

Submissions accepted for oral presentation at STI 2024

Sorted alphabetically by first author's first name

The impact of the Russian invasion of Ukraine on higher education and scientific institutions in the European borderland.

Agnieszka Olechnicka (EUROREG University of Warsaw) and Adam Ploszaj (EUROREG, University of Warsaw).

Abstract. We present the results of a large representative survey of scientists working in universities and other research institutions in 9 European countries bordering Ukraine, Russia, or Belarus. We investigated the impact of the 2022 Russian invasion of Ukraine on higher education and scientific institutions in the European borderland. In a broader sense, this is an analysis of the effects of an external shock on the operation of such institutions. The results may be valuable for shaping public policy, including research and higher education policy, in response to this specific situation or similar circumstances that might occur in other regions of the world. The initial interviews and preliminary survey results show the greatest impact on educational functions, with a lesser effect on research and the so-called third role of universities. The impact of war depends on various factors, including the level of collaboration with Eastern European partners, and scientific discipline.

How accurate are Scopus publication counts of researchers? A survey-bibliometric comparison for Germany.

Alex Fenton (German Centre for Higher Education Research and Science Studies (DZHW)), Paul Donner (German Centre for Higher Education Research and Science Studies (DZHW)), Jens Ambrasat (Robert K. Merton Center for Science Studies, Humboldt University of Berlin), Gregor Fabian (German Centre for Higher Education Research and Science Studies (DZHW)) and Christophe Heger (German Centre for Higher Education Research and Science Studies (DZHW)).

Abstract. The number of researchers' publications is a widely used proxy measure for scientific output, individual achievement, and performance. Despite well-known criticism from the bibliometric community, the use of bibliometric databases as a basis for measuring publication output is widespread. At the same time, there are established survey instruments that also measure the publication output per researcher. We use survey-bibliometric matching with Scopus publication records to compare the alternative publication counts. A Scopus author ID match could be found for 70 % of the respondent researchers. The number of publications per researcher varies greatly between these data sources. The correlation is only 0.41 and the average individual Scopus coverage is 55 %. Importantly, we find a very high variance of individual-level coverage within disciplines, something that other approaches fail to detect.

How effective are research assessment reform initiatives in mobilizing collective action? Framework and case studies of DORA and CoARA.

Alex Rushforth (CWTS, Leiden University) and Gunnar Sivertsen (NIFU).

Abstract. Recent years have seen considerable growth of reform movements aiming to arrest perceived dysfunctions across science. A prominent problem that has formed the focus of activism in academia has been research assessment practices. Multi-actor initiatives such as the Declaration on Research Assessment (DORA) and the Coalition on Advancing Research Assessment (CoARA) have served as prominent backbone organizations for this movement, coordinating collective action among diverse research stakeholders. As governance structures within science, a notable characteristic is their reliance upon 'soft governance' and 'self-regulation', rather than incentives or coercion. In this paper we take stock of how effective these example initiatives have been in coordinating and mobilizing collective action on their respective problems. We introduce a framework to compare the initiatives, apply it to these two cases, and draw conclusions about the respective achievements, challenges, and limitations of these structures.

Higher mobility among researchers identified as potential academic talents compared to a control group.

Aliakbar Akbaritabar (Max Planck Institute for Demographic Research (MPIDR), Laboratory of Digital and Computational Demography), Robin Haunschild (Max Planck Institute for Solid State Research, Stuttgart, Germany) and Lutz Bornmann (Science Policy and Strategy Department Administrative Headquarters of the Max Planck Society; Munich, Germany).

Abstract. In a previous study, identifying potentially talented researchers worldwide using publication data was proven to be successful using performance measures compared with citations and funding that take longer to accrue. In this study, we investigate the success of the proposed method to identify potentially talented researchers with an additional measure: We reconstruct the scientific mobility trajectory of the researchers identified as potentially talented researchers throughout their scientific career to study whether the potentially talented researchers have a higher propensity to be mobile than a control group. Successful academic careers are usually characterized by high mobility. Our results indicate that potentially talented researchers are more likely to be mobile. The results of the present study confirm the results of the previous study: The proposed method for identifying potentially talented researchers seems to select researchers who prove to be more successful in their academic career than the researchers in the control group.

Economic incentives to reverse brain drain: does it pay?

Alice Civera (Department of Management Information and Production Engineering, University of Bergamo, Italy), Diego D'Adda (European Commission, Joint Research Centre (JRC), Spain), Michele Meoli (Department of Management Information and Production Engineering, University of Bergamo, Italy) and Stefano Paleari (Department of Management Information and Production Engineering, University of Bergamo, Italy).

