

## What's the Return on ROI?

### The Benefits and Challenges of Calculating Your Library's Return on Investment

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#### Introduction

In good economic times and bad, Americans have been making significant investments in their public libraries for more than a century. Library buildings have been designed and built, collections have been created and maintained, staff hired to provide a broad array of services, and more recently libraries have provided access to information technology. These investments have resulted in improvements to library collections, both print and electronic, services and facilities. Yet, for a great many public libraries the reality must be acknowledged that they are faced with strong competitive pressure resulting in a tug-of-war for funding with other municipal agencies and the continual need to justify their funding and even their existence. For many decades, public libraries enjoyed the support of their communities and funding decision makers as they were viewed as a public good with obvious positive social impacts. A public good is a service that is difficult to exclude someone from using and that one person's use does not deny someone else the use of that good or service. Yet, there is increasing pressure for a library to be able to articulate the tangible and intangible value of the library to interested stakeholders such as funding decision makers, library board members, and the community at-large.

The traditional justifications for library funding, usually a usage or output measure such as annual circulation, used to demonstrate value is not as effective as it once was. One of the ironies of funding in the public sector is that the library often takes a disproportionate budget hit, as compared to other departments, just when the economic downturn prompts an increase in demand for library services. One of the ways some libraries have attempted to improve the discussion of the value of public libraries is to prepare a return on investment (ROI) analysis.

In simple terms, a return on investment analysis, often times called a cost-benefit analysis, seeks to estimate and compare costs and benefits of an undertaking. The cost-benefit analysis can be used in any or all of three ways:

- As a planning tool in choosing among alternatives and allocating scarce resources among competing demands
- As an evaluation tool to study an existing project or service
- As a way to develop quantitative support in order to politically, economically or socially influence a decision.

The first two ways in which a cost-benefit analysis can be applied make the most sense from an economic perspective when comparing alternative projects; the third use may be the most common in the public sector. It is important to recognize that it is difficult to accurately calculate or estimate the value of the benefits of a service and that those benefits will occur for many years to come. Costs are much easier to determine, assuming an effort has been made to identify and include all relevant recurring and non-recurring costs. And "positive thinking" may

lead to underestimating the time and costs to complete a project. Given this reality it is not surprising that a great many cost-benefit analysis reports will show a bias – benefits invariably exceed costs.<sup>1</sup>

A cost-benefit analysis is used in many organizations to determine which of several competing projects to fund. There are five methodologies that may be used:

- Maximize benefits for given costs
- Minimize costs for a given level of benefits
- Maximize the ratio of benefits over costs
- Maximize the net benefits (present value of benefits minus the present value of costs)
- Maximize the internal rate of return on the investment.<sup>2</sup>

The frequently heard criterion of “maximizing benefits for minimum costs” is not a part of the above list as the criterion is logically inconsistent. That is, spending nothing will minimize costs while maximizing benefits may require the expenditure of a great deal of money. The calculation of a “present value” acknowledges that a dollar is worth more today than a dollar at some point in the future (acknowledging the impact of inflation and other factors). The “present value” calculation also acknowledges that the costs are typically incurred up-front while the value of the benefits occurs over time in the future.

Most library studies that have attempted to calculate the economic value of the library use the third criterion “Maximize the ratio of benefits over costs.” The ratio is typically referred to as a Return on Investment or ROI. A report that discusses the value of the library in terms of ROI will usually make a statement such as “for every dollar supporting the library, the library sees a return on investment of X dollars” (always more than one dollar).

Examining the possible economic benefits of using a library from the customer’s perspective, it is possible to consider three categories of benefits:

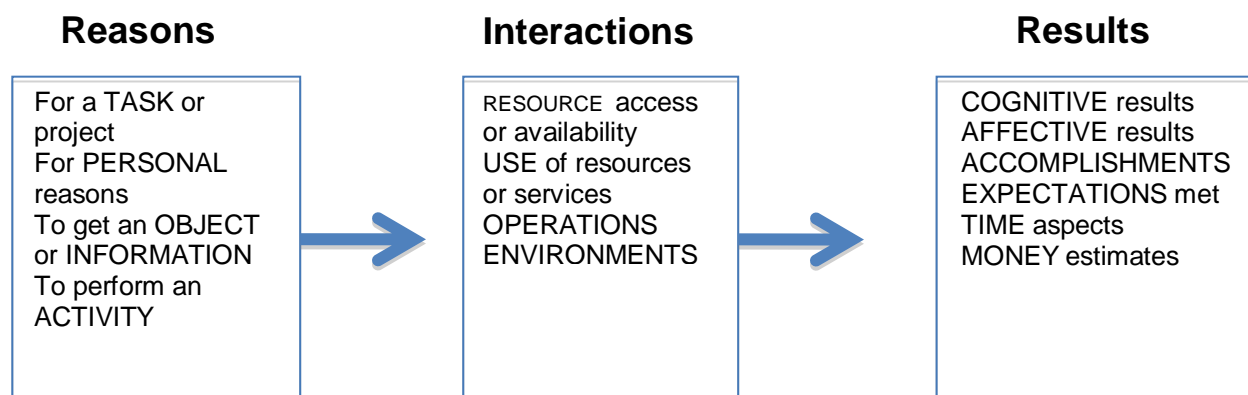
1. **Direct Use Benefits** – output and outcomes that can be measured directly. Some writers call a direct benefit a tangible benefit.
2. **Indirect Use Benefits** or economic impact – the intangible outputs and outcomes facilitated by the programs and services of a library.
3. **Nonuse Benefits.**

The total value of the public library to the residents of a community, in theory, is determined by adding together the use and nonuse benefits. Value can be thought of as the worth of a product or service in terms of organizational, operational, social, and financial benefit to the customer. All library product offerings and services, whether in the physical library or delivered electronically, have a real value and cost in the mind of the customer. In addition to the actual out-of-pocket costs of getting to the library, other cost factors experienced by the customer include the time and effort to make use of a library service. In effect, the individual customer is performing a quick cost-benefit analysis when considering the potential use of the library – “Do the benefits exceed the costs?” or “Is it worth my time?”

### Library Use Direct Benefits

Tefko Saracevic and Paul Kantor developed a taxonomy for establishing the value that arises from the use of the library as shown in Figure 1.<sup>3</sup> This taxonomy of value suggests that it is

important to understand the context. That is, people have a reason for wanting to use the library, they have an interaction with the physical or virtual library, from which they derive value based on the results of their interaction. The top three aspects of value or results revolve around the issues of time saved, money saved (or increased revenues) and accomplishments (better decisions and so forth). In a public library setting, benefits can be (or should be) identified for the individual and collectively for the library.



**Figure 1. A Taxonomy of Value**

The direct benefits for an individual who uses the public library are focused on the avoidance of cost to the individual. These benefits include:

- Cost savings from avoiding the purchase of materials (books, CDs, DVDs, magazine, newspapers, reference materials, electronic resources and so forth).
- Free or low-cost access to computers, photocopiers, audio and video equipment, meeting rooms, programs, instructional classes and so forth.
- Access to trained professionals for assistance in finding quality information.

The value of these direct benefits may be estimated by identifying a similar competing service in the community that the individual must pay for. For example, buying a book at a bookstore would cost, on average, \$20. Renting the use of a computer at a commercial establishment might cost \$10 per hour. All of the service offerings provided by the library are identified and a local price for each service is established. Note at some services may have no economic value assigned to it since similar services are available at no cost within the community – for example, children’s story time is offered at the local bookstore. The total volume of transactions for each service is then multiplied by each price and the value is calculated. These individual values are then totaled, as shown in Figure 2, to determine the total value of library services provided to the community residences.

Some libraries have created a “Library Use Value Calculator” that is made accessible on their library Web site allowing an individual to plug in the amount of use that they make of the library over the course of a year and the calculator determines the value of the library for their specific use.<sup>4</sup> Another flavor of a “Library Use Value Calculator” allows a library to identify the specific costs of each service in their community and then calculate the total value of the library to the community based on actual use figures. Most of this data is readily available and is usually reported to the State Library each year.

