Electronic Resource Management and Evaluation: Taking Foreign Electronic Journals of Shanghai University of Finance and Economics Library as an Example (Post-Print)

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Abstract

[Purpose/Significance] To address the lack of efficient, accurate, and practical statistical methods, tools, and empirical research for usage statistics and effectiveness evaluation of electronic resources in academic libraries, this study explores methods for dynamic management and assessment of electronic resources by exemplifying the practice of managing and evaluating foreign-language e-journals through the Electronic Resource Utilization Performance Analysis Platform (ERS), providing a reference for libraries in collecting and managing utilization and evaluation data of electronic resources. [Method/Process] This paper primarily discusses the basic functions and workflow of electronic resource management and analysis systems based on server-side COUNTER report data, and examines methods for electronic resource management and evaluation through the case of Shanghai University of Finance and Economics Library's utilization of ERS for resource management, citation analysis, core and subject resource analysis, and database assessment of foreign-language e-journals. [Results/Conclusion] Based on the statistical analysis practice of foreign-language e-journals at Shanghai University of Finance and Economics Library, it is found that utilizing an electronic resource management and analysis platform based on COUNTER report data can provide decision support for library resource procurement and in-depth resource discovery for subject services, demonstrating certain feasibility and practicality.

Full Text

Preamble

Domestic scholars have applied various evaluation models and methods to library electronic resource assessment, including BP neural network models

[5], triangular fuzzy theory combined with linear weighting methods [6], exploratory factor analysis and regression analysis [7], analytic hierarchy processes [8], entropy-weighted TOPSIS methods [9], expert scoring methods [10], network analysis methods [11], fuzzy multi-attribute decision-making methods [12], balanced scorecards [13], usage-cost evaluation methods [14], and qualitative-quantitative combined approaches [15]. These build upon an indicator system covering six aspects: functionality, usage, value and cost accounting, publisher/database vendor services, and archiving. However, these products suffer from insufficient analytical capabilities, with some systems unable to statistically analyze content overlap across various electronic journal databases [19].

Consequently, current practice requires libraries to either conduct secondary development of usage statistics modules in electronic resource management systems or next-generation library service platforms, or to employ independent electronic resource usage statistical analysis systems to achieve comprehensive and accurate analysis of electronic resource statistics.

In practice, libraries both domestically and internationally have begun utilizing network monitoring data or database vendor server-side COUNTER report data for electronic resource usage statistical analysis. While many articles discuss the application of network monitoring technology in electronic resource usage statistics, few comprehensively introduce electronic resource usage statistical analysis systems based on database vendor server-side COUNTER report data. Domestic research on electronic resource performance evaluation remains largely theoretical, providing only evaluation indicators, models, and methods for electronic journal databases without persuasive empirical research findings or practical systems/platforms, thus lacking utility for libraries.

1.2 Development of Electronic Resource Management Systems

As early as 2001, American libraries and library consortia began independently developing Electronic Resource Management Systems (ERMS), such as GoldRush by the Colorado Alliance of Research Libraries, HERMES by Johns Hopkins University, and E-Matrix by North Carolina State University Library. Between 2002 and 2004, the Digital Library Federation (DLF) and the National Information Standards Organization (NISO) joint working group launched the Electronic Resource Management Initiative (ERMI) [16]. With the flourishing development of commercial electronic resource management systems, mainstream products such as Innovative Interfaces' Innovative ERM, Ex Libris' Verde, and Serials Solutions' 360 Resource Manager were widely adopted in university libraries. Although these products improved librarian efficiency, issues with electronic resource cataloging, license agreement expression, and interoperability meant that electronic resource management systems fell short of expectations in library applications. In recent years, some university libraries have ceased software updates for electronic resource management systems, instead considering next-generation library service platforms (LSP) [17] that pro-

vide unified management of all-media resources and data sharing as replacement solutions.

From the current perspective, replacing electronic resource management systems with next-generation library service platforms will still require time, as these new systems do not simply integrate existing electronic resource management systems but rather redesign workflows and reconsider management of multiple resource formats and interoperability among various systems [18].

