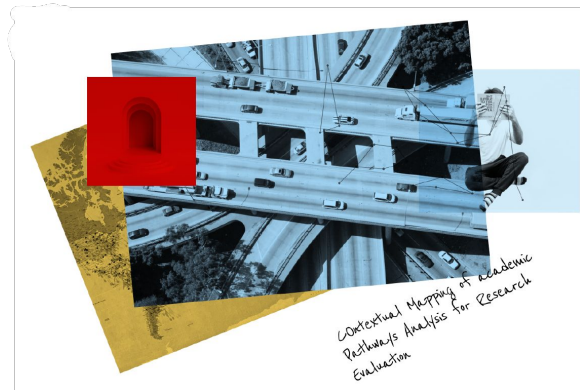
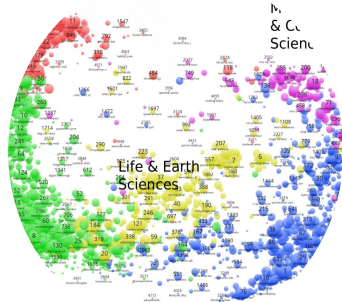
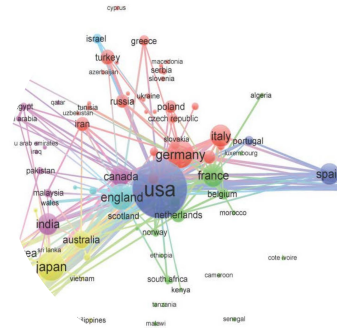
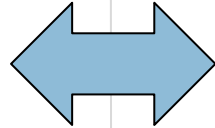


Diversity and recognition in research teams

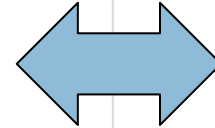




Knowledge



Scientists



Society

The generation of **knowledge** as the result of co-existing **social**, **cognitive** and **cultural** processes and actors.

The **challenge** in **research evaluation** is to...

- Research quality
- Societally relevant
- Diversity
- Global and cooperative

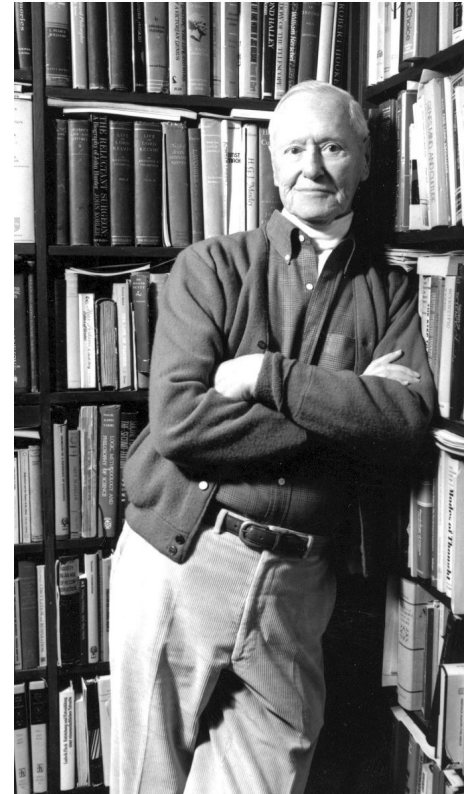
Non-exhaustive list!

... foster and promote a **successful**, **sustainable**,
balanced and **socially responsible** **scientific**
ecosystem

So far the approach was... **excellence** and **impact**

Based on a far-fetched normative view of the scientific reward system, **universities, funders and countries** have relied heavily on **the use of publication and citation counts** to **allocate funds, recruit and promote** researchers.

It is fair to say that, in many occasions there has been a misuse and abuse of metrics.



Ignoring warnings from experts

interpretation of bibliometric results. However, most of these problems can be overcome. When used properly, bibliometric indicators can provide a “monitoring device” for university research-management and science policy. They enable research policy-makers to ask relevant questions of researchers on their

CORRESPONDENCE

Impact factors can mislead

SIR — Impact factors (IFs) for scientific journals, developed by the Institute for Scientific Information (ISI) and published in the section “Journals per category, ranked by Impact Factor” of the *Journal Citation Reports (JCR)*, are frequently used to evaluate the status of scientific journals or even the publication output of scientists. The IF of a journal in year T is defined as

purchased from ISI. In each category we compared the ranking of journals by IF as printed in the *JCR* to the one based on our correct IF, by calculating the number of journals moving at least 1, 3, 5 or 10 positions. The table shows the five categories affected most severely, measured through the percentage of journals moving at least one position in the ranking. The categories

Individual-level evaluative bibliometrics – the politics of its use and abuse

Wolfgang Glänzel wolfgang.glanzel@kuleuven.be / ECOOM, KU Leuven
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and Akadémiai Kiadó, Budapest

Scientometrics,
Vol. 51, No. 1 (2001) 335–346

Language biases in the coverage of the *Science Citation Index* and its consequences for international comparisons of national research performance

