Web Services for Bibliometrics

Sylvie Godel, Isabelle de Kaenel, Pablo Iriarte
Plan

• Definitions
• Experiences in Lausanne
• The Institutional repository (IR) main role
• Citation-enhanced databases
• From IR to Bibliometric analysis
• Conclusion
Bibliometrics at the Nature front page of this week!
Bibliometrics is the analysis of information pertaining to a journal's publications and the citations that link them, which can be aggregated at the level of authors, institutes, countries, journals, and subjects.
Web services are applications that can be accessed via Hypertext Transfer Protocol and delivers information in a machine readable form like XML
The web service experience

- In Lausanne, the web services are used to fill-in entry forms with identifiers
  - ILL orders web form
  - SERVAL Institutional repository
The bibliometrics experience

- Assistance to the faculty research evaluation unit
- Assessment of research activity at the author level with Impact Factors (IF)
The institutional repository (IR) main role

– Pivot
  • One single database
  • Author’s / units publication lists on the Web
  • Metadata re-used by administrative tool (ADIFAC)

– Quality Control
  • Authoritative metadata imported from trusted sources (PubMed, WoS, CrossRef, etc.)
  • Data transfers through bibliographic management software
  • Introduce unique Identifiers (PMID, DOI, UT, etc.)
  • Avoids homonyms and duplicates
The metadata acquisition techniques tested in SERVAL
## Citation-enhanced databases

<table>
<thead>
<tr>
<th>Database</th>
<th>Size</th>
<th>Citations coverage</th>
<th>Web Service</th>
<th>Free version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web of Science</td>
<td>46 M</td>
<td>1900 -&gt;</td>
<td>Yes (SOAP / POST)</td>
<td>No</td>
</tr>
<tr>
<td>SCOPUS</td>
<td>40 M</td>
<td>1996 -&gt;</td>
<td>Yes (JSON)</td>
<td>Yes (limited)</td>
</tr>
<tr>
<td>PubMed Central</td>
<td>2 M</td>
<td>2000 -&gt;</td>
<td>Yes (OAI)</td>
<td>Yes</td>
</tr>
</tbody>
</table>
From IR to bibliometric analysis

• Web services can be used to
  – Enrich the author’s publication list
  – Produce bibliometric analysis on the fly
Testing the prototype

SERVAL Bibliometrics tool (Beta)

Author: Select an author

Capture citations from databases:
- Web of Science
- SCOPUS (slow)
- PubMed Central

Get citations counts

Developed by the Medical Library of the Lausanne University Hospital, CHUV

http://www.bium.ch/bibliometrics/
Behind the screen: WoS

http://www2.unil.ch/openillink/openlinker/bibliometrics/ut.php?pmid=6091913
Behind the screen: SCOPUS

Request:

http://www.scopus.com/scsearchapi/search.url?devid=[the developer ID]&search=PMID%286091913%29&callback=t

Response:

tricks{"PartOK":"1","TotalResults":1,"ReturnedResults":1,"Position":0,"Results":
["title":"Organization of the higher-order chromatin loop: Specific DNA attachment sites on nuclear scaffold",
"firstauthor":"Mirkovitch, J.",
"citedbycount":391,
"pubdate":1984,
"source":"Cell",
"inwardurl":http://www.scopus.com/inward/record.url?eid=2-s2.0-0021675784&partnerID=65&m d5=4b9314f61428df989c6b434005a7dc36
}
]}}
Behind the screen: PMC

Request:

Response:
<?xml version="1.0"?>
<eLinkResult>
  <LinkSet>
    <DbFrom>pubmed</DbFrom>
    <idList>
      <Id>6091913</Id>
    </idList>
  </LinkSet>
  <LinkSetDb>
    <DbTo>pmc</DbTo>
    <LinkName>pubmed_pmc_refs</LinkName>
    <Link>
      <Id>2774341</Id>
    </Link>
    <Link>
      <Id>2683951</Id>
    </Link>
    [...]
  </LinkSetDb>
</eLinkResult>
Match and mix

• Web services used to match
  – the IR records with the citedness scores
  • using unique identifiers to query the sources
  • parsing XML/JSON responses to extract citations counts
• Table display of the mixed results
Conclusion

- The IR metadata can be enriched with citation information using Web Services
- Citation information moves and is not easy to integrate in the faculty assessment process
- The best of all possible worlds: comparison of citations for each record

  The highest score is selected

- Web services allows the calculation of a « mixed data h index »
Muito obrigado
Merci!
Gracias
Thank you!