Turning Data into Information:
Details behind Telling the Library Valuation Story

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*Our **goal** is to learn to turn current data into information that will change management's mind about the value and performance of our libraries and to share ideas for making better quantitative and qualitative cases for our libraries. We will also define what additional data is needed.*

Introductions: Why are we here and what data did we bring?

Key Tools and Concepts:
- Logic Models
- Cost-Benefit Analysis
- Return on Investment (ROI) and Social Return on Investment (SROI)

What does *value* and *valuation* mean?

> "The term "value" and "valuation" and their cognates and compounds are used in a confused and confusing but widespread way in our contemporary culture, not only in economics and philosophy but also and especially in other social sciences and humanities. Their meaning was once relatively clear and their use limited. "Value" meant the worth of a thing, and "valuation" meant an estimate of its worth."
> The Encyclopedia of Philosophy, edited by Paul Edwards, Vol. 8, p.229, 1967.

What makes a library **great**
1. "Great libraries provide measurably superior service. The greatest innovation is superior service. The most constant measure of quality is the delivery of superior service.
2. Great libraries have great funding.
3. Great libraries train and retrain their staffs. (5% not 1% or less)
4. Great libraries integrate the marketing of virtual, place and outreach services.
5. Great libraries serve both the weakest and the strongest among their constituents.
6. Great libraries provide constituents with education and entertainment.
7. Great libraries use virtual tools to offer a full range of timely information and services."

> Glenn Holt. What Makes a Library Great?
> in The Library Leadership Network Commons
> September 8, 2005
> http://www.libraryleadership.net/print/Holt0905p.html

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Logic Models

"Basically, a logic model is a systematic and visual way to present and share your understanding of the relationships among the resources you have to operate your program, the activities you plan, and the changes or results you hope to achieve".

Logic Model Development Guide: Using Logic Models to Bring Together Planning, Evaluation, and Action, updated January 2004, page 9.
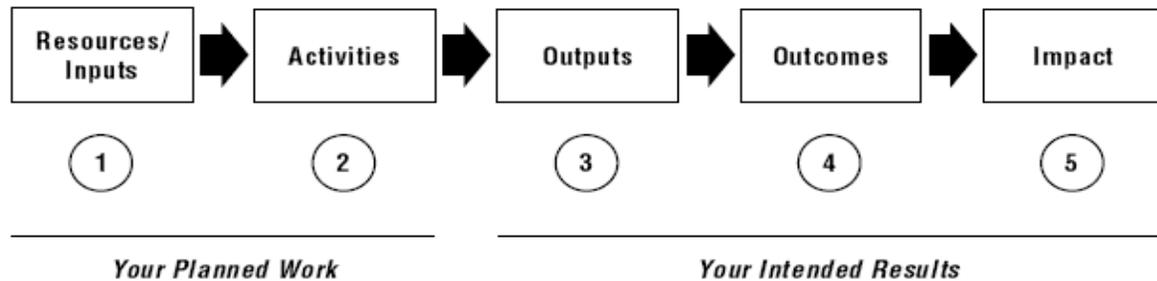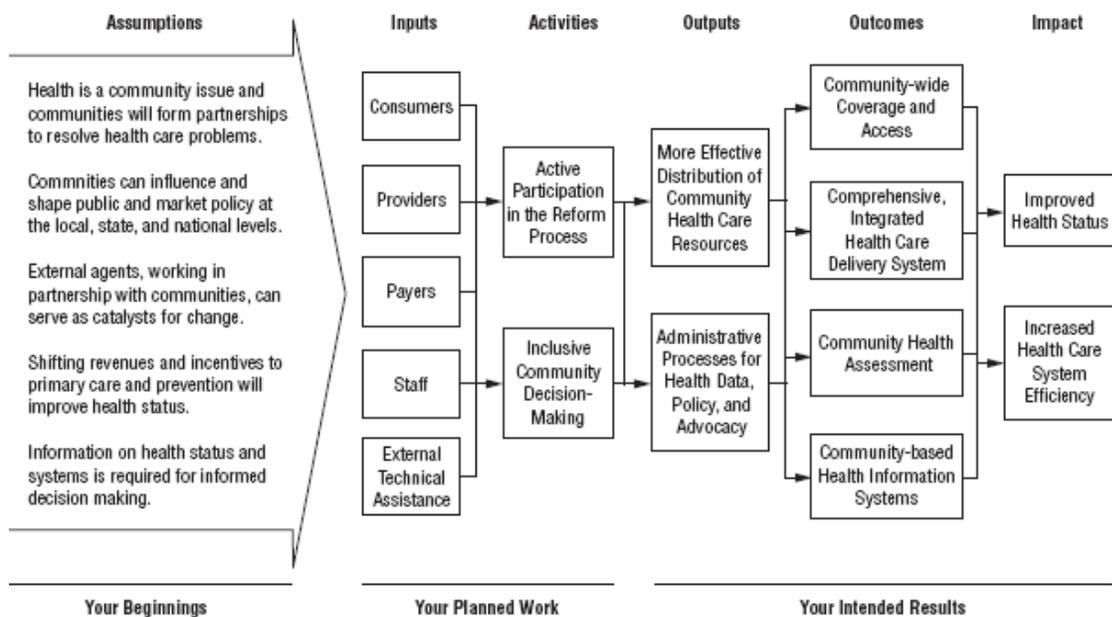http://www.wkkf.org/Pubs/Tools/Evaluation/Pub3669.pdf

