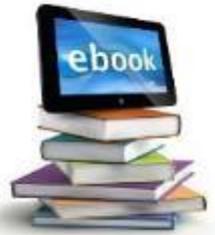


Data-Driven Assessment and Decision-Making for E-book Demand-Driven Acquisition (DDA)



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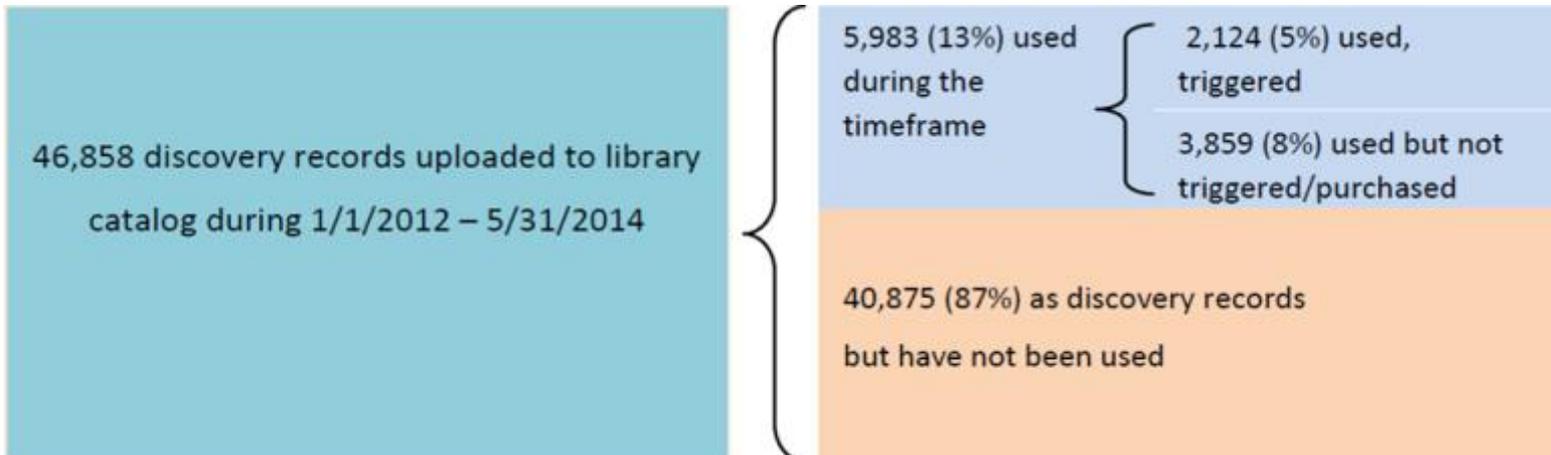
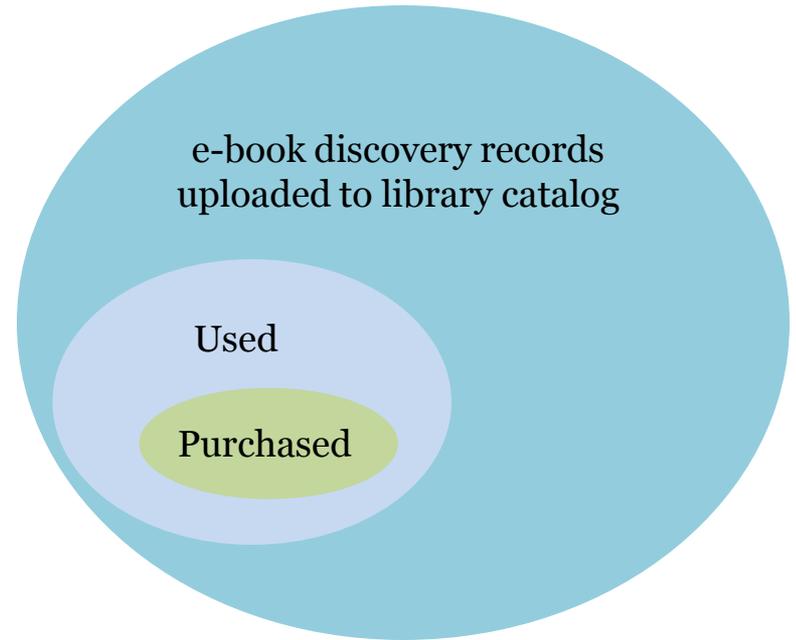
Project background

- **Demand-Driven Acquisition (DDA)**, also known as **Patron-Driven Acquisition (PDA)**, is a model widely used for e-book acquisitions.
- At the time when Kent State University Libraries (KSUL) started its e-book pilot project, DDA was still relatively new and libraries largely adopted it without an established guideline for best practices.
- At the same time, while there are large amounts of data associated with DDA, such data have not been well explored for assessment and decision-making.

