The Library as Strategic Investment:
The University of Illinois "Return on Investment" Study From the Director's
Perspective

Paula Kaufman
University Librarian and Dean of Libraries
University of Illinois at Urbana-Champaign
ptk@illinois.edu

Introduction
It is a great honor to be invited to speak with you today, and a great pleasure to talk
with colleague directors about the value that our libraries contribute to our institutions.
We all know that our libraries add value to the teaching, scholarship, and outreach
activities of our faculty and students. But, not everyone seems to know this. Moreover,
not everyone may be convinced of it through the same argument or through use of the
same type of data. The "value" of the library, like so many things, lies in the eye of the
beholder. And so the data and arguments we present on campus will vary, as do so
many other things, with the audience we're addressing.

Across the globe, libraries of all types face the challenge of demonstrating their value in
an environment shaped by increasing calls for accountability and decreasing resources
for libraries. I will talk today about one approach to meeting this challenge: articulating
the "return on investment," or "ROI," that accrues to a university when it invests in its
library. While the specific metric that we chose to identify at the University of Illinois at
Urbana-Champaign – the contribution made by library resources to successful
applications for grant funding – may not have relevance for your library, I believe the
process we undertook and the role of the library director in ensuring the success of the
process, is relevant in any setting.

I must begin today by acknowledging that we at Illinois are fortunate to be part of an
institution that has always recognized the value of its library. Funding a library collection
was one of the first topics addressed at an 1867 meeting of the Trustees of the newly-
established "Illinois Industrial University." Illinois is proud of its tradition of excellence in
library services and collections, but no amount of pride or tradition is enough to shield
us from trends in the information and higher education environments that demand that

we do a better job of demonstrating our value to University administrators, students, scholars, and the state of Illinois.

Allow me to remind you of two of these information trends. The first comes from OCLC's 2005 international study *Perceptions of Libraries and Information Resources*: "The library brand is books." By this, we understand that few of our users are aware of the full scope of the resources and services that we provide, and, thus, they do not appreciate our full value. The second is: "Why do we need the library when everything is on the Internet?"

Every library faces the challenge of demonstrating its value in the Information Age, but the metric to which each library must attend is different. Clearly, we are all looking for ways to demonstrate our value to the institutions that help to fund us, and to do so in measures that matter to the leadership of those institutions. I hope you will find my experience informative and useful.

Global Trends, Local Context
In order to appreciate the choices we made in designing our study of "Library ROI," it will help to spend a few moments describing my institution and the ways in which the issues we face are representative of broader trends.

The University of Illinois at Urbana-Champaign is the largest of the 3 campuses of the University of Illinois system. With over 40,000 students and almost 3,000 faculty members, we are the state's flagship university – its very best. Our presence is magnified by our historic mission as a land-grant institution. The term "land-grant" derives from the grants of land that our federal government made beginning in the 1860's to establish in every state institutions of higher education that would be accessible to people from all socio-economic groups. Without going into detail, let me simply say that the "Land-Grant Idea" is considered by many to be one of the great American contributions to higher education – a commitment to strengthen the country's economy and its democratic values, but also to ensure that these institutions would engage in teaching, research, and outreach activities relevant to the needs of the state and the nation. As a land-grant institution, Illinois has developed programs and services that benefited over 2,000,000 state residents in 2007-08. At the same time, its faculty received almost $500,000,000 (U.S.) in funding for research in science and engineering. While one might expect these figures alone to demonstrate the value of the institution to the state, this is not the case.

Public support for higher education in the U.S. has declined over the past quarter century. At Illinois, nearly half of our budget came from state funding in 1980; today, that figure has declined to less than 17%. Like other institutions of higher education, we have been forced to meet the funding gap caused by a combination of declining state support and increasing costs through research grants, donations from individuals, and increases in tuition and fees. Increases in what students pay, more familiar to private

institutions in the U.S. than to public ones, reflect both increased needs for public funds to support health care, public safety, and primary and secondary education and a broader change in public perceptions of higher education away from seeing higher education as a public good.

Declining public support – financial and political – for higher education, and concomitant increases to tuition costs, have contributed to several of the major change drivers in higher education identified in 2006 by the Council of Higher Education Management Associations, including: 1) insufficient financial resources; 2) changing student demographics; 3) rising service expectations; and 4) demands to demonstrate outcomes, which is also referred to as the call for "accountability." While the CHEMA report was focused on the U.S., several of the issues it highlights are global in scope; perhaps none so much as the demand for accountability.