Abstract. Brain drain is a phenomenon of great relevance for higher education systems. This study addresses a critical gap in the existing literature regarding the policies aimed at promoting the attraction of talented researchers, particularly those centered on economic incentives. By adopting Italy as a case study, the empirical analysis shows that researchers from abroad are not statistically different in terms of scientific profile than those already into the system. The lack of requirements of scientific productivity and quality for the new entrants risk to make the policy ineffective.

Connecting the dots: Assessing SDGs alignment across research funding, publications, and policy documents.

Ana Carolina Spatti (University of Campinas), Evandro Cristofolletti (University of Campinas), Adriana Bin (University of Campinas) and Daniela Pinto (EMBRAPA).

Abstract. The Sustainable Development Goals (SDGs), established by the UN in 2015 and embraced by member nations worldwide, have been under scrutiny at both national and global scales. In line with this commitment, research funding bodies and scholarly databases have been working to classify projects and publications according to the 17 SDGs. This article aims to assess the alignment across diverse classifications of research projects and their outputs within the SDGs framework, drawing insights from an examination of such categorizations within a portfolio of grants supported by a Brazilian funding agency. The evaluation encompasses the scientific outputs generated by these projects as well as their mentions in policy documents. Findings reveal a substantial portion of projects and their outcomes lacking SDG classification, alongside lack of consistency between the classification of research grants and their outcomes.

Does the participation of the diaspora make scientific collaborations different? An investigation on co-authorship with the Brazilian scientific diaspora in COVID-19 research.

Ana Maria Carneiro (Unicamp), Ana Maria Nunes Gimenez (Unicamp), Flávia Meireles (Unicamp), César Pereira (Unicamp), Renata Romolo (Unicamp) and Clara Harumi Sakuda Tatsugawa (Unicamp).

Abstract. Although international collaboration is fundamental to research, relationships between Global North and South researchers are generally asymmetrical. In the last decade, interest has grown in the role of scientific diasporas, especially in promoting more balanced interactions between researchers from the global North and South. However, empirical studies still need to be carried out to explore this hypothesis. This article investigates whether a country's scientific production differs in collaboration with its scientific diaspora, especially for integration in international collaboration networks and research topics. We carried out a comparative bibliometric study based on two samples of articles in international collaboration (with and without collaboration with the Brazilian scientific diaspora). The analysis corpus comprises 60 scientific articles about COVID-19, indexed in the OpenAlex database, between 2020 and 2022. The results showed that the sample of articles with diaspora involved a more significant number of institutions and authors and achieved a more substantial impact.

Motherhood and ex-ante evaluation: special criteria for female researchers in public funding in Brazil.

Ana Maria Carneiro (Unicamp), Luiza Maria Capanema Bezerra (Agronomic Institute), Adriana Bin (Unicamp), Larissa Aparecida Prevato Lopes (Unicamp) and João Gabriel Pedreira de Moura Gomes (Unicamp).

Abstract. Funding agencies worldwide have been establishing institutional policies to address gender inequalities stemming from women's performance biases and family obligations, which affect the allocation of grants and the career progression of female researchers. At the Brazilian National Council for Scientific and Technological Development, some advisory committees have established 'special criteria' to evaluate the curricula of female researchers since 2019 regarding the Research Productivity Grant. Of the 48 committees in this period, 16 implemented specific criteria, covering a broad spectrum of knowledge areas. The criteria extend the evaluation period for childbirth or adoption to compensate for motherhood's impact on scientific productivity. Most committees embraced these criteria to promote gender equity in science and technology. Additionally, we investigated the results of implementing these criteria based on identified microdata related to the payment of fellowships.

Exploring a Critical Methodological Gap in Measuring of Field-Differences in Survey Research: Insights into Scientific Data Sharing and Beyond.

Anastasiia Tcypina (Department for Research System and Science Dynamics, DZHW).

Abstract. This study explores a critical methodological gap in accurately measuring differences across scientific fields within survey research. It focuses on analyzing field-differences in scientific data sharing practices. By examining existing methodologies, the study aims to shed light on the limitations of current field-comparative survey research and inspire the development of more robust methodologies. The study conducts a literature review of the state of the art of field-comparative survey designs by systematically analyzing survey studies on data sharing and the instruments used. Preliminary findings underscore a common reliance on formal discipline classifications to delineate variations in data sharing practices among fields, while also highlighting a dearth of studies explaining these differences. This indicates a need for more nuanced methodological approaches in survey literature considering epistemic properties that underpin knowledge production within specific fields.