The KSUL e-book pilot project

KSUL introduced a DDA-based e-book acquisition pilot project in January 2012 with the following components:

- a. a selected discovery pool of e-book records which are uploaded into the library catalog;
- b. the catalog which patrons use to discover e-books and follow links to access full-text on the ebrary server;
- c. a pre-set threshold for e-book usage, which when reached will automatically trigger e-book purchases (10-10-1-1-1: any of 10 page views, 10 minutes, 1 copy, 1 print, or 1 download); and,
- d. a method to track e-book triggers and usage.



Questions for assessment and decision-making

- (1) How do DDA e-book acquisitions serve the needs of library users?
- (2) Is DDA cost-effective as an acquisition model?
- (3) Does short-term loan (STL) make sense to us?
- (4) How do users discover and access e-books, and how can e-book discovery tools be improved?

Evaluation approaches and principles

- Focus on users and their use of the library collection as key measures.
- Rationale -- If the goal of e-book acquisition is for use and for users, usage data should be an important part in the assessment and budget justification.
- Adopt a comparative approach
 - print books vs. e-books
 - different implementation scenarios

Data sources – *Acquisition, circulation, and usage data*

- Same sample size for both e-books and print books available for use at the beginning of the pilot in January 2012 → 22,018 e-books in the e-book discovery pool and 20,030 print books in the comparison sample.
- Print books: Acquisition and circulation data retrieved from the library's integrated library system (ILS) Millennium, Innovative Interfaces, Inc.
- e-books: ebrary's trigger reports, title reports
- Limitations:
 - Millennium ILS can only yield cumulated circulation data for print books.
 - The time duration of print books in use is longer than that of most e-books.

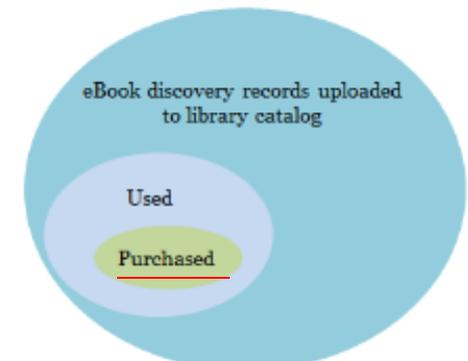
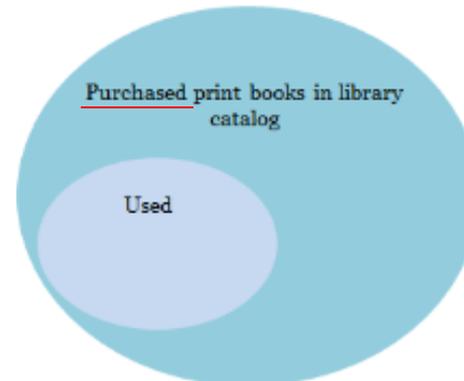
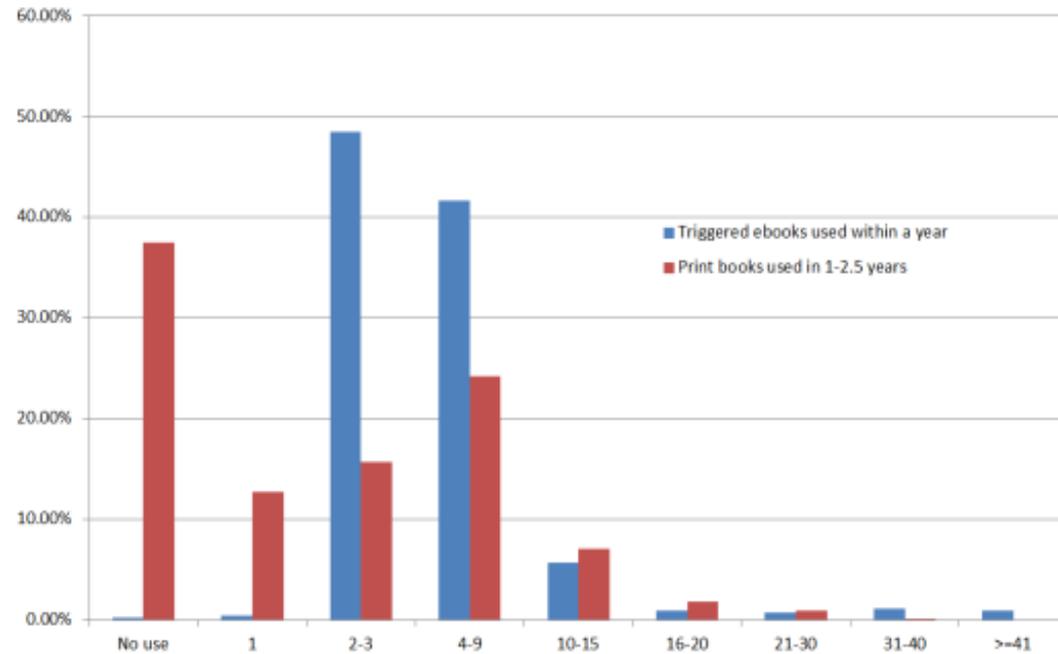
Data sources – *Library catalog logs*

