

# Next-generation library catalogues: reviews of Encore, Primo, Summon and Summa

## Encore

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The University of Glasgow Library's involvement in the development of Encore was set against the background of the 2006 (and ongoing) debate about the change in users' expectations. We were already trying to respond in-house by offering our users search options which didn't require them to start by choosing an index – the time-honoured approach of library catalogues. However, the proposal from Innovative Interfaces, the suppliers of our Library Management System (Millennium), that we partner with 12 other libraries internationally to assist them in developing a 'discovery services platform', seemed to have the potential for satisfying current and future demands. There was no working product at that time so we were buying into the idea of what Innovative were trying to achieve and how they intended to do that. In fact, development moved fairly quickly: our Encore server was installed in April 2007; we offered in-house previews in July 2007; and our initial public launch was in February 2008.

### Some technology

Encore has its own indexes but interfaces directly with the data on our Millennium system. Data updates would be required for non-Millennium sites although circulation information is always updated in real time. Encore also makes use of AJAX technology to request and display additional information dynamically without having to redisplay the entire page.

### Features

Encore's access point is a single (keyword) search box which can be embedded into any web page; no choice of index or format required. The search box appears at the top of the screen throughout the session, allowing the user to start a new search at any point. Search results are presented in a three-column display. The central column displays the library catalogue results; the left-hand column offers faceted navigation into the results set; the right-hand column provides additional features (see Figure 1).

The catalogue results are displayed in relevance-ranked order with additional weighting given to exact match journal records (identified via the MARC leader) and to electronic resource records (ERM). This improved relevance ranking was implemented as the result of initial user feedback. The record information displayed (title, author, date of publication) is intended to supply enough information for the user to determine what the item is and where it is shelved (print) or with a link to connect (electronic). The full bibliographic record details can, however, be accessed via the title link.

The left-hand column labelled 'Refine by' allows the user to narrow down the results into categories or facets. The top of the column offers 'title, author, subject'. Another result of user feedback, this facet provides a helpful tool in raising user's awareness that their search terms may have retrieved 'works by' as well as 'works about'. The other facets come from coding added to the bibliographic records by

The screenshot shows the University of Glasgow Library search results for the query 'jane austen'. The page is titled 'Searched: jane austen (1- 25 of 307)'. The search results are sorted by Relevance and show 142 most relevant items. The first few results are:

- Jane Austen : a students' guide to the later manuscript works** / Brian Southam. Southam, B. C. (Brian Charles). 2007. IN LIBRARY - Level 9 Main Lib - English MA296 SOU6. Request it.
- The reception of Jane Austen in Europe** / edited by Anthony Mandal and Brian Southam. DUE 30-03-09 - Level 9 Main Lib - English MA296 MAN. Request it.
- The reception of Jane Austen and Walter Scott : a comparative longitudinal study** / Annika Bautz. Bautz, Annika. DUE 30-03-09 - Level 9 Main Lib - English MA296 BAU. Request it.
- Jane Austen in the context of abolition : "a fling at the slave trade"** / Gabrielle D.V. White. White, Gabrielle D.V. IN LIBRARY - Level 9 Main Lib - English MA298 WHI. Request it.
- Jane Austen : introductions and interventions** / John Wiltshire. Wiltshire, John. IN LIBRARY - Level 9 Main Lib - English MA296 WIL4. Show all 3 available copies/volumes. Request it.
- Prospect and refuge in the landscape of Jane Austen** / Barbara Britton Wenner. Wenner, Barbara Britton, 1946-. IN LIBRARY - Level 9 Main Lib - English MA296 WEN. Request it.
- Jane Austen in context** / edited by Janet Todd. 2005. Table of Contents.

The left-hand side features a 'Refine by' section with categories: SEARCH FOUND IN (Subject, Title, Author, FORMAT, COLLECTION, LANGUAGE, PUBLISH DATE, LOCATION), and a 'Recently Added' section listing items like 'Sense and sensibility' and 'Persuasion'.

Figure 1.

the library's cataloguers, thus allowing libraries to determine formats and collections which could usefully be exposed to their user groups. The possibilities opened up by Encore prompted us to review our record codings, and we increased our formats from 10 to 24 discrete types, such as print book, e-book, artworks, exam papers. We also introduced 12 broad levels of Collections such as all electronic resources, all audio visual materials. Locations, languages and publication dates are also available as facets, with further categories under consideration by Innovative as suggested by user feedback via the development partners.

The right-hand column highlights items which have been 'Recently Added' to the database, optional images from Yahoo!, and a tag cloud display of subject headings. With the tag cloud, the Library of Congress subject headings in our catalogue records are being exposed in a more user-friendly style than previously possible. We are, however, aware from feedback that, despite the 'Refine by Tag' heading to the tag cloud, some users think this is expanding their search not refining, and this is an

aspect we continue to monitor. The right-hand column would also contain initial results from a federated search if implemented by the Library.

### User feedback

Encore has been offered as a 'preview service' from the Library home page since February 2008. Feedback has been extremely positive with almost all undergraduates who responded rating Encore as 'very easy' or 'relatively easy' to use. Postgraduate and academic staff approval ratings are both slightly lower than undergraduates. The positive comments relate to the single search box, layout and information breakdown. The negative comments received during the initial period, such as, 'couldn't easily find journals' or 'timed out too quickly', have been resolved. Other requests, such as facility to export records, will be accommodated in the next release. The most common request (for the 'classic' catalogue as well as Encore) is for searching of articles.

### What's next for Encore at Glasgow?

To date, our Encore preview has essentially been an alternative way of searching the Library Catalogue. With the launch of our new Library website during January 2009, we're branding the service as QuickSearch and promoting the search box to the Library home page (<http://www.lib.gla.ac.uk>). During 2009 we will move towards the goal of using Encore/QuickSearch to bring together search and discovery services with the introduction of federated search using Research Pro, which is already successfully integrated with Encore at a number of other sites. We will also be exploring the potential of Encore Harvester. This will allow us to harvest content from, in the first instance, our institutional repository.

Another aspect we're pursuing is that of 'community involvement'. Encore already allows authenticated users to tag records with their own subject tags but, within our database of 1.5 million items, how do we get critical mass? In addition, the facility for authenticated users to add ratings and reviews is expected to become available in the next release of Encore. We previously decided against implementing these types of features in our Millennium WebOPAC but the different style of Encore and the response from users suggest that these facilities may sit well within this context.

