Valuing Information, Information Services, and the Library: Possibilities and Realities

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abstract: A range of issues are identified and the approaches and methodologies that have proven useful in addressing the questions of “the value of information,” “valuing information services,” and “valuing a library” are explored. It is suggested that the use of outcomes-based approaches resonate better with external stakeholders than the traditional use of input and output measures. Libraries are encouraged to demonstrate institutional value through the use of outcomes of institutional relevance.

Introduction

There are a number of complex issues surrounding the phrases: “the value of information,” “valuing information services,” and “valuing a library,” compounded by the interconnected nature of the definition and measurement of these concepts. The most obvious issue is defining what is meant by the terms “value,” “valuing,” and “information,” within the context of library performance measurement and valuation processes. Rather than attempting to do so, this article explores a range of issues and identifies approaches and methodologies that have proven useful. With a better understanding of the building blocks, it should be possible to better appreciate the possibilities, realities, and complexities associated with determining the value of a library, its collections, and its services.
Value

In conversations and writings, people often use the word “value” without defining it. In many ways, value is much like the word “beauty,” its definition is in the eye of the beholder. Using philosophical dimensions of value to identify the value of information was considered and rejected by Tefko Saracevic and Paul Kantor for practical reasons.\(^1\) They favored the pragmatic approach taken by economists, who hold that something’s value is its worth as it contributes to wealth. Adam Smith’s distinction between “value-in-exchange” and “value-in-use” is one of the foundational principles of economics and has been used to assist in determining the value of information. In value-in-exchange theory people exchange money for products or services. The price paid is the accepted indicator of the product’s and/or service’s value. The concept of “exchange value” includes the price agreed-upon by two parties, but also reflects the time and effort an individual invests to receive the perceived benefits. In a library, however, no money is exchanged between parties.

The second approach, called “value-in-use” or “utility theory,” focuses on wants, usefulness, satisfaction, demands, and so forth. This approach means that the benefits to the user define the value of information. In this case, value is separated from the information itself. In other words, the use of information is separated from its effects, benefits, or impacts.

At the fundamental level, individuals determine or attribute value. While one person may see a service or product as valuable, another person may see little value in it. Information received is affected by what information and knowledge the individual already has. This is particularly relevant when attempting to define the value of information within the context of information science and the valuation of information services.

Information & Knowledge

People are inundated with information every day. Some of the information is gathered by our senses, and our brains organize and filter this information constantly. Economists define information as phenomena that reduce uncertainty, and measure it in terms of exchange rates based on supply and demand. This is a problematic definition, in that other factors, aside from information, may reduce uncertainty, and, as Michael Buckland has noted, information may, in fact, increase uncertainty.\(^2\) Accountants think in terms of costs and benefits. Behavioral scientists study cognitive and behavioral change brought about by information. The problem-oriented view of information science suggests that in the real world, information will reduce uncertainty.\(^3\) This leads to the notion that finding the right information for a specific purpose is key.

Yet, for many people, perhaps a majority of people, the quality of the information content is much less important than its convenience. Convenience trumps everything and becomes the primary criterion during the information-seeking process. Convenience
includes the choice of where to search (for an increasing number of people this means searching online only), the ease of completing the search process, and the satisfaction with the source (is the desired information found?). Herbert Simon called such a focus on convenience “satisficing.”4 In fact, many people are satisfied if the retrieved information only suffices.

Since the advent of the Internet, the amount of information available to people has become almost limitless—especially when you consider all of the digitization efforts, including Google Books, that have added to this information deluge. So rather than the traditional theories of supply and demand, it is the limited time to digest and interpret information that has become important today.

Some key characteristics of information have been identified by information and social scientists.5 These include:

- **Uncertainty**—information may reduce uncertainty when a decision needs to be made. The seemingly endless stream of financial information emanating from Wall Street is one attempt to assist investors with the decisions they need to make (buy or sell) and the possible use of the information to reduce uncertainty or risk.
- **Knowledge**—information may affect an individual’s state of knowledge. Clearly knowledge is more than the sum of the units of information that an individual possesses.
- **Ambiguity**—information has the potential for being abstruse. The contribution of information is improved within a broader context.
- **Indeterminacy**—information that is sent must be received, interpreted, and understood. The wonderful Abbot and Costello comedy routine “Who’s on first, and What’s on second” best illustrates this characteristic.
- **Redundancy**—non-essential information is often provided to help answer problems of ambiguity and indeterminacy.
- **System dependency**—how information is communicated and/or transmitted will have an impact on it being received and understood. The system may alter the message.
- **Sharing**—information is not lost when others have gained access to it. In fact, shared information may enhance or increase its value.
- **Timeliness**—in some situations, the promptness with which information is received will have an impact on its utility.
- **Compression**—a large amount of information can be compressed (placed on a CD or DVD). With the assistance of telecommunications technologies, information can be transported to almost any location on the globe at astonishing speeds.
- **Presentation**—well-analyzed, well-presented, and well-disseminated information is not always available.
- **Stability**—Information can be both stabilizing and destabilizing, often at the same time.
- **Multiple life cycles**—Information can experience multiple life cycles, as in when it is re-appropriated and re-packaged.
- **Leakable**—information tends to leak by virtue of being intangible, expandable, and easily transportable, resisting the bonds of secrecy.
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- **Substitutability**—information is capable of replacing land, labor, or capital in most economic processes (consider the fall of newspaper advertising revenues and the rise of Craigslist—among others).

Any approach to understanding information is somewhat subjective and depends upon linguistic, social, technological, and cultural influences.

**Value of Information**

Combining the concepts of value and information raises some interesting problems, owing to the unique nature of information as compared to other resources. Any value of information starts with the hypothesis that the receiver of information gives value (or not) to the information by combining the information with other information already received. The information must first have an expected value-in-use to arouse the interest of the user. The user then decides whether the received information has any value. The value of information can be more easily identified if the role or purpose of the information can be traced to a specific task and if the output of the task can also be specified.

The information in a library’s collection, be it a journal article, conference proceedings, book, audio, or video file, actually represents a “potential value,” in that the value of information lies dormant until it is used (read, viewed, listened to) in some manner by an individual. And even if the information is accessed and internalized by the user, it may be ignored or may not have any immediate value to the user.

In the information context, two aspects of value are important:

- **Purchase or exchange value**, or what an individual is willing to pay for information in money and/or time, and
- **Use value**, or the positive consequences derived from reading and using the information.

It is important to recognize that many library collections are quite large and that the library has spent a considerable amount of money in purchasing, processing, providing access, and storing the items in the collections. The value of the collections, as expressed in an insurance policy, has no correlation to the potential value of the collections to the users of the library. Yet, the value of the library’s collections also represents a future value. That is, the collection will be available for use by future generations of students, faculty, and researchers.

**The Value of a Name**

Libraries have many names for the people who use a library. How librarians view these people and the label they use to describe them reflects a philosophical worldview. Among the more popular labels are:

- **Users** imply people who are already using the library.
- **Patrons** historically emphasize people who provide financial support to an organization.
- **Members** imply joining a group or an organization.
• Customers emphasize that individuals are making a choice when they visit (physically or virtually) the library.

The decision to use the word “customer” throughout this article is deliberate and reflects the fact that libraries are facing an ever increasing number of competitors and that libraries must be responsive in terms of the range of services offered as well as ensuring high customer service interactions with library staff members.

Performance Measures

Before discussing the value of information services it would seem appropriate to have a brief discussion about performance measures. Richard Orr created an evaluation model—see Figure 1. The model has four components—resources, capability, utilization, and impact or effect—as reflected in a set of measures—input, process, output, and outcomes. Input, process, and output measures are all inward looking (that is, they reflect activities within the library) while outcome measures focus on the impact or benefits of the library service in the life of the customer. With time, the benefits derived by the individual may accrue to a larger organizational or community setting.

Historically, academic libraries have relied upon input measures (for example, the ARL Index) and size of collections to demonstrate quality. At the same time, libraries have relied on output measures (typically annual circulation) by equating use with value. Many institutional decision-makers and other key stakeholders have a mixed or negative reaction when presented with traditional use-based definitions of value.

If libraries wish to demonstrate the value of their services, their collections, and of the library itself, they need to be focusing their attention on the much more difficult to measure outcome or impact measures.

