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# Evaluating A&I databases: a report

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# EVALUATING A&I DATABASES

A Report

*David Scott\**  
*February 2018*

## INTRODUCTION

### BACKGROUND

Due to fluctuations in the CAD/USD exchange rate and the ongoing inflation of electronic resources (e-resources), the University of Lethbridge Library's Collections Work Team has in recent years put significant effort into developing review processes through which to evaluate e-resources. These review processes inform decisions to initiate, renew, and cancel e-resource subscriptions. An important part of developing such processes is the selection of evaluation criteria. The most appropriate criteria vary depending largely on the kind of e-resource being reviewed.

The purpose of this report is, in a sense, twofold. Its primary aim is to identify evaluation criteria for abstracting and indexing (A&I) databases. The University of Lethbridge Library subscribes to a wide range of A&I databases; many of these include some full text content, while others do not, providing only metadata to the user. The value of A&I databases, particularly those that offer no full text content, lies chiefly in their ability to facilitate discoverability. They are a means by which researchers can identify resources (e.g., journal articles, newspaper articles, films) on a certain topic, though they may have to look elsewhere for the resources themselves—a task often simplified by a link resolver. A&I databases typically provide a range of tools to assist the researcher in finding relevant material, including field searching, truncation, phrase searching, Boolean operators, subject terms or headings (i.e., a controlled vocabulary), and specialized filters or limiters.

The second, more implicit purpose of this paper is to determine the extent to which A&I databases continue to have value given recent developments in other discovery tools. Summon, the discovery layer currently used by the Library, allows users to search a wide array of indexes and collections, including A&I databases, journal and ebook packages, the Library catalogue, our digitized collections, and OPUS, our institutional repository. Summon's interface and functionality continue to be developed, thanks in part to the efforts of Library staff to improve the tool. In addition, Google Scholar is a free and popular alternative to A&I databases offering a familiar search interface and indexing an immense volume of scholarly literature. Due to the availability of such alternatives, reservations concerning the continuing value of A&I databases have been raised in the Collections Work Team, and consequently this report considers this more fundamental question.

### DEFINITION

A white paper recently produced by the Institution of Engineering and Technology (IET) describes A&I databases as follows:

Abstracting and indexing services provide curated, indexed databases of information, built from high quality sources including journal articles, book and ebook chapters, conference papers, and technical reports.

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\* Special thanks must be extended to Tara Wiebe and Sandra Cowan for their assistance with this report.

Human editors assess and validate the information using a controlled vocabulary, glossary and thesaurus, to provide subject specific search parameters. (2017, p. 2)

Following from this description, A&I databases are for the purposes of this report loosely defined as curated electronic indexes comprising collections of records containing metadata (including abstracts, as appropriate) for materials such as journal articles, books, book chapters, conference proceedings, reports, and theses and dissertations. Through a search interface, users can retrieve records to determine what materials exist that may meet their research needs. A&I databases typically provide tools allowing for advanced techniques and strategies to assist the user in their search. While they may include some full text content, the provision of content is not their primary purpose. Thus, journal publisher packages are not considered A&I databases.

By this definition, examples of A&I databases include most e-resources hosted on the EBSCO, ProQuest, Ovid, and Web of Science platforms, such as Academic Search Complete, America: History and Life, BIOSIS Citation Index, Canadian Research Index, CINAHL, Dissertations & Theses, EconLit, ERIC, Global Health, MEDLINE, MLA International Bibliography, PsycINFO, SPORTDiscus, and Web of Science Core Collection. To be sure, many of these provide some full text content. It is not the intention of this report to negate the value of this content, but rather to focus on the value and evaluation of the abstracting and indexing that lies at the core of each of these resources.

## RESEARCH OUTLINE

When research for this report began, our intention was to draw solely from existing scholarly literature. Tara Wiebe kindly volunteered to conduct a literature search for information concerning the evaluation of A&I databases. Unfortunately, her efforts, as well as more cursory searches conducted by Sandra Cowan and I, retrieved little upon which to base a report. Tara then consulted a handful of books on e-resources management (Elguindi & Schmidt, 2012; Johnson, 2013; Patra, Kumar, & Pani, 2014; Wikoff, 2012); however, their treatment of A&I databases is not distinct from that of other kinds of e-resources. That is, they offer evaluation criteria for e-resources broadly, including A&I databases. These evaluation criteria inform those listed toward the conclusion of this report. In an effort to ascertain the value of A&I databases specifically, it was decided that some primary research would be conducted to complement the information gleaned from the guidebooks. Thus, two small-scale projects were undertaken. The first, completed by Tara Wiebe, involved visiting the websites of CARL libraries to determine whether or not they subscribed to a short, predefined list of A&I databases. The second comprised interviews of eight liaison librarians. The results of these two projects are presented below, followed by evaluation criteria recommended for the review of A&I databases.