Exploring Scientometrics with the OpenAIRE Graph: Introducing the OpenAIRE Beginner's Kit.

Andrea Mannocci (CNR-ISTI) and Miriam Baglioni (ISTI - CNR).

Abstract. The OpenAIRE Graph is an extensive resource housing diverse information on research products, including literature, datasets, and software, alongside research projects and other scholarly outputs and context. It stands as a cornerstone among contemporary research information databases, offering invaluable insights for scientometric investigations. Despite its wealth of data, its sheer size may initially appear daunting, potentially hindering its widespread adoption. To address this challenge, this paper introduces the OpenAIRE Beginner's Kit, a user-friendly solution providing access to a subset of the OpenAIRE Graph within a sandboxed environment, coupled with a Jupyter notebook for analysis. The OpenAIRE Beginner's Kit is meticulously designed to democratise research and data exploration, offering accessibility from standard desktop and laptop setups. Within this paper, we offer a succinct overview of the included dataset and offer guidance on leveraging the kit through a selection of illustrative queries, tailored to address common scientometric inquiries.

Is academic freedom associated with strong science?

Andrey Lovakov (German Centre for Higher Education Research and Science Studies (DZHW)).

Abstract. Academic freedom is a well-known and widely discussed concept, recognized as a key element of the academic system. However, while the intrinsic value of academic freedom is widely recognised, there is little empirical evidence that academic freedom has an impact on research productivity and the quality of scientific output. This paper examines the quality of science at the country level. An analysis based on cross-country panel data covering 119 countries over the period 1996-2021 shows that academic freedom at the country level is associated with the future citation impact of papers published by researchers from a country. The higher the level of academic freedom, the higher the citation impact of papers published 3 years later.

Reconstructing bibliometric methods for studying mobility.

Andrew Herman (University of Copenhagen).

Abstract. The use of the information contained in scientific papers to infer mobility marked a large step forward in the study of brain drain, agglomeration economies, as well as to brokerage and diffusion in the networks that underpin innovation, allowing high-skill migrants in science to be studied at full scale and low cost. In this paper/presentation I introduce a new method—along with announcing an upcoming R package that will deploy it—that overcomes fundamental limitations in existing bibliometric approaches to identifying mobility, and which corrects existing tendencies to misclassify a series of mobility events due to a lack of information. To illustrate the value of the new approach, the presentation will also include updated estimates of the prevalence of different types of migration events, as well as brain drain, gain, and exchange.

Bridging the evidence use gap between higher education research and science studies, policy and practice – Notions and functions of intermediaries.

Antje Wegner (German Centre for Higher Education Research and Science Studies (DZHW)).

Abstract. Improving evidence utilisation by non-academic actors such as policymakers and communities of practice has become subject to widespread efforts. Researchers highlight intermediaries acting as an important third community between academic evidence producers and users such as policymakers, but deem this an overlooked area of inquiry. This paper aims to encourage a broader discussion about the role of intermediaries in bridging the evidence use gap at the interface between academia in higher education research and science studies, related policy fields, and communities of practice. Based on empirical research identified in a scoping review of studies about evidence use published between 2010 and 2022, it summarises what we know so far about intermediaries in this specific sector and how they contribute to facilitating evidence use.

The inventive spill-over of corporate publications.

Antoine Schoen (LISIS, Université Gustave Eiffel, France), Patricia Laurens (LISIS, Université Gustave Eiffel, France), Gaston Heimeriks (Utrecht University, Copernicus Institute of Sustainable Development), Martina Neuländtner (Austrian Institute of Technology AIT), Thomas Scherngell (Austrian Institute of Technology AIT), Alfredo Yegros (Leiden University, Centre for Science and Technology Studies (CWTS)) and Philippe Larédo (University of Manchester, IMP Innovation, Strategy and Sustainability).

Abstract. This paper looks at how scientific collaboration linking universities and large international firms fosters local invention. The first step aims at identifying the universities engaged in collaboration with large corporate entities belonging to the industrial sectors of pharmaceuticals, chemicals and biotechnology. After having identified the corpus of corporate publications authored by these enterprises we analyse in this corpus the universities engaged in this corporate scientific collaboration allocating the co-authoring institutions in the territories hosting the academic authors. The extent and nature of the universities' collaboration with large firms is then analysed using the SAR model in regard to the intensity of local inventive intensity in the metropolitan area hosting the universities. The results show that corporate publications have a clear and significant effect on inventive outcome and production.

