

A report on the functionality of abstract & indexing (A&I) database platforms: recent developments, library policies and a new evaluation technique

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1. Introduction and scope of the study

The aim of this study was to itemize the full range of functionality aspects possibly available on A&I database platforms in order for librarians to facilitate exact evaluation of A&I database platforms in terms of the functionality they offer.

In general, libraries select Abstract & Indexing databases by assessing the fullness of content coverage and its relevancy to their user communities. In the database selection process the two major decision-making factors are *content* and *price*; the functionality of the platform is often considered at a later phase.

This study provides librarians with the following tools to support the database decision-making process in the functionality evaluation phase:

- A description of various policy options
- An overview of the trends
- A checklist of functionality with an industry importance indicator

The study consisted of the following steps:

- 1) Desk Research: An in-depth analysis of the publicly available literature from a number of internationally used database platforms that describe the functionality offered. This formed the basis of an itemized list of functionality aspects available anywhere.
- 2) Interviews: Four extensive interviews with specialized librarians who are considered experts in modern database technology and functionality. The list of functionality was discussed and refined based on the perspective of these expert librarians.
- 3) Web Survey: A survey of more than 500 university librarians in the USA and Europe asking them to rating the importance of these various functionality aspects.

The study was conducted by Pleiade Management & Consultancy and financed by Elsevier.

2. Methods

2.1 Desk research

A study of the functionality offered by ten internationally established A&I database platforms was conducted in November 2003.

The following areas were analyzed:

Searchability; full text linking; browse-ability, personalization and library integration: access options; federated search options; integration-with-holdings options; customization options; usage statistics

For these platforms the marketing literature – as published on the websites of the providers – was studied. In addition, relevant literature was studied from The Charleston Advisor and Information Today.

2.2 Interviews

Four extensive one-to-one interviews were held with specialized librarians considered experts in this field. The interviews focused on the various policy options for a library, on trends and developments in this field and on the importance of the various functionality aspects.

2.3 Web survey

On the basis of the interviews with the experts a questionnaire was developed consisting of 23 questions. The questionnaire was available via the Internet at www.pleiadesurvey.nl and librarians of academic institutions throughout Europe and North America were invited by email to participate. The invitation email contained a coded¹ link to the questionnaire. In total, 617 invitations were sent out (341 in Europe, 276 in the USA), 98 were returned as undeliverable. Thus, the net number of invitations received was 515.

The invitation email was sent out on May 11th, a reminder was sent to those who did not respond, on May 18th. The survey closed on May 25th. In total, 63 librarians participated – a net response of 12.2 %.

¹ The coded link guarantees that the recipient can only fill in the questionnaire once.

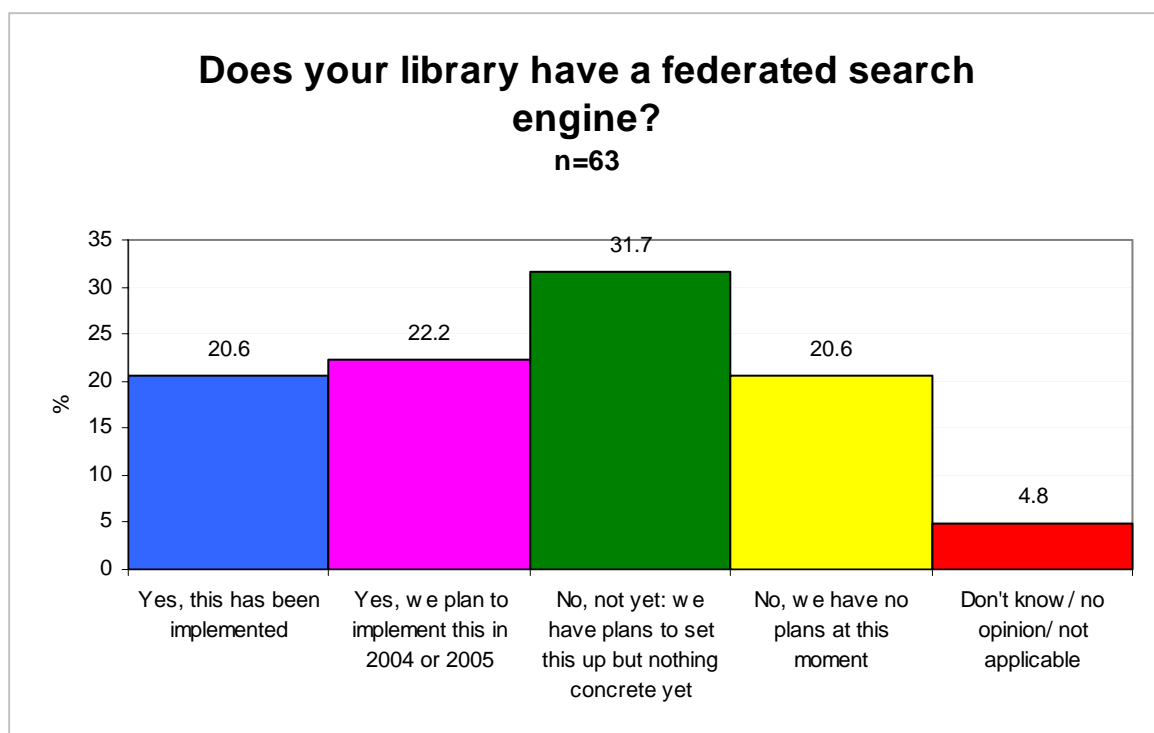
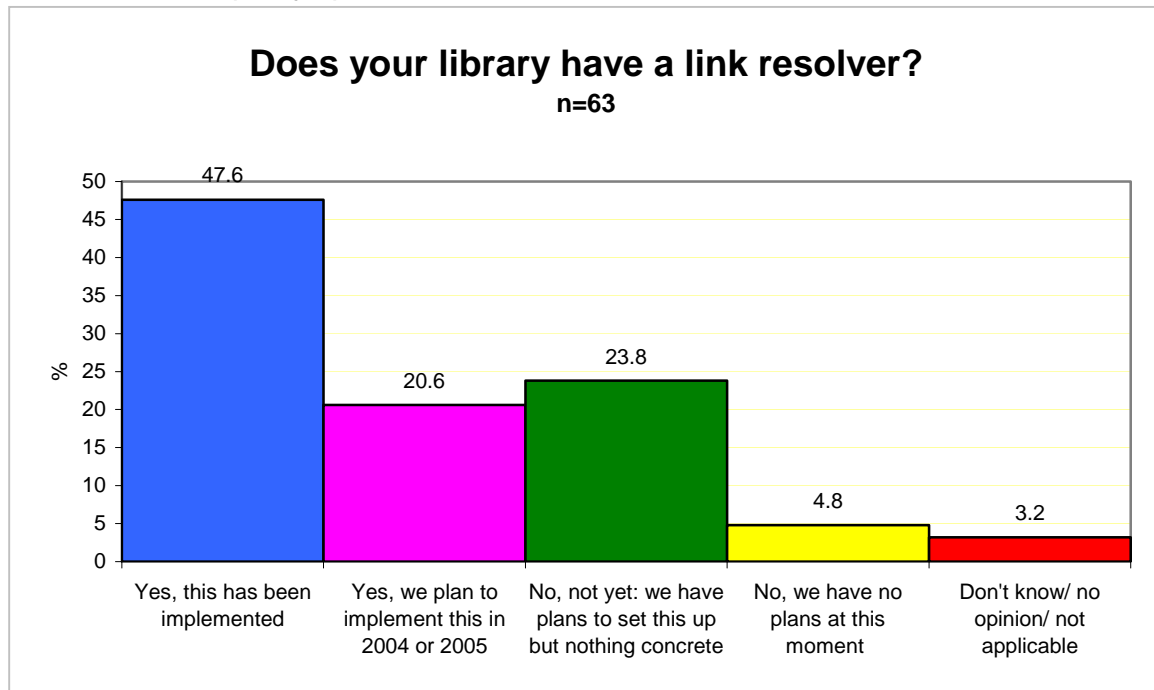
3. Library integration: policy options and impact on A&I database platform functionality