Figure 1. The Basic Logic Model.

An Example

<u>"There is no best logic model."</u>

W.K. Kellogg Foundation: Evaluation Handbook, 1998
http://www.wkkf.org/Pubs/Tools/Evaluation/Pub770.pdf

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Your Application

Develop a logic model with the person next to you. Use all six of the elements on a real situation in your current library environment.

1. Assumptions
2. Inputs
3. Activities
4. Outputs
5. Outcomes
6. Impact

See the example titled 'Logic Model: Value of Electronic Databases and Journals' on the single sheet. Use the back side for your logic model. The main headings are listed across the top.

Cost-Benefit Analysis

S. R. Ranganathan's five laws of librarianship are:

1. Books are for use.
2. Every reader his book.
3. Every book its reader.
4. Save the time of the reader.
5. The library is a growing organism.

"Cost/Benefit Analysis - Detailed evaluation of the costs and benefits of selected alternatives identified during the alternatives analysis. Includes costs of current and projected operations as a baseline for (1) determining which alternative to select for automation and (2) measuring costs and benefits of the implemented and operational system over time. Costs are normally expressed in dollars, but benefits may be expressed in dollars or in other quantitative (such as time reduction) or qualitative (such as improved security) measures. Cost/benefit analysis determines the most cost-effective solution, not simply the least cost solution. Can be included as part of the Feasibility Study or Alternatives Analysis - or stand as a separate document."

US Department of Health & Human Services - Glossary
http://www.acf.hhs.gov/programs/cb/systems/sacwis/cbaguide/appendixb.htm

US Department of Health & Human Services
Feasibility, Alternatives, and Cost/Benefit Analysis Guide (text book) 1993
http://www.acf.hhs.gov/programs/cb/systems/sacwis/cbaguide/index.htm

Elliott, Donald S., Glen E. Holt, Sterling W. Hayden, and Leslie Edmonds Holt. *Measuring Your Library's Value: How to Do a Cost-Benefit Analysis for Your Public Library.* American Library Association, 2007.

Connecticut, Department of Information Technology – *Cost/Benefit Analysis Tools* 3/8/2007
http://www.ct.gov/doit/cwp/view.asp?a=2297&q=332998

Massachusetts Library Association – *Library Use Valuation Calculator* (2004?)
http://www.masslib.org/LibraryValue.html

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Building on the logic model *Value of Electronic Databases and Journals* we will add some costs and benefits.

Basic Algorithms:

U x T x S = V
(Recorded **U**se) x (**T**ime Saved) x (**S**alary) = **V**alue of the time saved in dollars

The electronic journal part: $U_J \times T_P \times S_R = V_J$
The online database part: $U_D \times T_P \times S_R = V_D$
The value part: $V_J + V_D = V$

Where:
U_J is online **use** of a **journal** or group of journals
U_D is online **use** of a **database** or group of databases
S_R is the **saving** in dollars based on time saved for each rate of pay
V_J is the **value** of a journal or group of journals used
V_D is the **value** of a database or groups of databases used
V is the **value** in dollars from the services provided

U = Use	T = Time Saved	S = Salary (hourly rate)	V= Value
	in parts of an hour	$60 per hour	
100	0.25	$60	$1500

[100 x .25 = 25]   [25 x 60 = 1500]

Definitions

➢ **Online journals use** is the number of down loaded articles – the total number of downloaded HTML, pdf, other print formats.
➢ **Online database use** is the number of searches. (Build a data dictionary!)

