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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

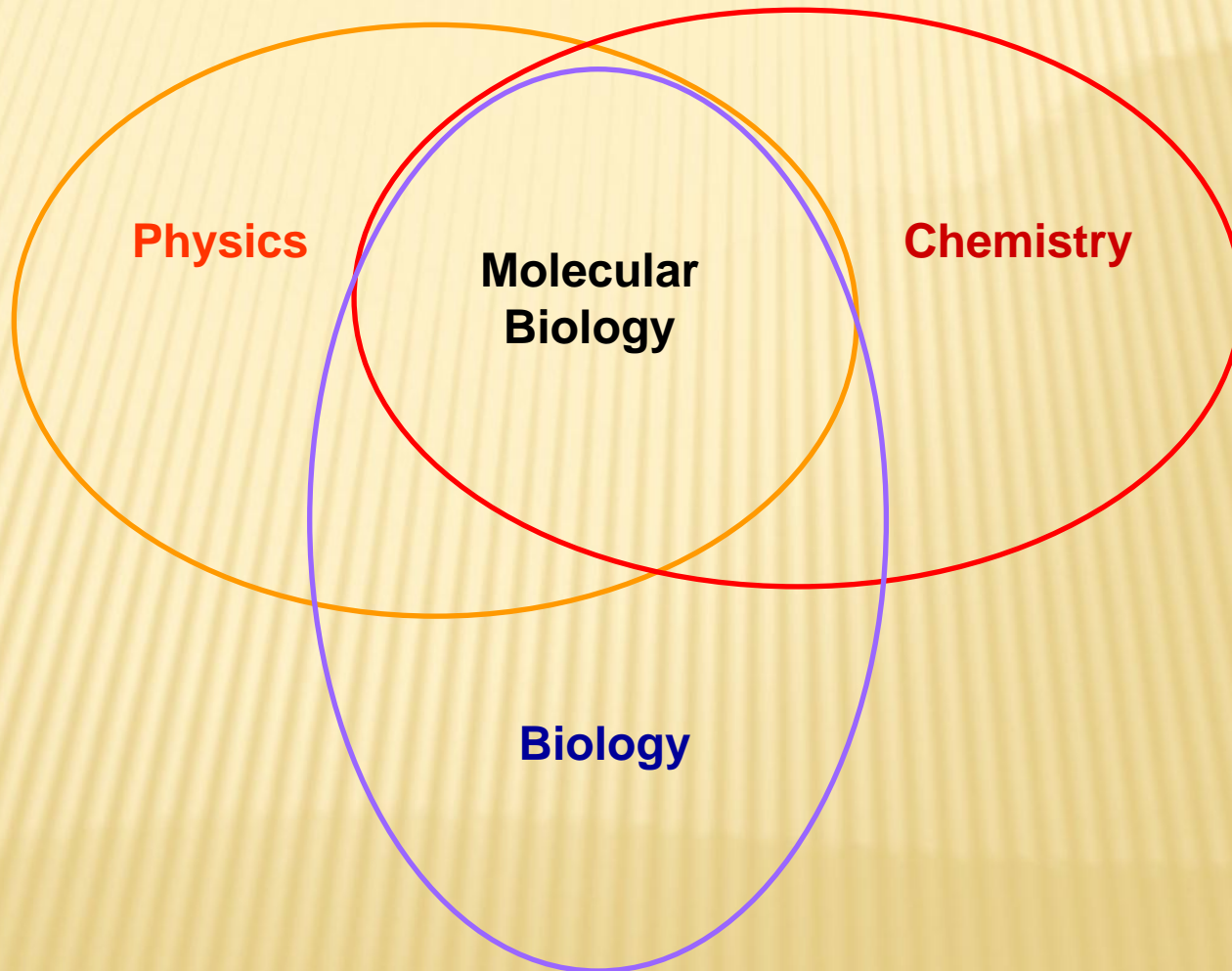
- ✖ Understanding usage of e-resources in an academic context (EPEF, 2006-2009)
- ✖ The importance of the field context
- ✖ The specific case of fields of study with large scale data.
 - + **Disintermediation**
 - + **Journals/Articles driving usage**

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

Table of Contents — November 2012, 40 (21) - Mozilla Firefox

Fichier Édition Affichage Historique Marque-pages Yahoo! Outils ?