Value of Information Services

There are additional factors influencing the assessment of value, valuation, and information service in all types of libraries. Among these issues are:

1. Lack of consensus about what should be measured and how
2. Lack of understanding of performance measurement and metrics
3. Organizational structural issues that impede a library’s ability to gather, analyze, and apply performance measures
4. Lack of precision in measuring performance, and
5. Alignment issues resulting from roles, purposes, and service environment factors driving performance measurement between the library and their parent institution.
In addition to the general performance measurement issues facing libraries, attempting to determine the value of an information service is problematic from several organizational and cultural perspectives:

- Determining the “bottom line” is too far away. The provision of a library service, at one point in time, has no clear link to the financial well-being of a larger organization, achieving educational goals for students of higher education, or improving the quality of life in a specific community.
- Given their day-to-day responsibilities the majority of stakeholders (administrators, Board of Trustees, Library Board members) are too far away from considering the impact of the library in the lives of students, faculty, and researchers on a university campus.
- Library staff members are too involved in providing library services and thus find it difficult to see the “big” picture.

Not surprisingly, a survey of top-level managers to whom special librarians report indicated that two-thirds of these managers have no idea of the value of the library and information services for which it is their responsibly to allocate financial resources.8

To overcome these challenges, the customers of the library must be involved in all aspects of the assessment process. The involvement of the customers might be direct: they can be asked to participate in a focus group, complete a survey, respond to questions in an interview, agree to be observed as they use the library, assist in data analysis and interpretation, the reporting processes, and so forth. In addition, customers can be involved indirectly, in that the library can capture transaction data about who is using one or more library services.

Robert Taylor has suggested that a library customer uses a number of criteria for judging the usefulness or utility of an information service.9 As shown in Table 1, he has specified six broad criteria that can be used to assess the value of an information service.

Many potential customers avoid the library because of the difficulties using the library (ease of use or convenience raises its head again). The need to provide convenient library services was noted more than fifty years ago by Mooers’ Law—“An information retrieval system will tend not to be used whenever it is more painful and troublesome for a customer to have information than for him not to have it.”10

This precept is also reflected in S. R. Ranganathan’s Fourth Law of Library Science—“Save the time of the reader.”11

Determining the value of an information service (providing access to the library’s physical and/or electronic collections, instructional services, reference services, and so forth) must be done from the perspective of the user. The important question is not how much an information resource and/or service is used, but rather what is the impact or benefit of the information service in the life of the library customer.

This approach to understanding value from the perspective of the user means that libraries must re-examine all of the activities they have historically undertaken and ask the question, “How does this activity add value in the life of the user?” Some libraries
have decided that they can stop cataloging the materials being added to a collection and have others, such as the vendors supplying the materials, do this work. Other libraries have embraced the social aspect of the Internet and asked their users to add tags to photographs (folksonomies) or to correct typos that were created when old newspapers and other materials were digitized. This involvement of customers in the library’s “business” has been called “crowd sourcing.”

Value of a Library

All of the possibilities and realities identified so far make the prospect of valuing a library and its services very difficult. In a landmark study, Tefko Saracevic and Paul Kantor developed a framework and taxonomy for establishing the value that may arise from using library and information services based on the vocabulary of the user in responding to a questionnaire. They found that a library customer has three potential reasons for using a library or information service:

- To work on a task or project
- For personal reasons
- To get an object or information or perform an activity.

They went on to identify the results, outcomes, or impacts that a library or information service has in the life of an individual and eventually on the organization or community. The authors suggested that the impacts could be grouped into six categories.

Table 1. Customer Criteria for Assessing Value

<table>
<thead>
<tr>
<th>Customer Criterion</th>
<th>Value Added by the Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ease of use</td>
<td>Browsing, formatting, mediation service, orientation service, ordering, physical accessibility</td>
</tr>
<tr>
<td>Noise reduction</td>
<td>Access (item identification, subject description, subject summary), linkage, precision, selectivity</td>
</tr>
<tr>
<td>Quality</td>
<td>Accuracy, comprehensiveness, currency, reliability, validity</td>
</tr>
<tr>
<td>Adaptability</td>
<td>Closeness to problem, flexibility, simplicity, stimulatory</td>
</tr>
<tr>
<td>Time savings</td>
<td>Response speed</td>
</tr>
<tr>
<td>Cost savings</td>
<td>Cost savings</td>
</tr>
</tbody>
</table>


1. Cognitive results. Use of the library may have an impact in the mind of the user. The intent of this category is to ask the question, “What was learned?” Thus, the user may have refreshed memory of detail or facts; substantiated or reinforced knowledge or belief; developed new knowledge; changed viewpoint, outlook, or perspective; learned a slightly different or tangential perspective (serendipity); or nothing.