3.1 The emergence of link resolvers and federated search engines

Under the banner of library integration, two technical options have recently entered the library world: link resolvers and federated search engines. Of these, the link resolvers have already attained a considerable market share among academic libraries. Approximately half of the participants in the web survey state that their library has already implemented a link resolver and 20% state that they will implement a link resolver within the next two years.

Federated search engines are in operation less widely currently. Approximately 20% of respondents have implemented a federated search engine and another 20% have plans to do so within two years.

3.2 Link resolver policy options



A link resolver enables the library to integrate its digital information sources, usually to connect bibliographic information within A&I databases with the electronic full text of journal articles. Other options include managing links to the library catalogue (including the print holdings), to the preferred document supplier or to other information sources, such a union catalogue.

The big advantage of these library-managed link resolvers is to provide users with context-sensitive links so, for example, links may only be displayed for articles from subscribed-to journals so that the full text is guaranteed to be accessible to the user, so-called entitled links. Library-managed link resolvers put the linking provided by A&I database platforms themselves in a different light. One respondent puts it thus:

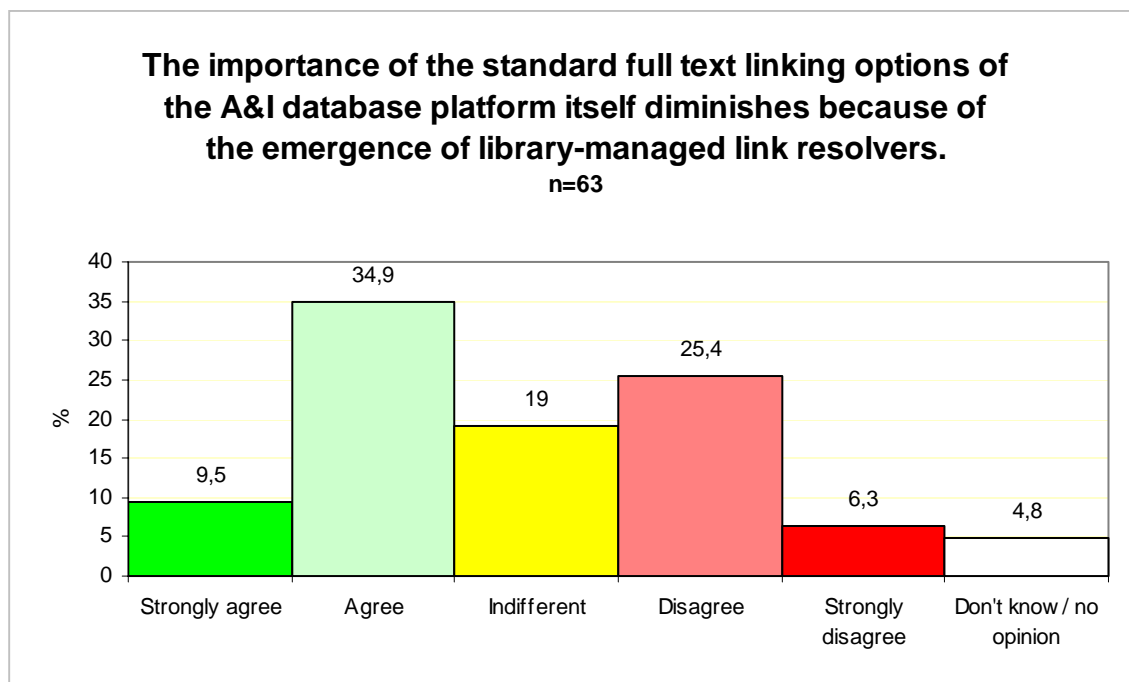
“We would prefer to switch off the linking provided by the platform and only offer the links provided by our link resolver. There are three important arguments for this policy: firstly, our users will be confused by more than one type of link. Secondly, users generally dislike standard links as they sometimes lead to inaccessible full text. And thirdly, even if the platform does provide customer-configurable linking, our library wants to manage [the links within] its digital collection in just one place. Administration of customer-configurable linking on several platforms would be too costly in terms of manpower for our library”.

Another respondent also supports the option to switch off the platform-provided linking:

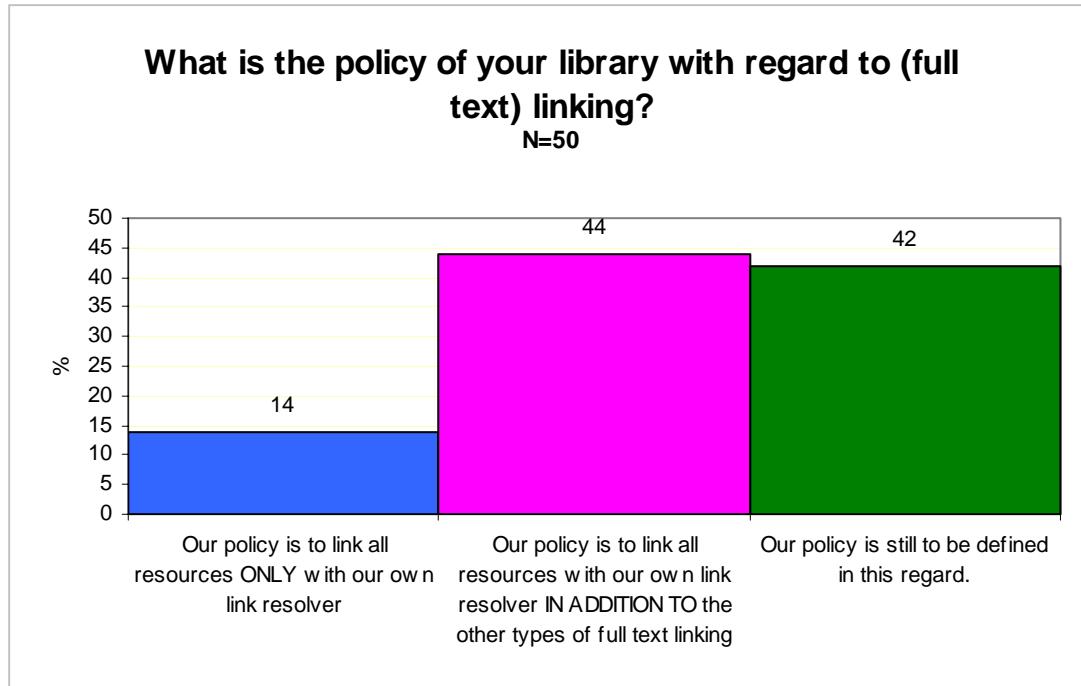
“This is the logical thing to do for a library that has invested in a local link resolver. You have to describe only one way of linking to the end-users. Also, you are removing unnecessary choices for the end-user: the more choices, the more chances it goes wrong and the more training you have to do as a library”.

Another respondent agrees in principle with this policy option, but remarks

“The linking by the provider should not be automatically switched off. If the linking of the platform offers something of value in addition to the linking provided by the library, it might be of interest.”



However, this respondent knew no examples of platform managed linking that offered additional value; most platforms duplicate the linking of the OpenURL link resolvers. In the web survey, over 40% of the respondents agreed with the statement: ‘the importance of the standard full text linking options of the A&I database platform itself diminishes because of the emergence of library-managed link resolvers’. So, in theory this policy has many followers. In practice, however, fewer libraries here implemented this policy of switching off the standard linking of the platform (approx. 14%). The remaining respondents offer either their own linking in addition to the linking provided by the platforms or are still developing a policy.



3.3 Federated search engine policy options

As the survey has shown, federated search engines are as yet less widely implemented than link resolvers. However, the potential impact of federated search engines on A&I database platforms might be enormous. One respondent opts for a radical policy:

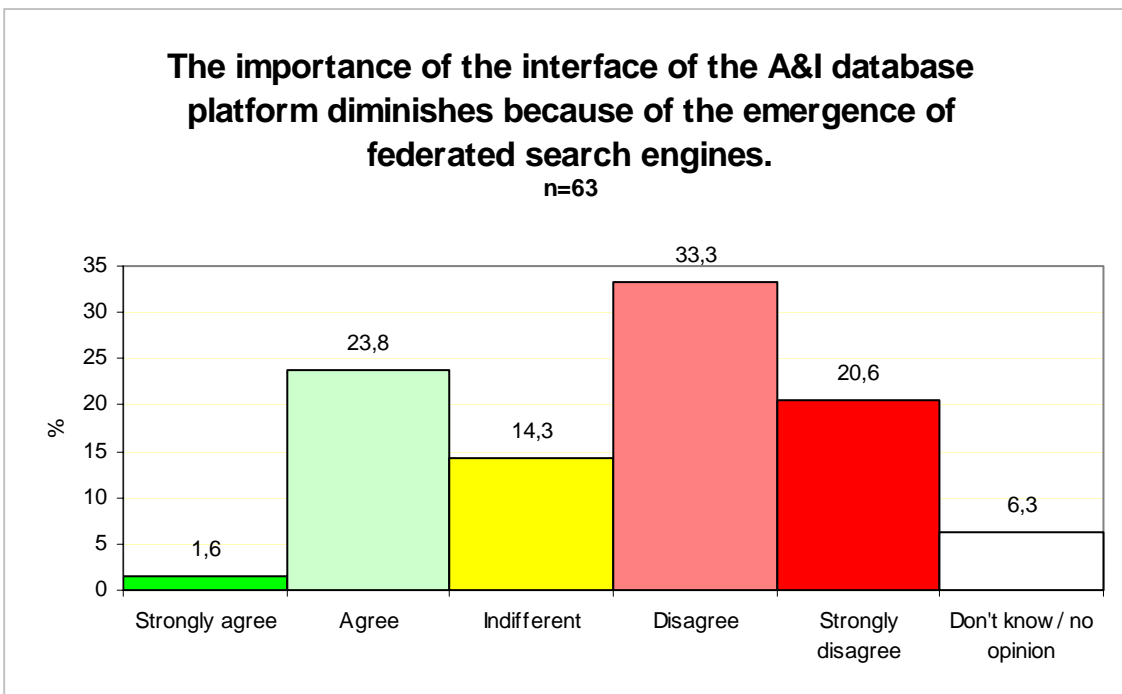
“In principle we strive for the cancellation of the native interfaces. To what extent might this become possible? This depends on the technical standardization of search techniques. At this moment the native interface is still the most suitable for expert usage and will stay that way for some time to come”.

Another of the interviewees agrees:

“We have not yet discussed this in detail. But yes, I think most libraries will promote the portal interface and in special cases only, the native interface. It seems very natural to promote the portal interface as *the way of searching*, as we cannot show our users everything”.

The participants in the web survey appear to agree. Approximately 20% of respondents agree with the statement ‘the importance of the interface of the A&I database platform itself (the native interface) diminishes because of the emergence of federated search engines’.

