

# EnTag

## Enhanced Tagging for Discovery

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# Project context

- Partners
  - UKOLN
  - University of Glamorgan
  - STFC (former CCLRC)
  - Intute
  - Non-funded
    - OCLC Office of Research, USA
    - Danish Royal School of Library and Information Science
- Period: 1 Sep 2007 -- 31 Oct 2008



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# Background



- Controlled vocabularies help improve information retrieval and discovery
  - But, costly to index with, especially the amount of digital documents
- Social tagging holds the promise of reducing indexing costs
  - But, tags entirely uncontrolled
  - Still, may identify new trends and hot concepts



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# Purpose

- Investigate the combination of controlled and folksonomy approaches to support resource discovery in repositories and digital collections
- Aim  
Investigate whether use of an established controlled vocabulary can help improve social tagging for better resource discovery



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# Overall approach



- Main focus:
  - free tagging with no instructions  
*versus*
  - tagging using a combined system and guidance for users
- Two demonstrators
  - **Intute digital collection** <http://www.intute.ac.uk> [demos](#)
    - Major development
    - *Tagging by reader*
    - DDC
  - **STFC repository** <http://epubs.cclrc.ac.uk/>
    - Complementary development
    - *Tagging by author*
    - ACM Computing Classification Scheme



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# Intute demonstrator: searching

## EnTag Project **ST**

Current Location: [Document Search and Browsing Page](#)

Current User:

[Log Out](#)

[Help](#)

[Post-Task Questionnaire](#)

Filter By: [Everyone's Tags](#)

Main Tag Cloud

[efins Migration Report](#)  
[European Integration](#)  
[European Integration and the State](#)  
[German Unification Case Study](#)  
[Institute of European Affairs \(IEA\)](#)  
[Ministry of Foreign Affairs and European Integration](#)  
[Republic of Croatia](#)  
[Osteuropa-Netzwerk](#)  
[Trans European Policy Studies Association](#)  
[Uneasy Allies: British-German Relations and European Integration since 1945](#)  
[Versailles Treaty \(1919\)](#)  
[Voices from the wall: Personal stories about the fall of the Berlin wall](#)  
[English or Croatian](#)  
[Enlargement](#)  
[european integration bureau](#)  
[Insurgency in the Muslim World](#)  
[leadership dialogue](#)  
[transnational environment](#)  
[108 108 journals](#)  
[14 countries 1869-1883 1948 1956 1960s political movements 1989-1994 1990-1996 1998 publications 2001-2008 2002 elections 2005 2nd edition book 4205 Issues](#)

Taggers

[Adamcok](#) [Adviya](#) [Alex](#) [Alicohn](#) [Alonso](#)  
[Amy878](#) [Bozwell](#) [Cehbeh](#) [Ckern](#) [Clare](#)  
[Dji](#) [Donniel](#) [Emloff](#) [Eve](#) [Gautam](#) [Gemma](#)  
[Gigi131](#) [Gkr365](#) [Jay](#) [John](#) [Katy](#) [Kkrish](#)  
[Laura82](#) [Liam](#) [Logic](#) [Louise](#) [Matt](#) [Maubry](#)  
[Maz](#) [Megan11](#) [Meng](#) [Mike](#) [Mikeg](#) [Mouz](#)  
[Noel](#) [Palmexo](#) [Plemai](#) [Proximo](#) [Randvar](#)  
[Ricey](#) [Rkanani](#) [Shannon](#) [Squelci](#) [Tato](#)

### Search For Documents

Enter your search terms

Displaying Documents Tagged by: Alex

Search In

Tags

Titles

Descriptions

[Start Search](#)