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## Primo

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*Based on a paper delivered at the JIBS User Group workshop: How to compete with Google: simple resource discovery systems for libraries, held at the Diskus Conference Centre on 13 November 2008.<sup>1</sup>*

### What is Primo? How does it differ from traditional library catalogues?

The Ex Libris™ Primo® product<sup>2</sup> acts as a one-stop shop for a variety of data sources – local and remote. It is a fully integrated search engine. At the University of East Anglia, we've set it up to access our Library Catalogue, our digital repository Digitool and sub-sets of our subscribed and free e-resources from MetaLib.

### Why do we need Primo?

*"Libraries aren't keeping up with the demands of students and researchers for services that are integrated and consistent with their wider internet experience".<sup>3</sup>*

Primo aims to provide a simple intuitive interface that helps to attract users to the high quality subscribed content which libraries have to offer – "content is king", as Nicholas Lewis writes.<sup>4</sup>

### Why Primo at UEA?

We liked the idea of helping develop version 1 (v1.0) of the product and working with Ex Libris and other Charter Member libraries internationally.<sup>5</sup> At UEA we introduced the Ex Libris Aleph OPAC in 2002 and the MetaLib e-resources portal in 2003, with its SFX full-text linking functionality. We have also purchased the Ex Libris Digitool product for our institutional repository. We knew Primo would be compatible with our other Ex Libris products. A small project team was set up in April 2007 to work on:

- project management
- systems management
- data management
- interoperability management
- front-end management.

### Updating data

Regular publishing schedules allow the 'pipes', as they are called, to pull in data from other sources, such as our Aleph cataloguing module and Digitool, so that data appearing on Primo is updated regularly. There is real-time availability information.

## Customization of interface

We experimented with the design, consulting staff and setting up a focus group of users, and considering a suitable name for the product. We set up three 'search scopes' and the three tabs reflect these three sources of data: two local and one remote. Out of the box, there's a simple search as default, and an option for a more advanced search. There are drop-down pre-filter menus for users to refine their search, and the right-hand tiles give lots of space for publicity and news.

We decided on a simple search box and no pre-filter menus, after feedback from Information Services staff and from our user focus group. We adjusted the size of the tiles and removed all but the essential information, providing links on the top menu to our other services. Users may refine their search using post-search facets. This helped with branding the service locally, since users do a broad search (see Figure 1) and then narrow down afterwards.

## Books, etc.

Results are displayed in order of relevance (see Figure 2), but can be displayed in date-newest order or popularity. Primo has a range of customizable icons to help users distinguish between different item formats. On the right hand of the screen are context-specific facets for refining a search if required. The system also uses Frbrization or work set clustering, whereby bibliographically related works are grouped together and users click to explode a list. Availability is indicated by traffic-light colours. A window opens up displaying the item record from the Aleph OPAC, giving access to functionality such as the ability to check one's Library account, reserve a book, or make a 'short loan' booking. The two systems are fully integrated.

## FRBR and de-duplication

FRBR<sup>6</sup> is a conceptual model of cataloguing which results in collocating related works in a catalogue

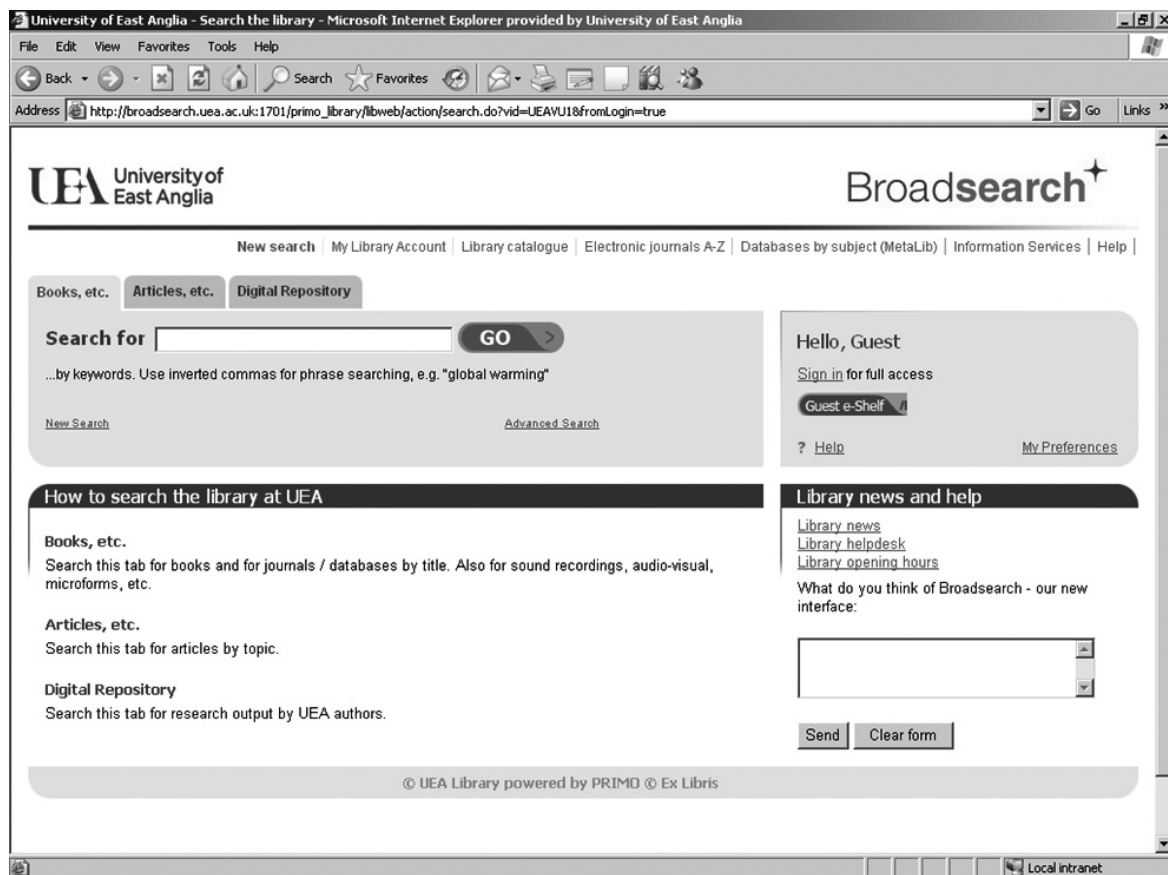


Figure 1.