2 Basic Functions and Workflow of Electronic Resource Management and Analysis Systems

Electronic resource statistical analysis systems fall into two main categories based on data sources: those utilizing local network monitoring data and those based on database vendor server-side COUNTER report data. Systems using local network monitoring data monitor reader behavior in accessing digital resources to achieve monitoring management and access statistics, employing either bypass monitoring or series monitoring techniques. Bypass monitoring replicates network exit data to a monitoring host's listening network card through shared HUB or mirrored switch port functionality [20], while series monitoring connects proxy servers or monitoring devices in series as gateways or bridges in the network. Due to existing network structure, security, and performance requirements [21], bypass monitoring is more commonly used. However, because this requires simultaneous deployment of software and hardware, and many university campuses have multiple network exits beyond the education network (including China Unicom, China Telecom, etc.), deploying listening devices at all network exits requires active cooperation and support from campus network management departments and other units.

Commonly used systems employing local network monitoring data in Chinese university libraries include the RGS1800 Library Electronic Resource Usage and Statistics System by Shaanxi Chengtai Technology Information Company, the Guanghua Library Electronic Resource Management System (Electric Resource Utilities, ERU) by Shanghai Fudan Guanghua Information Technology Company, and the Tongfang Network Public Opinion Monitoring and Early Warning System by Beijing Tongfang Knowledge Network Company. Some libraries have also independently developed electronic resource usage statistics systems based on open-source network data monitoring applications such as WinPcap and libpcap [22-23]. Shanghai University of Finance and Economics Library deployed the Guanghua Library Electronic Resource Management System ERU 2.0 in 2014, using bypass monitoring technology to collect real data on electronic resource access. However, due to deployment mechanism and scope limitations, ERU 2.0 could only obtain data from on-campus wired networks, unable to capture wireless network or off-campus access traffic. With the rapid development of mobile internet, comprehensive monitoring has become increasingly difficult, and the monitoring technology itself has inherent defects that may result in data packet loss. Therefore, such network monitoring-based systems are

more suitable for libraries that need to monitor malicious usage behavior of key resources.

Electronic resource management and analysis systems based on server-side COUNTER report data are services provided by an online electronic resource usage statistics collection and integration platform based on the SUSHI protocol and COUNTER standard. This platform enables libraries to collect, integrate, analyze, query, and download usage of electronic journals, e-books, and databases in a cross-platform manner to obtain reliable data for procurement decisions [24]. Such systems offer the advantages of being lightweight and easy to deploy, requiring no hardware deployment, with software systems that can be deployed in the cloud. The limitation is that they can only obtain data compliant with the COUNTER standard. As of April 7, 2017, 99 database vendors had complied with the latest COUNTER Release 4, basically covering the most important international database suppliers. Domestically, only China National Knowledge Infrastructure (CNKI) [25] currently provides COUNTER reports. As more database vendors standardize their data, the applicability of such COUNTER report-based electronic resource management and analysis systems will become increasingly widespread.

Currently, mainstream electronic resource management and data analysis tools based on server-side COUNTER report data include 360Counter by ProQuest, ScholarlyStats by MPS, UStat by Ex Libris internationally, and ERS (Electronic Resource Utilization Performance Analysis Platform) by Nanjing Insect Software Company domestically. The basic functions of these products are shown in Table 1 . Among these basic functions, SUSHI automatic harvesting, COUNTER report uploading, and cost analysis are common features of current mainstream products.

The ERS electronic resource utilization performance analysis platform, jointly developed by Nanjing Insect Software Company and Shanghai Jiao Tong University Library, is based on years of research and practice at Shanghai Jiao Tong University Library. Given the actual needs of domestic libraries regarding collection resource utilization benefits, ERS was developed starting in 2013 and completed in October 2014. The platform focuses on two main areas: resource analysis and subject services, currently capable of analyzing foreign-language journals, foreign-language books, and Chinese journals, with the ultimate goal of completing analysis for all resource categories. It is therefore more suitable for libraries with electronic resource utilization performance analysis needs.

The workflow of the ERS electronic resource utilization performance analysis platform is shown in Figure 1 [Figure 1: see original paper]. The platform first performs data cleaning and standardization processing on resource lists, usage statistics, and citation statistics. Libraries can then conduct cross-matching of core bibliographies, bibliometric indicators, and subject classification mappings according to actual needs, generating a series of reports including electronic resource usage reports, citation analysis reports, core resource guarantee rate reports, database evaluation reports, and subject resource guarantee reports.