## CARL LIBRARY SUBSCRIPTIONS

The purpose of this modest project was to very roughly determine the extent to which A&I databases are valued among other Canadian academic libraries. Six A&I databases were identified: America: History & Life, Historical Abstracts, Sociological Abstracts, Bibliography of Native North Americans (BNNA), Web of Science, and Scopus. These resources were selected because they are relevant to programming at virtually all CARL libraries and they provide no full text content to the University of Lethbridge Library; thus, whatever value they hold must lie at least primarily in their abstracting and indexing.<sup>†</sup> (Scopus, to be sure, is an outlier to which the University of Lethbridge Library does not subscribe. It is easily the most expensive of the six e-resources and was included more for the sake of interest than for its value in informing this report.)

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<sup>†</sup> It should be noted that America: History & Life and Historical Abstracts are available with a full text component for an additional cost. Four of the 23 library websites visited indicated that the library subscribed to the full-text option in each case.

The websites of CARL's 23 Atlantic, Ontario, and Western members were searched by Tara Wiebe to determine how many libraries subscribe to each of the six A&I databases. Because CARL members comprise the largest academic libraries across the country, and because the University of Lethbridge Library has in recent years pursued membership within CARL, it was determined that these 23 libraries should provide an example of robust collections development that the University of Lethbridge Library may wish to emulate.

The results of Tara's work are presented in the table below. "Y" indicates a subscription, while "N" indicates no subscription.

	America: History & Life	Historical Abstracts	Soc. Abstracts	Bib. of Native N. Americans	Web of Science	Scopus
<b>University of Alberta</b>	Y	Y	Y	Y	Y	Y
<b>University of British Columbia</b>	Y	Y	Y	Y	Y	N
<b>Brock University</b>	Y	Y	N	Y	Y	N
<b>University of Calgary</b>	Y	Y	Y	Y	Y	Y
<b>Carleton University</b>	Y	Y	Y	Y	Y	Y
<b>Dalhousie University</b>	Y	Y	Y	N	Y	Y
<b>University of Guelph</b>	Y	Y	Y	Y	Y	N
<b>University of Manitoba</b>	Y	Y	Y	Y	Y	Y
<b>McMaster University</b>	Y	Y	Y	Y	Y	N
<b>Memorial University of Nfld.</b>	Y	Y	Y	Y	Y	Y
<b>University of New Brunswick</b>	Y	Y	Y	Y	N	Y
<b>University of Ottawa</b>	Y	Y	Y	Y	Y	Y
<b>Queen's University</b>	Y	Y	Y	Y	Y	N
<b>University of Regina</b>	Y	Y	Y	Y	Y	N
<b>Ryerson University</b>	Y	Y	Y	N	Y	Y
<b>University of Saskatchewan</b>	Y	Y	Y	Y	Y	Y
<b>Simon Fraser University</b>	Y	Y	Y	Y	Y	N
<b>University of Toronto</b>	Y	Y	Y	Y	Y	Y
<b>University of Victoria</b>	Y	Y	Y	Y	Y	N
<b>University of Waterloo</b>	Y	Y	Y	Y	Y	Y
<b>Western University</b>	Y	Y	Y	Y	Y	Y
<b>University of Windsor</b>	Y	Y	Y	Y	Y	Y
<b>York University</b>	Y	Y	Y	Y	Y	Y

Omitting Scopus, which has already been identified as an outlier, all Atlantic, Ontario, and Western CARL libraries subscribe to at least four of the five selected databases, and most subscribe to all five. All 23 libraries subscribe to America: History & Life and Historical Abstracts; all but one library hold subscriptions to Web of Science and Sociological Abstracts. Similarly, all but two libraries subscribe to the Bibliography of Native North Americans.

While this is a rough measure of perceived value, the results quite strongly indicate that those Canadian academic libraries with the most robust collections consider at least some A&I databases to be worth their subscription cost. That most of these libraries have recently had to seriously evaluate their e-resource subscriptions and make cancellations due to budgetary pressures underscores the value that is generally placed on these A&I databases by collections librarians (Scott & Eva, 2017).