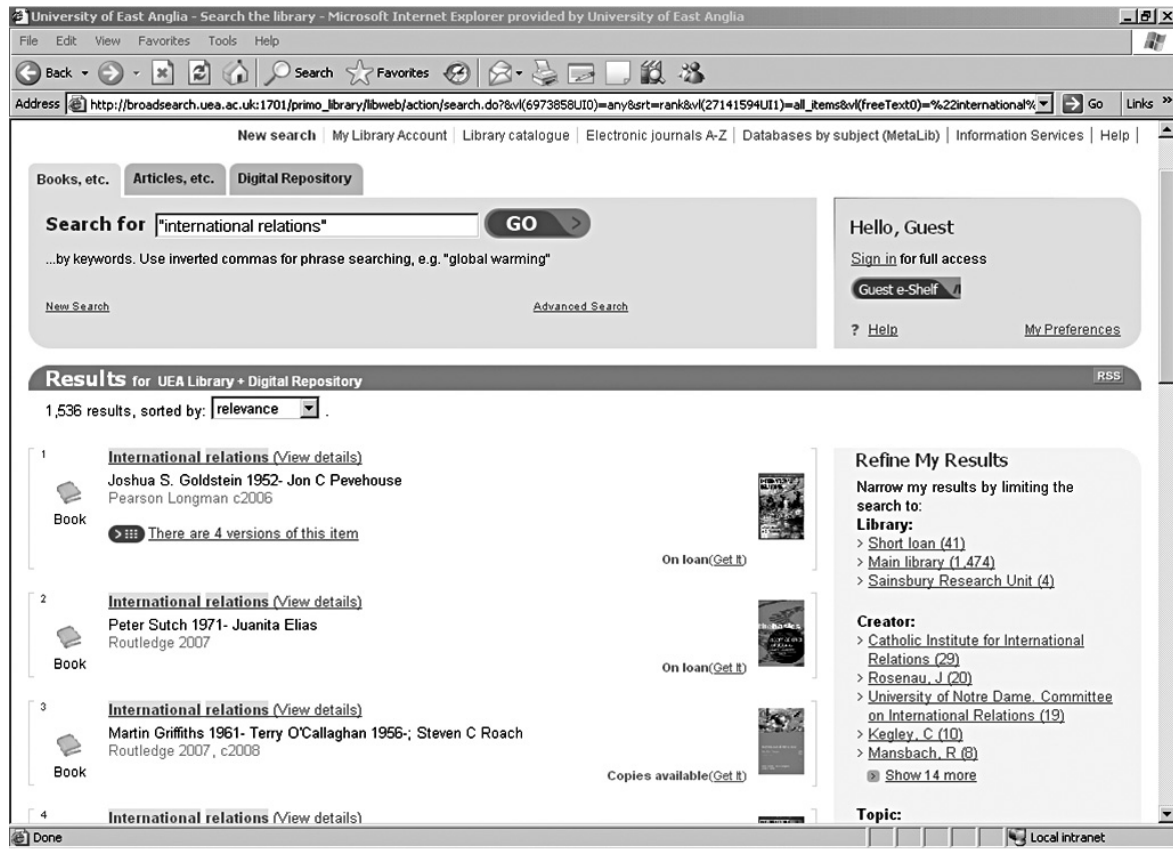


Figure 2.

regardless of format. Frbrization is particularly useful in collocating primary literary works and in grouping together different editions of secondary works. A de-duping option allows duplicate editions to be merged onto one record, regardless of format.

### Articles, etc.

Through federated searching, the 'Articles, etc.' tab (see Figure 3) gives access to a default General quickset of up to 10 federated-search e-resources. Off-campus users need to log in for full access. We have set up further quicksets by subject. The quicksets for Primo are independent to those for MetaLib. The resources searched appear as facets after a search has been completed. Display of results and features is consistent across Primo. Results are displayed in order of relevance, but users can opt to display them in order of date-newest or popularity. Users link to our SFX link resolver menu from the GetIt link to check UEA availability of full text or print.

### Interface implementation

We demonstrated v1.0 of the service on our staging server to groups of Information Services staff, as well as to our consultative LLR forum and the IT Forum. We also set up a user focus group and blog to collect feedback.

### Publicity

As part of the launch in September, we took away the link to our Aleph OPAC from the Information Services web page and added a 'Search Library Resources' link through to an intervening screen explaining about the new service.<sup>7</sup> A portlet has been embedded into our institutional portal and also on Facebook so that users can easily access the service.

### Staff training

We have offered training sessions to all Information Services staff and led hands-on workshops with

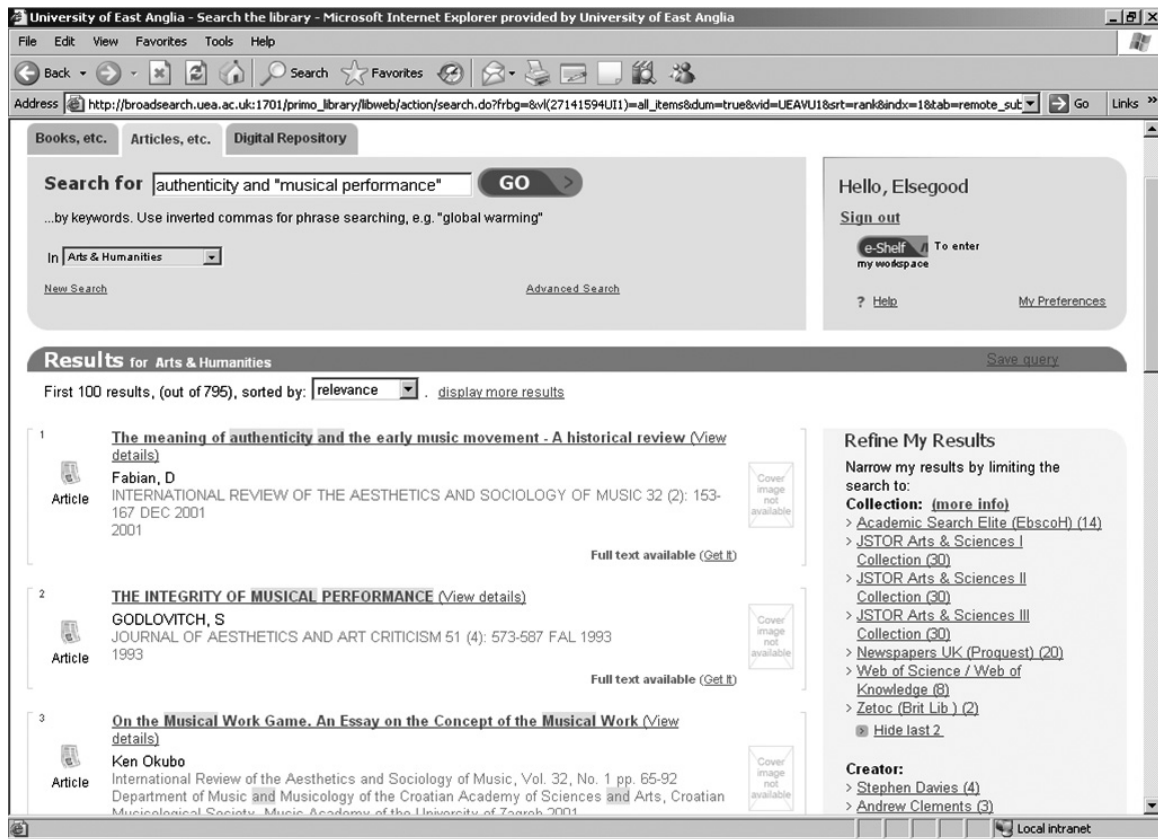


Figure 3.

front-line staff. I devised a simple quiz and piloted a feedback questionnaire with this group before adding it to our web pages. Broadsearch is the preferred service to demonstrate when our staff are assisting users.

