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Kimberly R. Abrams

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Abstract: We have now reached a tipping point at which electronic resources comprise more than half of academic library budgets. Because of the increasing work associated with the ever-increasing number of e-resources, there is a trend to distribute work throughout the library even in the presence of an electronic resources department. In 2013, the author conducted a survey of electronic resources managers and the way in which electronic resource management is structured at their institutions. Most models focus on interdepartmental collaboration in order to accomplish the work of managing electronic resources.

Key Words: Electronic Resources, Electronic Resource Management Systems, Library Management

Author Note: Kimberly R. Abrams is an Acquisitions Librarian at Adelphi University.

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Electronic Resource Management and Design

Electronic resources workflows are notoriously difficult for librarians to navigate. In order to successfully organize, manage, and provide access to electronic resources, new workflows must be instated. This occurs on an ad hoc basis, but new workflows work best when there is a long-term strategy. There are basically a few models of electronic resources management. One is the electronic resources department model, in which tasks concerning electronic resources are largely consolidated into an electronic resources department. Just because this electronic resources management (ERM) model is consolidated does not mean that it eschews collaboration. In fact, even in libraries that do have an ERM department, there is coordination with other departments in order to get tasks done such as paying invoices or loading records. Another model is the electronic resources librarian as coordinator. With the coordinator position, the electronic resources librarian works with departments throughout the library to ensure that the management of electronic resources is accomplished. With a coordinator position, communication between all the various groups involved is essential. The last and very common model is the team approach in which libraries have assembled all the staff who work on ERM, no matter what their department or team (Johnson, 2013 p.102). These different models can function well, if they are well-organized and operated.

Literature Review

E-resource workflows require a reimagining of ERM in libraries. Many librarians attempt to modify existing print workflows to manage e-resources, although print workflows are not well-suited to e-resource management (Johnson, 2013, p.101). Often libraries attempt to fit e-resources acquisitions and delivery into the print model because when e-content was first becoming available, libraries had a small fraction of the resources they have today. One of the major flaws in most current models of ERM is that in most libraries “60% of the budget is devoted to electronic resources on average, but only 25% of technical services staff are assigned to work with these resources” (Stachokas, 2009, p.207). A tipping

point has then been reached whereby in many libraries, e-resources require the majority of their materials budgets. In response, libraries have designed a number of workflow arrangements to reflect the changing nature of library materials, but what is nearly universal is the role of collaboration and coordination in workflow management.

The first model of ER librarianship is one in which there exists an integrated ERM department. In this model, ER is usually managed by at least one librarian and least one paraprofessional. However, electronic resources librarians and departments have grown in their assigned responsibilities and, as the greater responsibilities became untenable, the work was redistributed to other departments (Stachokas, 2009, p.206).

Not all libraries have the funds or staffing that allows for an integrated ERM department. In order to function in a hybrid setting in which both digital and analog materials are acquired, Lai-Yang Hsiung states that:

“...nearly everybody in the library ends-up with a role to play in the delivery of digital resources. As a result, some librarians have found that it makes more sense to adopt a distributed support model. Rather than create, maintain, or retain a separate ER unit, they incorporate the management of digital resources into extant print-based workflow and processes. ... This hybrid library staff may not have titles that specifically indicate that they are responsible to handle some aspect of the delivery of ER, but ER responsibilities have become an integral part of their daily work” (Hsiung, 2008, p.36).

In this model, the ERM is fit into the existing print workflow, and the work of ERM is spread throughout the library. For this model to work well, there must be excellent communication because often the people managing e-resources work in different departments, report to different supervisors, and have other demands on their time. It is also interesting that in Hsiung’s (2008) model, the titles of the staff

members do not change. This is problematic because there should be recognition of the hybrid role of these staff members at least through revised job descriptions, if not by hybrid job titles.

Another similar alternative is that of an ERM team in which members that are involved in ER management meet regularly to discuss workflows. At the University of Maryland of Baltimore County (UMBC), “[t]he original electronic resource workflow group is now several workflow groups. ... The same staff often serves on multiple groups within the management system, yet it is important to keep each functional working group module separate to facilitate flexibility and clarity for future needs” (England, 2013, p.220). In this model, the staff collaborates in multiple groups in order to deal with various aspects of ERM. In this arrangement, the communication happens at the group level during regular meetings to keep all apprised of any necessary changes.

Even in an institution where the management of electronic resources is consolidated in a single department, implementation of an ERM system can create a “building-wide awareness of purchasing, implementing, and maintaining of electronic resources” (England, 2013, p.219). Therefore, implementing an ERM system can be an impetus for creating greater awareness of the work it takes to manage electronic resources. Implementing an ERM system can be time-consuming and difficult, therefore:

“...one should carefully consider local conditions, including the tools already in place, prior commitments of staff and other factors, before making major change decisions. Bitterness in the literature about ERMS seems in some cases that local conditions have not always been carefully considered”(Gustafson-Sundell, 2011, p.140).