## LIAISON LIBRARIAN INTERVIEWS

In an effort to gather qualitative data concerning the value of A&I databases and how they might best be evaluated, I undertook interviews of eight liaison librarians. Because liaison librarians work closely with all academic units, regularly provide information literacy instruction in a range of fora, are engaged in collection development (to varying extents), and conduct their own research, they are uniquely positioned to provide valuable input in this area. While they present a particular perspective that likely fails to capture the full breadth of considerations influencing the value and use of A&I databases, their views should weigh heavily on e-resources management policies and practices. Interviews were conducted in November and December 2017 and averaged approximately 20 minutes in length. The following questions were asked:

- How often do you use A&I databases in reference and research consultation?
- How often does your information literacy instruction include A&I databases?
- How often do you use A&I databases for your own research?
- How well do you think other discovery tools, such as Summon and Google Scholar, could replace A&I databases? How often do you use these tools in research, reference, and instruction?
- How would you value A&I databases in relation to resources that offer full-text access to materials (e.g., publisher packages)?
- How do you think the Collections Work Team could best evaluate A&I databases?

The definition of A&I databases specified above was explained to each interviewee at the beginning of their interview. Notes were taken during the interviews and later reviewed for the writing of this report. To minimize bias, I endeavoured to maintain objectivity as the interviewer and assured participating librarians that any quotes or paraphrases used in this report would be anonymous. I believe I have accurately represented the views of the interviewed librarians in the results below, though, for the sake of brevity, not all points are presented.

In the area of reference and research consultation, librarians indicated that they use A&I databases very frequently. Nobody reported that they use them less than “regularly” or “pretty frequently.” One noted that they use them 95% of the time and that they are their “first go-to.” Another said that if the patron is looking for journal literature, they use A&I databases “every single time.” A few respondents explained that their use of A&I databases depends on the nature of the inquiry, with more complex questions requiring the use of specialized databases. One librarian went further, saying that they will actively direct graduate and upper-year undergraduate students away from Summon and Google Scholar and toward such databases.

A&I databases are very heavily incorporated into in-class information literacy instruction. Several librarians reported including A&I databases in all instruction sessions, while no one noted that they do so less than “most of the time.”

In their own research, interviewees indicated that they rely on A&I databases anywhere from “fairly often” to “always” and “constantly.” One librarian explained that they had used A&I databases for research frequently in the past, but less so since the cancellation of the Library Literature & Information Science database. A recently hired librarian noted that they were surprised to find that the Library did not subscribe to a subject database focusing on library science literature.

In response to the question concerning whether tools such as Summon and Google Scholar can replace A&I databases, all interviewees maintained that they could not, and several took a strong stance on this point. A&I databases, they contended, offer well-curated and indexed collections that are invaluable for rigorous research. The disciplinary perspective captured by subject-specific databases is important and facilitates the retrieval of relevant materials. The provision of advanced search functionality in A&I databases was noted by most respondents. In particular, librarians commented on the availability of controlled vocabularies (and, in some instances, the ability to

focus and explode subject headings), search builders, and specialized search filters (e.g., methodology, population, assessment instruments), which are not provided by Summon or Google Scholar.

In certain instances, interviewees explained, broad search tools such as Summon are sufficient. The small handful of required sources for many modest, lower-level undergraduate papers, for example, may be found through Summon or Google Scholar, and one librarian indicated that Summon was their first go-to when assisting an undergraduate student searching for an article. Another respondent argued that Summon can be helpful for preliminary research, pointing out the useful reference entries presented alongside Summon search results. Other strengths of Summon identified were its ability to lead patrons to an appropriate A&I database, its utility in finding book reviews, and its availability to people not affiliated with the University. Regarding Google Scholar, one librarian found it to be an effective tool for locating the full text of articles.

For the general research needs of upper-year undergraduate students, graduate students, and faculty, however, interviewees maintained that Summon and Google Scholar fall far short of A&I databases. One respondent very emphatically stated that these broad discovery tools are “nowhere close to what we need to offer graduate students” as they are “far too primitive.” High search precision, another librarian asserted, is very difficult to achieve in very broad tools such as Summon and Google Scholar, and consequently, they can consume large amounts of time, as the researcher must sift through many irrelevant results. For literature reviews and other forms of research in which comprehensiveness is valued, A&I databases are much preferred. Overall, respondents reported that as discovery tools, A&I databases are significantly superior to Summon and Google Scholar. Concerning the latter, librarians highlighted its weak search functionality and “skeletal” (and often untrustworthy) metadata as serious limitations.

