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GL 14 - Roma, November 28th & 29th 2012

**GREY LITERATURE IN THE DIGITAL CULTURE AND PRACTICES
OF THE NEW GLOBAL SCHOLAR: THE CASE OF MOLECULAR
BIOLOGY**



FRAMEWORK

- 1. Research Context**
- 2. Methodology**
- 3. Main results**
- 4. Prospective conclusion**

I – RESEARCH CONTEXT

FROM PREVIOUS RESEARCH

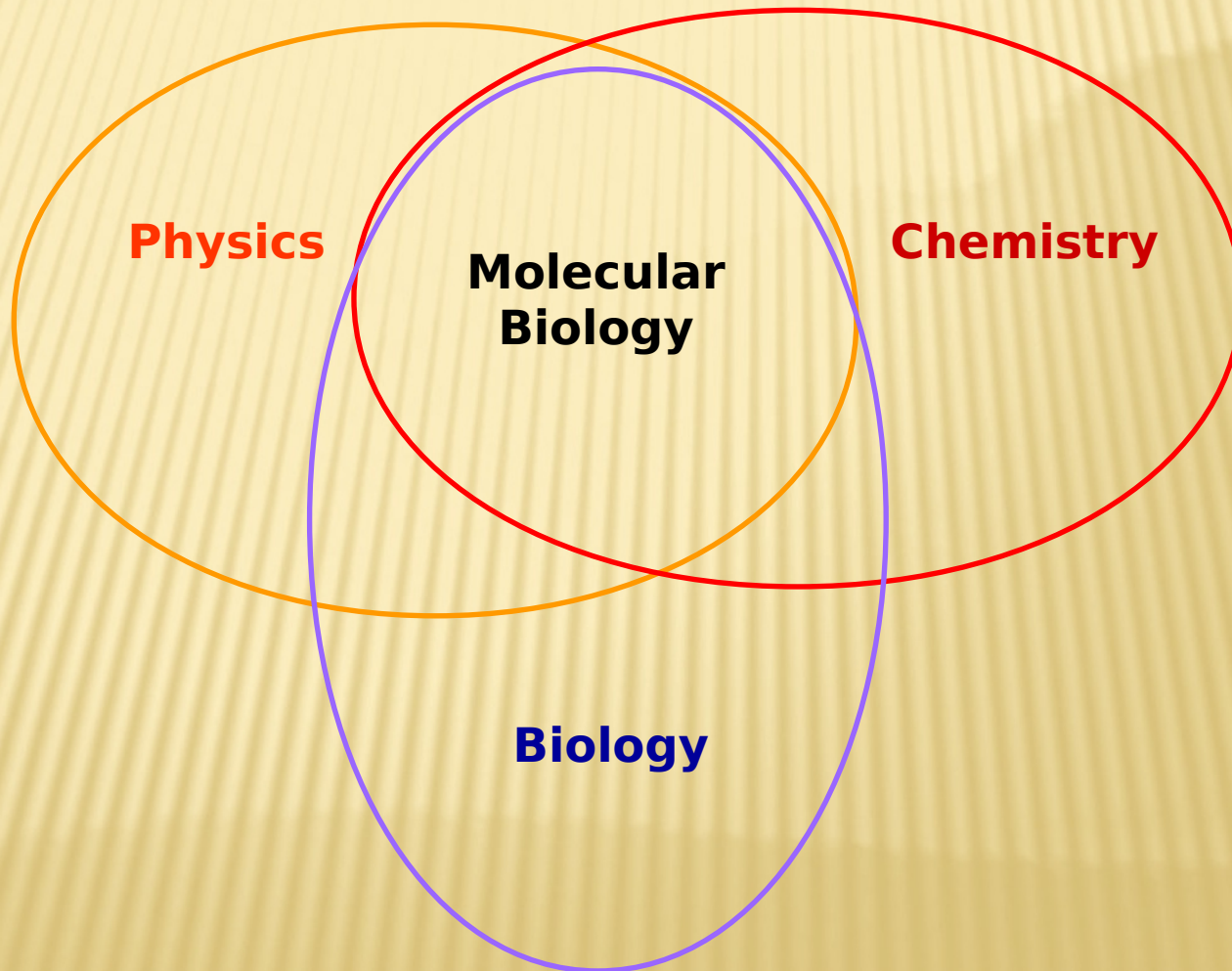
- ▮ Understanding usage of e-resources in an academic context (EPEF, 2006-2009)
- ▮ The importance of the field context
- ▮ The specific case of fields of study with large scale data.
 - ▮ **Disintermediation**
 - ▮ **Journals/Articles driving usage**