Staffing is possibly the most important aspect as to whether or not an ERM system will be implemented successfully. Often, the institution’s staffing does not reflect the work that needs to be done in electronic resources. This goes back to the issue of while there is a decreasing print workflow, electronic resources continue to consume a much greater percentage of the library materials budget.

However, it does not appear that staffing has kept up with the staffing needs for ERM. In order to implement an ERM system successfully, a library may need to reorganize technical services through retraining or possibly hiring new personnel dedicated to the management of electronic resources.

Research Methodology

The survey was conducted in October, 2013, using Survey Monkey to discover the various ways in which electronic resources tasks are organized within academic libraries to manage content effectively. It consisted of 20 questions that were designed to discover how the work of ERM is structured in academic libraries. The survey was posted to the following list-servs related to electronic resource management: acqnet-l@lists.ibiblio.org, AUTOCAT@LISTSERV.SYR.EDU, LIBLISCENSE-L@LISTSERV.CRL.EDU, ERIL-L@LISTSERV.BINGHAMTON.EDU, and SERIALST@LIST.UVM.EDU. For many questions, multiple answers were allowed, so many of the percentages of respondents often range above 100%.

In order to ensure that the respondents were all people who manage electronic resources at least some of the time in an academic library, the first question of the survey was designed to filter out respondents who did not fit the parameters of this study. The first question, "As part of your position, do you manage electronic resources or supervise those that do manage electronic resources in an academic library?" deselected survey respondents who did not manage resources in academic libraries. Of the 375 respondents, 32 answered that they do not manage electronic resources in academic libraries and so were not allowed to continue with the survey.

Demographics

The majority of respondents had a degree in LIS with, 277 (85.5%) reporting that they had an advanced MLIS degree and 47 (14.5%) reporting that they do not. The most common "highest" degree held was an MLIS masters with 211 (65.1%) respondents reporting an MLIS as the "highest" degree they had obtained.

The educational requirements for the positions of the respondents revealed that 263 (81.2%) had positions that required an MLIS and 47 (14.5%) had positions that did not require an MLIS. Of the respondents, 14 reported that their position was classified in a way that does not fit the professional/paraprofessional dichotomy and as a requirement for the selection of “Other” was that they describe their position classification. Of the 14 who responded “Other,” eight mentioned that they have faculty status. Two respondents stated that they were either “Head Librarian” or “Head of the Library.” One respondent noted that, “I am professional staff the University. You shouldn’t have to have an MLS to be considered a professional.” Another person commented on their selection as “Other” by describing their position as “Library Administrator III.” (See Table 1)

Table 1. Education obtained by respondents.

Please indicate the highest degree that you hold.		
Answer Options	Response Percent	Response Count
High School or GED	0.6%	2
Undergraduate (2 year associate’s degree or equivalent)	1.2%	4
Undergraduate (4 year Bachelor’s degree)	7.4%	24
Masters (MLIS)	65.1%	211
Masters (other than MLIS)	12.0%	39
PhD/doctorate (MLIS)	0.0%	0
PhD/doctorate (other than MLIS)	4.3%	14
Professional degree (other than MLIS)	2.2%	7
Other (please specify)	7.1%	23
	<i>answered question</i>	324
	<i>skipped question</i>	51

Examining the results

The amount of time spent managing electronic resources varied widely, with 238 (73.5%) of respondents reporting that they spent between 25-75% of their time managing electronic resources.

Only 33 respondents (10.2%) answered that they spent less than 25% of their time managing e-resources and 53 (16.4%) responded that they spend 100% of their time managing electronic resources.