THED N. VAN LEEUWEN, HENK F. MOED, ROBERT J. W. TUISSEN, MARTIJN S. VISSER,
ANTHONY F. J. VAN RAAN



THE DOS AND DON'TS IN INDIVIDUAL-LEVEL BIBLIOMETRICS

WOLFGANG GLÄNZEL¹, PAUL WOUTERS²

¹Centre for R&D Monitoring and Dept MSI, KU Leuven, Belgium

²Centre for Science and Technology Studies, Leiden University, The Netherlands



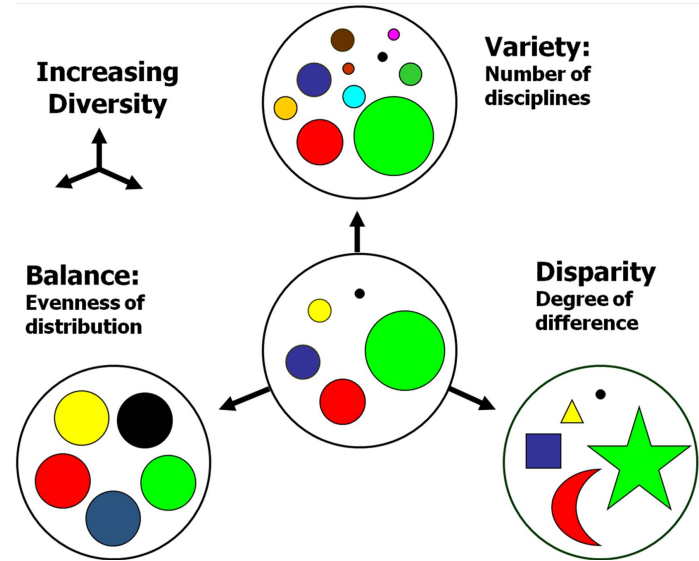
The Leiden Manifesto for research metrics

The many meanings of **diversity**

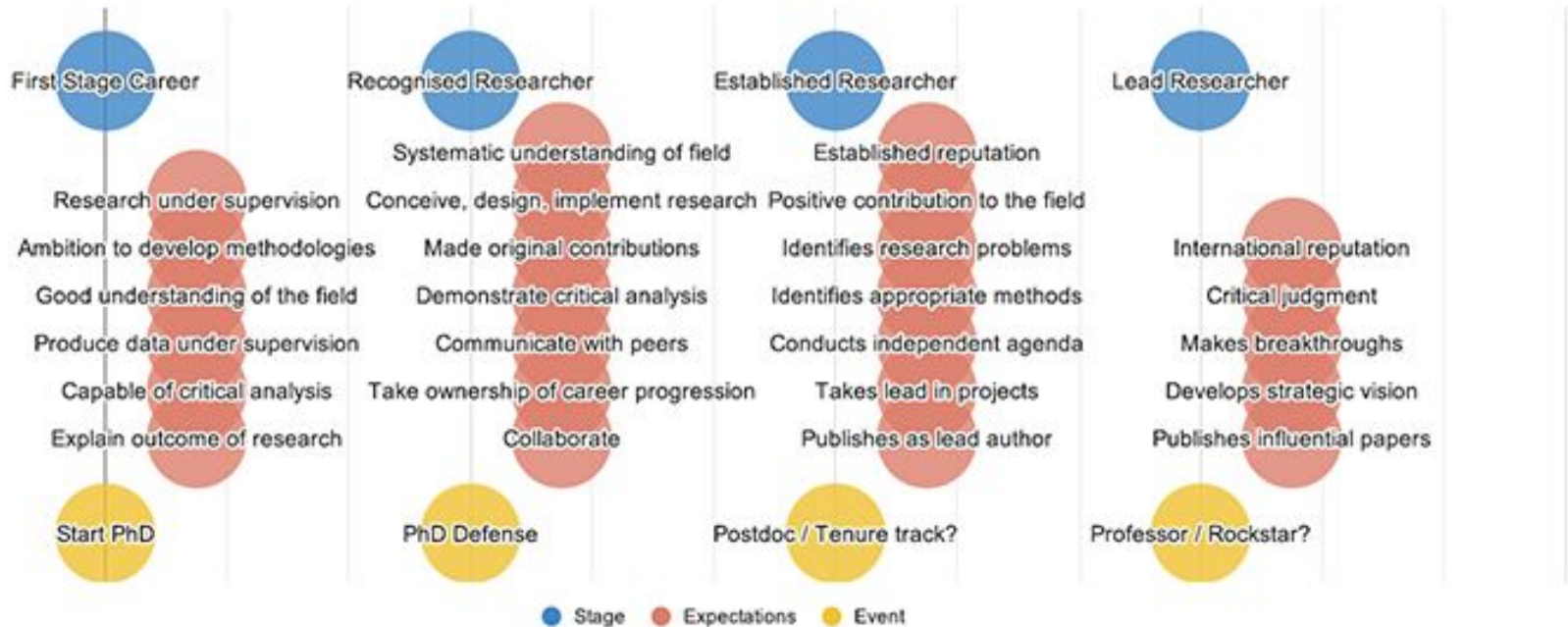
Object/Actor

- ★ People
- ★ Knowledge
- ★ Workflows
- ★ Trajectories
- ★ Practices
- ★ ...

Operationalization



But **diversity** is **absent** in research **career trajectories**

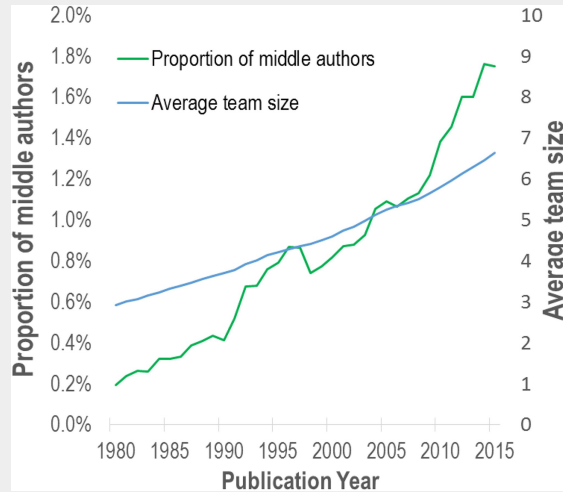


<https://euraxess.ec.europa.eu/europe/career-development/training-researchers/research-profiles-descriptors>