RESEARCH QUESTION

What is the place of grey literature in the researchers' informational habits and behaviour ? Does it play a role in the research life cycle ?

« Molecular Biology » as a field case study

MOLECULAR BIOLOGY



CANCER RESEARCH CENTER OF LYON

- Created in 2010
- 350 researchers, 3 departments



II – METHODOLOGY

- ▮ **Literature Review**

- ▮ Since 1961 : Weinberg, *Science*,

- ▮ **At the crossroads of different fields**

- ▮ Computer Science
 - ▮ Information Science
 - ▮ History of Science ...

- ▮ **At the crossroads of different thematic**

- ▮ Grey Literature
 - ▮ eScience
 - ▮ Electronic publishing

- ▮ **Approaching the panel**

- ▮ Web Site
 - ▮ CRCL Publications (SCOPUS)

▮ Interviews

- ▮ Individuals : understanding behaviour and practices
- ▮ Focus Groups : confrontation of practices
 - ▮ Different titles, ages, experiences and point of view
 - ▮ **17 researchers**

▮ Ethnographic Observation

- ▮ *In Situ*
 - ▮ Observing researchers during their daily work
 - ▮ Task organisation, discussions,...

III – MAIN RESULTS

CRCL PUBLICATION ACTIVITY: **ARTICLE ORIENTED**

- ▮ **94 articles (since 2010)**
 - ▮ **Most in Biochemistry, Genetics and Molecular Biology (70%)**
 - ▮ **Only 2 conference papers ...**
 - ▮ **4149 references**
 - ▮ **Mainly articles, but also data sets**
 - ▮ **7 related to GL definition**

- ▮ **One article**
 - ▮ **100 authors**
 - ▮ **243 references**
 - ▮ **12 countries (USA, represented at 50 %)**

Source: Scopus

DIGITAL CULTURE

- ▮ **Computational skills**
- ▮ **Collaborative research & data sharing**
- ▮ **Infrastructures & Cloud Computing**
- ▮ **Networking & Connectivity**
- ▮ **Open Access**
- ▮ **The library is the whole of the Internet**

ARTICLES EVERYWHERE...

- ▮ **Theses : collection of articles**
 - ▮ Validation
 - ▮ Promotion and career
- ▮ **Conference proceedings : Articles already published**
 - ▮ Competition
 - ▮ Confidentiality
- ▮ **Incentives**
 - ▮ Quality and Intellectual Property Rights
 - ▮ “Reliable product”
 - ▮ **Optimisation of search and data identification**
 - ▮ **Obligation, not motivation**

DATA LOCALISATION

(DATA DEPOSIT : AN OBLIGATION SINCE 1980'S)

▮ ***Data repositories, linked to publication***

- ▮ *GenBank – Protein Data Bank*
- ▮ *DRYAD*
- ▮ *NCBI*
- ▮ *PANGEA*
- ▮ *Gene Expression Omnibus*

▮ ***Isolated sets of data, cited in articles as references***

- ▮ *Breast Cancer Information Core Database*
- ▮ *Splice Site Prediction by Neural Network*
- ▮ *Max EntScan*
- ▮ *Human Splicing Finder*