### User feedback and usage statistics

Comments we've fed back to Ex Libris have been integrated into subsequent upgrades, such as users' desire to export to Endnote. Comparative statistics show that OPAC usage continues to grow alongside increasing Primo usage, with different groups of users preferring each service.

### Web 2.0 and advanced functionality

At UEA, users will shortly be able to log in for full Web 2.0 functionality, such as community tagging and reviews. Users can save records and searches to an e-shelf.

### Impact on information literacy skills delivery

New-generation library catalogues are designed to be intuitive to use. However, to use any Library search interface effectively, most new users need some guidance. Librarians still need to advise on how to search, how to evaluate results and provide an introduction to what types of material are being found. Primo is a great starting point and lecturers are pleased that it is getting undergraduates using a wider range of books and journal articles than they have done previously. It is a stepping stone to searching the full range of e-resources using MetaLib. Faculty Librarians have been working with groups of students in their academic Schools throughout the Autumn Semester.

*"I've had quite a bit of trouble getting my students to search anything other than JSTOR because of the difficulty they find in the interfaces – Primo looks like it might solve that problem – it's much more intuitive." (American Studies lecturer)*

## Future developments

IGeLU<sup>8</sup> formed a focus group in 2008 to respond to an Ex Libris consultation with Primo institutions on OPAC functionality. V3.0 (beta) due in Autumn 2009 will integrate full OPAC functionality. Future possibilities include making Primo accessible on PDAs and mobile phones, enabling user-defined lists of items, harvesting web pages and local caching of federated searches<sup>9</sup>. A Primo mailing list has been set up by IGeLU and a wiki is available. A Primo Working Group is forthcoming.

## Conclusion

Now at v2.1.2 we feel pleased that we've contributed towards some of the developments since v1.0, thanks to the work of the Project team and helpful feedback from our staff and users. View our implementation at: <http://broadsearch.uea.ac.uk>

## References

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## Summon

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### Introduction

The libraries of Dartmouth College and Oklahoma State University have since November 2008 been working with ProQuest and Serials Solutions to test and inform development of the Summon<sup>TM</sup> unified discovery service. The Summon service, now in a wider beta-testing phase, is a bold and innovative attempt to address one of our most pressing problems: how to move on from the confusing array of services, indices, destination sites and catalogs that our users now must navigate to access our rich and growing print and electronic collections. Users express confusion at this disjointed discovery layer, and too often they default back to Google, Wikipedia, YouTube and Amazon, often missing relevant scholarly items not represented there.

Serials Solutions' ambitions with the Summon service are no less than to gather up into a central hosted database all the library content and metadata our users have access to: our catalog records; metadata and full-text files harvested from the many vendors and publishers from whom we purchase information; bibliographic databases; indices and abstracts; open access content; and locally-created digital collections. The Summon service indexes and enhances this mass of data to create a single, convenient, compelling, high-yielding discovery system for scholarly articles, newspaper entries, books, and the metadata that leads to the rest of our holdings.

**Simple. Easy. Fast.**

This new discovery platform has Google-like convenience and speed as a goal, and employs Google-like practices to achieve it: all the data and metadata that it searches are gathered up onto a central server where the resulting mass is de-duplicated, regularized, indexed and delivered back to the user. And as with Google, once a resource is found, The Summon service takes the user to that item wherever it resides – it links back to the local library catalog entry for a printed book, for example, or uses an OpenURL resolver to take the user directly to a journal article on a publisher’s website.

By gathering up the data on a central server and processing it ahead of time, the Summon service takes the opposite approach to a federated search service, where discrete databases – often hundreds of them – are searched in real time and the results are presented back to the user as a loosely co-ordinated list. Federated search has been a step in the right direction but for large collections of resources it is often sluggish and the display of results is sub-optimal.

**Scope and content**

As of late January 2009, the Summon service already contains 300 million records for content derived from the holdings of ProQuest, Gale, Springer, Taylor & Francis, SAGE, Nature Publishing Group, Oxford University Press, Cambridge University Press, Proceedings of the National Academy of Sciences, Maney, Kluwer Law International, Walter de Gruyter, Thieme, ACM (Association for Computing Machinery), the Institute of Physics, the American Medical Association, the American Institute of Physics, EconLit, Sociological Abstracts, CrossRef, and a host of open access, Government and NGO databases. In addition, the entire library catalogs of the two early beta partners have been loaded. Current holdings are rich in newspaper articles, scholarly journal articles, dissertations, books, and new materials are being added frequently.

**Appearance and control**

*NB: This product still has several months of beta-testing and refinement to undergo, so bear that in mind for this section in particular.*