2. Affective results. Use of the library or its services may influence or have an emotional impact on the user. The user may experience a sense of accomplishment, success, and satisfaction; a sense of confidence, reliability, or trust; a sense of comfort, happiness, or good feelings; a sense of failure; and a sense of frustration.

3. Meeting expectations. When using the library or an information service, users may be getting what they needed, sought, or expected; be getting too much; be getting nothing; have confidence in what they received; receive more than they expected; or seek substitute sources or action if what they received did not meet their expectations.

4. Accomplishments in relation to tasks. As a result of using the library, the user may be able to make better informed decisions; achieve a higher quality performance; point to a course of action; proceed to the next step; discover people and/or other sources of information; or improve a policy, procedure, or plan.

5. Time aspects. Information provided by a library may lead to saving time in several possible ways. The user may save time as a result of using a resource or a service; waste time as a result of using a resource or a service; need to wait for service; experience a service that ranges from slow to fast; or need time to understand how to use a service or resource.

6. Money aspects. Using the library or information service may, in some cases, clearly result in saving money or generating new revenues. The user may be able to provide an estimate of the dollar value of results obtained from a service or information received; estimate the amount of money saved thanks to the use of a service; estimate the cost of using a service (from the user’s perspective); estimate of what may be spent on a substitute service; or estimate of value (in dollars) lost where the service was not available or use was not successful.

Given the discussion above, it is possible to organize attempts to determine the value of a library and its services around three broad distinct perspectives—personal, organizational, and financial impacts (see Figure 2).

Personal Perspective

At the personal level, understanding both the specific and generic ways in which the library impacts the individual is crucial. A generic learning outcome model identifies five ways in which individuals are affected as they take in new information and learn something new, as shown in Table 2.
learning outcomes in some manner. It is also feasible to prepare an analysis that determines the ways in which people use the library and its services using one or more of these learning outcomes. In the corporate or special library environment, it is possible to identify the library’s contribution to saving time for each individual user, making that person more productive for their organization. Yet it is also important to remember that the value of the library is difficult to determine since the outcomes of library service are often long-term and diffuse.

In a similar manner, it is possible to consider ways in which the library has an impact on the lives of undergraduate and graduate students, the teaching faculty, and researchers. One of the important implications of studying user outcomes is that the library must combine data about the use of the library and its services with other data that is available on the academic campus. Adopting the user’s perspective to study the impact of the library means that the library must go beyond its boundaries (input, process, and output measures) in order to have a chance at understanding the outcomes associated with the use of the library. In particular, the library needs to gather and analyze data about individual users—be they student, faculty member or researcher.

To determine the impact on the lives of university students, use of the library and its services might be correlated with either

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### Table 2.
Generic Learning Outcomes

<table>
<thead>
<tr>
<th>Knowledge &amp; Understanding</th>
<th>Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Knowing what or about something</td>
<td>• Knowing how to do something</td>
</tr>
<tr>
<td>• Learning facts or information</td>
<td>• Being able to do new things</td>
</tr>
<tr>
<td>• Making sense of something</td>
<td>• Intellectual skills</td>
</tr>
<tr>
<td>• Deepening understanding</td>
<td>• Information management skills</td>
</tr>
<tr>
<td>• Making links &amp; relationships between things</td>
<td>• Social skills</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Attitudes &amp; Values</th>
<th>Enjoyment, Inspiration, Creativity</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Feelings</td>
<td>• Having fun</td>
</tr>
<tr>
<td>• Perceptions</td>
<td>• Being surprised</td>
</tr>
<tr>
<td>• Self-esteem</td>
<td>• Innovative thoughts</td>
</tr>
<tr>
<td>• Attitudes towards others</td>
<td>• Creativity</td>
</tr>
<tr>
<td>• Increased capacity for tolerance</td>
<td>• Exploration, experimentation and making</td>
</tr>
<tr>
<td>• Empathy</td>
<td>• Being inspired</td>
</tr>
<tr>
<td>• Increased motivation</td>
<td></td>
</tr>
<tr>
<td>• Attitudes towards an organization</td>
<td></td>
</tr>
<tr>
<td>• Attitudes related to an experience</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Activity, Behavior, Progression</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• What people do</td>
<td></td>
</tr>
<tr>
<td>• What people intend to do</td>
<td></td>
</tr>
<tr>
<td>• What people have done</td>
<td></td>
</tr>
<tr>
<td>• Reported or observed actions</td>
<td></td>
</tr>
<tr>
<td>• A change in the way people manage their lives</td>
<td></td>
</tr>
</tbody>
</table>