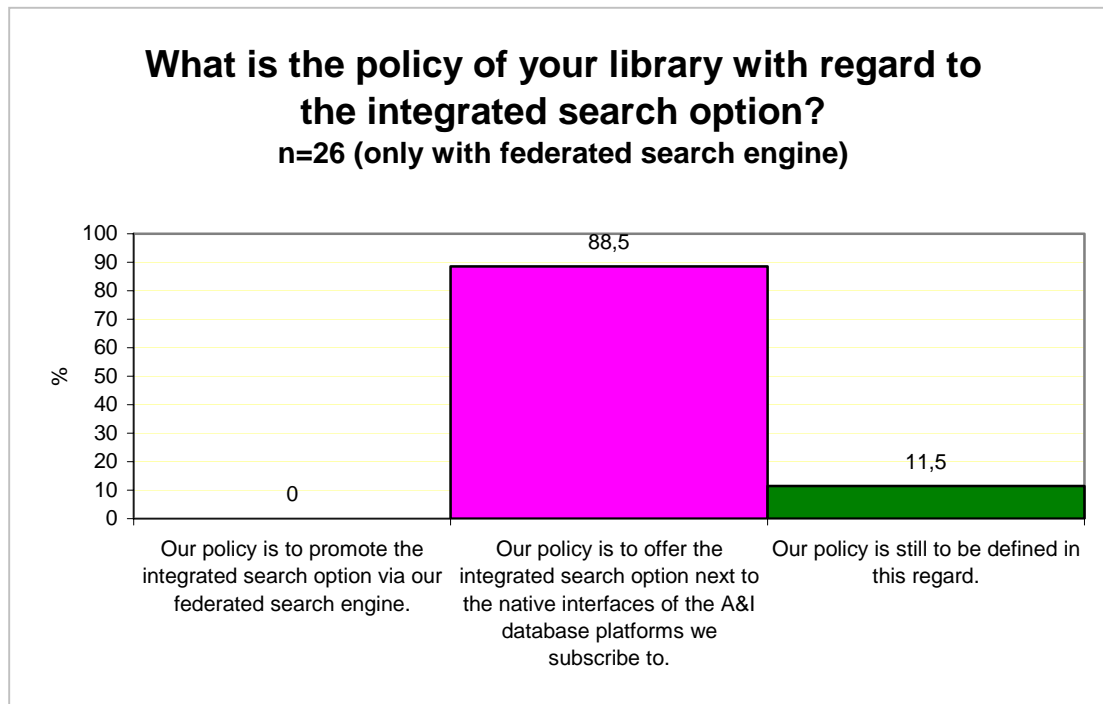
In practice, there are also indications that this is already happening. In a library where Metalib was implemented, within a year 10 to 20% of all searches in A&I databases took place via Metalib. Other experiences point to an increase in usage of A&I databases (+ 40%)². Clearly, a federated search engine adds value to many users within the academic community. However, for large groups of users the native interface of their preferred A&I database will probably stay the most important. One respondent commented:



² WebFeat Prism of Knowledge, Charleston Advisor, August 15, 2003

“For user groups – such as medical doctors and researchers and psychologists – one A&I database covers practically all their needs (PubMed and PsycINFO, respectively) and for them access via a federated search engine to multiple sources will always be of little interest”.

In reality, however, none of the librarians participating in the web survey had officially implemented such a radical policy. The large majority offered the portal interface in addition to the native interfaces, a small minority (11%) still had to define their policy in this regard.



3.4 Consequences of the emergence of link resolvers and federated search engines

From the above-mentioned results it becomes clear that the emergence of library- managed link resolvers and federated search engines leads to new policies within libraries with regard to A&I database platforms but that the various policy options have still to crystallize. Based on the data collected so far, the following policies seem appropriate for libraries:

- *Without library-managed link resolver and federated search engine:* use the (customer-configurable) linking of the A&I database platforms and possibly the federated search out options (that some platforms are developing now) to integrate the digital sources of the library as much as possible. This policy option seems more advisable for smaller libraries or for libraries covering few disciplines.
- *Offer all options of the digital library:* use the options of the link resolver and the federation search engine to integrate the digital sources of the library to provide added value to the end-user BESIDES the linking (and federated search out-) options of the A&I database platforms.
- *Create an integrated, simplified digital library:* use the options of the link resolver and the federation search engine to integrate the digital sources of the library to provide added value to the end-user REPLACING the linking (and federated search out-) options of the A&I database platforms.

4. Five other trends in A&I database platform functionality

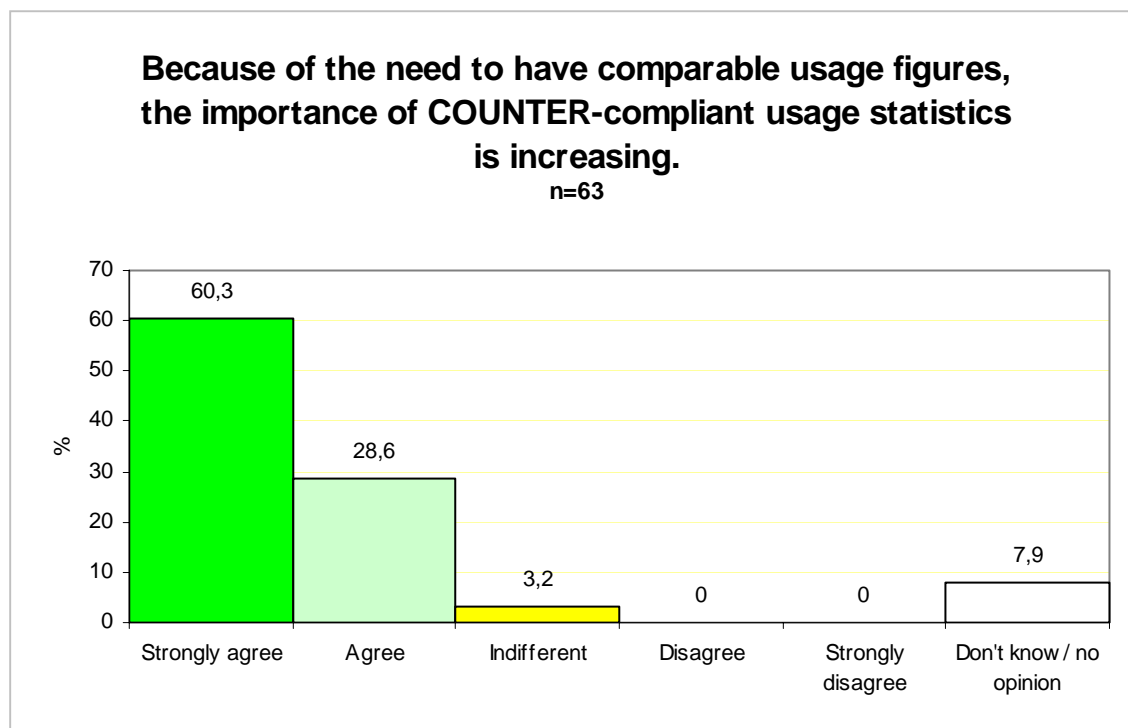
From the interviews it has become clear that other things in the world of A&I databases are changing too. In total, five trends have been identified; these are described below.

4.1 Usage statistics

The rapid emergence of the digital library has greatly increased the need for comparable usage statistics. A format for such comparable usage statistics is being developed by the COUNTER initiative. This initiative has already resulted in three 'levels' of standards for A&I databases and a number of standards for full text platforms. In the web survey the need for COUNTER compliance was underscored by a large majority of respondents (approx. 90%).