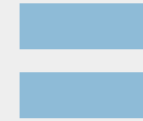
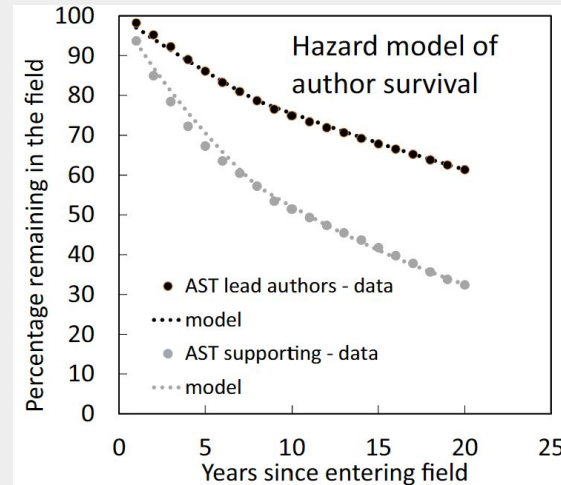
It seems that **there is only one path**, and that it is **defined by leadership**, there are **no team players allowed in the game.**

This can have **consequences** for some scientists

Increase of team size



Shortening of their career length



Milojević, S., Radicchi, F., & Walsh, J. P. (2018). Changing demographics of scientific careers: The rise of the temporary workforce. *Proceedings of the National Academy of Sciences*, 115(50), 12616–12623. <https://doi.org/10.1073/pnas.1800478115>

Mongeon, P., Smith, E., Joyal, B., & Larivière, V. (2017). The rise of the middle author: Investigating collaboration and division of labor in biomedical research using partial alphabetical authorship. *PLOS ONE*, 12(9), e0184601. <https://doi.org/10.1371/journal.pone.0184601>

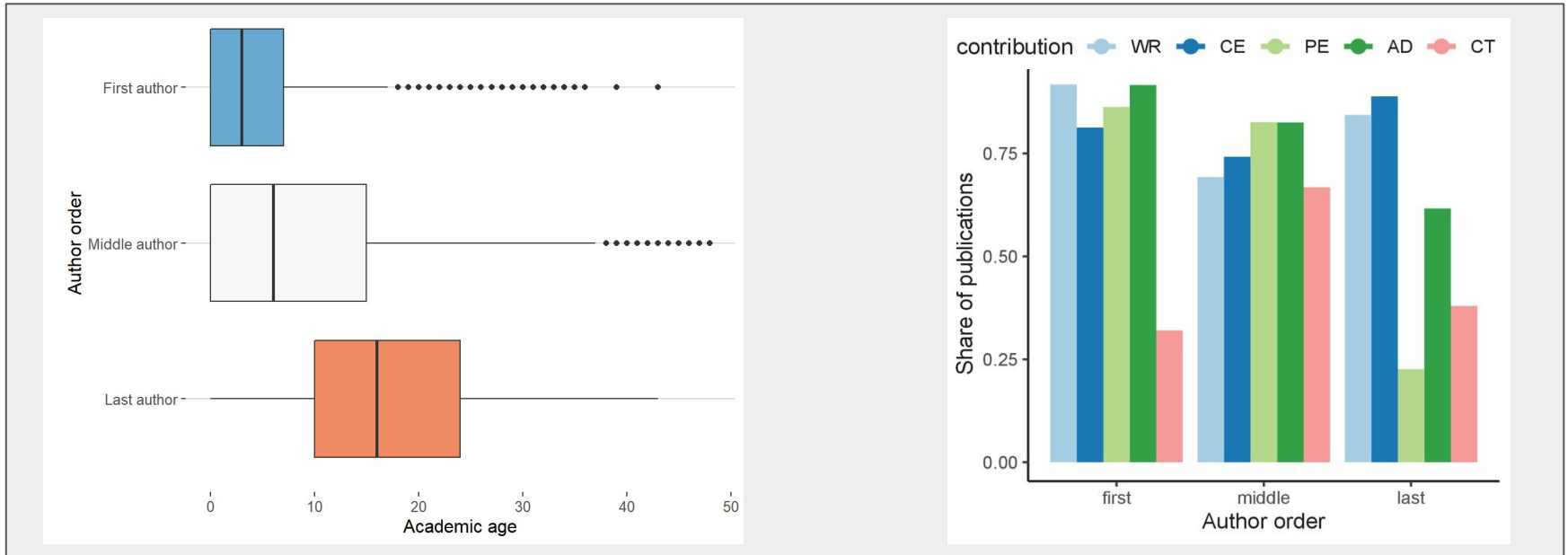
Author order and its underlying assumptions

- ★ Authorship is the currency in science
- ★ First and last authors are considered key positions