Direct or indirect measures of student achievement. Direct measures might include the capstone experience, use of a portfolio, or a standardized exam (for example, the Collegiate Learning Assessment). Indirect measures could include grade point average, student retention rates, success in graduate school exams, graduate student publications, fellowships and post-doctorates, and so forth. Among the more popular indirect measures is the use of a survey where students report on their collegiate experiences. Perhaps the most frequently used survey of this type is the National Survey of Student Engagement (NSSE) that asks graduating students to report on the level of academic challenge, student interaction with faculty members, active and collaborative learning, enriching educational experiences, and supportive campus environments. Unfortunately, to date, no studies have examined the use of library services and related use to direct...
measures of student achievement. The relatively few studies that have been done have relied on indirect measures of student achievement and have produced unclear and often contradictory results due to small sample size and other problems as noted by Joseph R. Matthews and Megan Oakleaf.\textsuperscript{17}

Recently, a group of English academic libraries analyzed library transaction data combined with campus student performance data and found strong correlations between the use of library materials (borrowing of materials), and downloading electronic journal articles.\textsuperscript{18} Note that no correlation was found for physically entering the library. While the correlations are indeed encouraging, the data from these libraries reveal that about half of all undergraduate students never used any library service during the four years the data was collected and analyzed. Another study revealed that part-time and distance-learning students were the largest group of library non-users.\textsuperscript{19} Some of the students who never used the library performed extremely well in terms of academic achievement (follow-on focus groups are now being conducted to discover how these students obtain the information they need for their course work and achieve high performance without using the library). On the other hand, many students who did not use the library earned poor grade point averages. Similar results were also recently reported at the University of Wollongong in Australia.\textsuperscript{20} A study at the Hong Kong Baptist University library found a positive correlation between grade point average (GPA) and the use of the library’s collection.\textsuperscript{21} And a related study at the same institution explored the possible link between library instruction and graduation GPA.\textsuperscript{22}

The Bill and Melinda Gates Foundation developed a taxonomy of outcomes that moves from impacts affecting the individual to the broader changes in society.\textsuperscript{23} This taxonomy includes five levels of change, see Figure 3:

![Figure 3. Gates Foundation Taxonomy of Library Impacts](image-url)
Using such taxonomy, the academic library can ask “what did the user of a library’s collections and/or service receive as the result of this interaction?” and “what did the user accomplish as a result of library use?”

**Organizational Perspective**

Attempting to establish the benefit of the library to its associated larger organizational entity is a real challenge. For academic libraries, the goal is to demonstrate how the library and its services contributes to student achievement, improves faculty teaching skills and productivity, and assists researchers on campus. Today, public colleges and universities are being asked to prove that they provide real value, especially in the face of rising costs and decreased financial support from the state. This pressure is, in turn, forcing universities to examine each of the support units on campus to better understand each unit’s contribution to the goals and objectives of the university. For the library, this means that it must focus on assessments that are outcomes-based. This necessitates assessments that examine the value of its collections and services in order to determine:

- What impact is the library currently having in the life of each student?
- How might the library revise and improve existing services, eliminate services that make little or no contribution to student success, or introduce new services?

As shown in Figure 4, Oakleaf suggests areas of library value that rely on broader perspectives and potential surrogates of that value. To develop the evidence of the value of the academic library, the library must reach out and partner with other units on campus involved with assessment. These partnerships are essential if the library is going to gain access to student performance data necessary for outcomes-based analysis. They will also help the library better understand how it might contribute more significantly to student success, as well as improve faculty and researcher productivity.