(2167 non lus) - boukacemc - Yahoo! Mail x qu'entend-on par industries culturelles e... x ODE-ReportOnIntegrationOfDataAndPu... x Table of Contents — November 2012, 4... x CiteULike: My library

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
» Abstract » FREE Full Text (HTML) » FREE Full Text (PDF) » FREE Screen PDF
» Supplementary Data
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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): 10628-10641 doi:10.1093/nar/gks854
» Abstract » FREE Full Text (HTML) » FREE Full Text (PDF) » FREE Screen PDF
» Supplementary Data
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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
» Abstract » FREE Full Text (HTML) » FREE Full Text (PDF) » FREE Screen PDF
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» Index By Author
» Cover Image
» Table of Contents (PDF)

» Survey and Summary
» Computational Biology
» Gene Regulation, Chromatin and Epigenetics
» Genome Integrity, Repair and Replication
» Genomics
» Molecular Biology
» Nucleic Acid Enzymes
» RNA
» Structural Biology
» Synthetic Biology and Chemistry
» Methods Online
» Front-Matter/Back-Matter

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NAR's rank and Impact Factor have increased!

8.026 and 26/289 in Biochemistry & Molecular Biology

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Table of Contents — ...

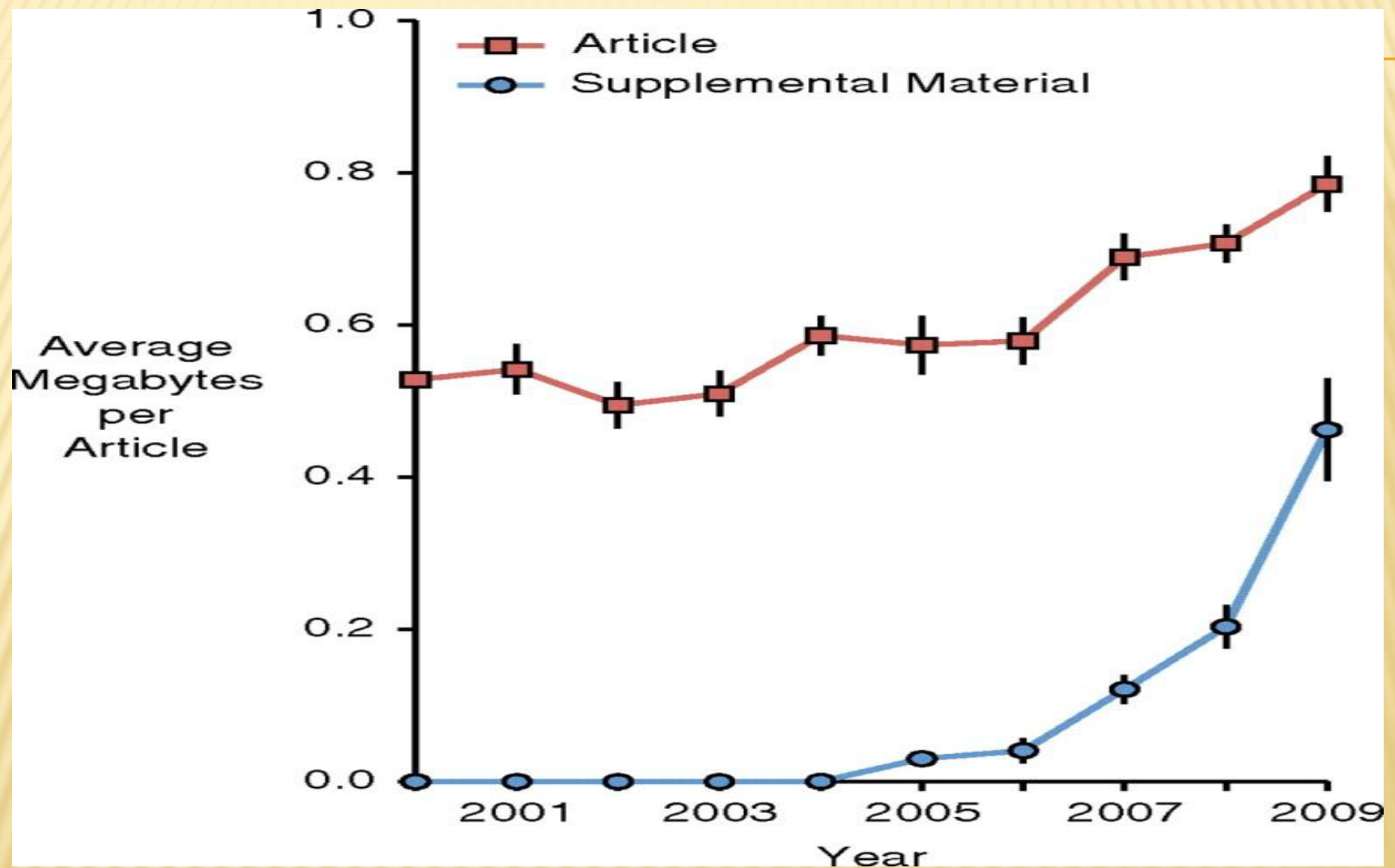
Supports Intervenant

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15:02



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

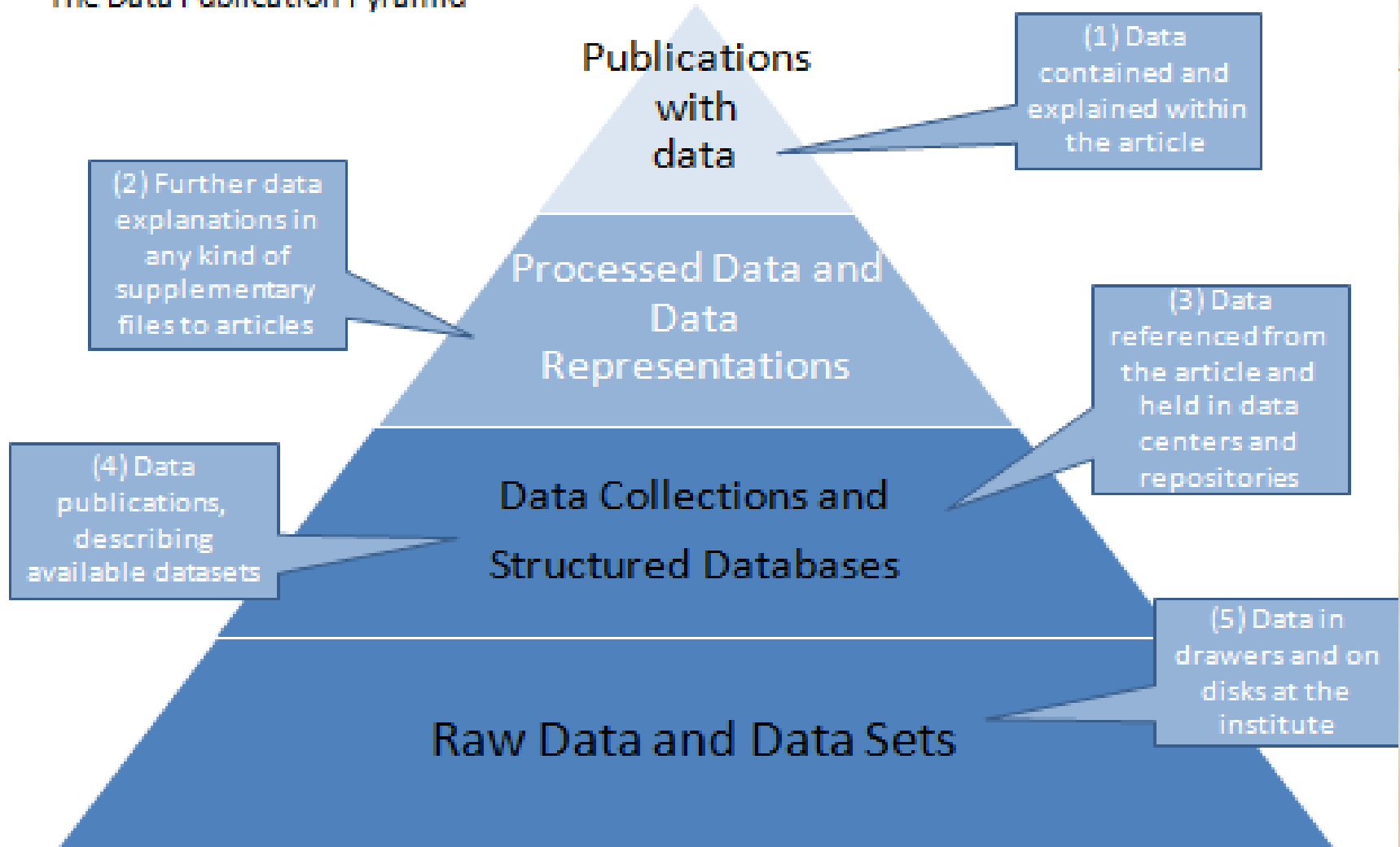
	Books	Patents	Articles	Theses	Conferences	Data
Searching			X			X
Reading			X			
Problems			X			X
Visualisation						X
Hypotheses			X			X
Test						X
Verification						X
Publication		X	X			X
Advancement & Grant		X	X			

*Long term
Perspective
Conceptual
approach*

*Short term
Perspective
Driving
the research*

IV – PROSPECTIVE CONCLUSION

The Data Publication Pyramid



Gray, J. *The Fourth Paradigm, Data-Intensive Scientific Discovery*, 2009

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