Although "accountability," like the broader concept of "value," is not unique to the academic environment it is fairly newly applied. Academic libraries increasingly are under pressure to demonstrate their contribution to specific outcomes embraced by their institutions. To do so, we must identify new value metrics, replace traditional reports of comparative inputs with reports of outcomes and impact, and demonstrate the benefits that accrue to institutions that support their libraries.

In the academic context, the library must represent a "competitive advantage" – a resource that draws students and faculty to its programs in a highly competitive higher education environment. Thus, it is important to demonstrate that investment in the library yields a "return" that contributes to the strategic goals of the institution. At Illinois, those goals include increasing the resources received through extra-mural funding and successful recruitment and retention of leading scholars and researchers on our faculty. With those goals in mind, let me turn now to the design and results of our study, in which we chose to ask a deceptively simple question as a first step toward exploring the value of the University's investment in the Library: what is the contribution made to successful applications for extra-mural funding by access to scholarly, digital content?

Designing the Illinois ROI Study
Our study began with discussions during Spring 2006 between Elsevier and a number of librarians of the idea of finding a "formula" that would show the return on a university's investment in its library. Dr. Carol Tenopir, Professor of Information Sciences at the University of Tennessee at Knoxville, a prolific and renowned researcher, was recruited as an advisor to the project. As a member of Elsevier's North American Library Advisory Board, I had the opportunity to volunteer Illinois as the site for the study, which I did with alacrity.

Following a standard Request for Proposal (RFP) process, Elsevier contracted with Judy Luther of Informed Strategies to conduct the research. From the first, the project

benefited from strong collaboration among Informed Strategies, Illinois, and Dr. Tenopir. As project funder, Elsevier representatives sat in on discussions of the research plan, and offered advice and support when asked.

With research beginning in January, 2007, the goals of the study were simple, at least in concept: to document "hard data" demonstrating return on investment, and to develop a formula that could be applied at other institutions in order to demonstrate library value using metrics of universal relevance within the academic community. Our goal was a formula that would solve for the following variable: "For every dollar invested by the University in the library, the University received x dollars in return." Venturing into what we believed to be uncharted waters with this project, we did not seek to develop a predictive model; instead, we sought to base this formula on real figures, including actual expenditures on library resources and actual funds received by the University from external agencies.   And we knew that we would have no benchmarks or comparative data to tell us how the ROI we calculated stacked up against peer institutions.

Our work began in earnest in March, 2007, with a discussion between researchers and University administrators, including Provost Linda Katehi, Vice Chancellor for Research Chip Zukoski, Bob Easter, Dean of the College of Agriculture, Consumer, & Environmental Sciences, and Karen Schmidt, who served as Acting University Library during 2006-07, when I was serving as Illinois' Interim Chief Information Officer. As you can imagine, this was a critical meeting, but one that was very difficult to arrange. In addition to scheduling problems, I had to convince everyone but Provost Katehi, whom as my supervisor I had already discussed the study, of the importance of the project. The purpose of this discussion was to understand each administrator's perspective on the question of the value of the library for the research enterprise. Reflecting some of the broader trends in higher education noted earlier, these administrators emphasized that the University must foster teaching and research in new fields, support and strengthen interdisciplinary work, explore new sources of financial support, pursue efficiencies in all we do, and connect with the broader communities of the state, the nation, and the world.

Dr. Zukoski focused our attention on the impact of the research being done on campus. He referred to the "fame" that successful researchers bring to the University, and the role that both successful researchers and their fame play in attracting new researchers to campus (who, in turn, bring new fame to the campus, and maintain this cycle). Ultimately, he suggested, the University Administration is committed to hiring and retaining the best. That resonated loudly with me, because the relationship between the library and this administrative priority dates back at least a century, when the University president declared that the best way to recruit and retain excellent faculty members to a campus set among the corn and soybean fields of the American Midwest was to build a world-class research library.

This discussion was critical to the design of our study, as it highlighted two key points:

- our study must establish a relationship between the Library and strategic concerns of the University that could be expressed in quantifiable terms so as to allow benchmarking and comparison with peer institutions; and

- our study must be designed to elicit support from University administrators, and thus ensure the administration viewed the Library as a strategic asset to the campus.