The interviewees also emphasized the importance of usage statistics in general (one respondent: **"this is so important when discussing the budget!"**) and the importance of COUNTER compliant statistics in particular. In addition, one respondent found the number of records that are viewed by the user, a very important indicator of usage.

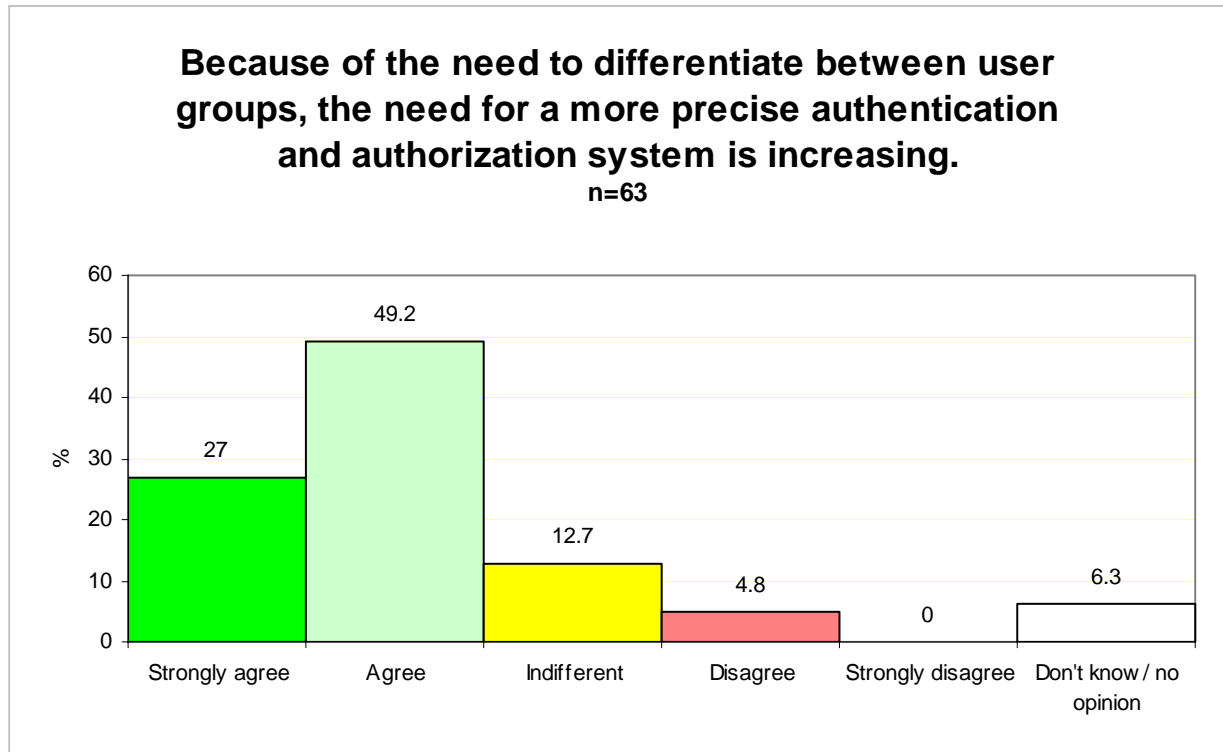
Another respondent mentioned that the platform provider should also be able to deliver the raw log data for in-depth analysis of user behavior. And last but not least, the respondents mention an increasing need for reporting on the usage of links.



4.2 Shibboleth and the need to differentiate between user groups

Most database platforms provide access by IP-address recognition. However, the interviewees stated that there is now a tendency towards a different system for access, which enables the library to distinguish between user groups and therefore allows the library to differentiate its services. It seems that in the future there will be a system that permits authentication of the user (*who are you?*) by the local institution, and authorization (*what are you allowed to do?*) through a new international standard called Shibboleth, which manages digital rights. With these systems in place, a library could offer different services (different interface(s), different sources etc.) to different user groups, such as researchers of various disciplines, students etc.

Most participants in the web survey welcome this development. Logically, the need for user group differentiation is somewhat greater in the larger institutes, which generally encompass more diverse user groups.



4.3 Cross-database searching

During the mid-eighties Dialog was the first online host that enabled cross-database searching with deduplication of similar records. At that time this was a major technical development that was greatly appreciated by the users. However, with the more recent emergence of federated search engines, the capability of a platform to cross-search databases has become less valuable for libraries and end users. In the words of one respondent:

“Our policy until now was to prefer A&I databases on the same platform because of the advantages: one interface and the option of cross-database searching. However, the implementation of Metalib will make this policy less relevant, because we now offer the end user access to all A&I databases via one interface, it has become possible to look to individual A&I database-platform combinations for acquisition”.

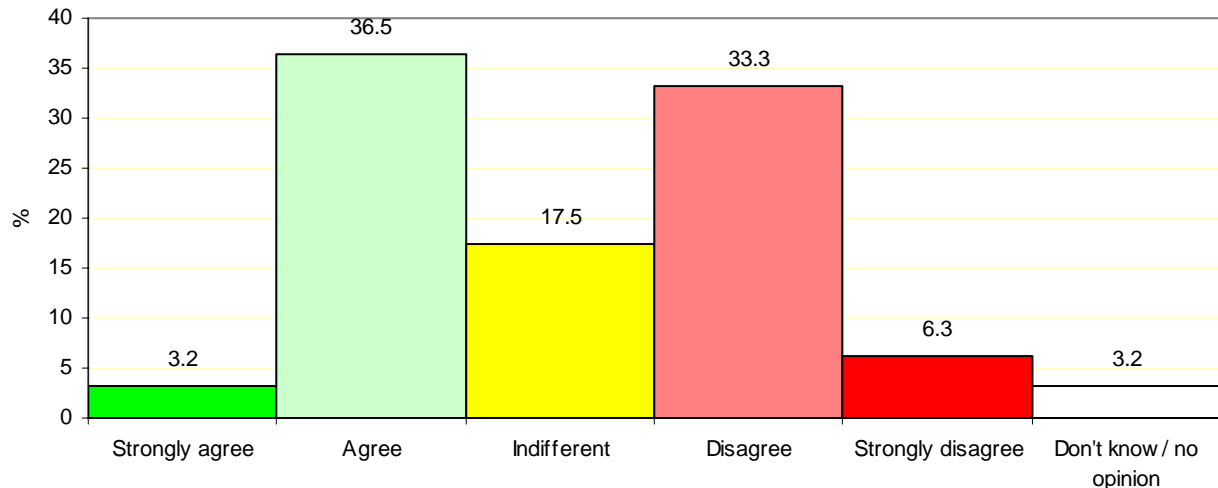
Another respondent:

“For the user it is not relevant that databases are accidentally made available via the same platform. Also, Metalib now provides the option to search several databases of choice simultaneously”.