Table 2. Percentage of time spent managing e-resources

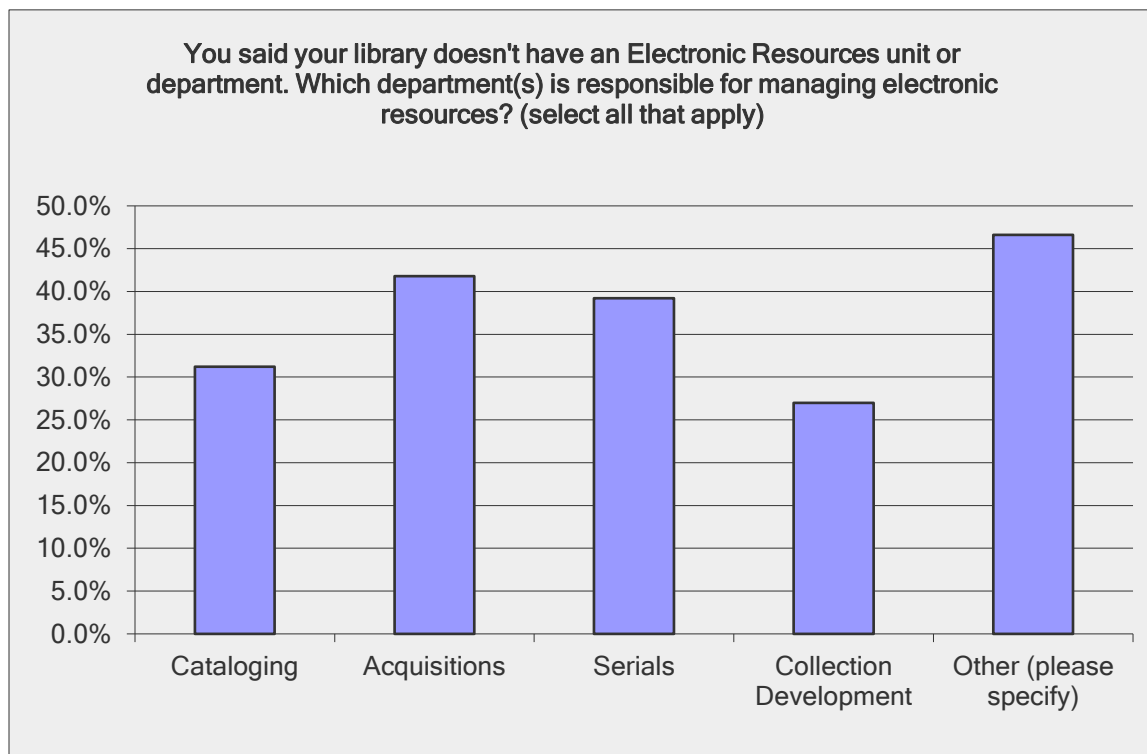
Approximately, what percentage of your time do you spend managing electronic resources?		
Answer Options	Response Percent	Response Count
Less than 25%	10.2%	33
25%	22.2%	72
50%	23.8%	77
75%	27.5%	89
100%	16.4%	53
<i>answered question</i>		324
<i>skipped question</i>		51

When asked the question, “Does your institution have an Electronic Resources department?,” the majority of the respondents stated that they do not have an ER unit or department with 191 (59%) stating they do not have a department and 133 (41%) reporting that they do have an ER department. Whether or not a library has an ER department drastically affects the types of workflows that can be instated. In libraries that did not have an ER department, the duties were usually shared cross-departmentally.

Of the 191 respondents who reported they do not have an ER department, 189 answered the follow-up question about what departments at their library are responsible for managing electronic resources. This question allowed multiple responses, so the numbers are greater than the 189 respondents. Acquisitions and Serials were the two departments that were most reported to manage electronic resources, with 79 (41.8%) stating that acquisitions is responsible for managing electronic resources and 74 (39.2%) for serials. The selection “Other” received the greatest number of selections, suggesting that for most libraries that the management of electronic resources does not fit the

traditional model of library management. Of the 88 (46.6%) “Other” respondents, the most common comment was that the technical services department manages electronic resources (See Figure 1).

Figure 1. Which department(s) is responsible for managing e-resources?



Departmental Responsibilities and Assignments

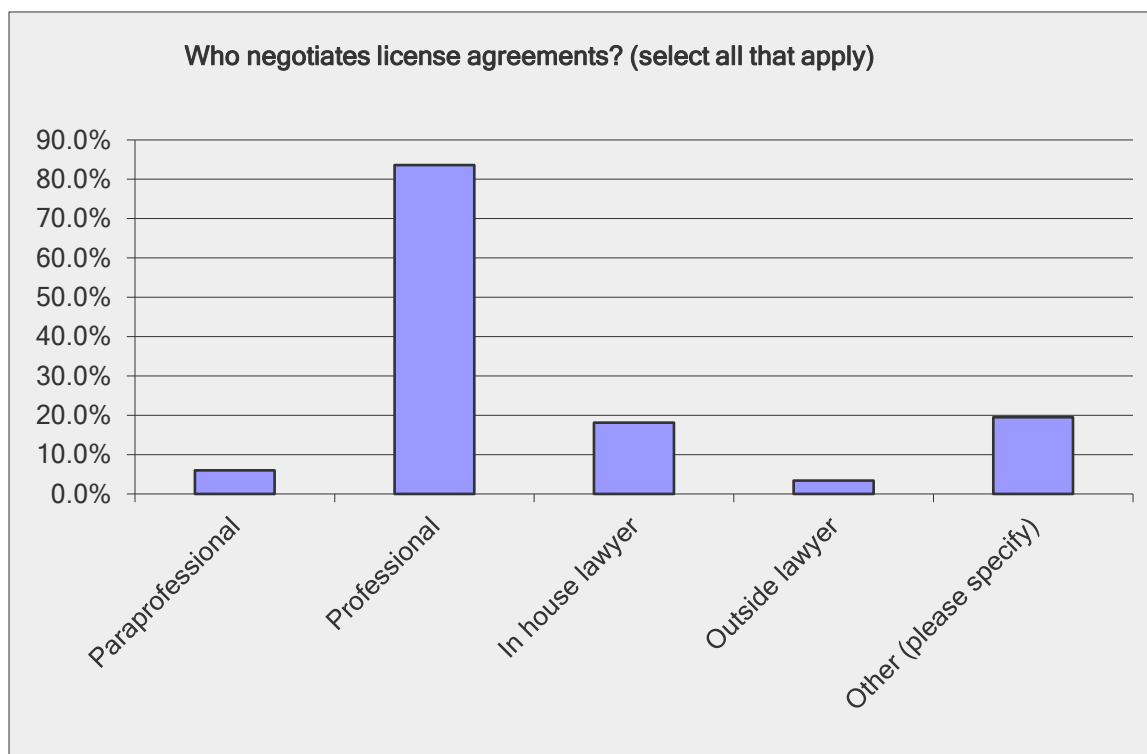
The acquisitions department is most commonly assigned the duties of procuring and paying invoices for electronic resources. Payment was organized within acquisitions for 110 (36.9%) of respondents. The response “Other” accounted for 94 (31.5%) of responses with most being an amalgamation of various departments in the library. Electronic resources departments paid invoices for 35 (12.1%) of respondents, and serials accounted for 33 (11.1%) responses.