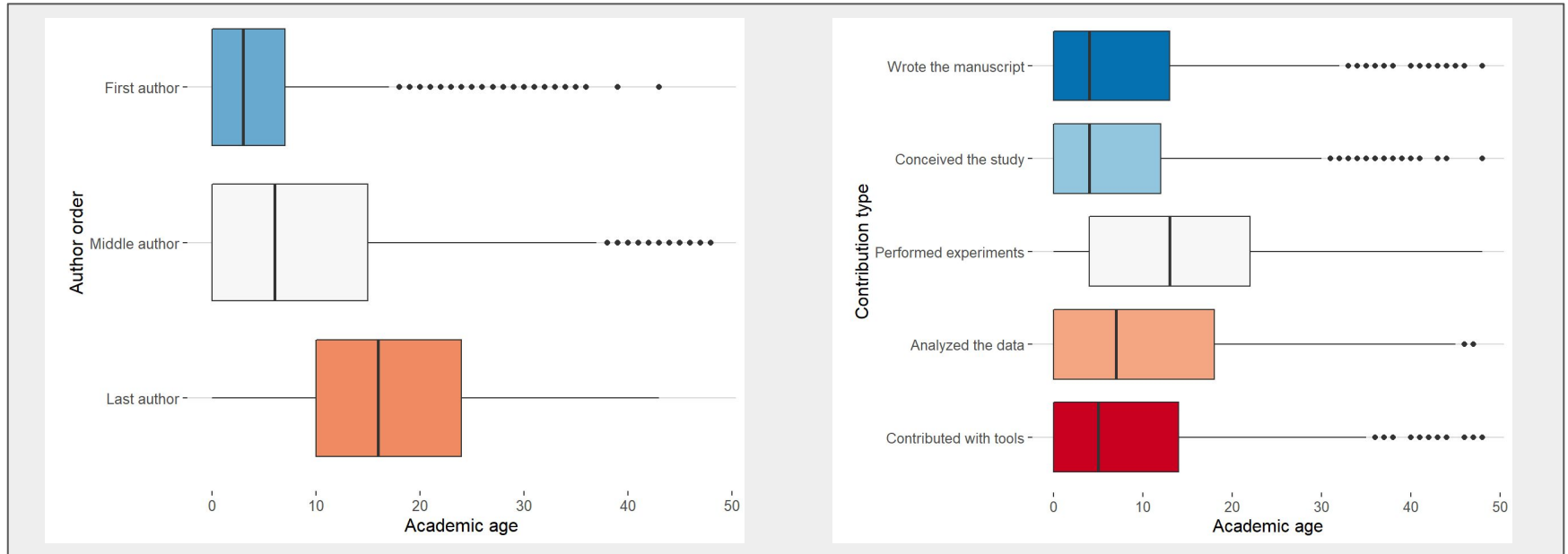
Author order and its underlying assumptions

- ★ If these assumptions are true, author order should relate to contribution statements



Author order and its underlying assumptions

★ But some age-related power dynamics seem to also be in place



Research careers and task specialization

Junior

0.29 (0.22-0.29)	0.47 (0.39-0.49)	0.28 (0.20-0.30)	0.53 (0.46-0.54)	0.31 (0.23-0.39)
0.53 (0.47-0.60)	0.63 (0.56-0.70)	0.49 (0.42-0.58)	0.70 (0.64-0.77)	0.31 (0.23-0.39)

Early-career

0.27 (0.17-0.32)	0.41 (0.30-0.47)	0.28 (0.18-0.34)	0.22 (0.12-0.27)	0.33 (0.26-0.41)	Supporting
0.54 (0.44-0.61)	0.63 (0.54-0.70)	0.52 (0.41-0.59)	0.69 (0.61-0.75)	0.33 (0.25-0.41)	Specialized
0.62 (0.57-0.68)	0.59 (0.54-0.66)	0.62 (0.56-0.69)	0.09 (0.01-0.15)	0.38 (0.30-0.45)	Leader

Mid-career

0.31 (0.24-0.36)	0.32 (0.25-0.39)	0.35 (0.28-0.42)	0.00 (0.00-0.01)	0.38 (0.31-0.46)
0.55 (0.48-0.63)	0.59 (0.52-0.66)	0.57 (0.48-0.66)	0.39 (0.29-0.48)	0.38 (0.29-0.45)
0.67 (0.61-0.75)	0.57 (0.51-0.64)	0.70 (0.63-0.79)	0.00 (0.00-0.00)	0.43 (0.35-0.51)
WR	AD	CE	PE	CT