And so we decided that the clearest way to address these points was to focus on the relationship between investment in Library resources and the resources that accrued to the University through their use. Within the Illinois context, and keeping Dr. Zukoski's idea of the importance of acclaimed research to the campus in mind, we considered whether a relationship could be established between Library resources and extra-mural funding. Put simply, could a link be established between the availability of Library resources on campus and successful grant proposals; could success in obtaining grant funding demonstrate the return on the University's investment in its Library?

With this question in mind, one of our consultants turned to an Illinois economist to validate the methodology of the study, and it was here that we learned another critical lesson of research design: always be clear about the goals of your study, especially if you are asking about money. Our economist interpreted our request as the first step in an argument by which the Library would seek to "claim" a percentage of grant funds generated on campus for its own budget. We lost this colleague as a resource for the study, but we learned to articulate precisely what our study was, and was not.

As we came to describe it on campus, the ROI study was:

- *Not* a means of claiming a new revenue stream for the Library
- *Not* a budget argument
- *Not* a cost or time-saving exercise

Rather, the goals of the study were to:

- Demonstrate that the Library and its research collections contribute to income-generating activities essential to our campus
- Quantify the return on the University's investment in its Library
- Highlight the Library's role in the extra-mural funding process on campus
- Demonstrate "correlation" between the Library and grant activities, rather than attempt to prove "cause and effect."

Finally, we learned to highlight an assumption of the study that I have mentioned earlier: we were seeking to conduct *ex post facto* research on data representing recent grant activity on campus, not to develop a "predictive" model. We wanted to explore the return on completed investments, rather than to suggest that we could predict how much would accrue to the University as the result of future investments – grantsmanship is more an art in the United States than it is a science, and we did not wish to promise more than we could deliver! Some of my librarians still don't understand this and to this day they talk behind my back about my unwillingness to request lots more money by promising a 4-to-1 return.

Constructing the Study
As I noted earlier, there is considerable research going on around the world on the question of documenting "library value." We believe our study has broken new ground, however, in establishing an ROI formula that can be applied across a variety of academic and research institutions. I will spend the remainder of my time today describing our approach so that you can determine how it might be applied in your libraries.

Keeping in mind our local environment – in which the majority of grant activity is in the fields of science and engineering – we began with what we knew about access to information in those fields. We knew that scientific literature began moving from print to electronic formats in the mid-1990s, and libraries initiated what would become radical changes in their information access strategy by investing in digital access to scholarly content. Our use data show that our researchers, like users around the world, took to accessing materials online in great numbers. We also knew that access to information is critical to the grant-getting process, as grant proposals routinely include a substantial number of citations to previous research. Given that the vast majority of the books, journals, and primary-source research materials available on our campus are made accessible through the Library, and that an immense amount of digital content has become accessible through our Gateway and other resource discovery tools – we felt safe in assuming that many grant proposals are materially assisted by the citations to materials made available to researchers by the Library.

We also consulted research on the impact of digital access to content, more broadly, on the work of researchers. For example, an earlier study sponsored by Outsell, Inc., a leading market research company that covers the global information industry, had

documented that the research environment had been transformed by the increases in digital access to content that occurred in the early years of this century. Advances in digital access to scholarship between 2001 and 2005 had resulted in significant gains in both efficiency and productivity among researchers, with those in science and engineering, in particular, gaining additional time for analysis of results by reducing the time required to identify relevant resources and retrieve them by hand.

Developing the Model
As I have noted, successful grant activity results in new resources being directed to campus by external agencies. It also helps to recruit and retain the best faculty members, especially in critical areas of global competition. Successful grant proposals typically include substantial discussions of the previous literature. Digital access to the literature facilitates the most efficient use of researchers' time – allowing them to substitute time they would have spent gathering information for time they can spend in making the best case to the external agency to fund their research. Given this background, we formulated the following argument:

1. Investment in e-resources leads to increased productivity among researchers.

2. Increased productivity leads to more grant applications, as well as to increased scholarly output and citations.

3. Each of these leads, in turn, to more grants being awarded to campus researchers, which establishes the environment most conducive to recruiting and retaining excellent faculty. This fulfils the goals that Dr. Zukowski articulated: to enhance the prestige of the campus and our faculty.

Despite the recent interest in studies of library value, it was really difficult to find an existing research model that could be modified to address the needs of our environment. Following an extensive literature review, we focused on two reports, both published in 2007, that examine the social and economic benefits that public libraries bring to their communities.