- The discovery pool of e-book records in the **catalog** is the primary gateway for DDA e-books.
- An analysis of transaction logs of the catalog is critical to examining e-book discovery and use.
- We extracted all transactions of DDA e-books from the catalog logs to examine user activities.

Finding 1

Purchased DDA e-books receive more active use than print books

- Compared to DDA e-books, print books have a much higher percentage of **no uses** and **one-time uses**:
 - Print books: 37.5% not circulated and 12.7% one-time use
 - e-books: 0.2% no use rate and 0.4% one-time use after purchase
- Print books: purchased for potential use
- e-books: purchased based on actual usage with benefit of free use below threshold

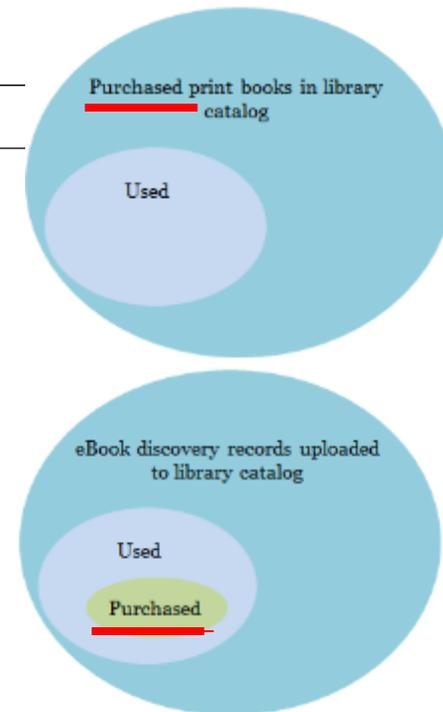


Finding 2

DDA e-book acquisitions are cost-effective

Cost Measures of Print Books and DDA Ebooks

Measures	Print	DDA ebooks
# of books purchased	20,030	456
Total purchase in \$	\$1,192,300	\$44,926
Average book price	\$59.53	\$98.52
Total use		
Print book checkouts & renewals	67,252	
User sessions of DDA triggered ebooks during pilot		1,541
User sessions of DDA discovery pool during pilot		2,534
User sessions of DDA triggered ebooks within a year		2,484
Unit cost per use		
Cost per print book use in 1-2.5 years in collection	\$17.73 (\$1,192,300 / 67,252)	
Cost per user session of DDA triggered ebooks during pilot		\$29.15 (\$44,926 / 1,541)
Cost per user session of DDA discovery pool during pilot		\$17.73 (\$44,926 / 2,534)
Cost per user session of triggered ebooks in a year		\$18.09 (\$44,926 / 2,484)



Finding 3

STLs would cost us more

- 1 trigger: 1 STL
- 2 triggers: 2 STLs
- 3 triggers: 3 STLs
- 4 triggers and above: 3 STLs + 1 purchase