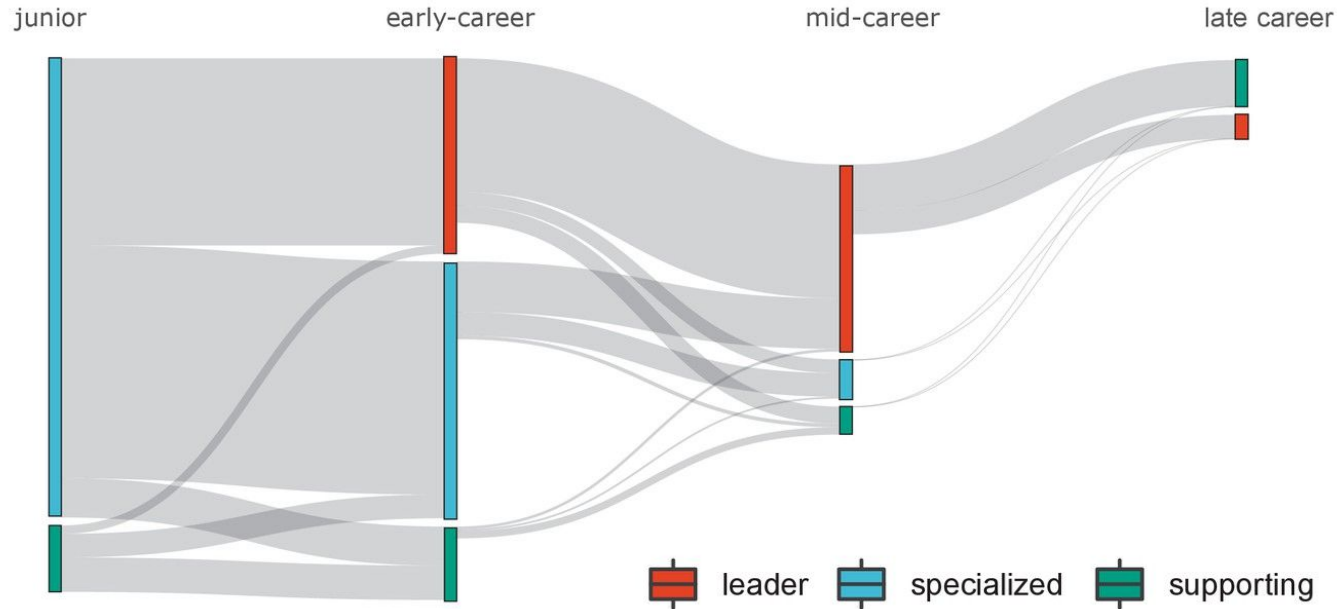
Late-career

0.48 (0.47-0.52)	0.34 (0.32-0.38)	0.57 (0.55-0.62)	0.00 (0.00-0.00)	0.48 (0.40-0.56)	Supporting
					Specialized
0.82 (0.72-0.88)	0.63 (0.54-0.70)	0.87 (0.76-0.94)	0.00 (0.00-0.00)	0.49 (0.41-0.56)	Leader
WR	AD	CE	PE	CT	

Using machine learning, **we trained a model** combining publication, author and contribution data and **analyzed the career trajectories** of > 220,000 researchers **based on their predicted contributions.**

We then **created archetypes** of researchers at four **different career stages.**

Research careers and task specialization



SOME REMARKS

- Author order only used in predictive model but not archetypes
- Different generations of researchers included
- Researchers are *forced* into an archetype

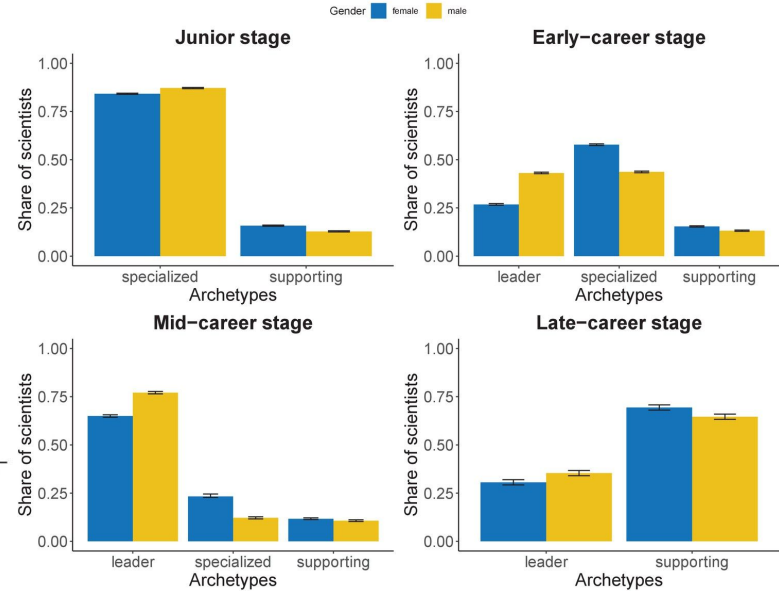
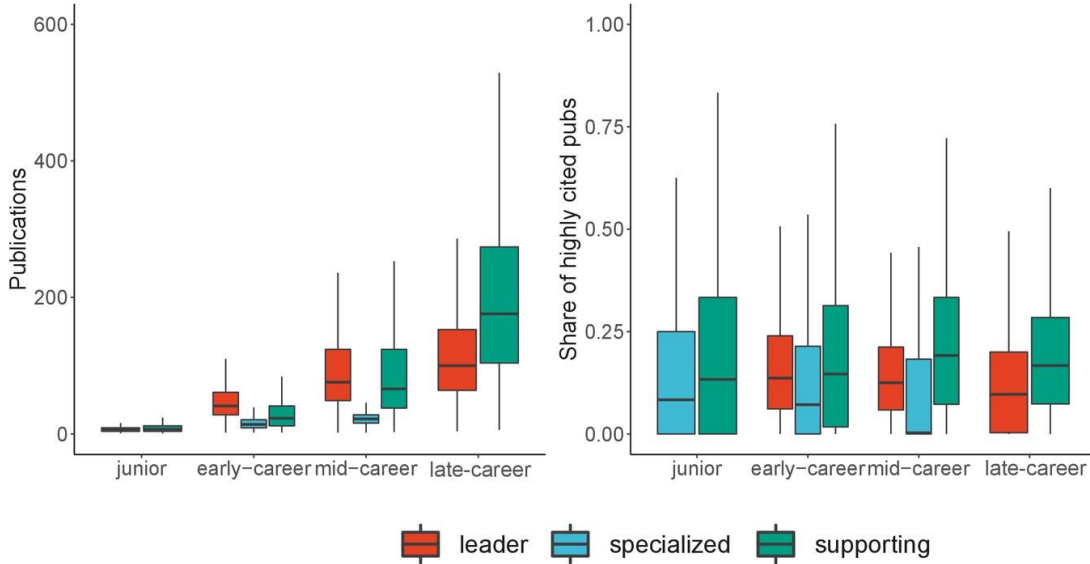
More information here:

Robinson-Garcia et al. (2020). ELife, 9, e60586.

<https://doi.org/10.7554/eLife.60586>

Researchers exhibiting a **leader profile** have a greater chance of having **a longer academic career**

Research careers and task specialization



Specialized profiles tend to be **less productive** and have slightly **lower citation impact** than leaders and supporting roles.

A higher proportion of **women have a specialized profile** at their **early-career stage**, potentially undercutting their career prospects in academia.

