REFERENCES

www.arl.org/stats/newmeas/newmeas.html
The Web site of the ARL New Measures Initiative provides information on the activities of the ARL Statistics and Measurement Committee. Among other projects and activities, the site includes information on the ARL E-Metrics, a project devoted to measures for electronic resources.

Association of Research Libraries. “Measures for Electronic Resources (E-Metrics).”
www.arl.org/stats/newmeas/emetrics/index.html
This Web site describes activities of the E-Metrics initiative of the Association of Research Libraries. The site includes links to press releases, articles from the ARL Bimonthly Report (a newsletter of ARL), and links to related resources.

www.onlinemag.net/OL2000/bauer1.html
In this feature article from Online, Bauer provides a basic tutorial on the basics of Web server logs and some of the software applications that are available for their analysis.

www.ala.org/acrl/resjan01.html
Bauer provides basic information about the basics of Web server logs, some of the software applications available for their analysis, and general statistical analysis software. Measurement of electronic resources and ongoing initiatives in this area are briefly described.

www.ill.fsu.edu/Projects/ILMLS/interim.report.may2001.pdf
This report discusses public libraries and their need to provide standard statistical measures for their network-based systems, especially how local libraries report the characteristics of their electronic services to their state agencies. Reporting should make a transition from being purely about traditional services to including measures of the electronic components of the library.

This book by three recognized experts in the field of library measurement and assessment provides strategies and practical guidelines that public libraries can follow to measure and assess the quality of their network-based services.


This article describes the DeLIVER project at the University of Illinois, and experimental test bed of 50 scientific and technical journals, focusing on how accessibility issues may provide barriers to the access of this material.

Borghuis, M. G. “What To Count & What Not?” a white paper on the filters to be applied to a Web-server log file before usage-analysis and reporting can start. (Sept. 20, 2000)

This paper, authored by the general manager for end user and library research, describes many of the complications related to producing reliable use statistics from Web server logs. Many items in the logs need to be filtered out, including graphics and other support files. Duplicate page requests from the same IP address within a short time generally indicate the use of the Refresh button or Back button, and do not represent an actual new use. Some technical problems, such as downloading PDF files with certain browsers can also result in duplicate entries in the logs. The practices described in the paper, though identified for use for Science Direct, are considered applicable for most Web-based environments. The paper appears on the restricted Elsevier Science Direct Web site.


The process of managing the electronic resources, with the need to track details regarding contracts, licenses, subscriptions, authentication arrangements, budgets, and the like, has grown in complexity as well as volume as libraries have increased their electronic collections. This task cries out for a standard approach, and this site is devoted to the process of defining a structure for administrative metadata that can be applied to electronic resources to facilitate their management.


This major report studies the issues and practices for measuring the use of electronic resources and assessing usability. The content of the report describes best practices established in libraries involved with digital library initiatives, based on interviews with 71 people. Section 3 focuses on “Usage Studies of Electronic Resources” including a thorough treatment of transaction log analysis.


As summarized on the Web site itself: “This Working Group is aimed at developing a consensus on an appropriate set of metrics to evaluate and compare the effectiveness of digital libraries and component technologies in a distributed environment. Initial emphasis will be on (a) information discovery with a human in the loop, and (b) retrieval in a heterogeneous world.” Much of the information on this Web site is related to a workshop held on June 27, 1998.
www.pla.org/publications/technotes/technotes_electronicstats.html
This online article, geared toward public libraries, provides a basic introduction to gathering statistics on electronic resources.

http://equinox.dcu.ie
The project was active from November 1998 through November 2000. The group worked to develop a set of performance indicators that present a set of measurements for electronically provided services equivalent to earlier benchmarks established for traditional library services. The project identified a set of 14 performance indicators.

This paper describes use patterns experienced by an academic based on availability of a broad range of articles made available through a study on journal pricing options. The option tested was one where all journal articles from Elsevier were made available electronically, including those for which the library did not own the print version. The library purchased tokens in advance for access to the collection, which represent each article accessed by a Vanderbilt user. Additional uses of each article were then possible without consuming a token.

http://InformationR.net/ir/7-1/paper120.html
The author presents a study of articles published in the field of information science, showing the growth of titles published electronically and detailing other characteristics in the sample group.

www.library.yale.edu/consortia/2001webstats.htm
This document issued by OCLC has had gained general acceptance as the primary statement of what type of use statistics that libraries expect to receive from information services providers (ISPs). Though OCLC relied on earlier efforts, such as those by the JSTOR committee on electronic statistics, their work has become the basis for other related initiatives and has been adopted by many information providers.

JSTOR Web Statistics Task Force.
www.calstate.edu/SEIR/usge.stat.req.shtml
This Web site describes the work of the JSTOR Web Statistics Task Force, which formulated a set of statistics that libraries need about how the electronic resources that they subscribe to are used. This important work was part of the foundation of other efforts such as OCLC and the ARL E-Metrics initiative.

This paper describes performance measurements with the DLib Test Suite, a selected group of digital library resources. The group is working toward quantitative measurements related to the effectiveness of digital libraries.

This article looks at ways libraries are assessing their network-based resources. Lippincott describes efforts at the University of Washington, Virginia Tech, Gettysburg College, and King’s College, London.

The report examines why obtaining statistics on electronic journal usage is difficult and reveals librarians’ and publishers’ concerns with respect to the generation of usage statistics. The paper suggests a context for further discussion between the providers and consumers of electronic journals.

www.arl.org/stats/program/mclure.html
This paper is a preliminary discussion that identifies some of the issues related to statistics and performance measures of electronic resources and services in ARL libraries.