A fair amount of effort has turned to assessing service quality, as evidenced by the Association of Research Libraries effort to develop a standardized instrument—LibQUAL+™. LibQUAL+ provides information about three dimensions of service quality: effect of service, library as place, and information control. Note that LibQUAL+ is not a customer satisfaction survey, nor does it provide evidence about the value of the library. One interesting study of LibQUAL+ data demonstrated that users of larger, better-funded libraries had higher expectations for information resource availability but not higher satisfaction scores. The LibQUAL+ survey is not designed to address the issue of what is the impact in the lives of the respondents.

**Financial Perspective**

Examining the value of using the library from the customer’s perspective allows the consideration of three possible categories of benefits:

1. **Direct Use Benefits**—output and outcomes that can be measured directly. Some have called a direct benefit a tangible benefit.
2. **Indirect Use Benefits** or economic impact—the tangible outputs and outcomes facilitated by the programs and services of a library.
Figure 4. Oakleaf’s Areas of Academic Library Value
3. Non-use Benefits. The value individuals may feel about their possible use of the library in the future or that others can use the library in the future.

The total value of the library, in theory, is determined by adding together the use and non-use benefits. As noted previously, 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 customer is asking, “Do the benefits exceed the costs?” or is using the library “worth my time?”

Direct Use Benefits

The direct benefits for an individual who uses a library are focused on the time saved as well as the avoidance of cost to the individual. These benefits will include:

- Cost savings from avoiding the purchase of materials (books, CDs, DVDs, magazine, newspaper, reference materials, electronic resources, and so forth).
- Free or low-cost access to computers, photocopiers, audio and video equipment, computer software, 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. All of the service offerings provided by the library are identified, and a local price for each service is established. Note that some services may have no economic value, as similar services are available at no cost elsewhere. The total volume of transactions for each service is then multiplied by each price, and the value calculated.

When the total value is then compared to the library’s annual budget, a benefit-to-cost ratio is determined. Often times this benefit-to-cost ratio is called a return on investment (ROI). A number of ROI studies have been prepared for public libraries, and Matthews discusses and summarizes the results of these studies. In addition, Donald Elliott and his colleagues prepared a thorough how-to manual that explains the process of conducting an ROI analysis for a library.

Not surprisingly, there are a number of strengths and weaknesses associated with these ROI studies:

**Strengths**

- The average return on investment, $4 to $6 of benefits for every dollar expended, is consistent across all of these studies.
If use of a library is “above average,” then the resulting ROI is higher.

There is wide variation in establishing the value of each library service.

Each user group receives different levels of benefits.

Multiple methods used to estimate value lead to increased confidence in the results.

Weaknesses

- The use of different methodologies results in varying conclusions.
- Assigning a value for indirect (intangible) benefits is problematic.
- Attempting to compare ROI studies across libraries is a true “apples and oranges” exercise.
- It is difficult to validate results of intangible services valuation.
- Studies may involve large scale surveys (and high costs).
- Policy-makers and financial decision-makers are uncertain of how to use the study results.

For many libraries, especially those with unique collections, the library provides real economic impact in the form of various exchanges of goods and services and associated multiplier effects that influence the local economy. Such financial activity includes the payment of salaries in exchange for employees’ services and payment for the purchase of books and other materials to add to a library’s collections. Money received by employees and local suppliers is then spent on other goods and services within the community. This additional spending is called the “multiplier effect” or the “ripple effect” and some economists estimate that the multiplier rate ranges from two to as much as seven.

A variation of an ROI study was conducted at the University of Illinois at Urbana-Champaign (UIUC) that connected the citations referring to resources in the library’s collection to successful grant proposals, and the income these grants generated. The analysis demonstrated an ROI of 4.38:1. This methodology was replicated in several international academic libraries, and the results were an ROI that ranged from 0.27:1 to 15.54:1. A study at the University of Hong Kong found that wide differences in ROI results are attributable to factors such as characteristics of the parent organization, the availability of grant funding, and the country of the study.

In addition, library customers may travel (sometimes over great distances) to visit and use a library’s collections. One study of the main public library in Seattle, Washington, states that out-of-town visitors to the library were responsible for an additional $16 million of spending in the downtown area - hotels, restaurants, car rentals, ferries, and so forth. A more recent study, conducted on behalf of the Free Library of Philadelphia, measured the economic impact of the library as it helped Philadelphians learn to read and acquire working skills, locate job opportunities, develop or enhance their own businesses, and determine the increased value of neighborhood homes located near a branch public library.