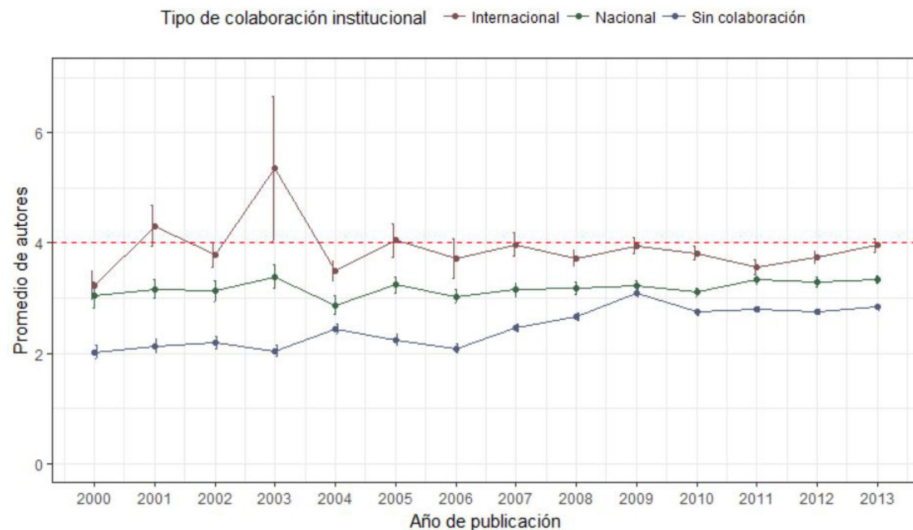
Implications for **evaluation with metrics**

- ❑ Confounding variables may be influencing bibliometric indicators in hidden and harmful ways.

“ What I see now is that **it is a selection process, a very strict selection process,** and **some people are good enough, they are just good enough and they reach it.** But then there is **a majority that is basically just competing, and they are roughly the same,** I am probably also in this group, **and then other components come into,** things like who is more aggressive, who is more capable of playing the game. (Biomedicine A) ”

Implications for **evaluation with metrics**

- ❑ Confounding variables may be influencing bibliometric indicators in hidden and harmful ways.
- ❑ We still struggle at assessing researchers and their role within the scientific ecosystem



Robinson-Garcia, N. & Amat, C.B. ¿Tiene sentido limitar la coautoría científica? No existe inflación de autores en Ciencias Sociales y Educación en España. *Revista Española de Documentación Científica*, 41(2), e201. <https://doi.org/10.3989/redc.2018.2.1499>

Valuation regimes in academia

1. Lack of diversity of activities valued in assessment exercises
2. Inability of metrics to contextualize and adapt to needs
3. Lack of tools to evaluate others' performance
4. Frustration with moving targets when lacking clear criteria

Both academics and funders still have a normative view of science and academia.

Funders and recruiters must own their decisions and consider context when using metrics.

Implications for **scientific knowledge production**

3 EXAMPLES on diversity of knowledge production and how metrics can help understand and cultivate the right environment for its flourishing.

Contextual **M**apping of academic **P**athways **A**nalysis for **R**esearch **E**valuation

Unveiling Diversity in the
Ecosystem of Science

[ABOUT THE PROJECT](#)

[VIEW OUR TOOLBOX](#)



1 Publication patterns in the Humanities

The limits of bibliometrics for the analysis of the social sciences and humanities literature

Éric Archambault and Vincent Larivière

There are several limits to the use of bibliometric analysis of scholarly communication in the social sciences and humanities. This paper reviews three of those limits: the lower proportion of social science and humanities journal articles; social sciences and humanities literature's ageing rate, and conversely its post-publication citation rate; and the local relevance of social sciences and humanities knowledge. It also discusses the choice of bibliometric databases when measuring social sciences and humanities research.

Why with bibliometrics the Humanities does not need to be the weakest link

Indicators for research evaluation based on citations, library holdings, and productivity measures

A. J. M. Linmans

Chapter 21

THE FOUR LITERATURES OF SOCIAL SCIENCE

Diana Hicks

*School of Public Policy, Georgia Institute of Technology, GA, USA
E-mail: diana.hicks@pubpolicy.gatech.edu*

Multilingual publishing in the social sciences and humanities: A seven-country European study

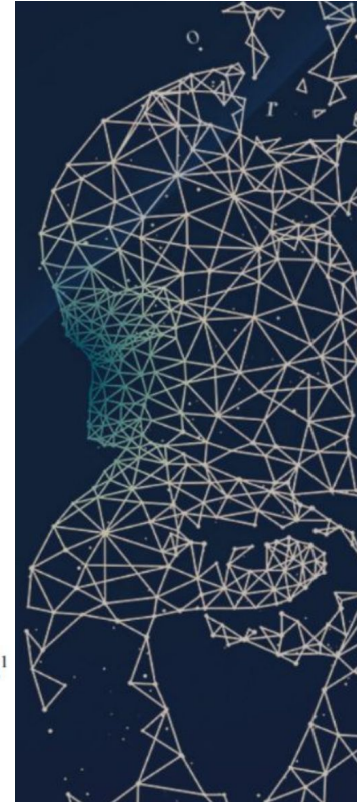
Emanuel Kulczycki¹ | Raf Guns² | Janne Pölonen³ | Tim C. E. Engels² |
Ewa A. Rozkosz¹ | Alesia A. Zuccala⁴ | Kasper Bruun⁵ | Olli Eskola⁶ |
Andreja Istenič Starčič^{7,8,9} | Michal Petr¹⁰ | Gunnar Sivertsen¹¹

Bibliometric monitoring of research performance in the Social Sciences and the Humanities: A review