<i>Service</i>	<i>Local Price (A)</i>	<i>Annual Activity (B)</i>	<i>Annual Benefits (A*B)</i>
Borrowing picture books	\$ 8.00	600,000	\$4,800,000
Borrowing adult books	20.00	700,000	1,400,000
Video/DVDs	4.00	800,000	3,200,000
Audio music/CDs	10.00	45,000	450,000
Download electronic articles	10.00	175,000	1,750,000
Magazines	2.00	12,000	24,000
Newspaper	1.00	14,000	14,000
Reference services –short	3.50	112,000	392,000
Reference services – long	25.00	3,575	89,375
Meeting rooms	10.00	63,000	630,000
Computer services	5.00	845,000	4,225,000
Classes	10.00	2,875	28,750
Wi-Fi	Free	164,000	0
Programs	Free	3,575	0
Story times	Free	2,950	0
Totals			\$17,003,175
Library Budget			\$3,530,000
Library Return on Investment			\$4.82

**Figure 2: Shortcut Method for Calculating a Library’s Return on Investment**

In a public library setting, the library can’t assign a dollar value to the time of its library customers (even though the library does save time for the customer as demonstrated by any number of studies that have been conducted in special and academic library settings). Based on personal experience, most library funding decision makers (mayor’s, council persons and city managers) are not going to give much weight to the resulting ROI if the value of time is included in the analysis.

Another problem that may arise from such an analysis is the value of items borrowed from the library’s collection. If someone were unable to use the library for some reason, they might not go to a store and purchase the item if they were unable to borrow it. Thus, one study suggested using a value of 15% to 20% of the average purchase price for the item being borrowed.<sup>5</sup> Clearly following this advice would lower the calculated return on investment (ROI) for the library.

The direct economic benefits of public library use on a community at large involve two aspects:

- The direct economic impact of library spending on salaries, supplies, construction and other expenditures in the local community. This spending in the local community results in additional employment and spending within the community which has an obvious impact on the local Gross Domestic Product (GDP).
- Some public libraries may be a “destination” due to its unique collections or services thus attracting people to visit the library. This destination spending is called the *induced effect* that is indicated by the number of visitors, the amount of visitor spending

(influenced by the length of stay) and the size of the multiplier applied to these assumptions. Clearly, the more visitors, the greater the spending per visitor and the multiplier selected will result in a greater economic impact for the library and, in turn, the community.

The *multiplier effect* suggests that the combination of the direct spending plus the induced effect results in additional spending and economic growth within the community. The vast majority of economic impact studies utilize a methodology called multiplier analysis that acknowledges that money spent in the community has a ripple effect that leads to further jobs and additional spending within the community. Depending on the economic model that is used, the multiplier may use a number such as 6, 7, 8 or .... That is, every dollar spent by the library in the local economy will be increased by the “multiplier,” thus resulting in a larger positive economic impact on the community. For many, the concept of the multiplier effect is unrealistic since it is based on restrictive assumptions and has little predictive value. Perhaps the most widely known economic impact study was prepared for the Seattle Public Library.<sup>6</sup> A survey suggested that as much as 30 percent of the 2.5 million annual visitors to the library were from out-of-town. The analysis suggested that these visitors spent \$16 million annually in new spending in the downtown Seattle area (hotels, meals, car rentals, parking, ferries, and so forth). A similar economic impact study was prepared for the Carnegie Library of Pittsburgh.<sup>7</sup>

A more recent study conducted on behalf of the Free Library of Philadelphia estimated the economic impact of the library to help Philadelphians learn to read and acquire working skills, locate job opportunities and develop career skills, develop or enhance their own businesses, and determine the increased value of neighborhood homes located near a branch public library. This study did not however determine the ROI for the library.<sup>8</sup>

A number of Return on Investment studies have been prepared for public libraries in the past few years as shown in Figure 3. Various studies have been prepared for an individual library, a library with branches, a group of libraries, and for all public libraries in a state. The costs of having a consultant prepare a ROI study may range from \$5,000 to \$10,000 for a single library to more than \$100,000 for a statewide study.