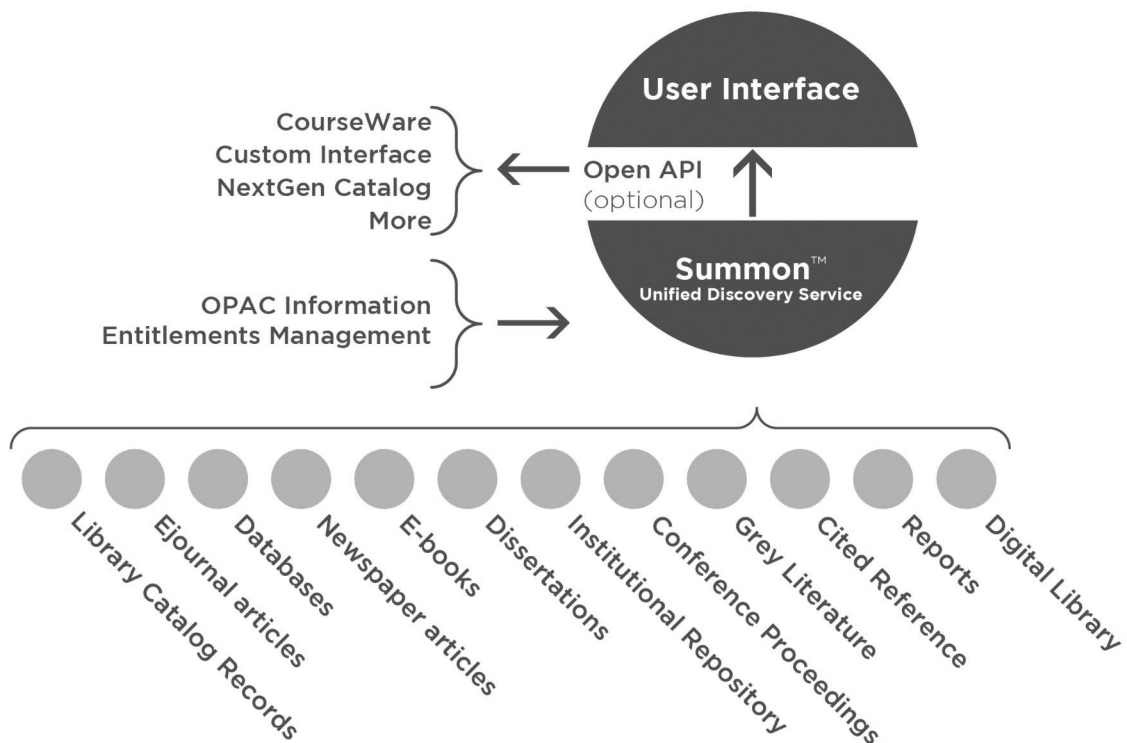


Figure 1.



Users access the Summon service through a single search box, branded with the library's name and logo, which can accept word, phrase, and Boolean searches. A user can choose to search everything that his or her library has access to (currently 117 million of the 300 million records in the case of Dartmouth College) via the Summon service. Or, he/she can search the entire database to discover information that can perhaps be purchased online by the user, delivered by inter-library loan, or requested for local purchase.

Results are ranked initially by date or relevance. Further refinement of them is accomplished through facets on the left of the screen for date, subject, content type ('Book', 'Journal Article', etc.), availability ('Items with full text online') and scholarly status ('Limit to items from scholarly publications, including peer review'). The latter choice would exclude the large numbers of

newspaper articles from the result set, for example, and anything else not flagged in the database as being part of the scholarly record. (See Figures 2 and 3.)

Facets can be selected and deselected easily by the user, and can be combined. The act of clicking on a facet immediately recalculates the results without any further user intervention. Both searches and the use of facets to refine the search results execute quickly. A magnifying glass icon next to an entry provides a pop-up window that provides more information (an abstract for an article, for example) to help one decide if the item is worth pursuing further. Once the user finds an item of interest, he or she clicks on the title and is directed to the resource itself, being taken perhaps to an online newspaper archive, a journal article, a dissertation in a repository, or a record in the library's catalog.

[Help](#) | [About](#)

Dartmouth College Library   [Advanced Search](#)

**Search Results:** Your search for **chaucer and langland** returned **460** results

**Refine your Search** Relevance ▾

Items with full text online  
 Limit to items from scholarly publications, including peer review  
 Add results beyond your library's collection

**Content Type**

Any  
 Journal Article (396)  
 Newspaper Article (60)  
 Book (23)  
 Dissertation (2)  
 Book Chapter (1)  
[more options](#)

**Subject Terms**

Any  
 nonfiction (214)  
 literary criticism (142)  
 middle ages (132)  
 poetry (77)  
 history (56)  
 christianity (38)  
[more options](#)

**Publication Date**

Any

1999 to 2008  
[more options](#)

**Library**

Any  
 Baker Berry Library (22)

**Reviews -- The Pilgrim and the Book: A Study of Dante, Langland and Chaucer (American University Studies, 4:42) by Julia Bolton Holloway** 🔍

**by Simpson, James**  
 Medium Aevum Vol: 59 Issue: 1 Date: 01/1990 Start Page: 144  
 Subjects: Pilgrimages, Nonfiction, Middle Ages, Literary criticism  
 Review.  
 Availability: Full Text Online

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**Chaucer, Langland, Arthur: essays in Middle English literature** 🔍

**by Kellogg, Alfred L**  
 Call Num: PR1924 .K4 Date: 01/1972 Pages: xiii, 385 p.  
 Subjects: Criticism and interpretation  
 Availability: AVAILABLE, Baker Berry

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**The autobiographical fallacy in Chaucer and Langland studies** 🔍

**by Kane, George**  
 Vol: 1965 Call Num: PR1924 .K3 Date: 01/1965 Pages: 20 p.  
 "Delivered at University College, London, 2 March 1965."  
 Availability: AVAILABLE, Baker Berry

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**Chaucer and Langland: the antagonistic tradition** 🔍

**by Bowers, John M**  
 Call Num: PR255.B69 2007 Date: 01/2007 Pages: xii, 405 p.  
 Subjects: Appreciation, Influence, English literature, Manuscripts, English (Middle)  
 Availability: DUE 04-27-09, Baker Berry

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**Chaucer, Langland, and the creative imagination** 🔍

**by Aers, David and Langland, William**  
 Call Num: PR311.A33 Date: 01/1980 Pages: xii, 236 p.  
 Subjects: Criticism and interpretation, English poetry  
 Availability: AVAILABLE, Baker Berry

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**Chaucer and Langland: historical and textual approaches** 🔍

Figure 2.

[Help](#) | [About](#)

Dartmouth College Library   [Advanced Search](#)

Search Results: Your search for "organic chemistry" returned 5,288 results

**Refine your Search**

Items with full text online

Limit to items from scholarly publications, including peer review

Add results beyond your library's collection

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**Content Type**

Any

Journal Article (5,292)

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**Subject Terms**

Any

organic chemistry (1,766)

chemistry (648)

science education (551)

chemical reactions (375)

experiments (284)

research (224)

[more options](#)

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**Publication Date**

Any

2000 to 2009

[more options](#)

Relevance ▾

**Predicted versus Actual Performance in Undergraduate Organic Chemistry and Implications for Student Advising** 🔍

by David P Pursell

Journal of Chemical Education Vol: 84 Issue: 9 Date: 09/2007 Start Page: 1448

Subjects: College students, Academic achievement, Organic chemistry, Educational evaluation, Achievement tests

... and predicted academic performance as part of their admissions process. Here, Pursell focuses on predictive measures for **organic chemistry** performance and examines...