Worth Their Weight: An Assessment of the Evolving Field of Library Valuation presents an overview of library value assessment methods, as well as a summary of the results of 17 public library studies. These studies confirmed that by using econometric tools, such as cost/benefit analysis, contingent valuation, and secondary economic impact analysis, public libraries can demonstrate a financial benefit, such as the impact of library employment and library spending, to the communities that fund them. Although the report did not demonstrate a methodology directly applicable to academic libraries, it contributed to our thinking about our ROI study and offered some ideas about how we might proceed with complementary studies in the future. *Making Cities Stronger: Public Library Contributions to Local Economic Development* argues that public libraries are institutions essential to cities seeking to remain competitive in the global information

economy. This study offered a way of thinking about how to position the academic library as an asset to its parent institution.

Two studies cited in *Worth Their Weight*, one conducted in Florida in 2004, and the other in Ohio in 2005, offered ROI calculations. Another ROI calculator, currently being beta-tested by Colorado's Library Research Service, was also located. While useful for background information, none of these models – all of which focused on the public library – met our need. One study, for example, calculated ROI based on the projected cost of not having a library, while another calculated ROI based on the value of materials circulated, rather than on a broader view of the value of resources made accessible through the library. Neither of these approaches reflect the academic environment..

We also considered multiple approaches to this study, including statistical analysis, productivity measures, behavioral modeling, and contingent valuation, but concluded that none of these methods would deliver a single ROI figure based on a relatively straightforward calculation – the kind of calculation needed to make the study useful for its stated purposes. Our review of multiple research methods was valuable, however, as several of the approaches considered may be useful in future phases of this project. In the end, we turned to Roger Strouse of Outsell, Inc, and his work on valuing corporate libraries as a starting point for developing our own model.

Strouse demonstrated an approach to the study of "value" that relied on user survey data and calculated income generated with the use of library resources. Strouse's survey of corporate library users revealed the percentage of respondents who stated that the library played a role in their revenue-generating activities, as well as the percentage of those who actually generated revenue using library resources. Strouse then constructed a formula that allowed him to calculate the average amount of revenue generated per library use. Using the Strouse formula as our base, we constructed a parallel model for the academic library environment. To do this, we needed to identify the data we would need and the best individuals or offices on campus from which to draw it. This turned out not to be as easy as we thought it would be. And, as you've probably guessed, the whole process was taking much longer than we had originally anticipated.

Our team made several decisions about which data to use from the available pool. First, we had to identify our participant pool, and ultimately chose to include only tenure-system faculty in our study, as these are the people who generate 95% of the grants awarded to Illinois. Second, we had to identify the longitudinal scope of the study. We wanted to include data for the past decade, but this proved impossible owing to one year of "bad" data related to the installation of a new tracking system in 2004. Our proposed longitudinal scope also proved unfeasible owing to the limitations of library-related systems, in this case the COUNTER system used to track use of electronic serials. COUNTER is simply too new, and its use has not been consistent enough over the past decade to allow us to gather appropriate data for all years originally proposed. As both

library and campus data management systems become more stable and consistent, we should be able to pursue future studies without these limitations. Finally, we had to decide which library budget figure to use to represent University investment: the materials budget (as we originally planned), or the total budget for the library? Owing to the fact that the entire library infrastructure, including personnel, facilities, and technology, are critical to the processes that allow us to acquire content and make it accessible to our users, and to the fact that the data we routinely collect for reporting to the Association of Research Libraries does not distinguish between different formats of scholarly literature, we decided that the more prudent course would be to use the total library budget as our measure of institutional investment.

At this point, we had established the parameters of our study, and had embraced a research model based on user survey. It is to that survey that I turn now.

User Perceptions of Library Value
Based on the decisions just noted, I distributed an online survey to over 2,000 faculty members on September 12, 2007. The survey instrument focused on user perceptions of the role the library plays in the research and grant-seeking activities, and included a variety of item types, including multiple-choice and free-text responses. We received 328 responses to the survey for response rate of 16%. Respondents represented a range of academic disciplines, as well as a representative distribution of faculty ranks and time on campus. University rules prevented Elsevier from offering an I-Phone to one lucky participant; instead, all participants received a gift card to a popular coffee shop. I had a personal email message from only one faculty member, who was concerned that the study was funded by Elsevier. One out of 2000 isn't bad!