As summarized by the publisher: “As information services and resources are made available in the global networked environment, there is a critical need to evaluate their usefulness, impact, cost, and effectiveness. This new book brings together an introduction and overview of evaluation techniques and methods, information policy issues and initiatives, and other critical issues related to the evaluation of networked information services.”

This research proposal is related to Phase III of the ARL E-Metrics initiative, describing the need to study and explore ways to measure the impact of libraries on institutional outcomes of their parent universities.

istweb.syr.edu/~mcclure/network/toc.html

www.library.ucsb.edu/istl/00-winter/article1.html

Abstract provided with the article: “Much has been written on issues pertaining to licensing and archiving of digital information. Until recently, there has not been enough information to evaluate how these digital products, particularly journals, are being used. Furthermore, meaningful data are often difficult to obtain as some publishers and vendors supply little or no data or only information they feel supports the purchase of their products. As it becomes increasingly difficult to afford all digital content, librarians must be able to measure digital use of e-journals and books in order to make the best purchasing decisions for their institutions. Librarians must develop their own solutions as well as solutions in collaboration with publishers so that better evaluation of digital content use can occur.”


www.arl.org/stats/newmeas/emetrics/miller-schmidt.pdf

This keynote presentation, given at the 4th Northumbria International Conference on Performance Measurement in Libraries and Information Services, defines some key problems and concerns with the lack of use information about electronic resources and services, and it describes some major initiatives that are working in this area. Miller and Schmidt chair the ARL E-Metrics initiative.


www.nclis.gov/libraries/lsp/statist.html

This page gathers information about the Library Statistics Program, a joint effort of the National Commission on Libraries and Information Services and National Center for Education Statistics. The site includes documents related to the work of the committee, as well as links to literature in the field and to Web sites of other agencies, committees, and organizations doing similar work. The project is directed by Denise M. Davis, and the site includes many of her conference presentations.

Nielson, Jakob. Useit.com—usable information technology.

www.useit.com

Jakob Nielson, one of the top experts in Web site usability, provides a wealth of materials related to this topic on his Web site. The site has a section of current news on the topic, links to articles, reports, and conferences. Information about Nielson’s books and consulting services is available. One section provides links to articles that have been published, mostly in the popular press, based on interviews of Nielson.


www.usagesstats.org

The Web site describes the efforts of the JISC Publishers and Libraries Solutions working group, which is working toward developing a set of practices that enable information providers to produce a consistent
format for use statistics that can be provided to libraries.

Ryan, Joe (compiler). Library Statistics and Measures
http://web.syr.edu/~jryan/inforpro/stats.html
Joe Ryan, a consultant in the area of information management and in
the evaluation of network-based resources, provides this compilation
of links to resources related to the topic of library statistics and
measures. Materials are organized by categories of: general resources,
by library type, by organization, by regions, and by topic.

Shim, Wonsik; McClure, Charles R.; Fraser, Bruce T.; Bertot, John Carlo. “Data
Collection Manual for Academic and Research Library Network Statistics and
Performance Measures.” Association of Research Libraries. (December 2001)
www.arl.org/stats/newmeas/emetrics/phase3/
ARL_EMetrics_Data_Collection_Manual.pdf
This manual, developed as part of Phase III of the ARL E-Metrics
initiative, provides as an instructional guide for collecting and inter-
preting statistical measures. As summarized in the preface: “This
manual provides definitions, data collection procedures, and discusses
related issues pertaining to interpreting and using there commended
statistics and measures. The definitions and procedures were derived
from a month of field-testing at more than a dozen ARL libraries. The
statistic and performance measures represent a minimum set of data
that need to be collected continually and used. Individual libraries
will need to develop local procedures to support data collection
activities within the guidelines of this manual. However, readers need
to recognize that the statistics and measures will be refined and
extended continually in the future. PowerPoint instructional modules
to accompany this manual are available from ARL.”

Shim, Wonsik; McClure, Charles R.; Bertot, John Carlo. “Data Gathering
www.arl.org/newsltr/213/data.html
This article provides a preliminary view of the findings of Phase I of
the ARL E-Metrics initiative. This phase studied practices already in
place in ARL libraries for “developing statistics and performance
measures to describe use, users, and uses of electronic and networked
information services and resources.” The authors describe some of the
goals defined for the second phase of the study.

Shim, Wonsik; McClure, Charles R.; Bertot, John Carlo; Dagli, Arif; Leahy,
Emily H. “Measures and Statistics For Research Library Networked Services:
Procedures and Issues, ARL E-Metrics Phase II Report.” Association of Re-
search Libraries. (October 2001)
www.arl.org/stats/newmeas/emetrics/phase2.pdf
This Phase II report of the ARL E-Metrics initiative makes recommen-
dations of statistics and performance measures that would be benefi-
cial for libraries to develop related to the use of their electronic
resources and services. The report makes recommendations on devel-
oping statistics that characterize the libraries holdings of electronic
resources, their use, expenditures on the content and infrastructure of
electronic resources and digital library initiatives. Performance mea-
sures include those that compare the various electronic resources and
services with their traditional counterparts.

This article provides a summary of the Phase II report of the ARL E-Metrics initiative. Includes tables that summarize the findings of the statistical measures recommended in the report.


This white paper outlines changes in libraries’ increased reliance on electronic materials and services and the need to develop new statistics and measures accordingly. This paper represents preliminary activity leading to the major report by this author (Denise Troll Covey) published in 2002 by CLIR.


Abstract provided by the publisher: “Most electronic journals are now Web-based. This paper introduces the method of WWW server log file analysis and its application to evaluating electronic journal services and in monitoring their usage. Following a short description on the method and its possible application, the main results of a study of WWW server log file analysis of the electronic journal ‘Review of Information Science’ will be presented and discussed. Finally, several concluding remarks will be given.”
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