Assumption

➢ Downloading or printing an article directly enables reading just as going to the library to obtain an article in a printed volume and photo copying the article.
➢ Researchers, scientists, policy analysis, administrators, IT staff members, and many others, need and use desktop access to licensed online databases and electronic journals to perform their duties.
➢ Current and historical research findings and data are critical to decision making at all levels of government.
➢ Journals: Time to and from one's office to the library and obtain the needed article and time to use a photocopier is conservatively estimated at 20 minutes - one third of an hour.
➢ Databases: If online databases were not available to researchers, scientists, policy analysts and others, they would need to phone and/or email colleagues who have access to database or go to a location where there is access or by some other means discover sufficient information (bibliographic) to obtain the journal article, technical report, or

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other information package. The time saved by having desktop access to online databases is conservatively estimated at 30 minutes per search.

➤ The following are assumptions used to determine a base hourly rate of pay
  o 2080 possible work hours per year (40 hours x 52 weeks = 2080 hours)
  o 2080 base hours worked adding in 10 paid holidays (40 x 50 = 2000 hours)
  o 1840 base hours with 15 days of vacation and 5 days of sick leave taken (40 x 46 = 1840 hours)

Annual Hours Worked: 1840			90,000/1840 = 48.91	
		Annual		Hourly
		Rates		Rates
	Base Rate 1	$	90,000.00	$ 48.91
	Base Rate 1+25%	$	112,500.00	$ 61.14
	Base Rate 2	$	120,000.00	$ 65.22
	Base Rate 2+25%	$	150,000.00	$ 81.52

An Example of Valuations of Electronic Journals and Database

Introduction:

This project is to addresses two basic questions.

➤ What are the levels of use made of the electronic resources offered by Library?
➤ What are the estimated cost savings, if any from the use of these electronic resources?

Definitions:

➤ *Article Requests:* number of articles printed or downloaded
➤ *Accesses:* Total number of accesses to titles lists, volumes, issues, tables of content, etc.

Assumptions:

The value of professional time-saved can be estimated and valued. Time saved by staff using electronic library resources will be estimated at *conservative levels*. The salary ranges per hour are provided at $50 and $75 for direct costs only.

The levels of use measured are from the electronic library vendors. Where possible we are using data collected according to national standards for reporting electronic use of library services.

Articles can be purchased for an average of $25.00 each.

Valuations of Electronic Journals and Database Use for Last year 2007

Service Providers	Usage	Dollar Value at $50 per hour	Dollar Value at $75 per hour	Notes
		15 minutes = $12.50	15 minutes = $18.75	
CSA Databases Accesses	164,093	$ 2,051,163	$ 3,076,744	
MGA Accesses	11,152	$ 139,400	$ 209,100	
Web of Science Accesses	14,464	$ 180,800	$ 271,200	

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JSTOR-Article Requests	54,622	$ 1,365,550	$ 1,365,550	Valued at $25 each
JSTOR-Accesses	131,149	$ 1,639,363	$ 2,459,044	
BioOne-Article Requests	6,958	$ 173,950	$ 173,950	Valued at $25 each
BioOne-Accesses	19,313	$ 241,413	$ 362,119	
Wiley-Article Requests	4,903	$ 122,575	$ 122,575	Valued at $25 each
Wiley-Accesses	84,112	$ 1,051,400	$ 1,577,100	
Science Direct-Article Requests	6,087	$ 152,175	$ 152,175	Valued at $25 each
Science Direct-Sessions	5,235	$ 65,438	$ 98,156	One session equals many acce
AMS-Article Requests	12,830	$ 320,750	$ 320,750	Valued at $25 each
AMS -Accesses	56,841	$ 710,513	$ 1,065,769	
Nature-Articles Requests	5,137	$ 128,425	$ 128,425	Valued at $25 each
Nature-Accesses	23,274	$ 290,925	$ 436,388	
Science-Article Requests	4,286	$ 107,150	$ 107,150	Valued at $25 each
NetLibrary E-Book Accesses	3,714	$ 92,850	$ 139,275	Time saved by not going to the
Total		$ 8,833,838	$ 12,065,469	
If costs were $1,000,000 ROI would equal		1:8.8 ~ 1:9	1:12	
If costs were $2,000,000 ROI would equal		1:4.4	1:6	