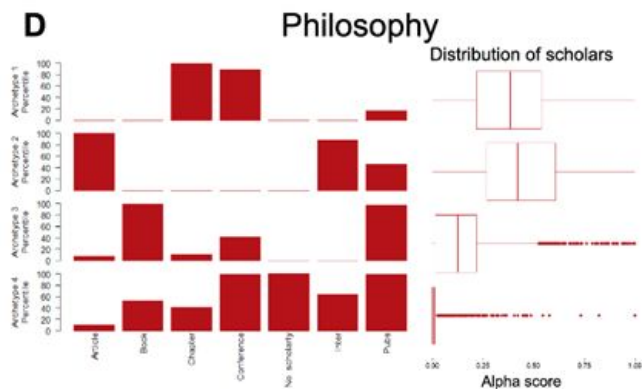
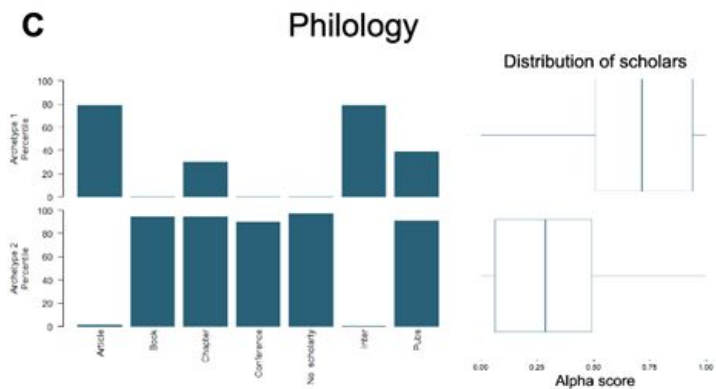
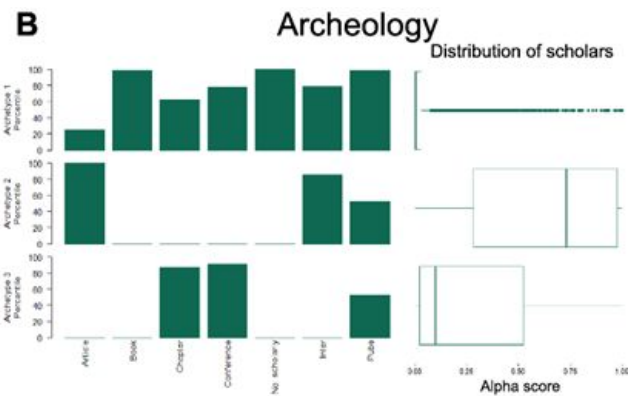
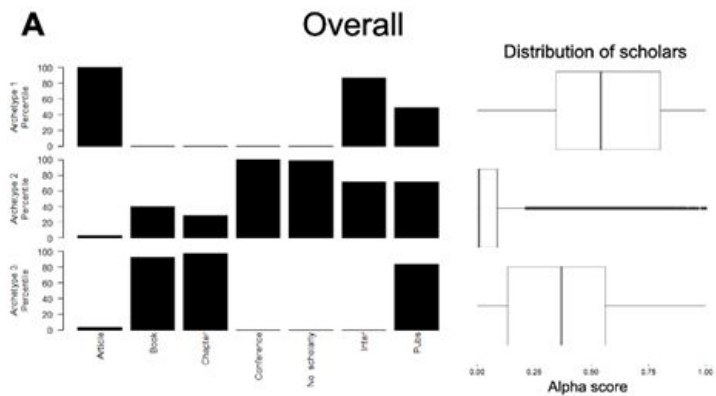
ANTON J. NEDERHOF

Welcome to the Linguistic Warp Zone:
Benchmarking Scientific Output in the Social Sciences and Humanities¹

Éric Archambault*, Étienne-Vignola Gagné**, Grégoire Côté**,
Vincent Larivière*** and Yves Gingras*



1 Publication patterns in the Humanities



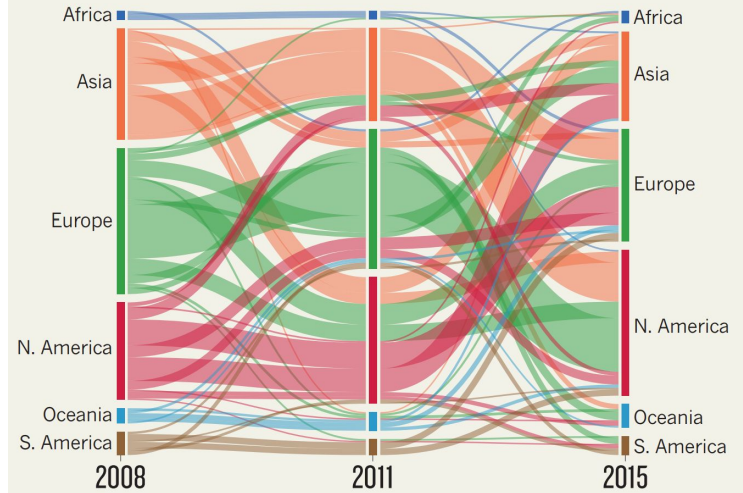
2 Scientific mobility and citation impact



Measuring the global movements of researchers will help to assess the effects of political actions on science.

Scientists have most impact when they're free to move

MAKING TRACKS Intercontinental flows of scholars whose first paper was published in 2008 and who had at least 8 publications between then and 2015.