Negotiating license agreements was a task overwhelmingly done by professional librarians. Of the respondents, 249 (83.6%) reported that professional librarians negotiate licenses. In-house lawyers

accounted for 54 (18.1%) responses, and outside lawyers accounted for 10 (3.4%) of responses.

Eighteen (6%) responses reported that license negotiation is work done by paraprofessionals. It seems that license negotiation is largely done by librarians who may not have formal training in interpreting legal documents. It is possible that many of these librarians learned how to negotiate licenses on the job (See Figure 2).

Figure 2. Who negotiates license agreements?



While there was a general consensus that professionals do the work of negotiating licenses, the department(s) responsible for this work varied widely, with “Other (please specify)” comprising the majority of responses. The most common response was that license negotiation is done by consortia, so the licenses are not negotiated within the library, but advocacy for favorable terms is bundled with other universities (See Table 3).

Table 3. What department negotiates license agreements?

Answer Options	Response Percent	Response Count
Acquisitions	13.1%	39
Cataloging	0.7%	2
Electronic Resources	20.5%	61
Serials	7.4%	22
Legal	3.4%	10
Collection Development	20.1%	60
Other (please specify)	34.9%	104
<i>answered question</i>		298
<i>skipped question</i>		77

Statistical Gathering and Analysis

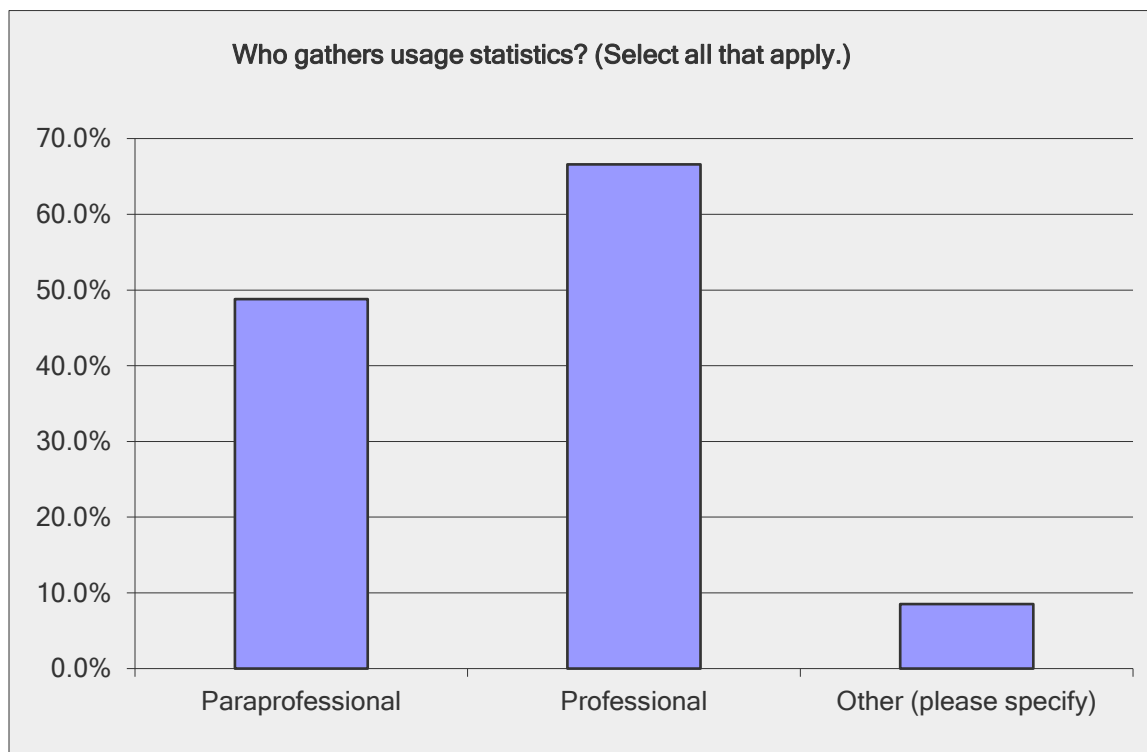
Gathering statistics is work that is done by many different types of departments. While 79 (27%) respondents reported that the electronic resources department was responsible for gathering statistics, another popular answer with 77 (26.3%) of responses was for “Other (please specify)”. The most common answers were that either a combination of departments or that a single individual was responsible for gathering statistics (See Table 4).