Based on their own experiences, as well as faculty and student feedback, several interviewees were highly critical of Summon. One librarian noted that they found the discovery layer “infinitely frustrating.” Another described it as “a wild west of stuff,” explaining that students often have difficulty finding relevant sources and feel more successful when searching specialized databases. A third respondent indicated that Summon is “too unruly at times, even with good search skills” and echoed concerns about students becoming frustrated with the tool. In regards to Summon, a fourth respondent commented, “sometimes it’s fine, and sometimes it’s useless,” failing to return relevant results despite good search terms and the Library having relevant material. Summon’s results are sometimes “totally out to lunch,” they concluded. It is hoped that further upgrades to the discovery layer will improve its search functionality; unfortunately, the frustrations raised regarding Summon are likely not due to problems that can be resolved through minor modifications made by Library staff. Despite these deficiencies, most librarians regularly incorporate Summon into in-class instruction, though time spent on the tool may be brief.

Concerning the value of A&I databases in relation to e-resources offering full text content, interviewees generally agreed that they complement each other. “Balance is important,” one librarian noted. This view was shared by most of their colleagues, with no one taking an opposing stance. As another respondent explained, “one has the content, and the other gives us access to the content; one without the other is not very useful.” Interviewees contended that it would be shortsighted to jettison our A&I databases, as doing so would reduce the value and utility of our full text content. Were the Library’s acquisitions budget stretched such that we would be forced to cancel well-used e-resources, it was not clear from the interviews whether the librarians would opt to start with A&I databases or full-text publisher packages.

Multiple interviewees were careful to point out that even without immediate full-text access, A&I databases provide a valuable service. For those items that are indexed but not available in full text in the Library’s collection, one respondent reported, “I push ILL very hard.” This librarian explained that they want to expose students to as much

literature as possible, and that A&I databases are important for this, even if they don't offer any full-text content. "Even if we don't have the full text, there is value in knowing that something exists," echoed a colleague. A third librarian similarly asserted that for comprehensive research, good A&I databases are more important than immediate full-text access. Patrons, especially those conducting in-depth research, need to know what literature exists, whether or not we have it in our print or electronic collections, they elaborated. To be sure, however, it is important that our full-text collections remain extensive. As one librarian affirmed, students become frustrated when they need something quickly and are given only a citation.

Interviewees offered a range of ideas regarding how A&I databases may be evaluated by the Collections Work Team. To avoid repetition, rather than detail those ideas here, I have incorporated them into the following section.

## RECOMMENDED EVALUATION CRITERIA

Based on the results reported above, I believe a strong argument may be made for the enduring value of A&I databases in scholarly research. Of course, it does not follow from this conclusion that any particular A&I database must necessarily be worth acquiring or renewing; they should be subject to careful review processes as other e-resources are. Listed below are several criteria that are recommended for consideration in the evaluation of A&I databases. These are informed by the interviews with librarians, my own experience serving on the Collections Work Team, and the e-resources guidebooks referenced above (Elguindi & Schmidt, 2012; Johnson, 2013; Patra, Kumar, & Pani, 2014; Wikoff, 2012). Those who have served on the Collections Work Team may find few of the following considerations novel or surprising—we regularly incorporate most of these into our e-resources review process. I should also note that the decision to acquire, renew, or cancel an e-resource seldom rests wholly on a single criterion. Within the limits of what is reasonably feasible, most or all of the criteria listed below should be weighed in such decisions.

- **Cost**

In the case of A&I databases, the cost is typically an annual subscription fee. While a very important consideration, cost alone should not determine whether a database will be renewed or cancelled, except at times of extreme budgetary pressure. A significant increase in cost should warrant an especially close review of the database.

- **Usage**

Most A&I database vendors provide quantitative data indicating database use. Usually, these statistics adhere to the COUNTER standards (i.e., they are "COUNTER compliant"). The COUNTER Database Report 1 is specifically tailored for the evaluation of A&I databases. The most useful metric in the COUNTER 4 Code of Practice is very likely "result clicks," representing the number of times a user attempted to access the full text of an item returned in a list of results. In COUNTER 5, this metric will be replaced with "total item investigations." In addition, as the figures for federated and automated searches will be reported separately according to COUNTER 5, the "regular searches" metric should provide an alternate, reliable measure of use. As with trends in cost, long-term trends in usage should inform decisions to renew or cancel.

- **Cost per Use**

This figure is calculated by dividing the annual subscription fee of a database by the usage it accrued through the year. In the case of A&I databases, the most useful measures are cost per result click and cost per item investigation, in accordance with COUNTER 4 and 5, respectively. The value of a use depends on the nature of the use; a full-text article download may not be equal in

worth to the discovery of a relevant article. The Collections Work Team may determine what thresholds are acceptable for each kind of use. That being said, I have yet to find an example of a library that has determined acceptable thresholds that vary from one kind of use to another. The Collections Work Team has thus far carefully scrutinized e-resources with cost per use figures exceeding five to ten dollars.