### Results

Title (Click to Open)	Description	Tags	Add Tags
<a href="#">50th anniversary of the 1956 Hungarian revolution: Canadian Embassy</a>	This site has been created by the Canadian Embassy in Hungary to commemorate the 50th anniversary...	1956, Canada, Canadian Embassey in Hungary, commemoration, Hungarian Revolution, Links, refugees	<a href="#">Tag</a>
<a href="#">Canadian Defence and Foreign Affairs Institute</a>	The Canadian Defence and Foreign Affairs Institute (CDFAI) is an independent research institute wh...	archives, Canada, conferences, courses, defence, foreign affairs, journalism, media, newsletter, obama, polls, Relations - US - Canada, research, submissions, turkey	<a href="#">Tag</a>
<a href="#">Canadian Dimension</a>	Canadian Dimension is a left wing Canadian journal that examines world events from a Socialist pe...	academic journal, blog, Canada, Canadian Dimension, left-wing perspective, NDP - New Democratic Party of Canada	<a href="#">Tag</a>
<a href="#">Canadian Illustrated News 1869-1883</a>	This site offers access to a searchable database of almost 4,000 images and cartoons taken from t...	1869-1883, archives, Canada, Canadian Illustrated News, Library and Archives Canada	<a href="#">Tag</a>
<a href="#">Canadian Pamphlets and Broad­sides</a>	This site provides access to the full-text of over 500 pre-1930s Canadian pamphlets and broadside...	archives, Canada, Canadian Pamphlets and Broad­sides Online Collection, database, pre-1930, Thomas Fisher Rare Book Library, University of Toronto	<a href="#">Tag</a>
<a href="#">Canadian Parliamentary Review: Revue Parle­mentaire Canadienne</a>	Canadian Parliamentary Review publishes information on Canadian legislation and the activities of...	academic journal, Book Review, Canada, Canadian Parliamentary Review, Canadian Politics - Domestic, Commonwealth Parliamentary Association, Legislative Reports	<a href="#">Tag</a>

1 2 3 4 5

# Intute demonstrator: simple tagging

## EnTag Project **ST**

Current Location: [Document Tagging Page](#)

Current User:

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[Post-Task Questionnaire](#)

Filter By: [Everyone's Tags](#)

### Main Tag Cloud

[efms Migration Report](#)  
[European Integration](#)  
[European Integration and the State](#)  
[German Unification](#)  
[Case Study](#)  
[Institute of European Affairs \(IEA\)](#)  
[Ministry of Foreign Affairs and European Integration](#)  
[Republic of Croatia](#)  
[Osteuropa-Netzwerk](#)  
[Trans European Policy Studies Association](#)  
[Uneasy Allies: British-German Relations and European Integration since 1945](#)  
[Versailles Treaty \(1919\)](#)  
[Voices from the wall: Personal stories about the fall of the Berlin wall](#)  
[English or Croatian](#)  
[Enlargement](#)  
[european integration bureau](#)  
[Insurgency in the Muslim World](#)  
[leadership dialogue](#)  
[transnational environment](#)  
[108](#)  
[108 journals](#)  
[14 countries](#)  
[1869-1883](#)  
[1948](#)  
[1956](#)  
[1960s political movements](#)  
[1989-1994](#)  
[1990-1996](#)  
[1998](#)  
[publications](#)  
[2001-2008](#)  
[2002 elections](#)  
[2005](#)  
[2nd edition book](#)  
[4205 Issues](#)

### Taggers

[Adamcok](#) [Adviya](#) [Alex](#) [Alicohn](#) [Alonso](#)  
[Amy878](#) [Bozwell](#) [Cehbeh](#) [Ckkern](#) [Clare](#) [Dij](#)  
[Donnie1](#) [Emloff](#) [Eve](#) [Gautam](#) [Gemma](#) [Gigi131](#)  
[Gkr365](#) [Jay](#) [John](#) [Katy](#) [Kkrish](#) [Laura82](#) [Liam](#)  
[Logic](#) [Louise](#) [Matt](#) [Maubry](#) [Maz](#) [Megan11](#)  
[Meng](#) [Mike](#) [Mikeg](#) [Mouz](#) [Noel](#) [Palmexo](#)  
[Plemai](#) [Proximo](#) [Randvar](#) [Ricey](#) [Rkanani](#)  
[Shannon](#) [Squelci](#) [Tato](#) [Thei75](#) [Tom](#) [Urs1981](#)