<b>Study</b>	<b>Year</b>	<b>ROI</b>
<b>Single Library Studies</b>		
Cortez Public Library (CO) <sup>9</sup>	2006	\$31.07
Mastic-Moriches-Shirley Community Library (Suffolk County, NY)	2006	\$2.97
Middle Country Public Library (Suffolk County, NY) <sup>10</sup>	2006	\$4.59
Northport-East Northport Public Library (Suffolk County, NY) <sup>11</sup>	2006	\$3.30
Port Jefferson Free Library (Suffolk County, NY)	2006	\$4.14
Mean ROI \$9.21    Median ROI \$4.14		
<b>Studies of Library's with Branches</b>		
Buffalo & Erie County Public Library <sup>12</sup>	2007	\$6.07
Carnegie Library of Pittsburgh (PA) <sup>13</sup>	2006	\$3.00

Denver Public Library (CO) <sup>14</sup>	2006	\$4.96
Douglas County Libraries (CO) <sup>15</sup>	2006	\$5.02
Eagle Valley Library District (CO) <sup>16</sup>	2006	\$4.28
Fort Morgan Public Library (CO) <sup>17</sup>	2006	\$8.80
Mesa County Public Library District (CO) <sup>18</sup>	2006	\$4.57
Montrose Library District (CO) <sup>19</sup>	2006	\$5.33
Phoenix Public Library (AZ)	2001	\$10.00
Rangeview Library District (CO) <sup>20</sup>	2006	\$4.81
San Francisco Public Library (CA)	2007	\$3.34
St. Louis Public Library (MO)	1999	\$4.00
Mean ROI \$ 4.82    Median ROI \$4.81		
<b><i>Studies of a Group of Libraries</i></b>		
Nine Southwestern Ohio Public Libraries <sup>21</sup>	2006	\$3.81
Nine public libraries from Illinois, Texas and Washington	2003	\$1.02 - \$1.24
Suffolk Cooperative Library System (42 public libraries in New York) <sup>22</sup>	2005	\$3.87
<b><i>State Studies</i></b>		
Florida <sup>23</sup>	2004	\$6.54
Indiana	2007	\$2.38
Pennsylvania <sup>24</sup>	2006	\$5.53
South Carolina <sup>25</sup>	2005	\$2.86
Utah <sup>26</sup>	2008	\$7.35
Vermont <sup>27</sup>	2008	\$7.26
Wisconsin <sup>28</sup>	2008	\$4.06

**Figure 3. ROI Studies**

Almost all public library Return on Investment (ROI) studies combine the results of an analysis of the direct economic impact of customer savings plus the economic impact of library spending. Among the 29 ROI studies conducted to date, the ROI values range from a high of \$31.07 of benefit for each dollar spent at the Cortez Public Library in Colorado to a low of \$1.02 of benefit for each dollar spent. Note also that the ROI will vary depending upon the level of analysis – an individual library, a group of libraries, or a statewide analysis.

An alternative approach in determining the direct benefits from using a library is to ask library customers to place a value on their use of the library using a consumer surplus survey. The idea is to ask the consumer of a product or service to place a value in excess of what they paid to get it. And while library services are free (mostly) customers do pay in the form of time, effort and direct transportation costs.

Survey respondents are asked, for example, about the number of books they borrow from the public library each year, the number of books purchased annually, and the number of additional books they would buy if they could not borrow from the library. A calculation is then made to determine the value the library user places on borrowing privileges. The same analysis is then



prepared for each service offered by the library. Consumer surplus surveys were used in the preparation of the St. Louis Public Library, the Phoenix Public Library ROI studies as well as with the State of Florida study – see Figure 3 for links to these studies.

A thorough reading of all of the various library ROI studies will suggest that there are strengths and weaknesses with the various methodologies that have been used. Among the observations that can be made are:

### *Strengths*

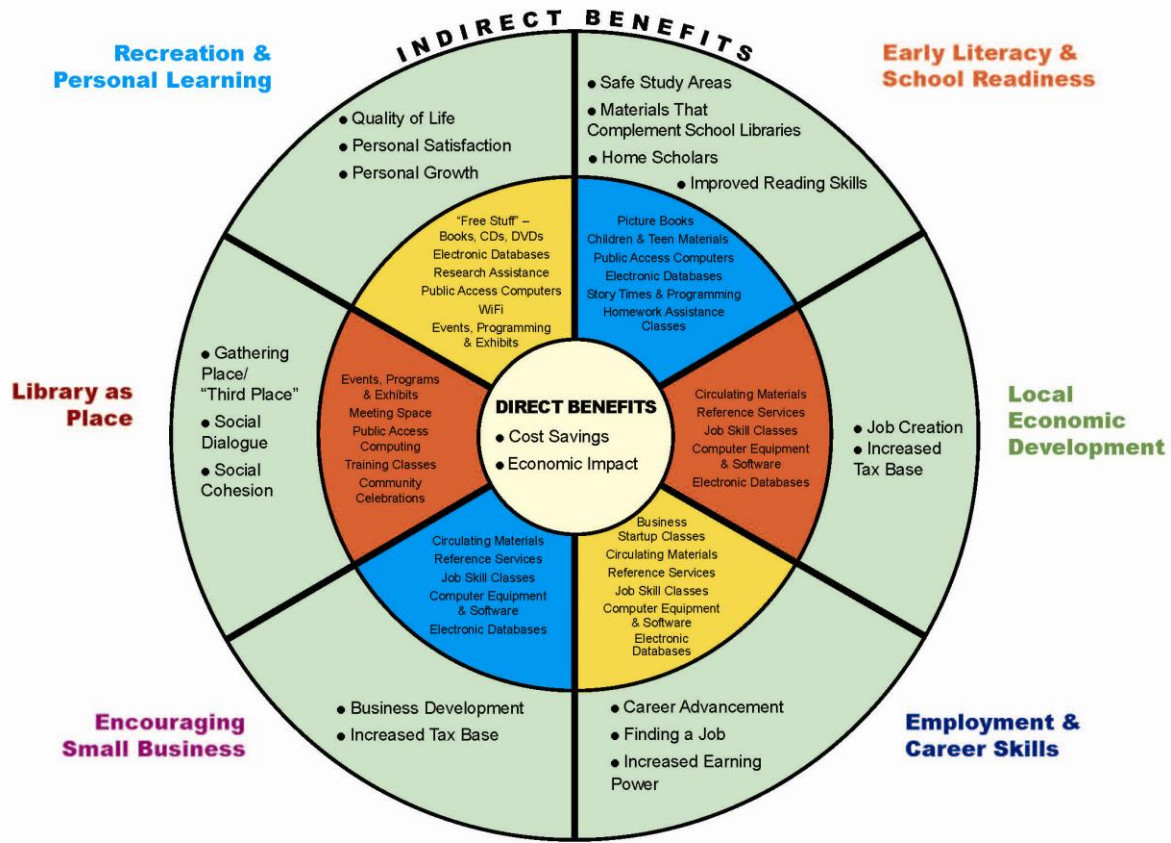
- The average return for most library ROI studies, \$4 to \$6 of benefits for every dollar expended, seems quite low but is consistent for many libraries
- Small libraries may have a higher ROI if the use of the library is considerably above average. That is, the library serves a larger population area than its “official” jurisdiction’s area.
- Every ROI study has included the value of customer cost avoidance due to the borrowing of library materials and use of services. However, there is wide variance in terms of how to establish the value of borrowing a book, DVD, CD and so forth. Some libraries use retail price of a new book for example while others discount the retail price by some factor. Using a discount factor will lower the ROI but it is a more conservative approach.
- Using the economic impact of library spending in the community through the use of an economic model “multiplier” factor increases the ROI for the library.

### *Weaknesses*

- The methodologies that have been used are several and quite varied
- Valuing the time of the public that is saved due to library use results in higher ROI values but many decision makers find this problematical
- Attempting to compare the ROI of one library to another is very problematical since the costs for a service will vary, often considerably, from one community to the next.
- Use of the contingent valuation methodology can result in fairly low estimates of value, as people are often quite unprepared to reflect on how to estimate the value of a service. This can result in quick snap judgments that provide fairly low estimates of value.
- Some city council persons, mayors and city managers find the use of estimating the ROI for any municipal or county service to be problematical both from the perspective of the methodology that is used and are uncertain as to how to use the results of such studies.