The foundation for data analysis in the ERS platform is the cleaned and standardized resource lists, usage statistics, and citation statistics. Resource lists for foreign journals and books are sourced from library-provided subscription lists, which undergo data cleaning and standardization based on the Digital Resource Acquisition Alliance (DRAA) group procurement databases and other important database resource lists. Usage statistics, as previously mentioned, originate from database vendor server-side COUNTER reports, which can be automatically harvested via the SUSHI protocol or manually uploaded. Regardless of the method, the system performs standardization processing and aggregation on usage statistics data. Citation statistics are sourced from Web of Science, Scopus, Chinese Social Sciences Citation Index (CSSCI), Chinese Science Citation Database (CSCD), and Chinese S&T Journal Citation Reports.

The core bibliographies and bibliometric indicators used for cross-matching include: for foreign journals, Impact Factor, SNIP (Source Normalized Impact per Paper), SJR (SCImago Journal Rankings), and CiteScore, with source directories including Web of Science, Scopus, JCR, ESI, and EI. For foreign books, Book Citation Index (BkCI), Scopus bibliography lists, and Choice Outstanding Academic Titles from 2009 to present are referenced. Chinese journals reference the Chinese Core Journals Overview, Chinese S&T Journal Citation Reports, CSSCI, and CSCD. Subject classifications mainly include internationally used ESI subjects and JCR subjects, as well as Chinese Ministry of Education discipline categories, first-level disciplines, and second-level disciplines.

The cross-matched data can be correlated and analyzed from multiple dimensions including downloads, publications, citations, and references, enabling high-precision evaluation of core resource guarantee ratios and resource duplication ratios. This generates electronic resource usage reports, citation reports, core resource guarantee reports, subject resource guarantee reports, and database evaluation reports, providing data support not only for analyzing and improving resource guarantees but also for supporting in-depth subject services.

3 Statistical Analysis and Evaluation Practice of Foreign Electronic Journals at Shanghai University of Finance and Economics Library

From the perspectives of cost and utilization, the focus of electronic resource construction in university libraries lies in electronic journals, particularly foreign-language journals as important information sources for academic research. Therefore, comprehensive, systematic, and scientific measurement, analysis, and evaluation of the quantity, quality, and subject relevance of foreign electronic journals are particularly important [26]. In 2017, Shanghai University of Finance and Economics Library introduced the ERS electronic resource utilization performance analysis platform, first deploying foreign electronic journal resources to accurately 统计 the total number of foreign electronic journals, duplicate journals, and net journals. Based on this

foundation, the library can cross-match resource lists, usage statistics, citation statistics, core indicators, and subject classifications according to actual work needs, conducting evaluations and analyses from different dimensions. This allows both overall assessment of core resource and subject resource guarantee rates and utilization rates of foreign electronic journal collections, and analysis of individual databases' guarantee rates for core and subject resources, or identification of high-citation journals without holdings to guide procurement decisions.

3.1 Analysis of Core and Subject Resource Guarantee and Utilization

Based on standardized DRAA group procurement databases and other important database resource lists, the library can accurately 统计 the total number of foreign journals in its collection, the net number after deduplication, the number and proportion of duplicate journals, and current journals, providing references for resource discovery. By matching accurate journal holdings lists with JCR, ESI, SNIP, SJR, and custom core journal directories, the number and proportion of matched core journals in the collection can be determined, making the core guarantee rate immediately clear, as shown in Figure 2 [Figure 2: see original paper].

After macro-level overall analysis of foreign electronic journal holdings, the library can, according to different subject positioning such as top-priority disciplines, key breakthrough disciplines, key cultivation disciplines, key support disciplines, and key concern disciplines, 统计 the number of matched journals, unmatched journals, and journal matching rates according to ESI, JCR, Ministry of Education discipline categories, first-level disciplines, second-level disciplines, and custom disciplines. This analysis reveals subject guarantee rates and subject journals not covered. For example, under the Ministry of Education discipline classification, the economics discipline has 1,973 uncovered journals. Clicking the number "1,973" allows viewing the journal list, exporting detailed journal information, and identifying which databases contain these journals, providing recommendations for additional database subscriptions. Additionally, all Ministry of Education discipline classifications have been mapped to JCR subject classifications, allowing simultaneous viewing of journal quantities and matching rates for discipline categories corresponding to JCR subjects, as shown in Figure 3 [Figure 3: see original paper].