Table 4. What department gathers usage statistics?

What department gathers usage statistics?		
Answer Options	Response Percent	Response Count
Acquisitions	11.6%	34
Cataloging	3.1%	9
Electronic Resources	27.0%	79
Serials	10.2%	30
Collection Development	18.8%	55
Reference	3.1%	9
Other (please specify)	26.3%	77
<i>answered question</i>		293
<i>skipped question</i>		82

There still seems to be some ambiguity over whether the gathering of usage statistics is a professional or paraprofessional task. The work of gathering statistics was assigned to paraprofessionals according to 143 (48.8%) of responses. Professionals then accounted for 195 (66.6%) responses. In the “Other (please specify)” comments section, many commented that paraprofessionals do the work of gathering statistics with supervision from a professional. According to three comments, student workers gather statistics at their respective libraries (See Figure 3).

Figure 3. Who gathers usage statistics?



Typically, professional librarians in collection development and/or management analyze usage statistics in order to evaluate how the resources are being used. The work of analyzing statistics is overwhelmingly done by professional librarians, with 270 (92.2%) respondents stating that professional librarians are responsible for analyzing statistics about ER. The work is also done by paraprofessionals in

some libraries with 48 (16.4%) of responses indicating that in some institutions professionals and paraprofessionals are involved in the analysis of ER performance (See Table 5).

Table 5. Who analyzes usage statistics?

Who analyzes usage statistics? (select all that apply)		
Answer Options	Response Percent	Response Count
Paraprofessional	16.4%	48
Professional	92.2%	270
Other (please specify)	6.5%	19
<i>answered question</i>		293
<i>skipped question</i>		82

While it was clear that professionals do the work of analyzing ER statistics, the department assigned responsibility for this task varied. Collection development accounted for 93 (31.7%) of responses and was the most common department that utilized statistics to assess ER. The ER department was the second most department that analyzed e-resource statistics with 59 (20.1%) responses. "Other (please specify)" then also accounted for 79 (27%) of responses. The most common response was that a single person, such as the head of the library, would analyze the statistics and not necessarily a department. Another common approach was a team approach that gathered people from different departments in the library to analyze statistics and evaluate ER usage (See Table 6).

Table 6. What department analyzes usage statistics?

What department analyzes usage statistics?		
Answer Options	Response Percent	Response Count
Acquisitions	6.8%	20
Cataloging	1.4%	4
Electronic Resources	20.1%	59
Serials	7.5%	22
Collection Development	31.7%	93

Reference	5.5%	16
Other (please specify)	27.0%	79
<i>answered question</i>		293
<i>skipped question</i>		82

