections, resources and services, researchers attempting a strict replication of previous studies will face significant challenges. At the same time, by adapting and employing ROI methodology in a disciplined and focused way, a better understanding of the link between the library and the parent institution may be gained.

It is important to recognize that ROI studies are just one metric for demonstrating value; there are others and librarians should not limit value studies to only one tool. Further, it is necessary and desirable to continue refining techniques, showing successful applications of all outcomes methodologies, and to widely communicate the results to all stakeholders.

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