### All Alex's Tags

[1869-1883](#) [1956](#) [2001-2008](#) [academic journal](#) [academic paper](#) [achieve of european integration](#) [afghanistan](#) [Alphabetical Listing](#) [annual report](#) [Archieve of European Integration](#) [archive](#)  
[archive - audio](#) [archives](#) [ARENA](#)  
[attitudes to european integration](#)  
[bibliography](#) [blog](#) [Book Review](#) [briefing](#)

### My Tags For This Document

[1956](#) [Canada](#) [Canadian Embassey in Hungary](#) [commemoration](#) [Hungarian Revolution](#) [Links](#) [refugees](#)

### Document Details

Title	50th anniversary of the 1956 Hungarian revolution: Canadian Embassy
URL	<a href="http://geo.international.gc.ca/canada-europa/hungary/right_nav/1956-en.asp">http://geo.international.gc.ca/canada-europa/hungary/right_nav/1956-en.asp</a>
Description	This site has been created by the Canadian Embassy in Hungary to commemorate the 50th anniversary of the 1956 Hungarian revolution. In addition to a listing of events, it also provides free access to some interesting full text publications about Canadian involvement in the events. These include booklets about Canadian diplomacy. There are also links to other websites from canadian organisations which include eye-witness accounts.

[Add a Tag](#) [Remove Tag](#) [Return To Search Results](#)

# Intute demonstrator: enhanced tagging

## EnTag Project **ST**

Current Location: [Document Tagging Page](#)

Current User:

[Log Out](#)

[Help](#)

[Post-Task Questionnaire](#)

Filter By: [Everyone's Tags](#)

### Main Tag Cloud

[Do We Need Mass Immigration? Electronic Immigration Network](#)  
[Evolution of US Immigration and Refugee Policy: Public Opinion, Domestic Policies and UNHCR](#), by Michael McBride (1999)  
[Immigration: United States Government Accounting Office JOLIS](#)  
[Why Has UK Net Immigration Increased? United Nations Peacekeeping Force in Cyprus](#)  
[1917-1991](#) [1948-2003 info](#)  
[1948-2007](#) [1964](#) [1974](#)  
[ceasefire](#) [1992 - 1995](#)  
[trafficking era with the investigation commencing in 1999](#) [1994 Moscow Agreement](#) [2000-2008](#)  
[2001-2008 archive](#) [2005 UK election](#) [2008 American Presidential Election](#) [2008 US presidential elections](#) [404](#)  
[60th anniversary of United Nations peacekeeping](#) [9/11](#)  
[9/11 academic essays](#) [9/11 Essays](#) [9/11 for High Schools](#) [9/11 papers](#) [A variety of articles on disability](#)

### Taggers

[Adamcok](#) [Adviya](#) [Alex](#) [Alicohn](#) [Alonso](#)  
[Amy878](#) [Bozwell](#) [Cehbeh](#) [Ckkern](#) [Clare](#) [Dij](#)  
[Donnie1](#) [Emloff](#) [Eve](#) [Gautam](#) [Gemma](#) [Gigi131](#)  
[Gkr365](#) [Jay](#) [John](#) [Katy](#) [Kkrish](#) [Laura82](#) [Liam](#)  
[Logic](#) [Louise](#) [Matt](#) [Maubry](#) [Maz](#) [Megan11](#)  
[Meng](#) [Mike](#) [Mikeg](#) [Mouz](#) [Noel](#) [Palmexo](#)  
[Plemai](#) [Proximo](#) [Randvar](#) [Ricey](#) [Rkanani](#)  
[Shannon](#) [Squelci](#) [Tato](#) [Thei75](#) [Tom](#) [Urs1981](#)

### All Alex's Tags

[Academic Papers](#) [advocacy](#) [Afghan War, 2001-](#)  
[Armed Forces - Political activity](#) [Arms control](#)  
[Arms control - Europe](#) [art](#) [Asia for Educators](#)  
[bibliography](#) [british foreign policy](#) [Buddhism -](#)  
[China - Tibet](#) [buffer zone](#) [canada](#) [Carnegie](#)  
[Endowment](#) [casualties](#) [figures](#) [cease fire](#)  
**[China - Politics and](#)**