For these reasons, a large part of the respondents (approx. 40%) agree with a statement on the diminishing importance of cross-database searching. However, an equally large group still finds cross-database searching interesting and disagrees with the statement.

With the emergence of federated search engines the functionality of some A&I database platforms to enable multifile searching and deduplication of the results in databases on the same platform becomes less interesting.

n=63



4.4 Citation functionality

For several decades the Science Citation Index was the only database that allowed for searching within citations. This functionality was, moreover, limited to one or two database platforms. As more bibliographic databases include citations, more database platforms have built in functionality to search and browse these. Still, only a handful of platforms have functionality that support citation searching and browsing. The most important functionality is to follow citation trail forward in time (who cites this article?) and backward in time of a (set of) article(s). Another functionality is to look for articles that share citations with (a set of) article(s).

By following the citation trail, articles are placed in the context of research developments. It is for this reason that end-users from the academic community seem to prefer citation search options as a search tool – if presented in a user-friendly way – above the use of thesaurus terms or classifications.

A statement about the increasing significance of citation functionality was endorsed by a large majority of respondents (85%). And no one disagreed with the statement!

4.5 Personalization of the interface

A number of platforms offer options to personalize the settings of the database platform. The aim of personalization features is ultimately to save time and effort in storing searches, results, preferred set up options (e.g. what databases or sections of databases the user wants to search, limit options etc). One respondent states: **“The demand for this is just taking off”**.

Most respondents of the web survey (over 75%) have also detected an increasing importance of these features.

5. Functionality options of A&I database platforms: description, discussion and importance in the eyes of librarians

A long checklist of functionality aspects was discussed during the personal interviews. The same list, often at a less specified level, was rated by the participants in the web survey as to importance on a five-point scale. The average has been calculated and is called the ‘importance factor’. The results of this part of the study are depicted in this section.

1	Not important at all
2	Not important
3	Somewhat important
4	Important
5	Very important

5.1 Federated search and linking options

5.1.1 Federated search IN

There are several ways for a federated search engine (such as Metalib) to access other platforms. The most ‘primitive’ is screen scraping (HTTP), which actually emulates each database platform. This works perfectly until the platform provider changes something at their end such as the database platform. One federated search engine, WebFeat Prism of Knowledge, uses screen scraping as its primary method of searching across database platforms. A review article³ on this subject states:

Federated search IN
 Importance factor 4.33
 Z39.50 compliant
 SRW compliant
 XML gateway

“WebFeat’s non-standardized approach to meta-searching means that when database vendors upgrade their platforms, the WebFeat translators need to be upgraded. Changes in a single database are usually made in WebFeat in a few hours. Scheduled major vendor upgrades that are implemented on a Sunday are usually reflected in WebFeat by Tuesday morning”.

For one interviewee this is not acceptable:

“We reject screen scraping totally. If the database provider changes something in the interface, the federated search doesn’t work anymore. The database provider should inform us in advance about changes, but he often defaults. Therefore, with screen scraping our library cannot guarantee a stable, integrated search service”.

A more reliable method is the Z39.50 protocol. This is a widely used international standard. The A&I database platform should be Z39.50 compliant, so that the federated search engine – using this protocol – can search the platform.

The Z39.50 protocol in itself offers much more than just the capability to search other databases and is therefore rather complex to implement for this single purpose.

Now, there is a movement towards “ZING”, the next generation for Z39.50, which uses a more narrowly defined (‘light weight’) protocol called SRW⁴. According to the respondents, this new technical development will become the new standard.

Another very recent technical development is the XML gateway. Endeavor Information Systems and EBSCO Publishing announced their recent collaboration to develop an advanced XML

³ WebFeat Prism of Knowledge, Charleston Advisor, August 15, 2003

⁴ SRW defines a web service for searching databases containing metadata and objects, both text and non-text. The SRW Initiative builds on Z39.50 along with web technologies. Building on Z39.50 semantics enables the creation of gateways to existing Z39.50 systems; web technologies reduce the barriers to new information providers allowing them to make their resources available via a standard search and retrieve service. See also <http://www.loc.gov/z3950/agency/zing/srw/>

search gateway. Federated searches of EBSCO content previously relied on the Z39.50 standard, which is progressively being replaced with XML search and retrieval technologies, as users demand the available searching of non-MARC data such as journal databases. The reliable XML gateway search technology is designed for federated search and retrieval of non-MARC formatted information.

5.1.2 Federated search OUT

A few A&I database platforms have started to offer a federated search OUT option. This can include information sources outside the platform, such as library catalogues (OPAC), an internet search engine, selected websites, free databases such as PubMed or Agricola as well as proprietary databases. The sources searched can be pre-defined or customer configurable and there is often a choice in switching this feature on/off.

Federated search OUT
Importance factor 3.63
Included in price platform
Optional
Information sources searched predefined versus customer configurable
Web search integrated

As this is a very recent development, not all possibilities may have entered everyone’s mind thus far and the response from the interviews was not too enthusiastic. One interviewee commented:

“I think the database provider cannot make a good selection of sources searched by this feature for a very wide community of users. This should be tailor-made and set up by the library and the end-users themselves. In short, it is an absolute prerequisite that such a feature should be customer-configurable. And web searching should not be part of it!”

The other respondents agree that it should at the very least be optional and thus potentially turned off by the library. The participants in the web survey were also rather unenthusiastic about this option: the score of 3.63 is one of the lowest given for any feature in this survey.

5.1.3 Library-managed Linking

OpenURL compliance is an essential requirement for an A&I database platform if it wants to be accessible via a library-managed link resolver. OpenURL compliance entails adherence to an Open Archive standard to enable the link resolver to make links from and to the platform. Most A&I database platforms are now OpenURL compliant – and if not yet, are urgently endeavoring to become so.

Are there other features that differentiate OpenURL compliant A&I database platforms? This study has identified a few, rather specific, features, but more can be expected as technology continues to progress. One differentiating option concerns the screens from which the library can make its links. This depends on which screens links are possible from and on the space in the layout of the screen(s). Normally, there is space from an abstracts page, but some A&I database platforms also offer space for library links from the results screen and from the references (if provided with the bibliographic record). Another differentiating feature might be the option to show *entitled* full text links only (the other links are then shown with a different button)⁵. Some producers of link resolver software are now developing this feature. However, one respondent is rather skeptical:

⁵ This is a combination of platform technology and local link resolver technology, which shows a link only when the user is entitled to the full text. The intermediary screen of the local link resolver is then not shown.