AN EXAMPLE, NUCLEIC ACIDS RESEARCH

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nar.oxfordjournals.org/content/current

nucleic acid research

RECHERCHER

Epigenetic Editing: targeted rewriting of epigenetic marks to modulate expression of selected target genes
Nucl. Acids Res. (2012) 40(21): 10596-10613 doi:10.1093/nar/gks863
» Abstract » FREE Full Text (HTML) » FREE Full Text (PDF) » FREE Screen PDF
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Computational Biology

Noa Bossel Ben-Moshe, Roi Avraham, Merav Kedmi, Amit Zeisel, Assif Yitzhaky, Yosef Yarden, and Eytan Domany
Context-specific microRNA analysis: identification of functional microRNAs and their mRNA targets
Nucl. Acids Res. (2012) 40(21): 10614-10627 doi:10.1093/nar/gks841
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Norman E. Davey, Joanne L. Cowan, Denis C. Shields, Toby J. Gibson, Mark J. Coldwell, and Richard J. Edwards
SLIMPrints: conservation-based discovery of functional motif fingerprints in intrinsically disordered protein regions
Nucl. Acids Res. (2012) 40(21): 10642-10656 doi:10.1093/nar/gks848
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Jianrong Wang, Victoria V. Lunyak, and I. King Jordan
Chromatin signature discovery via histone modification profile alignments
Nucl. Acids Res. (2012) 40(21): 10642-10656 doi:10.1093/nar/gks848
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» Computational Biology
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» Nucleic Acid Enzymes
» RNA
» Structural Biology
» Synthetic Biology and Chemistry
» Methods Online
» Front-Matter/Back-Matter

Alert me to new issues

NAR's rank and Impact Factor have increased!

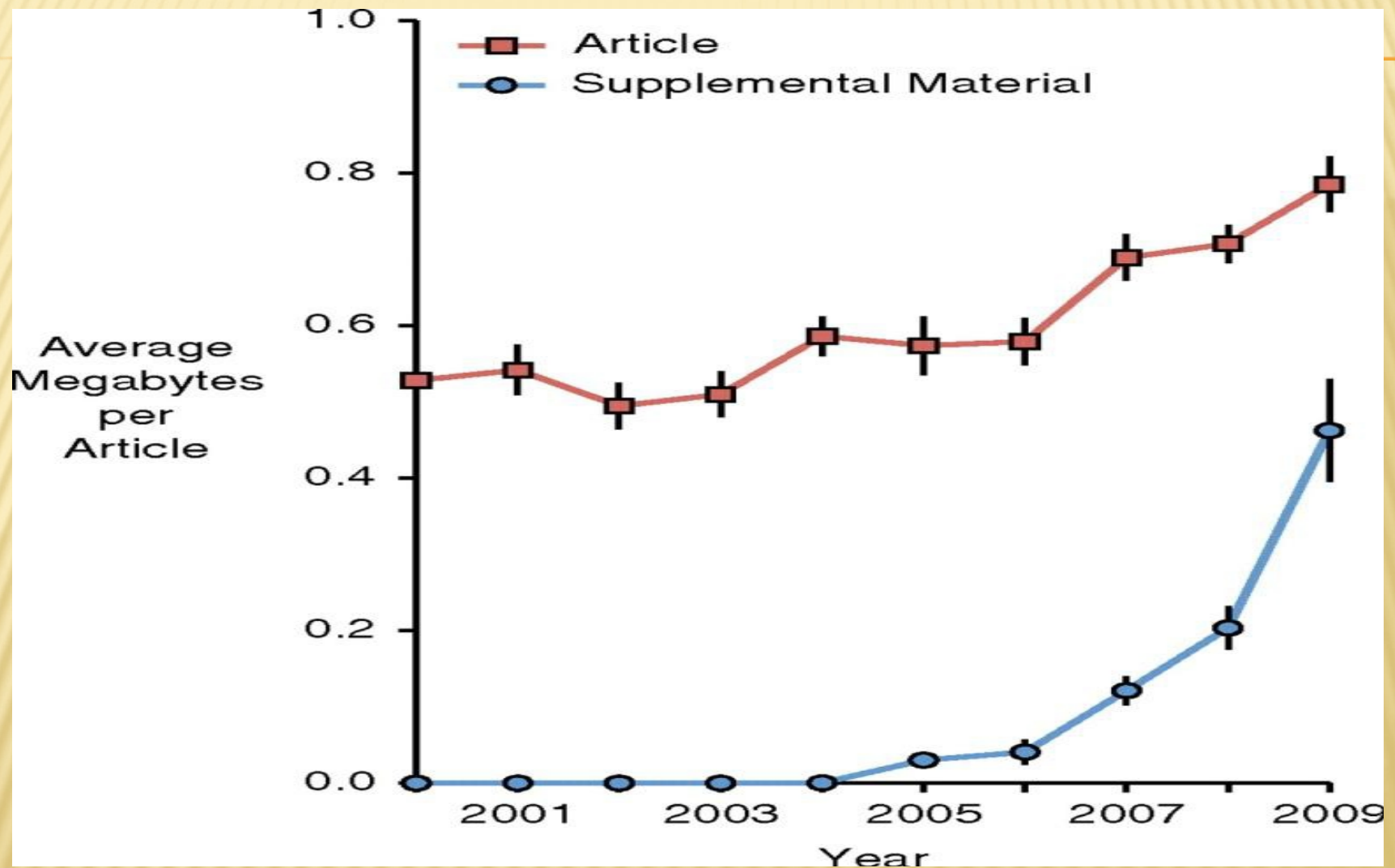
8.026 and 26/289 in Biochemistry & Molecular Biology