### My Tags For This Document

[Disarmament and arms control](#) [human rights](#) [media](#)  
[podcast](#) [Sino-American Summits](#) [Sino-US](#)  
[specialists](#) [Taiwan - 20th century](#) [Tiananmen](#)  
[Square](#) [United States - Foreign relations - China](#)

### Document Details

Title	1998 Sino-Soviet Summit by Robert S. Ross
URL	<a href="http://www.asiasociety.org/publications/sino_american_summit.html">http://www.asiasociety.org/publications/sino_american_summit.html</a>
Description	This site contains the full-text of the paper by Robert Ross which was originally published by the Asia Society, a non-profit educational institution, in June 1998. It examines US-China relations in the period after the Tiananmen Square massacre in 1989, focusing on such issues as human rights, international trade, nuclear weapons and arms control. Consideration is then turned to what the 1998 Sino-Soviet Summit hopes to achieve in these areas. An additional feature of the article is an appendix listing contact addresses for specialists on US-China relations.

[Suggest](#)

[Add a Tag](#)

[Remove Tag](#)

[Return To Search Results](#)

### Automatically suggested matches

Find appropriate context(s)

**[Soviet Union - Foreign relations](#)**  
[African American women legislators-biography](#),  
[Eastern Europe-politics](#), . . .  
[Kommunisticheskaia partiia Sovetskogo Soiuza](#)  
[Marxism-Leninism](#)  
[Relation of federal to state, regional, provincial g](#)  
[United States-foreign relations-Eastern Europe](#), .  
----- [End of Political Science](#) -----  
[1945-1998](#)

### Explore hierarchy around the selected context

[International relations](#)  
**[Soviet Union - Foreign relations](#)**

### Select/edit relevant tags

[Eastern Europe - foreign relations](#) [Europe](#),  
[Eastern - Foreign relations - Soviet Union](#)  
[Europe, Eastern - Politics and government -](#)  
[1945-1989](#) [Foreign relations - Eastern Europe](#)  
[Foreign relations - Russia](#) [Foreign relations -](#)  
[Soviet Union](#) [International relations](#) [Russia -](#)  
[foreign relations](#) [Russia - Foreign relations -](#)  
[1894-1917](#) [Russia \(Federation\) - Foreign](#)  
[relations](#) [Russia \(Federation\) - Foreign relations -](#)





# STFC Demonstrator

Logged user: cmg45 Active thesaurus: acm Perspective: Tag

<p><b>TAG CLOUD</b></p> <ul style="list-style-type: none"><li><a href="#">ePubs</a> (3)</li><li><a href="#">physical sciences and engineering repositories</a> (3)</li><li><a href="#">strategic information systems planning research outputs</a> (3)</li><li><a href="#">Business Process communication</a> (2)</li><li><a href="#">Data Curation</a> (1)</li><li><a href="#">earth and atmospheric sciences</a> (1)</li><li><a href="#">Grey Literature</a> (1)</li><li><a href="#">Institutional Repository</a> (1)</li><li><a href="#">Metadata</a> (1)</li><li><a href="#">Repositories</a> (1)</li><li><a href="#">repositories</a> (1)</li><li><a href="#">Research Lifecycle</a> (1)</li></ul> <p><a href="#">Show all</a></p>	<p><b>Grey literature, institutional repositories and the organisational context</b></p> <p><b>Abstract:</b> A wide variety of grey literature is produced during the work carried out at a large multidisciplinary scientific research organisation. This paper examines how the grey literature may be managed and the benefits that result.</p> <p>Trends in Technical Reports, which have always been an important medium for transmission of knowledge, are examined, and the use of an institutional repository is advocated for the future of the medium. Other kinds of grey literature produced in research projects are also described, and again the</p> <p>Current thesaurus path: <b>TOP</b></p> <p><b>Top terms:</b></p> <ul style="list-style-type: none"><li>+ <a href="#">computer applications</a> (1)</li><li>+ <a href="#">computer systems organization</a> (1)</li><li>+ <a href="#">computing methodologies</a> (1)</li><li>+ <a href="#">computing milieux</a> (1)</li><li>+ <a href="#">data</a> (1)</li><li>+ <a href="#">general literature</a></li><li>+ <a href="#">hardware</a></li><li>+ <a href="#">information systems</a></li><li>+ <a href="#">institutional repositories</a></li></ul> <p>acm <input type="button" value="OK"/></p> <p><a href="#">Search thesauri</a></p>	<p><b>FREE TAGS</b></p> <ul style="list-style-type: none"><li><input type="checkbox"/> Business Process</li><li><input type="checkbox"/> Data Curation</li><li><input type="checkbox"/> Grey Literature</li><li><input type="checkbox"/> Institutional Repository</li><li><input type="checkbox"/> Metadata</li><li><input type="checkbox"/> Repositories</li><li><input type="checkbox"/> Research Lifecycle</li><li><input type="checkbox"/> Technical reports</li><li><input type="checkbox"/> research outputs</li></ul> <p>Add: <input type="text"/> +</p> <p><b>CONTROLLED TAGS</b></p> <ul style="list-style-type: none"><li><input checked="" type="checkbox"/> strategic information systems</li></ul>
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# Intute demonstrator user study