“This new ‘entitled full text’ button demands a lot of processing power from the servers of the A&I database platform and the knowledge base of the link resolver. Theoretically, this looks like a nice feature, but in practice, it could require too much processing power and might therefore result in slow responses. In my opinion it is a rather impossible task for one A&I database platform provider with several hundreds of clients to put in place a fast service for this”.

Library-managed Linking
OpenURL compliant
Importance factor 4.53
Screens from which links can be made
. abstracts page
. references
. results page

5.1.4 Platform provided Linking

Database platform providers generally take great pains to offer as much as possible in the way of linking from their platforms to full text and other information sources. This is frequently achieved by using DOI (Digital Object Identifier) links via participation in the CrossRef initiative (www.crossref.org). Another (often additional) method of linking for the platform providers is to create algorithmic links and negotiate linking agreements with aggregators or publishers (e.g. JSTOR). However, in the eyes of the librarians interviewed on this matter, these different ways are irrelevant:

“Nobody asks us ‘is this journal available via CrossRef?’”

Platform provided linking	
Full text linking	Importance factor
Number of journals with full text links	3.98
Customer configurable:	3.97
.Switch on/off entirely	
.Switch on/ off per journal	
.Switch on/ off per journal subscription year	
. Journals links: links from journal title to the journal’s home page at the publisher	
. OPAC links: links to the OPAC of the institute	
. Links to the document supplier of the institute	

Therefore, only the number of journals covered by full text linking is deemed relevant.

Another important feature concerns the extent to which the platform-provided linking is customer-configurable. First of all, one should be able to switch it off entirely for libraries with link resolvers who wish to do so (see 3.1). Other libraries, with or without link resolvers, would like to make the platform-provided links as tailor-made as possible by switching it on only for journals or subscription years that they have entitlements to. Other customer-configurable options include links to sources other than full text such as journal homepages, OPAC records or the preferred document delivery vendor.

In general, these options are deemed to be important, with scores of 3.98 for the number of journals with full text links and 3.97 for the various customer-configurable options. Obviously, for libraries that switch off the platform-provided linking, this functionality (apart from the ‘switching off’ feature) is irrelevant.

5.2 Customization

Customization		Importance factor
Library branding: option to display the library name and logo in the entry screen, search screen and result screen of the platform	option to depict library name and logo in screens platform	4.05
Customizable screens: option to customize the layout of the search screen and the display of the results	options to customize entry screens, search screen, results screen	3.87
Customization at department level option to customize the platform for different user groups (e.g. user group settings for enabling full text links)	idem for different user groups via the authentication process. Example: user groups settings for enabling full text links	3.22
Administrator module	Possibility for the librarians to configure their linking settings, their customization preferences themselves	4.13

Under the banner of library customization come a number of options to adapt platform interfaces to the needs of the users and, to increase the visibility of the library, options to brand the interface as a library-provided service (logo on screen, institution name/links etc).

The library branding option is very important to most respondents. One comment was

“The users must understand that they can use these sources because of the library”.

Another respondent said

“This is a must have. It is particularly important to have the library logo on the linking buttons”.

This respondent also explains why the customization of the various screens can be important to the library:

“For instance, the entry screen of our biggest platform provider mentions examples that are very US-oriented and not so applicable to our users”.

Additionally, the setting of the logout button is important, as **“You want the user to be reverted to our digital library”.**

However, according to one respondent, there is also a minus side to all these customization options:

“The problem is time, I never got round to doing it. You have to consult colleagues, choose options, plus keep track of all the changes to the platform interface. It seems to me that you can only do this when you have one interface: the portal interface!”

The customization per user group will become very important in the near future according to this interviewee:

“As soon as we have organized the authentication and authorization, we can ensure that an economist will be led into the digital library on economics, etcetera”.

Another respondent adds the following argument:

“This is especially of interest to institutes with sections that are devoted to research on quite different subject fields”.

These views are also reflected in the results of the web survey; library branding scores very high, whereas customization at department level scores rather low – this seems to be more a trend for the future.

How should these customized settings be administered? There is a strong preference among the librarians to be able to do this their selves through an administration module on the platform. Such an administration module scores highly in the web survey.

5.3 Search-ability and browse-ability

Search-ability and browse-ability aspects are very much interwoven with the user-interface. A number of platforms have functionality aspects that are presented in the user interface in such a way that they are not understood by end users and are therefore under utilized. To prevent this, the user interface should be ideally developed through user-centered design techniques whereby user responses are elaborately tested during the development of the user-interface. However, the user friendliness of the interface is very much a subjective aspect of functionality and perceptions thereof may change over time. For these reasons ‘user friendliness’ is not incorporated in this study.

5.3.1 Search screens and search & browse options

Search screens and search & browse options		Importance factor
Search screen types		4.29
Basic search	Simple search screen	
Advanced search (guided search)	Advanced search options; guided: searching using intelligence of the interface/thesaurus etc.	
Thesaurus search	thesaurus of database is searchable (e.g. looking up preferred term)	
Search language options		4.29
Boolean operators		
right-hand truncation	word*	
left-hand truncation	*word	
masking within a word	w*rd	
proximity operators		
phrase searching ⁶		
Stemming	*word*	
Search ‘expanders’	option to expand search results by shared hyperlinks in the records (author, index terms)	

5.3.2 Search screen types

The respondents found two types of search screens very much desirable: one for basic searching and one for advanced searching. One respondent commented:

“Most users use the basic screen, but some users want more. The advanced options should include set combination and thesaurus support”.

This respondent stated that the more traditional ways of searching bibliographic databases still persist **“among a small but noisy group of users”**. However, too many search screen options

⁶ Boolean operators and phrase searching are provided by the Google search engine: the other options are not.

will confuse the users. The same respondent mentions a database platform that offered five search screen options at a certain point, but reduced this number in the newer versions.

The platform should also include an option to search and browse through a thesaurus, if a database has one:

“Of course I know that end-users hardly use a thesaurus, but I still find it important”.

”It is preferable that the thesaurus works ‘invisibly’ in the background. Nevertheless, the user should be able to look at it as well”.

The participants in the web survey seem to agree entirely with the interviewees as they gave this feature a very high importance factor - 4.29.

5.3.3 Search language options

With regard to the more traditional search language options, the interviewees place similar importance on Boolean operators, right-hand truncation and phrase searching. Less importance is given to options such as proximity operators, stemming (**“some systems do this automatically and confuse the users enormously”**), left-hand truncation and masking. The participants in the web survey assign an importance factor of 4.29 to these options taken together.

5.3.4 Search ‘expanders’

With regard to the ‘search expanders’ (hyperlinked terms in a record that lead to other records with the same hyperlinked index term or author) the respondents all liked this relatively new feature: **“a good thing to have”**.

Note: This did not constitute a separate question in the web survey.