Furthermore, the library can analyze download journals, download volumes, citation journals, citation volumes, citations without holdings, and journal guarantee rates from the perspective of subject resource utilization. Data on journals cited without holdings can further identify journals and databases with demand but not yet subscribed, facilitating the transition from database utilization and discipline construction perspectives to focus on core journals and databases related to various disciplines, achieving comprehensive guarantee of core subject resources and supporting in-depth subject services, as shown in Figure 4 [Figure 4: see original paper].

After understanding the overall journal landscape, the library can also associate downloaded literature, published articles, cited references, and library journal subscription data based on Scopus and Web of Science source data, performing hierarchical aggregation of annual download and citation volumes. This data not only enables analysis of annual download and citation patterns but also reveals high-download journals potentially missing from the collection. For instance, in 2016, Shanghai University of Finance and Economics Library had three journals with over 10,000 downloads, but only two were in the collection. By viewing the journal list, the one high-download journal without holdings could be identified, along with its subject, publisher, and database.

3.2 Database Evaluation and Ordering Strategy Adjustment

Database evaluation can begin by understanding database profiles and uniqueness from the perspective of journal quantities, current journal quantities, unique and duplicate journal quantities and proportions. Database quality can be assessed through the number and proportion of journals indexed in JCR, ESI, SNIP, and SJR. The ERS platform provides detailed statistics on journal quantities and proportions in each JCR quartile from Q1 to Q4. Additionally, database utilization can be examined through annual download volumes, download rankings, proportion of journals with downloads, citation volumes, citation rankings, proportion of journals with citations, cost per download, cost per citation, and download-to-citation ratios. From a subject utilization perspective, the platform can display journal downloads, download volumes, citation journals, and citation volumes corresponding to ESI, JCR, Ministry of Education discipline categories, first-level disciplines, and second-level disciplines, as shown in Figure 5 [Figure 5: see original paper].

In addition to evaluating subscribed databases, libraries can upload journal lists for reader-recommended, under-review, and trial databases to compare against holdings and core resource lists, examining unique journals, holdings duplication, core journal matching rates, and download/citation patterns. This enables evaluation of not only individual databases or recommended journal lists but also comparative analysis of two unsubscribed databases in the same category or one subscribed and one unsubscribed database. Furthermore, denied access and journals cited without holdings serve as important bases for ordering strategy adjustments. By aggregating annual data on the number of journals with denied access, denied access volumes, and citation volumes, the databases containing journals with denied access and citations without holdings can be identified. For example, Shanghai University of Finance and Economics' top three databases with high citations but no holdings in 2016 were APS, Elsevier SD, and OUP, as shown in Figure 6 [Figure 6: see original paper].

When making database subscription decisions, libraries can also utilize the ERS platform to customize comprehensive evaluation and decision models for database procurement. Evaluation indicators such as download cost, citation cost, cost per SNIP, cost per article volume, proportion of unique journals, core

journal matching rate, perpetual access and archiving, faculty needs and user feedback, search interface, and platform functionality can be weighted according to actual conditions. Scores can be assigned based on satisfaction levels and rankings, with weighted calculations producing overall database rankings and scores to assist procurement decision-making.

Conclusion

Electronic resource usage statistics and evaluation have become increasingly important as data sources for library resource construction and subject services, drawing attention from library decision-making and service departments. Recent environmental scanning reports from the Association of College and Research Libraries (ACRL) show that academic libraries are focusing on the contribution of library collections to faculty and students' scientific research and academic achievements, and the degree to which they support institutional strategies, missions, and goals [27]. Collection assessment has become one of the trends in library development [28], and positions for collection assessment, evaluation, analysis, and strategy have become regular library positions [29].