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# Objectives

- Test: comparison of simple and enhanced systems
  - Indexing behaviour
    - Use (tags selected, clouds consulted, order of consultation, source of tag)
    - Consistency and quality analysis of tagging
  - Retrieval
    - Degree of match between user and system terminology



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# Pre-study questionnaire

- 28 participants
  - Equal distribution of gender
  - Majority solid subject experience
  - Majority experienced Web users
  - Majority without Intute use
  - Half with tagging experience before but little tagging
  - A third familiar with DDC



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# Task example



## Task 1: Simple Tagger, “European integration”

Imagine that as part of one of your courses, you are asked to write a four-page essay on the **topic of European integration**, as a joint project in groups of four. The essay should critically discuss existing theories about the creation of the European Union and its institutions. Your lecturer has instructed you to look for resources in the EnTag system. Since you will be working together with three other students, you should tag the documents you retrieve with tags that would be useful to you but would also enable other students to find those documents in EnTag and understand from your tags what the documents are about.

Go to the EnTag login page\*, choose **Task 1** and **Simple Tagger Log In** and in the "Search for Documents" box enter these words: **European integration**.

Then, tag the **first 15 retrieved documents**. Do only the ones you can open - if a URL is unavailable move on to the next document in the Results.

Tagging each document should on average take between **5 and 10 minutes**. Please describe as many aspects and topics as you think appropriate for the task. Remember to open the URL, but you do not need to follow further internal links within a Web site. If the document is very long, focus on its abstract, introduction, conclusion, headings and table of contents.



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# Test setting and data collection

- Test setting
  - 28 UK students in political science
  - 60 documents, covering 4 topics of relevance for the students
    - 2 controlled tasks
    - 2 free tasks
    - Rotation
  - Instructions and training documents
- Data collection
  - Logging
  - Pre- and post-questionnaires



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# Number of tags

	<b>Simple</b>	<b>Enhanced</b>	<b>Total</b>
Tags in total	4022	3546	7568
Controlled task	2025	1688	3713
Free task	1997	1858	3855
Tags per document (controlled)	avg. 49 (41 docs)	avg. 32 (53 docs)	avg. 41 (94 docs)
Tags per document (free)	avg. 5 (374 docs)	avg. 5 (377 docs)	avg. 5 (751 docs)
Tags per tagger (controlled)	avg. 72	avg. 63	total avg. 135
Tags per tagger (free)	avg. 74	avg. 69	total avg. 143



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# Choosing a tag

Activity	Simple		Enhanced		Total	
Typing Own Tag	3656	90.9%	2525	71.2%	6181	81.7%
Main Tag Cloud	94	2.3%	88	2.5%	182	2.4%
Own Tag	0	0%	32	0.9%	32	0.4%
Certain Tagger's Tag	272	6.8%	303	8.5%	575	7.6%
Dewey Tag			598	16.9%	598	n/a
Total	4022	100%	3546	100%	7568	100%