Almost 95% of respondents concluded that citations to scholarly literature were important, even essential, to their grant-seeking activities. Almost 75% of respondents stated that over three-quarters of the citations they included in their grant applications were accessed through the library. Survey items related to the use of scholarly literature in the grant process engaged most respondents, with over 90% including free-text comments on this topic. Other survey items probed the scope of the literature reviewed by our faculty: for every citation used in a grant application, we found that faculty read 4-5 additional items, and scanned dozens of abstracts. The overall picture is one in which our users made use of a wide array of information resources, selected those most germane to their needs, and recognized that the ability to access these resources through the library was critical to their professional success.

While our library has long provided access to a wide variety of materials, the survey demonstrated the impact made by enhanced digital access. Echoing Tenopir's earlier study of researchers in the sciences, over 80% of respondents identified one or more of the following ways in which digital access has had a positive impact on their work:

- Digital access allows them to dedicate less time to physical visits to the library;

- Digital access allows scholarly information to be better integrated into their research workflow; and

- Digital access and discovery tools allow them to make better use of literature in interdisciplinary and emergent fields of study.

In addition to demonstrating the impact of investment in library resources on the grant-seeking process, the survey demonstrated the impact that libraries can have on fostering efficiencies and promoting interdisciplinary research. Each of these represents strategic goals for our campus.

Determining the ROI

Satisfied with the results of the survey, the team took data collected from all sources and entered them into our ROI calculator using the fiscal year 2006 as our example. Here is the model that I showed you earlier with the Illinois data inserted. All amounts are in U.S. dollars.

- Over 78% of tenure-system faculty holding grants in 2006 used citations to the scholarly literature in their proposals.

- Over 50% of grants awarded to our campus came from proposals that included citations to materials accessed through the library.

- The average grant income at Illinois is approximately $64,000.

- Using those numbers in our formula, we arrive at an average amount of grant income generated through the use of library resources of just over $25,000.

- Multiply this average amount of grant income by the number of grants awarded in 2006 at Illinois, and divide that number by the total library budget during that year, and you arrive at an ROI of **$4.38** for every dollar invested in the library.

Here are the calculations used in the model. By factoring survey responses into this equation, we did not assume that all grant proposals use references, nor that all references used come from the library, nor that citations to scholarly literature are essential to the success of all grant proposals. The result is a model that takes into account the way our users tell us they make use of library resources in their work, as well as the widely differentiated landscape of grant funding.

It is also worth noting again that we used the total library budget and not just the materials budget, or the serials budget, in calculating the ROI. This ensures that the model takes into account costs such as network infrastructure, personnel, and other

"overhead" activities that enable electronic access for campus researchers. If we had used the materials budget in our calculation, rather than the total budget, the ROI would have been approximately **$12**.

Finally, to ensure the validity of these results, we asked Dr. Bruce Kingma of Syracuse University for an independent assessment of the research methodology. In addition to validating the model, Dr. Kingma provided a number of useful insights into how this study could be expanded, including through including other universities, considering other benefits the library brings to the University, and developing a predictive model that might demonstrate what impact additional investments might have on research (or other) activities.

Returning to that initial meeting we had with administrators, this study demonstrates the value that investment in the library brings to campus priorities. The survey, especially, suggested the degree to which a strong library contributes to the goal of recruiting and retaining excellent faculty; as one responded noted: "I would leave this university in a microsecond if the library deteriorated." Comments like this one were also prominent in a series of campus-wide discussions that we facilitated at Illinois over the past year on the future of library services, but that is a subject for another talk! And you can be sure that University administrators saw these comments along with the numerical results.

Next Steps
So, where do we go from here? This study focused on one institution and one year, and I have noted some of the suggestions that Dr. Kingma had for future research. It seems to me that there are several opportunities for us to learn more about how to construct a robust and reliable statement of the return on the University's investment in its library.

For example, the Illinois study focused on a single institution, but applying the ROI calculator to multiple institutions would allow us to identify trends and establish benchmarks. Comparative research might also allow us to identify institutional factors, including organizational culture, that contribute to an enhanced ROI. Elsevier has already begun to recruit additional institutions interested in pursuing this line of research, both within the U.S., and around the world.