Despite the appeal of an ROI analysis, James Neal, Vice President for Information Services and University Librarian at Columbia University, writes “ROI instruments and calculations do not work for academic libraries, and present naive and misinterpreted
assessments of our roles and impacts at our institutions and across higher education.”

Jim then issued a call to action in an “appeal for the academic library to step away from inappropriate, unsophisticated and exploitable ROI research as a miscalculated, defensive and risky strategy.”

Another direct use benefit, although difficult to value in economic terms, is the “library as place.” Quiet space for individual activities, a space that inspires learning and study, a comfortable and inviting space, and spaces for group learning, interaction, and study, are all highly valued (as exhibited by use). The library can also serve as a “third place”—separated from home and work. Ray Oldenburg argues that third places are important for civil society, civic engagement, and establishing feelings of a community’s sense of place that are valued by community members. The Urban Library Council commissioned a report that documents how “the engaged library” can interact with their neighborhoods and, in the process, create a more vital community.

Indirect Use Benefits

Almost everyone acknowledges that use of the library and its services results in benefits for each user, but also that it is difficult to calculate these financial benefits. These impracticable-to-calculate benefits are known as indirect benefits. Among the possible indirect benefits are leisure enjoyment, literacy encouragement of young children and teens, library as place, attending a program, and so forth.

One frequently employed method used to estimate the value of indirect benefits is “contingent valuation.” Contingent valuation uses a survey to value non-market goods and services. The two approaches to contingent valuation are called “willingness-to-pay” and “willingness-to-accept.” The willingness-to-pay approach asks survey respondents to identify what they would be willing to pay for a new or improved service. The willingness-to-accept method asks respondents what they would agree to (for example, reduced taxes) in order to accept the closing of a library. In almost all cases, the two approaches produce really different estimates. And the use of contingent valuation has a number of methodological issues that some find questionable, even unacceptable. For example, what people are willing to pay depends on their ability to pay, people will pay more when using other people’s money, and immaterial goods (such as information) are undervalued compared to material goods. The net result is that people are asked to evaluate services or institutions that they have never thought of in terms of money. Despite these concerns, contingent valuation has been used in some library ROI studies.

Libraries might also embrace a framework, such as the Triple Bottom Line, which attempts to articulate how the library contributes financially, socially / culturally, and environmentally to a community.

- **Perceived Contribution to Social Well-being.** The library provides a place that is safe, welcoming, and inclusive, promoting acceptance and understanding among others.
• *Perceived Contribution to Cultural Well-being*. The library provides space for culturally diverse programs, participates in literary events, and utilizes space for exhibits and exhibitions.

• *Perceived Contribution to Environmental Well-being*. The library provides access to materials that are borrowed rather than purchased, promoting recycling through example and with programming, serving as collection points for recycling of products, and so forth.

• *Perceived Contribution to Economic Well-being*. The library enables users to avoid or reduce expenditures for materials, serves as a source of employment, provides services to the unemployed, small businesses, and other segments of the community.

The desire to move away from an over reliance on quantitative evaluations of the library and its services has led to the development of a Social Impact Audit. The social impact audit provides insight into personal development, social cohesion, community empowerment and self-determination, local image and identity, and health and well-being. Social Return on Investment (SROI) model has been used in many non-profit settings. Eight integrated cost approaches for estimating social value creation are explored by Melinda Tuan. The SROI approach involves being able to identify and measure organizational outcomes adequately in a quantitative manner.

**Non-use Benefits**

Economists have said that individuals who make no use of a public good such as a library might derive value or satisfaction from its mere existence. Non-use value has a variety of other names, including existence value, bequest value, vicarious consumption, prestige value, education value, option value, and several others. Non-use benefits have been grouped into two categories: the benefit that may arise to an individual at some point in the future, and the benefits that others might derive now and in the future. Non-use benefits are very difficult to quantify and thus are typically ignored in ROI studies.