Availability: Full Text Online

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**Making Sense: Simulation-of-Research in Organic Chemistry Education** 🔍

by Erduran, Sibel

Science Education Vol: 82 Issue: 6 Date: 11/1998 Start Page: 701

Subjects: Nonfiction, Research, Organic chemistry, Science education

"Making Sense: Simulation-of-Research in **Organic Chemistry** Education" by Hanno van Keulen is reviewed.

Availability: Full Text Online

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**Greening organic chemistry** 🔍

by Kellyn S Betts

Environmental Science & Technology Vol: 36 Issue: 5 Date: 03/2002 Start Page: A98

Subjects: Textbooks, Organic chemistry, Higher education, Experiments

A team of **chemistry** professors has set out to fundamentally change the way that **organic chemistry** is taught in the university laboratory. This spring, advance...

Availability: Full Text Online

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**The Organic Chemistry of Drug Design and Drug Action, 2nd Edition** 🔍

by David G J Young

Journal of Chemical Education Vol: 85 Issue: 2 Date: 02/2008 Start Page: 208

Subjects: Organic chemistry, Drugs, Book reviews, Nonfiction, Biochemistry

Young reviews **The Organic Chemistry of Drug Design and Drug Action, 2nd Edition** by Richard B. Silverman.

Availability: Full Text Online

Figure 3.

Untested to date (January 2009) by the beta partners are the features that allow a library to exert control over the appearance of the service by altering the CSS style-sheets that control the appearance of the results page, or the APIs that should allow one to embed the service into other parts of our knowledge discovery infrastructure, such as the online spaces local users inhabit (iGoogle, Facebook, and Blackboard would be obvious examples).

## Conclusion

Even in its current beta-development state, the Summon service shows real promise as a single starting point for scholarly inquiry and discovery, significantly enhancing the ease with which our faculty, students and staff can discover and use the print and electronic collections we buy, build and lease. There is still, inevitably, an open question

about the ability of the vendor to gather up the comprehensive set of data that would make the Summon service truly compelling, but the early partnerships they have negotiated are encouraging in this regard. Certainly, the need that the Summon service addresses head-on is a significant one for us in college and university libraries, and the approach Serials Solutions is taking, with its centralized, pre-indexed database, is logical and well proven. This new hosted subscription-based service is full of potential, and its development bears watching closely.

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# Summa

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## What is Summa?

Summa is

- an open source search engine that features integrated search, faceted browsing and relevance ranking
- built to help users find relevant material easily
- based on usability and ethnographic studies
- built to be extendable: it is very easy to add extra information from external sources, e.g. book covers from Google or reviews from Amazon.

## Short background

Summa is being developed at the State and University Library in Aarhus, Denmark. Development began in 2005 partly as a result of increasing

frustration with the shortcomings of existing library systems, partly as a demonstration of how to build a fast and efficient library search engine. From early on, Summa was planned to be released as open source.

The first version of Summa was called Beta and was a Christmas gift for the the State and University Library back in 2005. Shortly after, the State and University Library decided to replace its existing Horizon-based search engine with Summa, and in November 2006 the first version of Summa went into production at the State and University Library. Recently it has been updated with an improved user interface and request feature.

In September 2008, Summa 1.0 was released as open source and is currently available in version 1.1.

Besides the State and University Library, Summa is currently deployed or being deployed at a number of Danish public libraries – see, for instance, Silkeborg Public Library. Inlead Media uses Summa as search engine for their Library CMS Suite called EasySite Library. Also, Summa is under the umbrella of netmusik.dk, a site with free downloadable music.

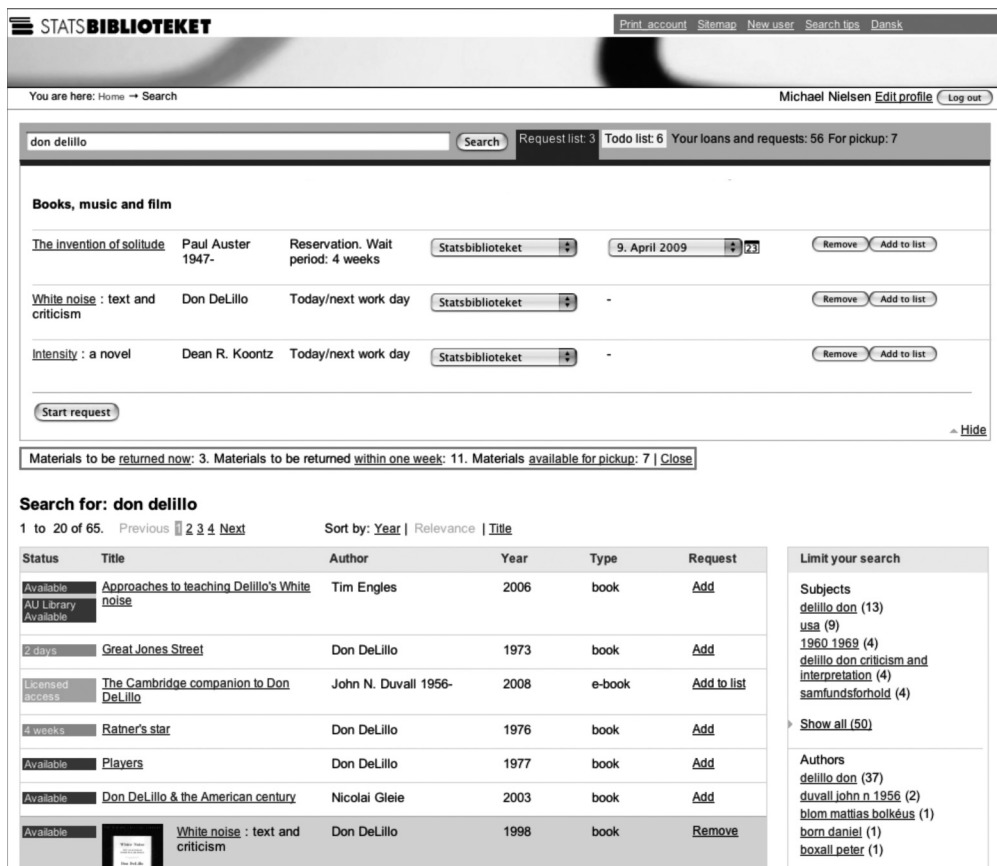


Figure 1. A typical Summa-style search result complete with facets for limiting search. Note how items have been collected for quick borrowing on the request list and how the user is reminded that materials are ready for pickup and returning.

## Straightforward approach

The philosophy behind Summa is simple: users should be able to search and find relevant material as easily as possible and without prior knowledge of search engine terminology or data structure. Following from this, Summa was developed entirely from scratch using our knowledge about users and users' behaviour rather than looking at how traditional library search engines are designed.