The Illinois study also focused on a single data point: library contribution to the generation of grant funds. We should expand the scope of revenue-generating activities considered to include patents and technology-transfer programs, as well as other relevant revenue streams. Likewise, we should explore how ROI studies focused on revenue generation may complement the much more complex studies of library contribution to student learning outcomes, civic engagement, and campus relations with local, state, national, and international communities. As I have said before, determining the value of the library to the institution is a complicated problem; the Illinois ROI study is just one step in the right direction.

It has been an honor to talk with you today. I appreciate your time and attention, and would be pleased to try to answer any questions you may have or to engage in discussion about any of the points in my talk.

Thank you very much.

Selected Bibliography

1. Association of Research Libraries (2006). *Monograph and Serial Expenditures in ARL Libraries, 1986-2006.* Accessed February 3, 2008, from http://www.arl.org/bm~doc/monser06.pdf

2. Burke, J. (2007, November). *The OPAC is dead: Long live the OPAC!* Speech presented at the Charleston Conference, Charleston, SC. Accessed February 2, 2008, from http://video.google.com/videoplay?docid=-301108486774122652

3. Counting Online Usage of Networked Electronic Resources. (2006). *Release 1 of the COUNTER code of practice for books and reference works.* Accessed February 20, 2008, from http://www.projectcounter.org/code_practice.html

4. Counting Online Usage of Networked Electronic Resources. (2005). *Release 2 of the COUNTER code of Practice for Journals and Databases.* Accessed February 20, 2008, from http://www.projectcounter.org/code_practice.html

5. Davis, P. M. (2003). Effect of the Web on undergraduate citation behavior: Guiding student scholarship in a networked age. *portal: Libraries and the Academy 3*(1), 41-51.

6. Griffiths, J.-M., King, D. W., Tomer, C., Lynch, T., & Harrington, J. (2004). *Taxpayer return on investment in Florida Public Libraries: Summary report.* Accessed February 2, 2008, from http://dlis.dos.state.fl.us/bld/roi/pdfs/ROISummaryReport.pdf

7. Griffiths, J.-M. & King, D. W. (1993). *Special libraries: Increasing the information edge.* Washington, D.C.: Special Libraries Association.

8. Jones, D. Y. (2007). How much do the "best" colleges spend on libraries? *College and Research Libraries 68*(4), 343-351.

9. Levin, Driscoll, & Fleeter, Inc. (2006). *Value for money: Southwestern Ohio's return from investment in public libraries.* Accessed January 30, 2008, from http://9libraries.info/docs/EconomicBenefitsStudy.pdf

10. Library Research Service (2007). *Return in investment for public libraries.* Accessed February 21, 2008, from http://www.lrs.org/public/roi/

11. Luther, J. (2008). *University investment in the library: What's the return? A case study at the University of Illinois at Urbana-Champaign.* San Diego: Elsevier.

12. Mezick, E. M. (2007). Return on investment: Libraries and student retention. *The

Journal of Academic Librarianship 33(5), 561-566.

13. Nicholas, D., Huntington, P., & Watkinson, A. (2005). Scholarly journal usage: The results of deep log analysis. *Journal of Documentation 61*(2), 248-280.

14. OCLC. *Perceptions of Libraries and Information Resources*. Dublin, OH, 2005.

15. Special Libraries Association. (1997). *Enhancing Competitiveness in the Information Age.* Washington D.C.: Special Libraries Association.

16. Strouse, R. (2003). Demonstrating value and return on investment: The ongoing imperative - Assessing your library's value statement. *Information Outlook* (March), 14-19.

17. Tenopir, C. & King, D. W. (2007). Perceptions of value and value beyond perceptions: Measuring the quality and value of journal article readings. *Serials 20*(3), 199-207.

18. Tenopir, C., et al. (2007). MaxData: A project to help librarians maximize E-journal usage data. In *Usage Statistics of E-Serials,* David C. Fowler, Ed. Binghamton, NY: Haworth Press, pp. 59-82.

19. Tenopir, C., et al. (2007). What does usage data tell us about our users? In *Proceedings of the Online Information 2007 Conference* December 4-6, London: Incisive Media, pp. 80-86.

20. Tenopir, C. & King, D. W. (2000). *Towards electronic journals: Realities for scientists, librarians, and publishers.* Washington, D.C.: Special Libraries Association.

21. Urban Libraries Council. (2007). *Making cities stronger: Public library contributions to local economic development.* Accessed February 13, 2008, from http://www.urbanlibraries.org/files/making_cities_stronger.pdf