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Average size of a Journal of Neuroscience article and supplemental material in megabytes (Maunsell, J. Neurosci. 2010)

DATA ADDED VALUE

- ▮ Data : very first outlet of scientific output
 - ▮ Tracking innovation in datasets, not article
- ▮ Data, every time, everywhere
 - ▮ Implicit and confusion
- ▮ Funding competition
 - ▮ Curation, Evaluation
 - ▮ Production, Preservation

DATA : « TELLING A NICE STORY »

- ▮ The time researchers they spend discussing the data
 - ▮ Meetings, Data Repositories Forums, Conferences, eMails, ...
- ▮ Dialogue between what is known and what is observed
- ▮ Information overload and Filters needed...
 - ▮ Deposits in Repositories : a double “publication”

DOCUMENTS IN THE RESEARCHER'S DAILY ACTIVITY

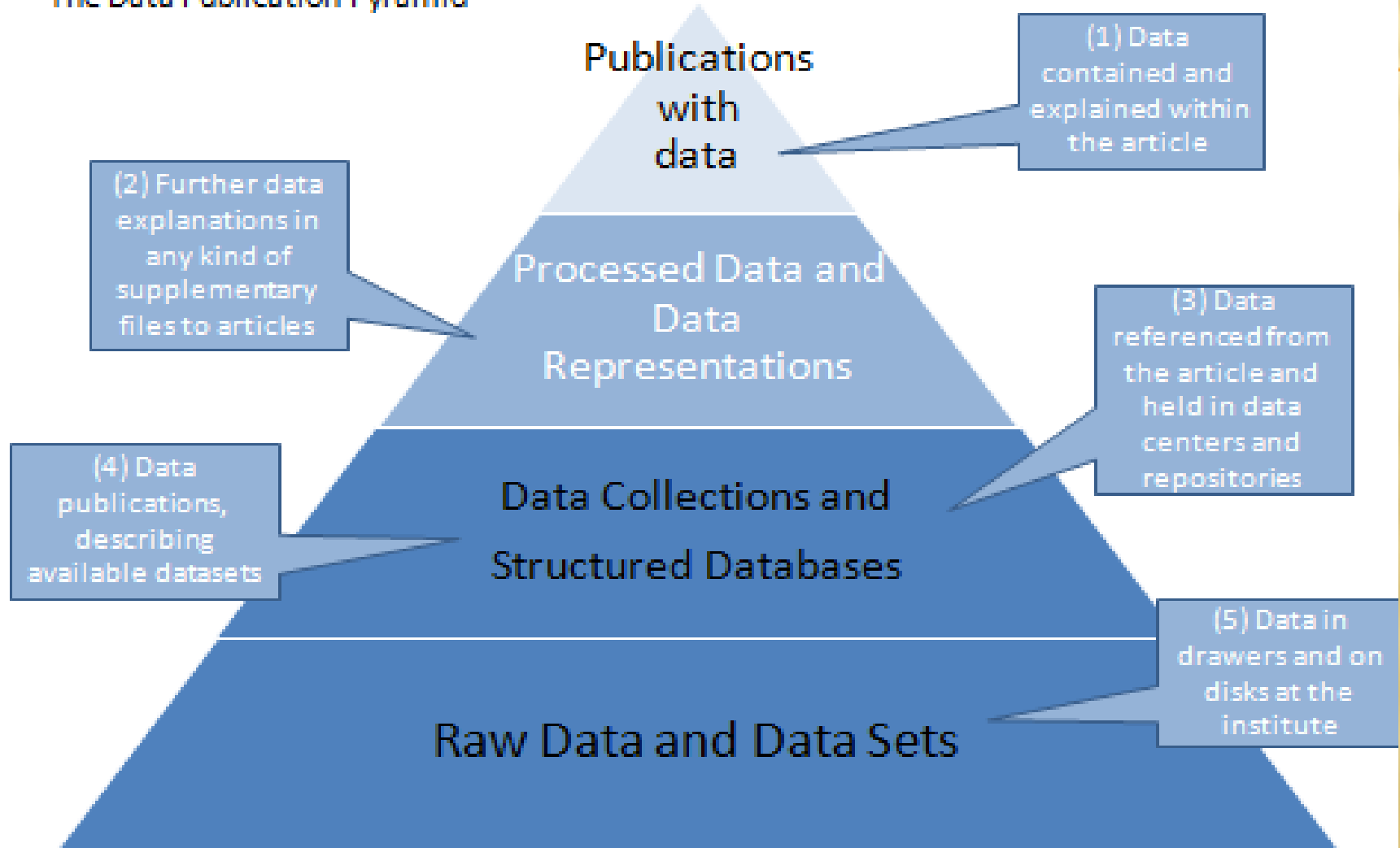
	Books	Patents	Articles	Theses	Conferences	Databases
Searching			X			X
Reading			X			
Problems			X			X
Visualisation						X
Hypotheses			X			X
Test						X
Verification						X
Publication		X	X			X
Advancements		X	X			X

**Long term
Perspective
Conceptual
approach**

**Short term
Perspective
Driving
the research**

IV – PROSPECTIVE CONCLUSION

The Data Publication Pyramid



PRAGUE DEFINITION (SCHÖPFEL, GL12, 2010)

*"Grey literature stands for manifold document types produced on all levels of government, academics, business and industry in print and **electronic formats** that are **protected by intellectual property rights, of sufficient quality to be collected and preserved** by library holdings or institutional repositories, **but not controlled by commercial publishers** i.e., **where publishing is not the primary activity of the producing body.**"*

DATA FOR LESS AND BETTER SCIENTIFIC ARTICLES ?

- ▮ Journals are relying on data to demonstrate their added value in the information overload context
- ▮ Journals are competed by :
 - ▮ Data repositories discussions forums (Ex: GenBank)
 - ▮ Academic Social Network (Ex: Mendeley)

Data, as Grey Literature, may drive future of journal publishing