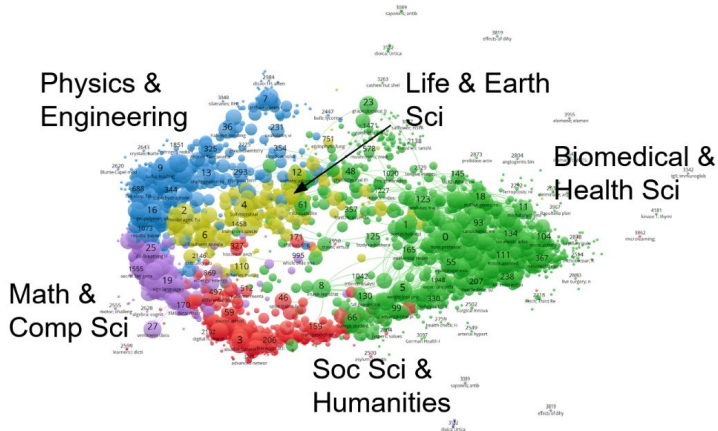
Sugimoto, C. R., Robinson-Garcia, N., Murray, D. S., Yegros-Yegros, A., Costas, R., & Larivière, V. (2017). Scientists have most impact when they're free to move. *Nature*, 550(7674), 29.
<https://doi.org/10.1038/550029a>

2 Scientific mobility and citation impact

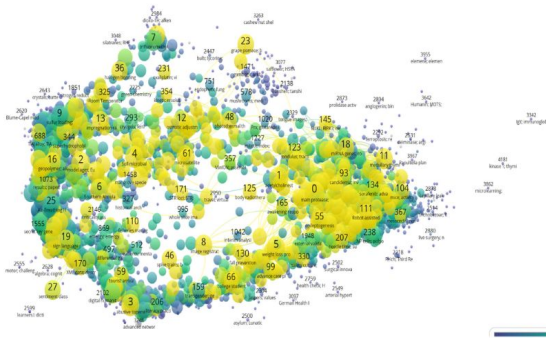
Research question

How do mobility changes affect research agendas and the selection of research topics?

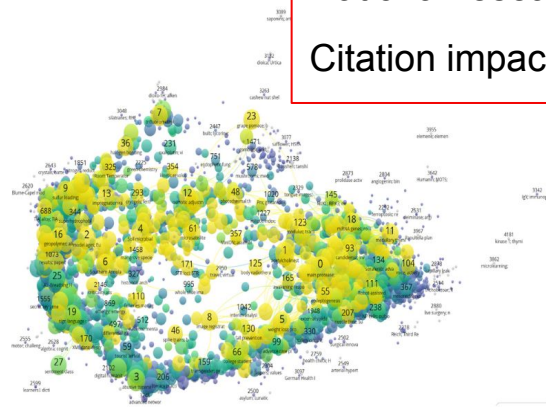
Under-funded vs. over-funded topics
National research priorities
Citation impact vs. social challenges



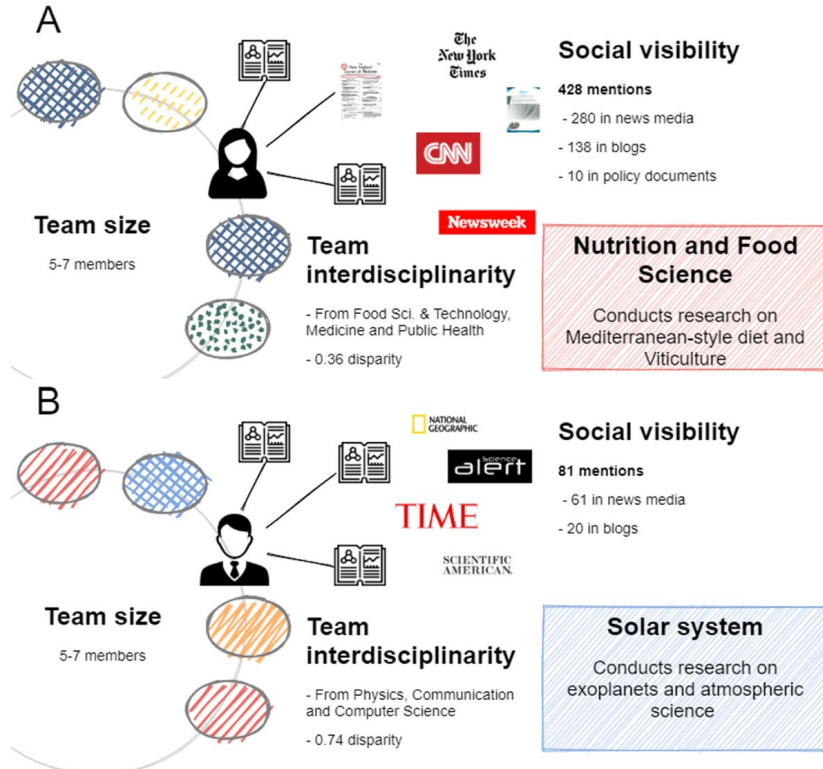
Pubs Home



Pubs Abroad



3 Societal visibility and interdisciplinarity



Is IDR research more societally visible than disciplinary research?

- ★ IDR and societal visibility are positively associated
- ★ Collaboration with non-academic stakeholders is positively associated to greater societal visibility of research results
- ★ This positive association is related both with the variety of fields as well as the distance between fields

D'Este, P., & Robinson-García, N. (2023). Interdisciplinary research and the societal visibility of science: The advantages of spanning multiple and distant scientific fields. *Research Policy*, 52(2), 104609. <https://doi.org/10.1016/j.respol.2022.104609>

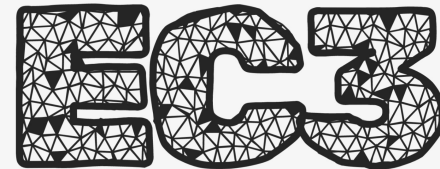
For more information on the COMPARE project please visit:
<https://compare-project.eu>



Thank you for your attention
Questions?

Nicolas Robinson-Garcia

EC3 Research Group, University of Granada



Quantitative Studies of Science Communication