Currently, Shanghai University of Finance and Economics Library has implemented statistical analysis of foreign electronic journals using the ERS electronic resource utilization performance analysis platform. The next step involves deploying foreign books, Chinese journals, Chinese books, and abstract databases to comprehensively manage and evaluate the library's collection resources, launching resource map services, and visually revealing the most subject-relevant resources, database contribution levels, and ESI subject baselines. This will truly achieve positioning and excavation of core resources, support in-depth subject services, and conduct performance analysis of collection resources. Research shows that an institution's full-text download volume has a significant linear correlation with publication volume, doctoral awards, research projects, and funding (R^2Linear = 0.771) [30]. In other words, statistically, discipline development is linearly correlated with literature utilization rate; increased full-text downloads enhance research output, and when download volumes increase by millions, institutional research productivity becomes stronger [30]. This implies that university library collection resource construction plays a crucial role in enhancing institutional research capacity and output. Collection resource management and assessment are foundational, but more importantly, performance analysis of collection resources reveals the relationship between resource guarantee and research performance, helping libraries and institutions understand current research input-output, analyze research potential, predict research trends, and provide decision-making basis and early warnings for discipline development.

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References

[1] Liu Shuang. Research on the Construction of Electronic Resource Performance Evaluation Indicator System in University Libraries [J]. Information Exploration, 2017(4): 6-10. [2] Zhang Jilong, Yin Shenqin, Wang Dongwei. Discussion and Research on Standards Issues in Electronic Resource Usage Statistics Based on COUNTER [J]. Library Theory and Practice, 2016(5): 95-100. [3] Zhao Baoying, Fan Xue. Comparative Analysis of Digital Resource Statistics Standards at Home and Abroad [J]. Library and Information, 2010(6): 39-43, 85. [4] Xiao Long, Zhang Yuhong. Preliminary Study on Establishing an Electronic Resource Evaluation Indicator System [J]. Journal of Academic Libraries, 2002(3): 35-42, 91. [5] Wang Junguang. Exploring the Construction of Electronic Resource Quality Evaluation System in University Libraries—Based on BP Neural Network Model Research [J]. New Century Library, 2017(3): 30-33. [6] He Xiuying, Wang Xiaowen, Hu Cuxia. Research on Performance Evaluation of Electronic Resources in University Libraries Based on Fuzzy Semantic Method [J]. Information Theory and Practice, 2016(2): 113-115. [7] Wang Ying, Guan Liguo. Empirical Study on Electronic Resource Service Performance Evaluation [J]. Science and Technology Management Research, 2014(10): 58-61. [8] Zhou Jingzhen, Zhao Naizeng, Jing Jieqin. Performance Evaluation Study of Digital Resources Introduced by JALIS—Based on Fuzzy Comprehensive Evaluation Analysis [J]. Information Science, 2011(4): 555-559, 562. [9] Qi Chunze. Performance Evaluation of Electronic Resources in University Libraries Based on Entropy-weighted TOPSIS Method [J]. Information Science, 2014(4): 54-57. [10] Liu Jun, Mo Lijiang, Wu Lang, et al. Discussion on the Construction of Comprehensive Evaluation Indicator System for Electronic Resources [J]. Journal of Intelligence, 2010(S1): 135-137. [11] Pu Xiaoge, Qiao Yaming, Hu Yamin. Research on Performance Evaluation Model and Empirical Study of Electronic Resource Services in University Libraries Based on Network Analysis Method [J]. Journal of Academic Libraries, 2014(4): 41-49. [12] He Yuanyuan, Gong Zaiwu. Research on Performance Evalua-