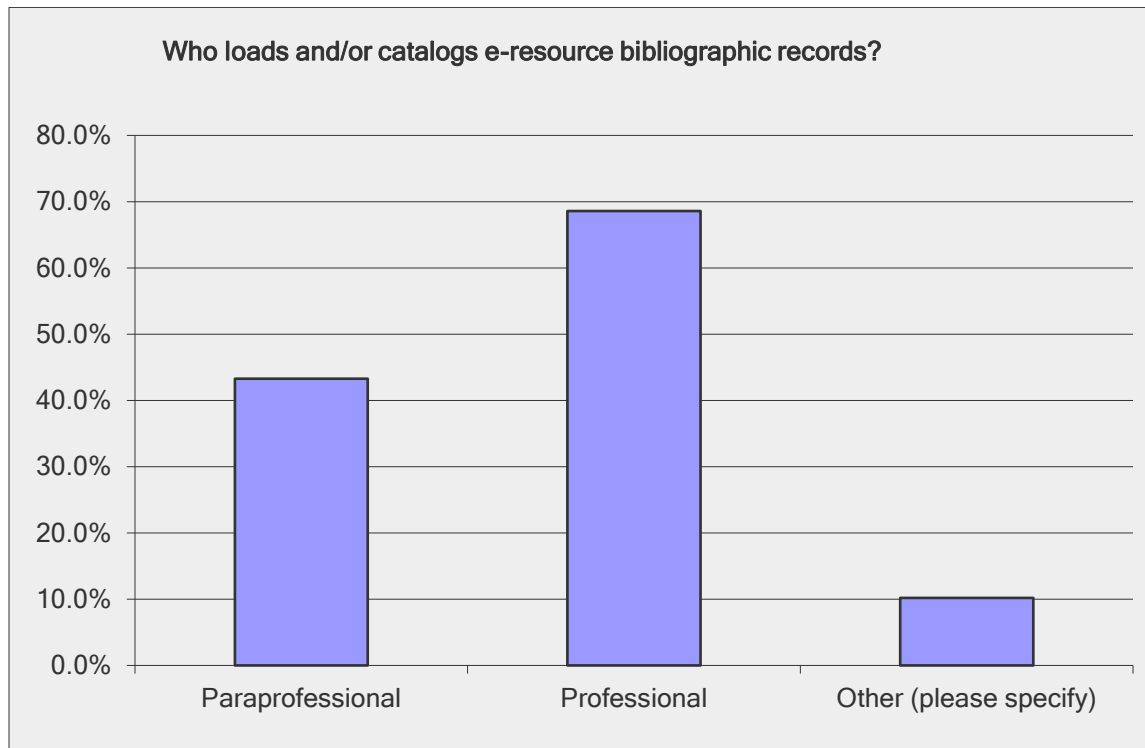
Cataloging E-resources

Loading and/or cataloging ER records is a task that usually is assigned to the cataloging department. Respondents numbering 152 (51.9%) reported that at their library the cataloging department catalogs ER records. The next most common answer was “Other (please specify)” with the most common answer being that the technical services department or a variety of departments loads and/or catalogs ER records (See Table 7). The work of loading e-resource records was predominantly done by professionals, with 201 (68.6%) respondents reporting the professionals do it at their institution. While the majority of this work is done by professionals, it is also important to note that for 127 (43.3%) respondents, the work was done by paraprofessionals (See Figure 4).

Table 7. What department loads and/or catalogs e-resource bibliographic records?

What department loads and/or catalogs e-resource bibliographic records?		
Answer Options	Response Percent	Response Count
Acquisitions	3.1%	9
Cataloging	51.9%	152
Electronic Resources	12.3%	36
Serials	6.1%	18
Collection Development	2.4%	7
Reference	0.0%	0
Other (please specify)	24.2%	71
<i>answered question</i>		293
<i>skipped question</i>		82

Figure 4. Who loads and/or catalogs e-resource bibliographic records?



Electronic Resource Management Systems (ERMS)

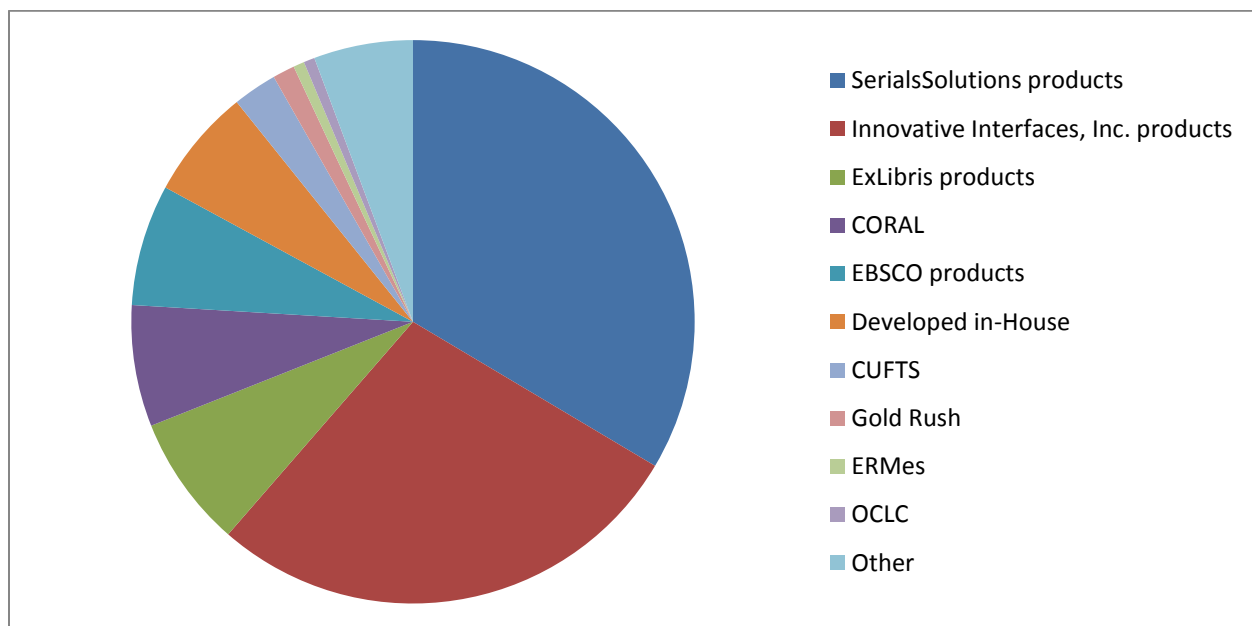
The majority of respondents stated that their library does have an ERMS, with 159 (54.3%) responding yes and 134 (47.5%) responding no. However, the number of respondents was fairly even, reflecting that a little over half of academic libraries find that an ERMS can be beneficial in organizing ER (See Table 8).

Table 8. Does your library have an electronic resource management system (ERMS)?