Return on Investment (ROI) and Social Return on Investment (SROI)

Roger Strouse. Demonstrating Value and Return on Investment: The Ongoing Imperative.
Information Outlook, March, 2003.
http://findarticles.com/p/articles/mi_m0FWE/is_3_7/ai_99011610
"Suggested ROI Metrics"
1. Time saved by library users
2. The money users save by using the library instead of alternative sources
3. Revenue generated with the assistance of the library

Judy Luther
University Investment in the Library: What's the Return? (A case study at the University of Illinois at Urbana-Champaign) 2008 Elsevier, Library Connect, White Paper 1.
http://libraryconnect.elsevier.com/whitepapers/0108/lcwp0101.pdf

Worth Their Weight
www.actforlibraries.org/pdf/**WorthTheirWeight**.pdf

Carnegie Library of Pittsburgh
http://www.clpgh.org/about/economicimpact/

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Problem with "contingent valuation method (CVM) is researchers have been unable to explain in any definitive way the persistently observed difference between WTA and WTP measures." *Valuing Environmental Goods: An Assessment of the Contingent Valuation Method*, by R.G. Cummings, D,S. Brookshire, and W. D. Schulze.1986.

Social Return on Investment (SROI)

"SROI is a quantitative measurement of how effectively an organization uses its capital and other resources to generate value for society."   http://sroi.london.edu/glossary.html

Alison Lingane and Sara Olsen
Guidelines for Social Return on Investment
California Management Review 46(3)116-135, Spring 2004

"TABLE 1. The Standard for Social Return on Investment Analysis

Construction
- Guideline 1. Include both positive and negative impacts in the assessment.
- Guideline 2. Consider impacts made by and on all stakeholders, including those inside the company itself, before deciding which are significant enough to be included in the assessment.
- Guideline 3. Include only impacts that are clearly and directly attributable to the company's activities. Be conservative with leaps of faith and don't take credit for more than your organization can realistically affect.
- Guideline 4. Avoid double counting the value (financial and social) created by the company and avoid using market valuations of social impacts where they do not reflect full costs and benefits.

Content
- Guideline 5. In industries or geographic areas in which impacts would be created by the existence of any business, do not count these impacts. The SROI should describe what makes the company different from a standard venture in the industry (i.e., from its competition).
- Certainty
- Guideline 6. Only monetize impacts if it is logical given the context of the impact, business, or industry.
- Guideline 7. Put numeric metrics into context (e.g., this period versus last period, this company versus similar companies) to give the social return on investment meaning.

Certainty
- Guideline 8. Address risk factors affecting the SROI in the assumptions and carefully consider and document the choice of discount rate for social cash flows.
- Guideline 9. Carry out a sensitivity analysis to identify key factors influencing projected outcomes.

Continuity
- Guideline 10. Include ongoing tracking of social impact." Page 120

Steps in the calculation of SROI for a fictional company by Olsen see
http://www.ventures.yale.edu/docs/Olsen_Handout.pdf

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Additional Selected References

Aabø, Svanhild and Strand, Jon. *Public Library Valuation, Nonuse Values, and Altruistic Motivations*. Library and Information Science Research 26(2004)351-372.

Arrow, Kenneth et al. *Report of the NOAA Panel on Contingent Valuation*. [NOAA] 1993. see
http://www.darrp.noaa.gov/library/pdf/cvblue.pdf
Or search the NOAA Central Library's catalog http://www.lib.noaa.gov/ for the author and title

Breedlove, Joseph. RL30242: *Natural Resources: Assessing Nonmarket Values through Contingent Valuation*. June 21, 1999.
http://www.ncseonline.org/nle/crsreports/natural/nrgen-24.cfm

Chang, Hye-Kyung. *The Contingent Valuation Method in Public Libraries*. Journal of Librarianship and Information Science, 40(2)71-80, June 2008.

E-Metrics Instructional System
http://www.ii.fsu.edu/EMIS/

NCES Comparison Tool for Academic Libraries
http://nces.ed.gov/surveys/libraries/compare/index.asp?LibraryType=Academic

NOAA Coastal Services Center
http://www.csc.noaa.gov/mpass/tools_nonmarket.html
see:
- ➢ Nonmarket Valuation Tools
- ➢ Contingent Valuation

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