5.3.5 Refine options

Refining and limiting the search results	
Refining or limiting options	Importance factor
. date	4.33
. language	
. publication type	
. full text availability	
. subject	
. peer-reviewed journals	
. last update	

Generally speaking, limiting options are options offered before the search is conducted. Refining options are offered after the search results are displayed. The traditional limit or refine options are (publication) date and/or last update⁷. However, some new options have recently become available on some A&I database platforms. The respondents thought that being able to limit to records where the full text is available to the user would become a very popular option.

⁷ One respondent states emphatically: ‘it is very important that the user can be specific about the date. The user should be able to limit to the actual date instead of ‘to the last update’, especially in situations where for some reason they haven’t used the database for a while’.

Other options are language, peer-reviewed journals only and publication type. Subject was not seen as a very interesting limiting option (“**the user had better add an extra keyword to his search statement**”).

In the web survey the advanced options for refining or limiting (stated as: ‘limit to language, full text availability, peer-reviewed journals’) was assigned an importance rating of 4.33.

5.3.6 Sorting options

Sorting options	Importance factor 4.19
. publication date	
. author	
. source title	
. relevance	
. number of citations	

Traditional ways of organizing results in a bibliographic database include sorting by publication date, author and source title. Relevance⁸ has become a popular sorting option and now, the number of citations of an article is expected to become another ‘relevancy’ indicator and therefore a sorting option.

The participants in the web survey gave ‘advanced sorting options such as relevance and number of citations’ an importance factor of 4.19.

5.3.7 Handling of search results

Handling of search results
Importance factor 4.49
e-mail option
export options:
. EndNote
. plain text
. structured format
. csv

With regard to export options, one interviewee commented:

“These have increased dramatically over the last years. This is because users are increasingly making their own databases and they want to fill these with bibliographic records”.

One option is to send the records by email and other options include exporting them directly into different formats to the personal databases of the end-users. The participants in the web survey give this type of functionality a high importance factor of 4.49.

5.3.8 Special search technology

Are there any newer considerations in searching that are important to A&I database platforms? This study has identified the following topics:

- **Subject-specific functionality:** Functionality designed specifically for certain disciplines is becoming increasingly important. A very important feature for chemists, for example, is to be able to do chemical structure searching but this is important only for individual chemistry databases and, according to the respondents in this survey, is not a consideration for general platform functionality evaluation.

⁸ Relevance is usually assessed by either or both of the following: the number of occurrences of the search term(s) and the position of the occurrences of the search term(s) within the record.

- Stop words: Stop words are words, specified by the search engine, that are deliberately ignored because of the frequency with which they occur by some search engines. This can cause annoyance when users search with terms like 'further education' since the word 'further' is likely to be tagged as a stop word.
- Grouping or clustering the results: Grouping results into categories defined by the index terms within a set of results is a rather new feature within A&I databases. This is done by auto-classification software such as Vivisimo and gives the user an overview of their results set and therefore the option to quickly analyze the results.

Appendix A – other data on the participants of the web survey (academic librarians in North America and Europe)

My function is	63	%
Library Director	10	15.9
Electronic Resources Librarian	21	33.9
Systems Librarian	3	4.8
Collection Development Librarian	8	12.7
Reference Librarian	10	15.9
Subject Librarian	4	6.3
Consortium Manager	1	1.6
Other	6	9.5

The size of my institution is	63	%
<5000 end users	4	6.3
5000 – 10000 end users	15	23.8
10000 – 25000 end users	30	47.6
>25000 end users	13	20.6
Consortium	1	1.6

My country is	63	%
USA	33	52.4
Canada	2	3.2
United Kingdom	8	12.7
France	0	0.0
Germany	4	6.3
Italy	0	0.0
Benelux	5	7.9
Eastern European Country	3	4.8
Scandinavian Country	3	4.8
Austria	0	0.0
Switzerland	0	0.0
Ireland	0	0.0
Other	3	0.0

Appendix B – Evaluation tool

This survey has resulted in a checklist that librarians can use to compare and evaluate the functionality of A&I database platforms.

Functionality	Importance rating among survey respondents	Your importance rating
1. Library functionality		
1.1 Library integration		
Federated search in	4.33	
▪ Z39.50 compliant		
▪ SRW compliant		
▪ XML gateway compliant		
Federated search out	3.63	
▪ Switch on/off		
▪ Information sources customer configurable		
▪ Web search integrated		
Library-managed Linking	4.53	
▪ OpenURL compliant		
▪ Screens from which links can be made:		
– Abstracts page		
– References		
– Results page		
Platform provided linking		
▪ Number of journals with full text links	3.98	
▪ Customer configurable:	3.97	
– Switch on/off entirely		
– Switch on/off per journal		
– Switch on/off per journal subscription year		
– Journals links		
– OPAC links: links to the OPAC of the institute		
– Links to the document supplier of the institute		
1.2 Customization		
Library branding	4.05	
Customizable screens	3.87	
Customization at department level	3.22	
Administrator module	4.13	
1.3 Access options, usage statistics		

Functionality	Importance rating among survey respondents	Your importance rating
IP address authorization		
Shibboleth compatible		
Athens compatible		
Concurrent users		
COUNTER compliant usage statistics		
2. User functionality		
2.1 Search-ability and browse-ability		
Search screen types	4.29	
<ul style="list-style-type: none"> ▪ Basic search ▪ Advanced search (guided search) ▪ Thesaurus search 		
Search language options	4.29	
<ul style="list-style-type: none"> ▪ Boolean operators ▪ Right-hand truncation ▪ Left-hand truncation ▪ Masking within a word ▪ Proximity operators ▪ Phrase searching ▪ Stemming 		
Search 'expanders'		
Refine or limiting options	4.33	
<ul style="list-style-type: none"> ▪ Date ▪ Language ▪ Publication type ▪ Full text availability ▪ Subject ▪ Peer-reviewed journals ▪ Last update 		
Sorting options	4.19	
<ul style="list-style-type: none"> ▪ Publication date ▪ Author ▪ Source title ▪ Relevance ▪ Number of citations 		
Handling of search results	4.49	
<ul style="list-style-type: none"> ▪ Email option ▪ Export options: 		

Functionality	Importance rating among survey respondents	Your importance rating
– EndNote		
– Plain text		
– Structured format		
– Csv		
Personalization		
▪ Saving search history		
▪ Saving previous search sessions		
▪ Alerts:		
– Selection by search statement - delivery by email		
– Journal alerts (TOC alerts)		
– Citation alert		
– To multiple recipients (workgroups)		
– User specified frequency, recipients, format		
▪ Screen layout options:		
– Number of results on page		
– Record format		
– Personalized folders		

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