Does your library have an electronic resource management system (ERMS)?		
Answer Options	Response Percent	Response Count
Yes	54.3%	159
No	45.7%	134
	<i>answered question</i>	293
	<i>skipped question</i>	82

Of the 159 respondents who reported that their library does have an ERMS, 158 answered the follow-up question regarding what type of ERMS their library currently has. This was an open-ended question, but some conclusions about popular ERMSs can be drawn. SerialsSolutions and Innovative Interfaces were the two ERMS brands that seem to dominate the market. SerialsSolutions accounted for 53 (33.5%) responses, and Innovative Interfaces Incorporated consisted of 44 (27.8%) responses. In third place, ExLibris products appear to have a much smaller share of the market, with only 12 (7.6%) of respondents using those products. Other notable products listed were CORAL, EBSCO, CUFTS, Gold Rush, and ERMes (See Figure 5).

Figure 5. What electronic resource management system do you have?



- SerialsSolutions accounted for 53 responses, 33.5%.
- Innovative Interfaces Incorporated products accounted for 44 responses, 27.8%.
- ExLibris products accounted for 12 responses, 7.6%.
- CORAL accounted for 11 responses, 7%.
- EBSCO products accounted for 11 responses, 7%.

- In-house developed systems accounted for 10 responses, 6.3%.
- True Serials, or ReSearcher accounted for 4 responses, 2.5%.
- Gold Rush accounted for 2 responses, 1.3%.
- ERMes accounted for 1 response, 0.6%.
- OCLC accounted for 1 response, 0.6%.
- Other accounted for 9 responses including: SFX, Don't know, JournalFinder, and Subscription Management DataBase, 5.7%.

Who Creates the Following Types of Records in Your ERMS?

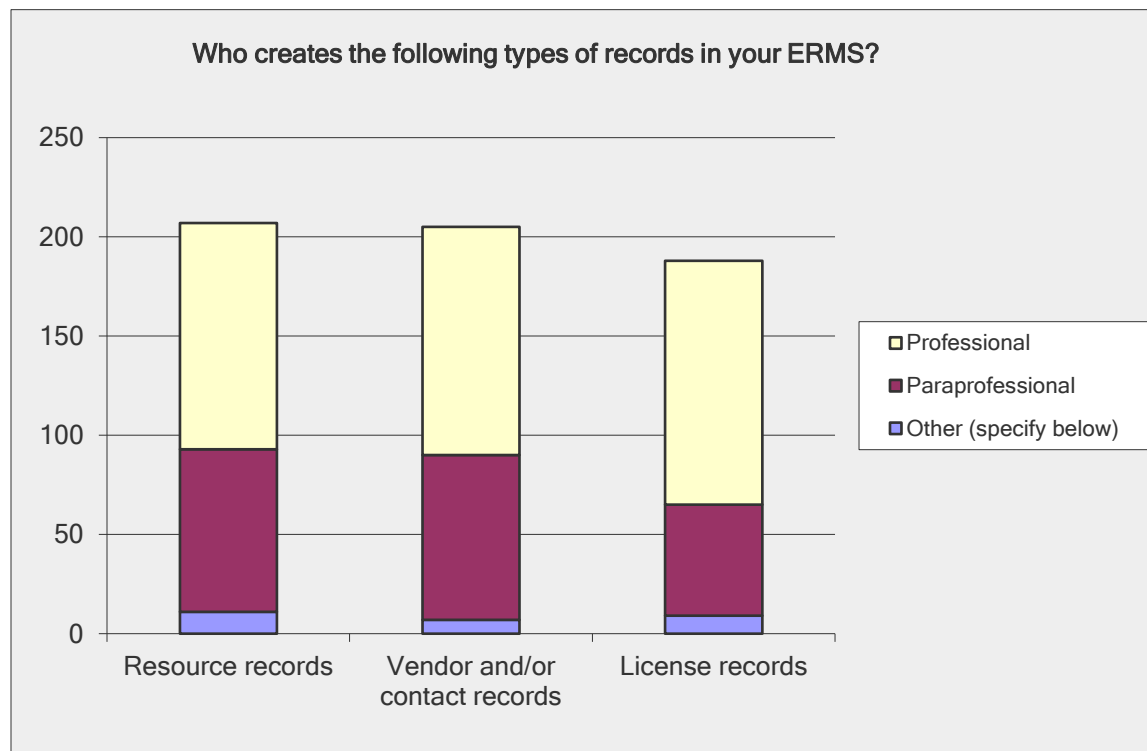
According to the data in this survey, of the libraries that have an ERMS, professionals do most of the work of entering various types of records into the ERMS. Of 158 responses, it was found that professionals enter most of the data as summarized in Table 9. However, for license records, the work was more skewed towards professional work. There were 20 "Other" responses, with the most common comment that a consortium staff does enters the records. Two respondents reported that student assistants enter record data. This data is very interesting because rarely would professional librarians be primarily responsible for entering acquisitions data, such as order records. However, this highlights the complexity of ERMS data management. This also could suggest that this work is being done by professionals because there is not a clear workflow to delegate the work of entering ERMS records. Because this work does not fit into the traditional print model, it may be done by professionals because it is easier to deal with rather than retraining staff or delegating complex workflows (See Figure 6, see Table 9).