Table 1. Scenarios Based on Usage

Scenarios			2012			2013			1/2012-5/2014		
			# of e-books	Percent	Percent TOTAL	# of e-books	Percent	Percent TOTAL	# of e-books	Percent	Percent TOTAL
Scenario 1 (current KSUL DDA practice): Direct triggered purchase without STL			900	100%	100.0%	905	100.0%	100.0%	2,124	100.0%	100.0%
Scenario 2/3 (what-if scenarios): 3 STLs prior to purchase	STL distribution	1 STL	6	0.7%	16.2%	17	1.9%	29.3%	75	3.5%	21.8%
		2 STLs	80	8.9%		155	17.1%		206	9.7%	
		3 STLs	60	6.7%		93	10.3%		183	8.6%	
	Purchase	3 STLs + Purchase	675	75.0%	83.8%	517	57.1%	70.7%	1,427	67.2%	78.2%
		STL not eligible	79	8.8%		123	13.6%		233	11.0%	
	<i>TOTAL</i>			900	100%	100.0%	905	100.0%	100.0%	2,124	100.0%

Finding 3

STLs would cost us more (continued 1)

Table 2. Costs for Different Scenarios

		Notes	Cost	User sessions	Titles used	Titles owned	Average cost per user session	Average cost per title used	Average cost per title purchased
Year 2012	Scenario 1 (current KSUL DDA practice): Direct triggered purchase without STL	Actual expenditure of KSUL DDA, no STLs	\$86,115.18*	10,850	2,516	900*	\$7.94*	\$34.23*	\$95.68*
	Scenario 2 (what-if scenario): Up to 3 one-day STLs prior to purchase	Estimated 1-day STL cost is @10% of list price, 4 th trigger use is a purchase @single user list price	\$97,228.11 <ul style="list-style-type: none"> \$25,268.66 (26%) on STLs \$21,654.55 (22%) on pre-purchase STLs ** 	10,850	2,516	754	\$8.96	\$38.64	\$128.95
	Scenario 3 (what-if scenario): Up to 3 one-week STLs prior to purchase	Estimated 1-week STL cost is @20% of list price, 4 th trigger use is a purchase @single user list price	\$122,496.76 <ul style="list-style-type: none"> \$50,537.31 (41%) on STLs \$43,309.09 (35%) on pre-purchase STLs*** 	10,850	2,516	754	\$11.29	\$48.69	\$162.46
Year 2013	Scenario 1 (current KSUL DDA practice): Direct triggered purchase without STL	Actual expenditure of KSUL DDA, no STLs	\$86,724.85	12,572	3,268	905*	\$6.90	\$26.54	\$95.83*
	Scenario 2 (what-if scenario): Up to 3 one-day STLs prior to purchase	Estimated 1-day STL cost is @10% of list price, 4 th trigger use is a purchase @single user list price	\$81,960.22* <ul style="list-style-type: none"> \$22,238.74 (27%) on STLs \$15,586.90 (19%) on pre-purchase STLs** 	12,572	3,268	640	\$6.52*	\$25.08*	\$128.06
	Scenario 3 (what-if scenario): Up to 3 one-week STLs prior to purchase	Estimated 1-week STL cost is @20% of list price, 4 th trigger use is a purchase @single user list price	\$104,198.97 <ul style="list-style-type: none"> \$44,477.49 (43%) on STLs \$31,173.80 (30%) on pre-purchase STLs*** 	12,572	3,268	640	\$8.29	\$31.88	\$162.81
1/1/2012 to 5/31/2014	Scenario 1 (current KSUL DDA practice): Direct triggered purchase without STL	Actual expenditure of KSUL DDA, no STLs	\$204,632.61*	27,648	5,983	2,124*	\$7.40*	\$34.20*	\$96.34*
	Scenario 2 (what-if scenario): Up to 3 one-day STLs prior to purchase	Estimated 1-day STL cost is @10% of list price, 4 th trigger use is a purchase @single user list price	\$213,601.89 <ul style="list-style-type: none"> \$55,497.56 (26%) on STLs \$44,586.67 (21%) on pre-purchase STLs** 	27,648	5,983	1,660	\$7.73	\$35.70	\$128.68
	Scenario 3 (what-if scenario): Up to 3 one-week STLs prior to purchase	Estimated 1-week STL cost is @20% of list price, 4 th trigger use is a purchase @single user list price	\$269,099.46 <ul style="list-style-type: none"> \$110,995.13 (41%) on STLs \$89,173.34 (33%) on pre-purchase STLs*** 	27,648	5,983	1,660	\$9.73	\$44.98	\$162.11

Notes. * = best value for the column/measure among various scenarios in a specific timeframe.