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# Browsing for tags

Activity	Simple	Enhanced
Main Tag Cloud Clicked	16.8%	5.1%
Own Tag Clicked	10.3%	2.7%
Certain Tagger's Name Clicked	18.9%	3.7%
Certain Tagger's Tag Clicked	54.0%	14.5%
Dewey Suggest Button Clicked		28.9%
Dewey TreeView Clicked (1st pane)		13.7%
Dewey Hierarchy Clicked (2nd pane)		3.2%
Dewey Suggested Tags Clicked (3rd pane)		28.2%
	100.0%	100.0%



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# Number of documents' records where tags found

	Simple		Enhanced		In Both	
Tags in Title	200	48.3%	174	41.8%	350	44.9%
Tags in URL	76	18.4%	72	17.3%	137	17.6%
Tags in Description	262	63.3%	232	55.8%	468	60.0%
Tagged Documents in Total	414		416		780	



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# Post-task questionnaire

	Simple	Enhanced
Familiarity with tasks	majority familiar or very familiar	
Easy to choose tags	majority easy or very easy	
Satisfaction with tags assigned	majority satisfied or very satisfied	
Certainty that tags assigned correctly	majority certain or very certain	
Main Tag Cloud	helpful to half, unhelpful to half	
Clickable Names of Others	helpful to half, unhelpful to half	unhelpful to majority
Listing of Own Tags	helpful to majority	
Dewey Tree Disambiguation	n/a	helpful to majority
Dewey Hierarchy	n/a	helpful to half, unhelpful to half
Dewey/LCSH suggestions	n/a	helpful to majority



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# Post-study questionnaire

- Majority enjoyed the study
- Majority thought it extremely or very easy to learn and use Simple Tagger
- Majority thought it somewhat or very easy to learn and use Enhanced Tagger
- Majority think a similar system would be useful in real life



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# Conclusions



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# Outcomes

- Two demonstrators (tagger as author, tagger as reader)
- Two user studies and recommendations
  - Potential for KOS-based tagging suggestions, various lessons

Overlaps STAR project and W3C SKOS standards effort

- SKOS-based services and browser widgets
- Outputs  
ALISS08, NKOS DC08 Session,  
ISKO-UK09, IFLA-preConf09, JC DL09



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# Recommendations (broad)

- Both simple and enhanced tagging provide additional entry points. Some evidence KOS-based suggestions provided access points beyond literal text.
- Both Simple and Enhanced Demonstrators usable with little prior training. However (particularly) Enhanced interface experienced as complex.
- Global tag cloud little used and had mixed response in questionnaires.
- Enhanced suggestions sometimes useful but sometimes wide of the mark and not helpful. Evidence of support for auto-suggestions, provided high quality and user oriented.
- While users appreciated the 'direct' suggestions and made some use of the disambiguation interface element, they did not browse the hierarchy much. Further work explore when/how browsing useful (tagging behaviour studies) – needs to be more integrated with suggestions.



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# Recommendations

- Filter/process automatic suggestions, more selective, more user-oriented.
- Test interface cluttered by design. Operational interface needs to be less cluttered with interaction streamlined.
- Auto-completion part of streamlined interface and browsing options more integrated.
- Unclear whether displaying all global tags useful for retrieval purposes. Consider Document and Community-of-use tag clouds (or filters) as well as visualisation/personalisation options
- Integrate KOS with other bases for automatic suggestions (e.g., auto-classification, IE, co-occurrence).
- Develop provision for other vocabularies, develop import facility and underlying vocabulary web services.
- Develop SKOS based tagging service (building on STAR project and W3C SKOS work).



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# Further research

- Qualitative analysis of user tags (including topic facets)
- Further investigate user tagging styles and motivation for tagging
- Retrieval test with performance measures
- Extended (longitudinal) evaluation in live settings
- Investigate different KOS and subject domains
- Potential to augment KOS entry vocabularies from user tags
- Retrospective system 'improvement' of user tags (consistency)
- Possibility to integrate non-subject (non-topical) tags might prove useful for general retrieval purposes, in some contexts. E.g., genre or utility of a document



<http://www.ukoln.ac.uk/projects/enhanced-tagging/>

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# EnTag: More info

- Live demonstrator and final reports at

<http://www.ukoln.ac.uk/projects/enhanced-tagging/>



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