tion of Electronic Resource Services in University Libraries Based on Fuzzy Multi-attribute Decision Making [J]. Information Science, 2011(3): 412-415, 420. [13] Song Jianwei, Ma Lei. Discussion on Library Electronic Resource Performance Evaluation System Based on Balanced Scorecard [J]. Library Work and Research, 2011(6): 48-50. [14] Qin Hong. Case Study on Statistical Analysis of Digital Resource Usage from Decision Support Perspective—Taking University of Electronic Science and Technology Library as an Example [J]. Journal of Academic Libraries, 2013(6): 60-66. [15] Hou Zhenxing. Research on Performance Evaluation of Electronic Journal Databases in University Libraries [J]. Information Science, 2013(2): 45-49. [16] Li Feng, Sun Boyang, Sun Yuanyuan. Research Status of Foreign Electronic Resource Knowledge Bases [J]. Digital Library Forum, 2017(7): 54-60. [17] Li Juan, Zhang Xuelei, Yang Feng. Selection Strategy for Next-Generation Library Service Platforms Based on Empirical Analysis—Taking ALMA, Kuali OLE, OCLC WorldShare, and Sierra as Examples [J]. Library and Information, 2017(3): 84-92. [18] Chen Daqing. Development and Future Considerations of Electronic Resource Management Systems [J]. Journal of Academic Libraries, 2014(3): 74-79. [19] Shi Zeshun, Sun Boyang. Research on Open Source Electronic Resource Management System CORAL [J]. Library and Information Service, 2017(4): 130-137. [20] Wang Zhengjun, Dong Xiaomei, Yu Xiaoyi. Design and Implementation of Digital Resource Evaluation System Based on Bypass Monitoring [J]. Library and Information Service, 2015(9): 52-57, 35. [21] Han Jia. Digital Resource Management Evaluation System Based on User Behavior Analysis [J]. Library Science Research, 2016(3): 19-23. [22] Lu Kang. Research and Implementation of Heterogeneous System Integration for University Libraries Based on Network Monitoring [J]. University Library Work, 2017(4): 68-72. [23] Xu Yandong, Li Yu. Research and Implementation of Network Monitoring System Based on Open Source Software [J]. New Technology of Library and Information Service, 2009(12): 64-68. [24] Liu Fang, Zhu Sha. ScholarlyStats—Online Electronic Resource Usage Statistics Collection and Integration Platform Based on SUSHI Protocol [J]. Journal of Agricultural Library and Information Science, 2010(8): 81-83. [25] An overview of COUNTER compliant audited entities and supported platforms [EB/OL]. [2017-12-20]. https://www.project-counter.org/wp-content/uploads/2017/04/An-overview-of-COUNTER-compliant-audited-entities-and-supported-platforms.csv. [26] Huang Di, Wang Yingying, Peng Jia, et al. Collection Journal Evaluation Based on Scopus Citation Analysis [J]. Library and Information Service Online Journal, 2011(3): 33-37. [27] ACRL Research Planning and Review Committee. Environmental Scan 2015 [EB/OL]. [2017-12-26]. http://www.ala.org/acrl/sites/ala.org.acrl/files/content/publications/whitepapers/EnvironmentalScan15.pdf. [28] ACRL Research Planning and Review Committee. 2016 Top Trends in Academic Libraries [EB/OL]. [2017-12-26]. http://crln.acrl.org/index.php/crlnews/article/download/9505/10797. [29] ACRL Research Planning and Review Committee. Environmental Scan 2017 [EB/OL]. [2017-12-26]. http://www.ala.org/acrl/sites/ala.org.acrl/files/content/publications/whitepapers [30] E-journals: their use, value and impact [EB/OL]. [2017-12-20]. http://www.rin.ac.uk/system/files/attachments/sarah/E-journals-report.pdf.

Abstract: [Purpose/significance] In order to solve the problem of the lack of efficient, accurate and practical statistical methods, tools and empirical research for the use of electronic resources in university libraries, this paper explores the methods of dynamic management and evaluation of collection resources by using the ERS electronic resources utilization performance analysis platform to manage and evaluate the practice of the foreign-language electronic periodicals of Shanghai University of Finance and Economics library. It provides a reference for university libraries to collect and manage the resource utilization and assessment data. [Method/process] This paper mainly discusses the basic function and workflow of the electronic resource management and analysis system based on server-side COUNTER report data, and takes the library of Shanghai University of Finance and Economics using ERS to carry on resource management, citation analysis, core resources and subject resources analysis and database evaluation of the foreign electronic periodicals. [Result/conclusion] Based on the statistical analysis practice of the foreign electronic periodicals of Shanghai University of Finance and Economics, this paper holds that it is feasible and practical to use the electronic resource management and analysis platform based on COUNTER report data to manage and evaluate the electronic resource, and the electronic resource management and analysis platform can provide decision support for the library's resource procurement, and a deep resource disclosure for the subject service.

Keywords: electronic resource management; electronic resource evaluation; COUNTER standard

Note: Figure translations are in progress. See original paper for figures.