** = extra cost on pre-purchase 1-day STLs.

*** = extra cost on pre-purchase 1-week STLs

Finding 3

STLs would cost us more (continued 2)

Table 3. Usage of Acquired e-Books over Time

Purchase timeframe	Usage timeframe	# of e-books used (percent in # of acquired)	Section requests	Section requests per used
2012	2012	900 (100%)*	76,802*	85.34*
	2013	379 (42%)	17,997	47.49
	2014 (prorated for the whole year)	285.6 (32%)	21,643	75.78
2013	2012 (pre-trigger)	99 (11%)	696	7.03
	2013	905 (100%)*	78,021*	86.21*
	2014 (prorated for the whole year)	357.6 (39.5%)	25,980	72.65

Note. * = best value for the column/measure for the acquired cohort.

Finding 4

Library catalog as a discovery and access tool for e-books needs improvement

- e-book usage is higher when catalog search and full bibliographic record display occurs before purchase triggering.
- Also, e-book use linked to full catalog searches tends to be both more intense and less accidental.
- The number of clicks before e-book triggering has a strong relationship with the intensity of use.
- Surprisingly, 28% of users triggering a DDA purchase bypassed the catalog or the full bibliographic record information.
 - ➔ Any purchase without prior interaction with the local catalog may not necessarily be a justified purchase when there are other similar books in the catalog that could fit user needs better or just as well.

Conclusions and lessons learned (1)

Let data tell the story

- make informed-decisions vs. follow common practices
- STL vs. non-STL
- assumptions vs. surprises
- what-if scenario analysis as a simulation, save time and cost!



Conclusions and lessons learned (2)

Need measures and benchmark for comparisons

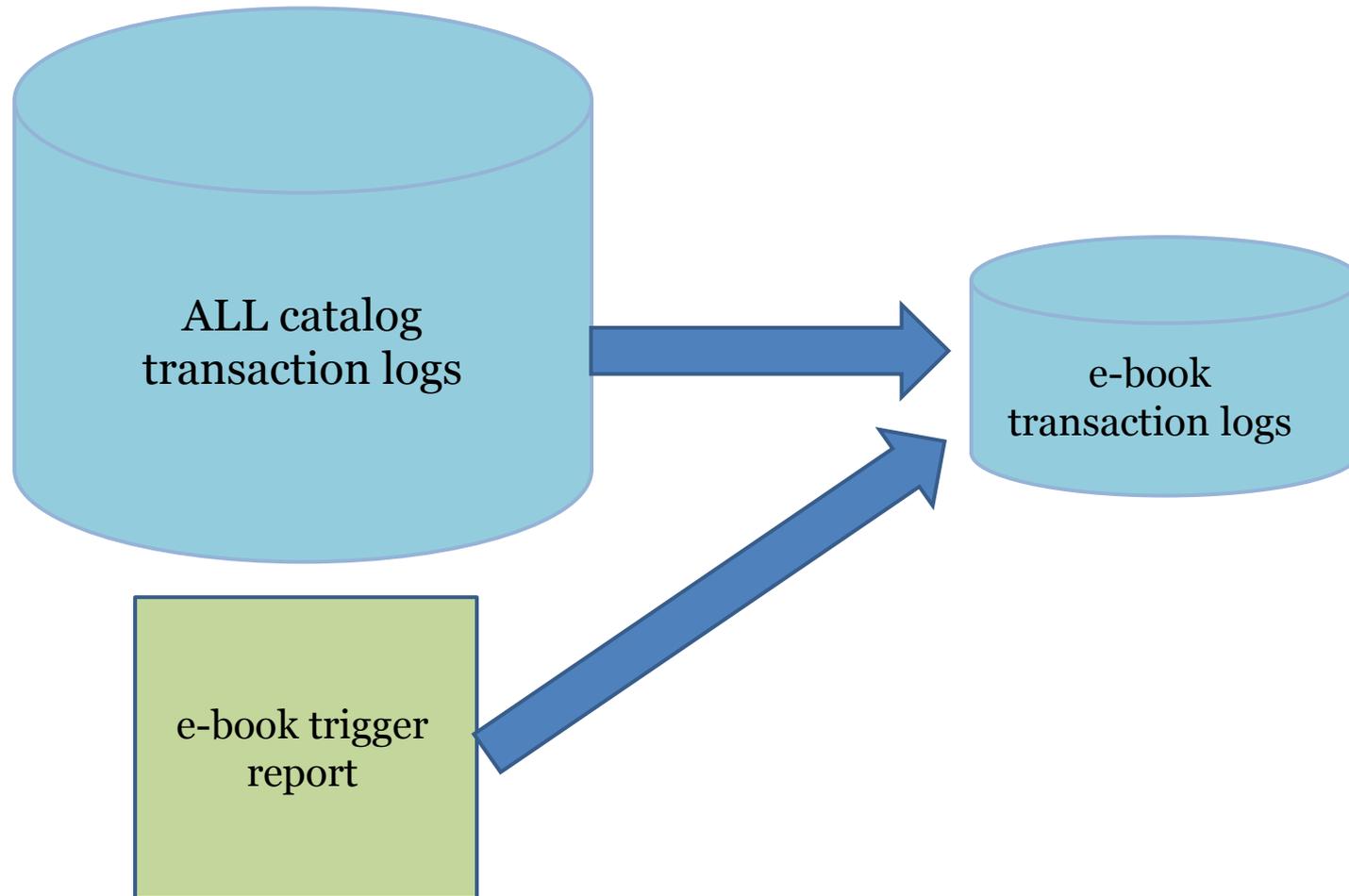
- total vs. average
- total vs. unit measures
- print vs. e-book
- one-time shot vs. annual vs. longitudinal