Table 9. Who creates the following types of records in your ERMS?

Who creates the following types of records in your ERMS?

Answer Options	Professional	Paraprofessional	Other (specify below)	Response Count
Resource records	114	82	11	157
Vendor and/or contact records	115	83	7	157
License records	123	56	9	155
Other (please specify)				20
			<i>answered question</i>	158
			<i>skipped question</i>	217

Figure 6. Who creates the following types of records in your ERMS?



Conclusion

ERM may follow various models, but the underlying theme is one of collaboration throughout library departments. The work of ERM is still mainly done by professionals, through from the comments on numerous questions regarding whether or not professionals or paraprofessionals are responsible for a particular task, there is consideration to change workflows so that paraprofessionals would do the more basic work of ERM that is currently done by professional librarians. This is most clear in the management of the ERMS, where the creation of all types of records is predominantly done by

professional librarians. This may be due to continued uncertainty of workflows, but it seems that greater delegation of resource creation to paraprofessionals might allow librarians additional time to focus on activities such as negotiating licenses and other more specialized tasks related to ERM.

What does seem to be constant in contemporary management of ER is the need to work interdepartmentally in order to keep-up with the increasing workload and often understaffed departments and/or individuals. In some cases, where there is no ER Librarian, interdepartmental collaboration is of utmost importance.

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Appendix: Electronic Resources Management Organization Survey

- 1) As part of your position, do you manage electronic resources or supervise those that do manage electronic resources in an academic library?
 - a. Yes
 - b. No

- 2) Approximately what percentage of your time do you spend managing electronic resources?
 - a. Less than 25%
 - b. 25%
 - c. 50%
 - d. 75%
 - e. 100%

- 3) Do you have an MLS, MIS, MLIS, or equivalent library and information science degree?
 - a. Yes
 - b. No

- 4) Please indicate the highest degree that you hold.
 - a. High School or GED
 - b. Undergraduate (2 year Associate's degree or equivalent)
 - c. Undergraduate (4 year Bachelor's degree)
 - d. Masters (MLIS)
 - e. Masters (other than MLIS)
 - f. PhD/doctorate (MLIS)
 - g. PhD/doctorate (other than MLIS)
 - h. Professional degree (other than MLIS)
 - i. Other (please specify)

- 5) How is your position classified?
 - a. Professional (positions that require an MLIS)
 - b. Paraprofessional (positions in libraries that do not require an MLIS)
 - c. Other (please specify)

- 6) Does your library have an Electronic Resources unit or department?
 - a. Yes
 - b. No

- 7) You said your library doesn't have an Electronic Resources unit or department. Which department(s) is responsible for managing electronic resources (select all that apply)
 - a. Cataloging
 - b. Acquisitions
 - c. Serials
 - d. Collection Development
 - e. Other (please specify)

- 8) What department is responsible for procuring and paying invoices for electronic resources?
 - a. Acquisitions
 - b. Cataloging
 - c. Electronic Resources
 - d. Serials
 - e. Collection Development
 - f. Reference
 - g. Other (please specify)

- 9) What department negotiates license agreements?
 - a. Acquisitions

- b. Cataloging
- c. Electronic Resources
- d. Serials
- e. Legal
- f. Collection Development
- g. Other (please specify)

10) Who negotiates license agreements? (select all that apply)

- a. Paraprofessional
- b. Professional
- c. In house lawyer
- d. Outside lawyer
- e. Other (please specify)

11) What department gathers usage statistics?

- a. Acquisitions
- b. Cataloging
- c. Electronic Resources
- d. Serials
- e. Collection Development
- f. Reference
- g. Other (please specify)

12) Who gathers usage statistics?

- a. Paraprofessional
- b. Professional
- c. Other (please specify)

13) What department analyzes usage statistics?

- a. Acquisitions
- b. Cataloging
- c. Electronic Resources
- d. Serials
- e. Collection Development
- f. Reference
- g. Other (please specify)

14) Who analyzes usage statistics?

- a. Paraprofessional
- b. Professional
- c. Other (please specify)

15) What department loads and/or catalogs e-resources bibliographic records?

- a. Acquisitions
- b. Cataloging
- c. Electronic Resources
- d. Serials
- e. Collection Development
- f. Reference
- g. Other (please specify)

16) Who loads and/or catalogs e-resource bibliographic records?

- a. Paraprofessional
- b. Professional
- c. Other (please specify)

17) Does your library have an electronic resource management system (ERMS)?

a. Yes

b. No

18) You said your library has an ERMS. Which one?

19) Who creates the following types of records in your ERMS?

a. Resource records

i. Professional

ii. Paraprofessional

iii. Other (specify below)*

b. Vendor and/or contact records

i. Professional

ii. Paraprofessional

iii. Other (specify below)

c. License records

i. Professional

ii. Paraprofessional

iii. Other (specify below)

20) Is there anything else you would like to say about managing electronic resources that was not covered in this survey?