## **Indirect Benefits of Library Use**

While almost everyone will acknowledge that library customers and the community itself benefits from the services provided by a public library, it is certainly impossible to calculate all of the economic benefits. These impossible to calculate benefits are known as indirect benefits or public benefits. Among the wide range of indirect benefits are leisure enjoyments, literacy encouragement for children and teens, library as place for community meetings, attending a program, and public access Internet computers as shown in Figure 4.



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**Figure 4: Value of the Public Library**

One of the methods economists have used to value indirect benefits or public goods is called “contingent valuation.” Contingent valuation, developed by Nobel laureate economists Kenneth Arrow and Robert Solow, uses a survey to value nonmarket goods and services. In order to be valid, contingent valuation must be able to integrate valuation motives that extend beyond the pursuit of self-interest, and must not violate the assumption of rationality. There are two contingent valuation methods – willingness to pay (WTP) and willingness to accept (WTA). Ideally the two methods would produce similar estimates of benefits. However, the willingness to accept method usually provides the highest benefit estimates since respondents normally include societal or collective benefits in addition to direct benefits. Using the willingness to pay method, the survey respondent is asked to state what they would be willing to pay for an improved service. The willingness to accept method asks respondents how much compensation for a decline in service they would be willing to accept. For example, the respondent would be asked how much their property taxes would need to be reduced for them to accept the closing of the public library.

The contingent valuation survey technique is not without its detractors. The most frequent problems include:



- The survey respondents give answers that are inconsistent with the tenants of rational choice
- Respondents do not understand what they are being asked to value (respondents generally have no idea of what the current per capita funding for the local public library would be)
- Many respondents will give quick off-the-cuff estimates of value (for example, \$25, \$50, or ...). These quick responses may not be truly reflective of a stated value if the person took more time to consider the actual value. Consider, for example, the Marist Institute for Public Opinion that conducted a national survey using the willingness to pay approach and found that respondents on average were willing to be taxed an additional \$49 per year to support public library services.<sup>29</sup> The irony is that the per capita support for public libraries for many thousands of communities across the U.S. is less than \$40.

Contingent valuation has been applied to numerous cultural studies, particularly when valuing public goods, including assessing the value of national heritage sites, museums, theaters, historical sites, and libraries.<sup>30</sup> Contingent valuation was used as part of the process to determine the economic benefits associated with the St. Louis Public Library, the Phoenix Public Library, and several others.<sup>31</sup>

### Nonuse Benefits

In addition to use value, economists have recognized that individuals, who make no use of a public good, such as a public library, might derive satisfaction from its mere existence. The literature discussing this concept in the cultural arena has called nonuse value a variety of other names – existence value, bequest value, vicarious consumption, prestige value, education value, option value and several others.<sup>32</sup> The nonuse value of a public library can be considered as the utility individuals obtain from libraries other than their active use of a library. Nonuse value or benefits can be grouped into two categories: that it will be a benefit to an individual at some time in the future and that it is of benefit to others in the community now and in the future. Altruistic motivations, defined as concern for poor people, people of color, children and others who have access to the broad range of services provided by the public library, are likely to be considered when someone is asked to reflect on the value of public libraries. There is a willingness of individuals to support the library so that others may benefit and it is appreciated and valued as an institution that improves the quality of life in the community.

Nonuse benefits are difficult to quantify and if measured, are open to considerable debate. While contingent valuation has been used in some studies to determine nonuse benefits, many ROI studies ignore the value of nonuse in an attempt to calculate conservative return on investment numbers.

### Total Value

The total value of public libraries can be determined, in theory, by combining the use (composed of direct and indirect) and nonuse values. Calculating the total value is problematic since the vast majority of the valuation is based on opinions or estimates from library customers and nonusers within a community and ignores the cumulative impact of the public library. The cumulative impact is most likely felt in such areas as community development, social inclusiveness, fostering an open democratic society and so forth. A survey of library customers

found that while it is not possible to show a causal relationship between library use and social capital, the study did provide evidence that such a relationship exists.<sup>33</sup> Interestingly, a large-scale survey in Norway found that citizens are cognizant of the different value components when asked to assess the value of the public library. The survey found about 40 percent of total value is motivated by direct use value, 20 percent by the option for the respondent to use the library in the future, and 40 percent by nonuse value.<sup>34</sup>

And yet, despite the many attempts to place a value on public libraries and the services that they provide, the inescapable conclusion is that the public library resists the attempts to quantify the economic value of the library and its services due to significant indirect and nonuse values. Thus, while a library can calculate the direct savings to its customer for their use of the library there are other perhaps more important components of the value equation that must be part of the conversation about the total value of the library with funding decision makers.