One large-scale survey in Norway found that citizens are cognizant of the different value components when asked to assess the value of a public library. Respondents indicated that forty percent of total value is motivated by direct use value, twenty percent by the option for the respondent to use the library in the future, and the final forty percent by the benefits that others may derive now or in the future.
Library Assets

One can also consider a library from the point of view of its assets. A physical asset, also called a tangible asset, is something that has exchange value. Obviously, the value of a library’s collection must be viewed as an asset. The cost of acquiring, organizing, maintaining, and providing access to a library’s collections year after year is a very expensive proposition. This is especially true for academic libraries: as much as eighty percent or more of a library’s budget is spent on collection-related activities. And yet, as circumstances change, the perceived value of a library’s collection is increasingly being devalued, and libraries are re-purposing space by moving some portion of a collection to an automated storage-and-retrieval system or to an on- or off-campus storage facility.

Every organization has valuable assets that are not physical. Consider, for example, how an organization’s employees convert physical assets into new goods or services that generate revenues (in the for-profit sector) or are considered valuable based on their use (in the not-for-profit sector). These valuable assets are called intangible assets. Investors clearly value intangible assets. Consider the very large market valuation of Google (calculated by multiplying the current stock price with the total number of issued shares). Subtracting the value of Google’s physical assets (real estate, buildings, computer systems, software patents, and so forth) from the market valuation reveals a very large value for Google’s intangible assets.

Robert Kaplan and David Norton divide intangible assets into three broad categories: human capital, information capital, and organizational capital. Using similar categories, Petros Kostagiolas and Stefanos Asonitis have written about intangible assets for academic libraries.

- **Human Capital.** Human capital focuses on whether employees have the right kind and level of skills to perform the necessary processes for the library. Human capital can change jobs, resign, choose not to share information and knowledge, and sometimes fall ill. Typically the approach taken is to determine what competencies are needed now and will be needed in the short-term future and compare these competencies with current staff capabilities. Larry Nash White has written about possible strategies for assessing human capital in libraries.

- **Information Capital.** Information capital concerns the library’s information systems (integrated library system, document management system, repository, and so forth), electronic databases, networks, and technology infrastructure. The capabilities and limitations of both transaction-processing systems and analytical applications, if any, can be assessed.

- **Organizational Capital.** Organizational capital typically focuses on four attributes: culture, leadership, alignment, and teamwork. A strong organizational culture is one in which the employees have internalized the mission, vision, and values needed to execute the organization’s strategy. Leadership at all levels is focused on achieving the organization’s goals. Activities of each individual, team, and department are aligned to reach strategic objectives. Sharing information across the entire organization encourages teamwork.

Any asset, regardless of the type of organization, is of little or no value unless it is
applied and used to generate positive organizational outcomes. In the for-profit world, both tangible and intangible assets are used to generate revenues and profits. In the government and non-profit arenas, the assets are used to generate results or outcomes that are articulated in the organization’s mission and vision statements. The goal for any library is to have its assets—facilities, collections, services, and staff—used so as to afford beneficial outcomes in the life of the user.

Going Forward

Despite all of the talk that we live in an Information Society, funding decision-makers often see libraries and information services as dispensable when they make budget cuts, often significant cuts. These funding decision-makers do not understand the value of the library and its services. It is therefore incumbent upon libraries to devote the resources needed to document the evidence of the value of the library. What evidence is needed?

Every library should be looking at the utility of the information service and the impact the information service has on the undergraduate student, faculty member, or researcher. This means that the library should be more actively embracing assessment that focuses on outcomes. And outcomes-based library assessment means that the library must partner with others on campus, so that the library can combine its own data with other campus outcomes data—numeric and otherwise.

The encouraging news is that in addition to the research conducted by the UK Library Data Impact project, the Hong Kong Baptist University, the University of Wollongong, and Georgia State University mentioned previously, libraries large (the University of Minnesota) and small (Hope College in Michigan) and in-between (the University of Wyoming) have been working on research projects to demonstrate the relationship between the use of library collections and services and student success (as measured by higher grade point averages and retention measures). This shows that an academic library, collaborating with other units on campus, can conduct its own research to identify the impact of the library in the lives of students, faculty, and researchers. The end result, hopefully, will turn the current trickle of research into a stream of reports demonstrating the positive impact of using the library and its services.

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Notes

Valuing Information, Information Services, and the Library