Through user studies we know that many users know and care little about underlying data sources and databases, and that advanced search features are only used by a minority of users. We also know that many users are academically self-reliant and feel that they do not need help from the library in finding and judging relevant material and information<sup>1</sup>. Such users tend not to have a personal relationship with the library, but rather see it as just another Internet resource.

Basically, what users want to do is get the job done using tools that just work. We think Summa is such a tool.

As a consequence, Summa at the State and University Library is different from traditional library search engines in a number of ways because it:

- only has a single search field, lowering complexity and reducing errors in queries
- helps users refine and limit search results
- suggests alternatives for queries and spelling
- adds alternative information and options where relevant
- relies on data mining and system intelligence rather than manual editing and input
- has no advanced search options or command line tools or other pre-search configuration features often found in traditional library systems.

In a nutshell, the overall aim of Summa is to make the traditional library invisible to the user and make its materials relevant and easily accessible.

## Features

### *Integrated search and relevance ranking*

Summa features integrated search. That means that searching is performed across multiple types of data originating from many different data

sources. In the case of the State and University Library, data sources include:

- library catalogue records
- OAI harvested items
- electronic journals
- special collections – TV commercials, yearbooks
- digital object management system items (DOMS)
- people (subject specialists).

Altogether, Summa at the State and University Library searches approximately 10 million items.

From a usability point of view, the main advantage of integrated search is that there is only one search result comprising all types of materials. This is opposed to federated search where searches in different sources are performed in parallel and presented in different search results. In addition, because the integrated search engine only needs to search one index, searching is very fast.

In Summa, search results are by default sorted by the search engine's relevance algorithm. In brief, relevance ranking is a sort algorithm based on these rules:

- words occurring infrequently in the index are attached more weight, e.g. when a query contains one word occurring infrequently and one common word, the infrequently occurring word will have larger weight when the search result is sorted
- the number of times a word is found in a record is important. If a word occurs many times in a record that record will be placed above another record with fewer occurrences of the word in the search result
- words occurring in main titles are assigned more weight than words occurring other fields in the record
- words occurring in short records have more weight than words occurring in long records.

So far, our observations suggest that the relevance ranking approach works very well and is suitable for most users under most circumstances. However, in some cases chronology or alphabetical ranking may be more suitable and the State and University Library's Summa also features these sort options.

### *Limiting search results with facets*

When searching in Summa, a set of facets is automatically derived from the index and displayed next to the search result. The facets are used to aid

the user in limiting the search result. See, for instance, Figure 1 for an example.

We are currently developing the facets concept to also include more inspirational categories, that is, facets that can assist the user in finding inspiration in terms of new search terms and key words. This may be especially useful if the user is in exploratory search mode, i.e. not sure exactly what he is looking for, or if he is stuck. An example of such inspirational facets is shown in Figure 3 showing the public libraries in Silkeborg's Summa implementation.

#### Value added through extra information

It is very easy to extend Summa with different external information. At the State and University Library, we have attempted to increase the relevance of search results by including additional information. This information includes:

- book and album covers in search results and in full record view
- music samples from the music service netmusik.dk
- author biographies
- abstracts

- first chapters from books
- related materials and 'Others who have borrowed...' – recommendations based on other users and on keyword similarities between materials.

See Figure 2 for an example of abstract and author biography.

#### User-based suggestions and 'Did you mean'

When the user begins typing in the search box, Summa immediately suggests alternative search words, including the number of hits related to the suggested search. The suggestions are based on an index of what other users have previously searched for, and provides an elegant and relevant way of including and presenting user-generated data. (See Figure 3.)

Often, search results with no hits are caused by typos or by spelling mistakes.<sup>2</sup> For instance, a search in Summa for the word paralel, makes Summa suggest the word parallel as an alternative. This feature is well-known from Google and is very usable in practice because it can correct simple errors in only one click.

The screenshot shows the Statsbiblioteket website interface. At the top, there is a navigation bar with links for 'Print account', 'Sitemap', 'New user', 'Search tips', and 'Dansk'. Below this, a breadcrumb trail reads 'You are here: Home → Search'. The main search area contains a search box with 'dean koontz' entered, a 'Search' button, and options for 'Request list: 0' and 'Todo list: 0'. A 'Log in' link is also present.

The search results are displayed in a tabbed format with 'Overview', 'Detail', and 'MARC format' tabs. The 'Overview' tab is active, showing the following information for the book 'Intensity: a novel':

- Author/creator:** Dean R. Koontz
- Title:** Intensity : a novel / by Dean Koontz. - 1st ed.
- Publication place:** New York : Alfred A. Knopf, 1996
- Physical description:** 307 s.
- ISBN:** 067942525X

To the right of this information is a book cover for 'Intensity' by Dean Koontz. Below the book information is a 'Contents' section and an 'Abstract' section. The abstract reads: 'Past midnight, Chyna Shepherd, twenty-six, gazed out a moonlit window, unable to sleep on her first night in the Napa Valley home of her best friend's family. Instinct proves reliable. A murderous sociopath, Edgler Forman Vess, has entered the house, intent on killing everyone inside. A self-proclaimed "homicidal adventure," Vess lives only to satisfy all appetites as the arise, to immense himself in sensation, to live without fear, remorse or limits, to live with intensity.'

Below the abstract is an 'About Dean R. Koontz' section, which provides a biography: 'Amerikansk forfatter. Har hovedsageligt skrevet gyser- og spændingsromaner. Dean Ray Koontz blev født i 1945 i Pennsylvania. Fanget i en fattig barndom med en fordrunken, voldelig far lærte Koontz hurtigt at flygte ind i fiktionens og fantasiernes farverige verden, og allerede som ni-årig skrev han historier, som han solgte til sine venner og naboer. Det lykkedes Koontz at forvandle sin paniske angst for fattigdom og minderne fra en voldelig barndom til at blive drivkraften i et succesfuldt og omfattende forfatterskab. Mere end 60 romaner senere er Koontz en af USAs populæreste forfattere. Read more at Forfatterweb'.

On the right side of the page, there are several recommendation sections:

- Available:** A section with an 'Add to request list' button and a link to 'Log in to request this material'.
- Find other materials with same author:** Lists 'Dean R. Koontz'.
- Find other materials in same subject:** Lists 'Young women - Crimes against - Fiction', 'Psychopaths - Fiction', '83.8-06 (DK5)', and 'e Skø 42'.
- Similar items:** Lists 'Herman Wouk Inside, outside 1985 - book', 'Kurt Vonnegut 1922- Galapagos 1985 - book', and 'Ntozake Shange Beisev Brown 1985 - book'.