### **The Utility of Valuation Studies**

Ultimately the value of library Return on Investment studies should be how the information (the ROI number) is used by libraries and librarians to help convince funding decision makers to increase the library's budget or to reduce the size of the proposed cuts to the library's budget. Unfortunately the evidence to date about the positive impacts of library ROI studies is underwhelming. Feedback from library directors indicates that ROI may have a place in justifying public library funding, but the ROI number may not be compelling enough to prevent budget reductions or lead to budget increases. Mary Francis Cooper, Deputy Director of the Carnegie Library of Pittsburgh observed "I think any time a library can quantify its value to the community, it helps to justify its funding requests. We use return on investment, usage statistics and other information to demonstrate what a critical asset the Library is. That said, like many libraries around the country, we continue to find that our funding fluctuates, particularly in a difficult economy, and is not guaranteed."<sup>35</sup>

Jamie LaRue, Director of the Douglas County Libraries in Colorado noted "We used the results quite often during our last campaign - but lost anyhow. In the other hand, since then one of our managers is now on the board of the local chamber of commerce. I'm the chair of the board of an economic development council. So we've gained great credibility in the business community - which lays the groundwork for future funding."<sup>36</sup> And Cathy Bosley, Director of the Ft. Morgan Public Library stated "I must admit that I haven't seen any direct positive impacts on our library budget, but at least we haven't experienced cuts in staff."<sup>37</sup>

According to Dr. Stephen Matthews of the Utah State Library "the ROI report had some affect on the 2009 legislature regarding the 2010 budget. Even though we still took some significant cuts, it was a powerful talking point to bring the reality of the value of the State's public libraries to the discussion. We are also fortunate in that the State Library has many supporters who attend the budget hearings with our State Librarian to speak to the local impact of their library, as well as the Utah Library Association officers who do the same. During the 2010 legislature session, regarding the 2011 budget, there was less flexibility for all departments due to the worsening economic situation. I think there were other considerations beyond the economic value of libraries to the State that overshadowed the legislators' concerns about local and State-wide library services."<sup>38</sup>

## Implications for Your Library

It is quite clear that any public library can easily calculate a Return on Investment for its services based on the savings (cost avoidance) it provides to library customers. If a library were interested in calculating the direct economic impact of its budget spent within the local community it would most likely need to hire a consultant that uses an economic impact model with a multiplier. The cost would likely be in the \$5,000 to \$10,000 range and would provide more information that would allow the library to share a higher ROI number with its funding decision makers.

Were the library interested in determining the indirect and nonuse benefits of library services, the library would need to hire a consultant that would prepare a study using the contingent valuation survey methodology. Such studies are fairly time consuming and much more expensive to administer. A library could be looking at a cost of \$50,000 or higher for a consultant to prepare such an analysis. Thus, it is important to ensure that the costs for a ROI study do not exceed the likely benefits which to date do not seem to produce a compelling story for funding decision makers.

It is also important, as Eleanor Jo Rodger has noted when librarians advocate for and defend libraries that we explain how libraries serve to create public value. She also observes:

“[Being] valuable is not about our professional values; in the paradigm of the value of public libraries we are the producers, not the consumers of our services. Our personal sense of what is valuable doesn't matter unless it matches that of customers.”<sup>39</sup>

## Summary

The use of Return on Investment studies in a library setting have produced a ROI numbers that are quite variable although many seem to group in the \$4 to \$6 of benefits for each dollar spent by the library. Relying on a single measure, such as Return on Investment, is not likely to produce a positive reaction among the library's funding decision makers year after year. As most library directors know, there is no silver bullet that will lead to sustained library funding. The use of Return on Investment as one of several keys performance measures may produce more positive results for the library. Some organizations and libraries have found the use of an overall framework for displaying and reporting several key performance measures to be effective among decision makers and stakeholders. The library's ROI could be one of the key performance measures.