- **Overlap**

Overlap analysis involves determining the extent to which the content provided by the e-resource in question is duplicated in other e-resources to which we hold subscriptions. If much of the content can be accessed elsewhere, the e-resource may not be worth keeping. Overlap analyses of full-text serial content can be run through the Serials Solutions Client Center, and the Collections Work Team frequently considers this data. Overlap analyses of metadata, or abstracting and indexing, are not possible, however. Consequently, less comprehensive and more time intensive analysis may be carried out when deemed necessary. When one A&I database is identified as a possible alternative to another, the following steps may be undertaken:

- Compare the controlled vocabularies of the two databases. The complexity and depth of the controlled vocabularies may indicate the relevance and utility of each database to certain subject areas.
- Run a series of searches and compare the number and quality of search results. These searches can focus on a particular subject area if one is of special concern in the cancellation/renewal decision.
- Again, if certain subject areas will be especially affected by a cancellation/renewal decision, core journals in those subject areas can be identified and searched within the databases to determine whether or not they are indexed in each. Significant overlap in a sample may indicate significant overlap generally.

- **Full Text**

While this report contends that A&I databases hold significant value apart from any full text they may contain, the provision of full text should certainly not be ignored in the review process. The metrics for evaluating full-text usage are distinct from those measuring the use of the search interface. The COUNTER journal reports, rather than database reports, include full-text downloads (“total item requests” in COUNTER 5). Unfortunately, these are typically not available for individual A&I databases; however, using the overlap analysis functionality offered through the Serials Solutions Client Center coupled with Intota Assessment’s COUNTER reports, we can, with some limitations, determine the number of full-text downloads from those journals uniquely provided by a given A&I database. That there are often no perpetual access terms for full-text content available through A&I databases is another important consideration.

- **Stakeholder Consultation**

Liaison librarians and, when appropriate, faculty can often provide helpful qualitative information on the value of e-resources that compliments and provides context to the quantitative usage statistics. Such input need not be solicited for every database renewal decision; however, it should be gathered occasionally—perhaps biannually from liaison librarians—and is particularly important if a cancellation decision is likely. As A&I databases are often intentionally accessed by librarians and patrons as a starting point for secondary research, consultation can be especially informative. (This stands in contrast to some other kinds of resources, such as journal publisher

platforms, which are primarily accessed indirectly through discovery tools such as Summon, Google Scholar, and A&I databases.)

- **Uniqueness for a Discipline**

If the database in question is the only resource available for a program or discipline, it may be worth renewing despite low cost per use figures. This is especially true if a program's accreditation depends on a continuing subscription to the resource. It is important to ensure that good indexes exist across all disciplines. For some subject areas, large, multidisciplinary databases such as Academic Search Complete and Web of Science may suffice, but others might require more specialized discovery tools.

- **Usability**

Usability is here broadly conceived to include intuitiveness and search functionality. Is the database easy to use? Can novice searchers use it and reliably find relevant results? Are there more powerful, complex tools available for more experienced searchers?

- **Integration with Other Tools**

The extent to which the A&I database integrates with other Library tools and services (e.g., link resolver, proxy server, Summon, Intota Assessment) is an important consideration. Lack of integration can severely limit the utility of a resource.

- **Institutional Priorities and Goals**

One interviewed librarian highlighted the importance of a holistic approach to collections development that takes into consideration the University's goals and priorities. The University aims to be "Canada's destination for all who seek a comprehensive, liberal education-based university that promotes a diverse and inclusive environment and inspires research-informed teaching and learning, creative discovery, scholarship, professional endeavor, experiential opportunities, and community engagement" (University of Lethbridge, 2014). Strategic directions such as this should inform collections development policies and decisions.

## CONCLUSION

The results of this study support the contention that A&I databases continue to hold significant value in scholarly research. It appears that Canadian academic libraries are generally maintaining subscriptions to A&I databases despite recent budgetary pressures, suggesting that collection librarians have found them to be worth their cost. Interviews with liaison librarians affirmed that A&I databases remain important discovery tools across a wide range of disciplines, especially for more advanced researchers. Informed by a number of sources, several evaluation criteria are recommended. These relate to cost, usage, overlap with other resources, the provision of full text, stakeholder input, usability, integration with other Library tools, and institutional priorities. It is my hope that this information will prove useful to the Collections Work Team in its continued efforts to carefully manage the University of Lethbridge Library's extensive e-resource collections.

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