Figure 2. Page view complete with book cover, abstract and author biography – information collected from external data sources. The view also includes similar items and other materials within the same subject features.

Figure 3 shows how Summa makes suggestions.

#### Availability of materials

The State and University Library's Summa contains not only a very large number of items, but also a very large variation in terms of material type and availability. To guide users, Summa displays availability labels on each individual item, providing information about whether the item is available for request, whether it has to be reserved or whether it is available for download, etc. Labels contain both text and colour, making it as easy as possible for the user to scan the search result.

#### Basket and lists for easy collection of materials

Summa at The State and University Library features an extensive basket concept.

During a search session, the user can add interesting materials to a request list. When finished, all the materials on the list can then be requested simultaneously with one press of a button. (See Figure 1.)

In addition, all materials can be added to a so-called 'to-do list'. Here, they will be saved for future sessions provided that the user is logged in. From the to-do list materials can be e-mailed, printed or added to a reference manager (such as RefWorks).

Users find the basket and list concept very useful. Usability tests and server logs analysis

have shown that users in general both understood and used the basket and embraced the ability to make multiple requests.

#### Subject specialists in the search result

In a field study conducted in 2006, we learned that the users often are not aware that the State and University Library has a wide range of academic staff in a number of subjects areas allocated to assist end-users. In order to promote the staff, we have turned them into searchable resources in Summa. Hence, they now show up in search results when there is a relation between the expert's subject area and the user's query.

Try, for instance, a search on "lingvistik tysk" (linguistics and German) and a subject specialist will occur in the search result.

#### Three years' experience with Summa

From the beginning, the philosophy behind Summa was simple: development was to be based on documented user needs and not on organizational needs or notions of 'this is how we always do things'.

At the State and University Library, we have had to work hard to adhere to this philosophy and have often had to defend our position. We have

The screenshot shows the Silkeborg Bibliotekerne website interface. At the top, there is a navigation menu with links like 'Forside', 'Børn og Unge', 'Faglitteratur', 'Skønlitteratur', 'Musik', 'Film', 'Spil', 'Det sker', and 'Om bibliotekerne'. Below this is a search bar with the text 'Søg i Silkeborg Bibliotekerne' and a search button labeled 'SØG'. The search results are displayed in a table format, categorized by material type. A dropdown menu is open over the search field, showing suggestions for alternative searches based on other users' queries.

Material Type	Title	Author	Year	Material Type
Bøger	Et godt menneske.			bog
Bøger	Eftemanden.			bog
Bøger	Blodets bånd.	Rebecca Dean	2008	bog
Børnebøger	The white baby.	Jim Højberg	2008	bog
Børnebøger	The slave girl.	Lars Holmgård Jørgensen	2008	bog
Børnebøger	The skater devils.	Mikkeline W. Gudmand-Høyer	2008	bog
Hjemmesiden og netsteder	Forfatterweb	Silkeborg Bibliotekerne		nettdokument
Musik	Nouns.	No Age	2008	cd
Musik	Exotic creatures of the deep.	Sparks	2008	cd
Musik	Voices. Live	Stig Rossen	2008	cd
Spillefilm	The man who cried.		2008	dvd
Spillefilm	Stor opstandelse.		2008	dvd
Spillefilm	The Simpsons movie.		2008	dvd

**Vis resultatet**

- som komplet oversigt

**Afgræns resultatet**

- ▼ **Typer**
  - spillefilm (22)
  - soundtracks (4)
  - støtteplader (3)
  - veiledninger (3)
  - biografier (2)
  - karaoke (2)
  - nyheder (2)
  - anmeldelser (1)
  - atlas (1)
  - danskeskrivelser (1)
  - disseminera (1)
  - di mix (1)
  - essays (1)
  - interviews (1)
  - koncepter (1)
- **Medier**
- **Emne - fag**
- **Genre - skøn**
- **Musikgenrer**
- **Medvirkende personer**
- Se flere muligheder...

**Find inspiration**

- **Typer**
- **Emne - fag**
- **Genre - skøn**
- **Medvirkende personer**

Figure 3. Summa implemented at Silkeborg public library. The search result is split by material type and gives a good overview of materials. The drop down below the search field contains Summa suggestions for alternative searches based on other users' queries. (See more at: [www.silkeborgbibliotekerne.dk](http://www.silkeborgbibliotekerne.dk))

had quite a few heated discussions with librarians and other expert users who at times have felt that not only had we developed a tool that was too simple to be effective, but also one that was in outright conflict with established search practice and would produce skewed or biased search results. This conflict was especially prone in the early stages when Summa was under development and at the time after deployment of the first version.

Today things have changed significantly. At the State and University Library there is now a sense of consensus and the majority of staff supports using Summa. Also, there's a feeling that Summa is the right choice.

We believe this change has come about because Summa as a tool is actually getting the job done and is a fast and reliable search engine that is easy to use – in particular, it has been substantially easier to collect and request materials due to the new basket concept. In addition, there is widespread end-user satisfaction with Summa.

Finally, the open source version of Summa has generated a lot of interest not only in Denmark, but also from abroad and has helped put the State and University Library on the search engine world map.

The overall status is that the State and University Library's integrated search now is a mature product and that Summa is a very flexible platform for development.

### Summa and the future

Summa is now available as open source in version 1.1 and is a relatively mature search engine. In the coming time, we will examine new approaches and challenges related to searching:

#### *Searching and navigating billions of items*

We will be looking at new ways of improving and supporting navigation and exploratory search in an environment where indexes contain several hundred millions, if not billions of items from a high number of sources. Searching such large indexes creates new challenges not only in terms of

speed and sorting, but also when it comes to navigating and filtering search results to make them as relevant as possible.

#### *Integrating with the users' environment*

Library search engines and libraries in general only constitute a small part of users' everyday work.

As such, we will also be examining how Summa and its related services can be integrated with the other tools and services that users employ and use – both browser-based ones and applications such as text editors and mail clients.

#### *Mobile Summa*

It is our goal that Summa should be available on a variety of mobile devices and platforms. We would like not only to implement basic library services, such as search and request, but also to develop services that utilize the unique features of mobile devices including GPS and location awareness.

#### **Try out Summa at:**

[www.statsbiblioteket.dk](http://www.statsbiblioteket.dk)

### References

1. Akselbo, J L et al, 'The hybrid library: from the users' perspective' (2006). Available from: <<http://www.statsbiblioteket.dk/omstatsbiblioteket/brugbarhed/feltstudier/feltstudier>> (Accessed 10 February 2009)
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More information, developer wiki and downloads:  
[www.statsbiblioteket.dk/summa](http://www.statsbiblioteket.dk/summa)