Among the more popular frameworks that are employed by many organizations are the Balanced Scorecard and calculating a Social Return on Investment (demonstrates the financial, social and ecological impact of an organization), among several others. The key to selecting a framework that will be successful is to ensure that the framework resonates with the library's funding decision makers. In some cases, a framework may already be in use in the larger governmental setting.

Thus, ROI is an important part of the overall picture concerning the value of the local public library. Clearly the value of the library can be estimated using a combination of quantitative measures (including return on investment) as well as the intangible values (which are often discussed using qualitative measures). ROI complements other quantitative and qualitative measures concerning the value of the public library that can make the case to stakeholders and help sustain support and funding in the future.

Then again, perhaps public libraries should consider developing a new out-of-the-box ROI measure that communicates the value of the library. Perhaps we should consider a Return on Imagination, a Return on Innovation, a Return on Ideas, a Return on Improvement, a Return on Inquisitiveness, a Return on ...

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<sup>2</sup> King, John L. and Schrems, Edward L. Cost-Benefit Analysis in Information Systems Development and Operation. *Computing Surveys*, 10 (1), March 1978, 19-34.

<sup>3</sup> Saracevic, Tefko and Kantor, Paul. Studying the Value of Library and Information Services. Part I. Establishing the Theoretical Framework. *Journal of the American Society of Information Science*, 48 (6), 1997, 527-42; Saracevic, Tefko and Kantor, Paul. Studying the Value of Library and Information Services. Part II. Methodology and Taxonomy. *Journal of the American Society of Information Science*, 48 (6), 1997, 543-63.

<sup>4</sup> Examples of Library Web sites that provide a "Library Use Value Calculator" include: The Maine State Library (<http://www.maine.gov/msl/services/calculator.htm>), the Chelmsford Library ([http://www.chelmsfordlibrary.org/library\\_info/calculator.html](http://www.chelmsfordlibrary.org/library_info/calculator.html)), the Lansing Public Library (<http://www.lansing.lib.il.us/value.html>), and the Henderson County Public Library (<http://www.hcpl.org/library/value.html>).

<sup>5</sup> Sumsion, John; Hawkins, Margaret and Morris, Anne. Estimating the Economic Value of Library Benefits. *Performance Measurement and Metrics*, 4 (1), 2003, 13-27.

<sup>6</sup> Berk & Associates. *The Seattle Public Library Central Library: Economic Benefits Assessment. The Transformative Power of a Library to Redefine Learning, Community, and Economic Development*. Seattle: Berk & Associates, 2005. Available at <http://www.berkandassociates.com/pdf/DraftReport.pdf>

<sup>7</sup> Carnegie Mellon University. *Carnegie Library of Pittsburgh: Community Impact and Benefits*. Pittsburgh, PA: Carnegie Mellon University, Center for Economic Development, April 2006.

<sup>8</sup> Fels Institute of Government. *The Economic Value of the Free Library of Philadelphia*. Philadelphia: The University of Pennsylvania, Fels Institute of Government, October 2010. Available at [http://www.freelibrary.org/about/Fels\\_Report.pdf](http://www.freelibrary.org/about/Fels_Report.pdf)

<sup>9</sup> Available at <http://www.irs.org/documents/roi/cortez.pdf>

<sup>10</sup> Available at <http://www.mcpl.lib.ny.us/pdf/economicvalueofMCPL.pdf>

<sup>11</sup> Available at <http://nenpl.org/services/aboutus/economic%20study.pdf>

<sup>12</sup> Available at <http://www.buffalolib.org/aboutthelibrary/ect.asp>

<sup>13</sup> Available at <http://www.clpgh.org/about/economicimpact/CLPCommunityImpactFinalReport.pdf>

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**Submitted:** 20 June 2010

**Editorial review:** 13 August 2010

**Accepted:** 20 September 2010

**Published:** 1 February 2011