Conclusions and lessons learned (3)

Dive into data, sort it out, find the thread to pull data from different sources –
merging e-book reports

	A	B	C	B+C	A+B+C
1	Title report	Trigger report	PDA usage report	Triggered usage	Title Usage
2	ebrary Doc ID	ebrary Doc ID	ebrary Doc ID	ebrary Doc ID	ebrary Doc ID
3	ISBN Print	ISBN Print	ISBN Print	ISBN Print	ISBN Print
4	ISBN Electronic	ISBN Electronic	ISBN Electronic	ISBN Electronic	ISBN Electronic
5	Title	Title	Title	Title	Title
6	Publish Date	Year Published	Year Published	Year Published	Publish Date
7	Publisher	Publisher	Publisher	Publisher	Publisher
8	Single User List Price	Single User List Price	List Price	List Price	Single User List Price
9	LC Call	LC Call		LC Call	LC Call
10	User Sessions		User Sessions	User Sessions	User Sessions
11	Pages Viewed		Pages Viewed	Pages Viewed	Pages Viewed
12	Pages Copied		Pages Copied	Pages Copied	Pages Copied
13	Pages Printed		Pages Printed	Pages Printed	Pages Printed
14	Chapter / Range Downloads		Chapter Downloads	Chapter Downloads	Chapter / Range Downloads
15	Full Title Downloads		Full Downloads		
16		Trigger Date		Trigger Date	Trigger Date -- if any
17		Trigger Date-formatted		Trigger Date-formatted	Trigger Date-formatted -- if any
18		Trigger Event		Trigger Event	Trigger Event -- if any
19			Last Usage Day	Last Usage Day	Last Usage Day -- if any
20			Last Usage Day-formated	Last Usage Day-formated	Last Usage Day-formated -- if any
21			Top Subnets	Top Subnets	Top Subnets -- if any
22					
23	Content Owner	Purchase Multiplier	OCLC Number		
24	Category	Estimated Tax	Imprint		
25	Sub Category	Purchase Total	Dewey		
26	Author	OCLC Number	LCCN		
27	Dewey Call	Imprint	Primary BISAC Category		
28	Available License	Primary BISAC Category	Primary BISAC Subcategory		
29	Total Pages	Primary BISAC Subcategory	Available License		
30		Available License	License Type		
31		Purchase Date			
32		Order Number			
33		Order Name			
34		Purchase License			

**Dive into data, sort it out, find the thread to pull data from different sources –
extracting e-book transaction logs**



Related publications

Zhang, Y., Downey, K., Urbano, C., & Klingler, T. (2015). A scenario analysis of demand-driven acquisition (DDA) of e-Books. *Libraries Library Resources and Technical Services*, 59(2), 84-93.

Urbano, C., Zhang, Y., Downey, K., & Klingler, T. (2015). Library catalog log analysis in e-book Patron-Driven Acquisitions (PDA): A case study. *College & Research Libraries*, 76(4), 412-426.

Downey, K., Zhang, Y., Urbano, C., & Klingler, T. (2014). A comparative study of print book and DDA ebook acquisition and use. *Technical Services Quarterly*, 31(2), 139-160.

Downey, K., Zhang, Y., Urbano, C., & Klingler, T. (2014). An Evaluation of Patron Driven Acquisitions (PDA) for eBooks at KSU Library. *Computers in Libraries*, 34(1), 10-13.



Thank you!

Questions?