Research funding disparities among early career and senior researchers: which network configurations and funding returns?

Antonio Zinilli (National Research Council of Italy), Andrea Orazio Spinello (National Research Council of Italy), Emanuela Reale (National Research Council of Italy) and Giovanni Cerulli (National Research Council of Italy).

Abstract. This study investigates how collaborative networks within the Italian academic context impact funding outcomes for both early-career and senior researchers. Through an analysis of four cycles of a specific Italian project funding (called PRIN) spanning from 2017 to 2022, we explore the structural composition and attributes of these networks, including constraints, brokerage dynamics, similarities in academic roles, disciplinary domains, geographical proximity and gender homophily. Our aim is to discern whether these networks exhibit comparable configurations or distinct ones, and subsequently, we analyze how these configurations correlate with funding returns. Results reveal nuanced differences in network configurations between early-career and senior researchers, yet they also highlight not always uniform configurations across different career stages regarding funding outcomes. These results underscore the pivotal role played by collaborative networks in achieving academic success, thereby carrying implications for a wide array of scientific environments.

Unveiling direct and indirect effects of network collaboration on university research excellence using Bayesian networks.

Antonio Zinilli (National Research Council of Italy), Lorenzo Giammei (National Research Council of Italy) and Emanuela Varinetti (National Research Council of Italy).

Abstract. This paper innovatively employs a Bayesian network to examine university collaborations' effects on the research excellence of European universities in Physical Sciences and Engineering (PE) and Life Sciences (LS). Results reveal that by analyzing and disentangling university collaborations with other universities and with firms in projects and scientific publications, the pivotal role of university-industry collaborations emerges. Specifically, firm-university collaborations in projects are found to significantly influence research outcomes in both domains, highlighting the importance of these collaborative partnerships in driving research excellence. Moreover, the closeness centrality in university co-publication networks demonstrates its significance in clarifying research outcomes, enabling access to resources, and fostering robust research partnerships, thereby enhancing scientific productivity and citations.

Generals or Soldiers? Scholars' Roles in Interdisciplinary Collaboration.

Aoxia Xiao (School of Information Management, Wuhan University) and Nicolas Robinson-Garcia (Unit for Computational Humanities and Social Sciences (U-CHASS), EC3 Research Group, University of Granada).

Abstract. Interdisciplinary research has become increasingly prevalent in academia, yet it faces numerous challenges, including barriers related to disciplinary boundaries, academic norms, and authorship practices. This study explores authorship dynamics across diverse research topics to better understand how scholars contribute to interdisciplinary endeavors. Using data from PLOS Publishers and ScienceDirect comprising over 750,000 publications and 2 million authors, we examine patterns of authorship and contribution across different research topics. Our analysis reveals consistent usage patterns of Contributor Roles Taxonomy (CRediT) categories across various research topics, indicating a degree of uniformity in author contributions. Through K-means clustering, our analysis identifies four distinct author clusters: "Sergeants," "Soldiers," "Generals," and "Field Commanders." Each cluster represents unique patterns of publication output, topic involvement, and CRediT category usage. These findings offer insights into the complexities of interdisciplinary collaboration, providing valuable knowledge for improving collaboration strategies and advancing interdisciplinary research initiatives.

Beyond the surface: Unravelling emerging signals in underwater sensing.

Ashkan Ebadi (National Research Council Canada), Alain Auger (Defence Research and Development Canada) and Yvan Gauthier (National Research Council Canada).

Abstract. The integral role of emerging technologies in industrial modernization is undeniable. However, these technologies, being novel and rapidly evolving, pose challenges in terms of identification and monitoring. In this study, we employ natural language processing, advanced topic modelling, powered by a large language keyword extractor, and a weak signal analysis framework to identify emerging research topics within the field of underwater sensing technologies, spanning scientific publications from 2012 to 2021. The analysis also encompasses the temporal evolution of these signals, providing insights into their future trends. This methodology holds applicability across diverse domains, offering strategic planners and domain experts a new and reliable tool for efficiently recognizing and monitoring trends related to emerging technologies. The ability to swiftly process and analyse extensive data volumes facilitates unbiased and evidence-based insights.

32 Years of Science in less than One Minute.

Bart Thijs (KU Leuven, ECOOM & FEB, MSI).

Abstract. This paper introduces an innovative method to visualize 32 years of scientific evolution using network visualization techniques. By analysing bibliographic data from 1991 to 2022 at three-year intervals, I construct discipline-based and subject-based networks. The approach starts from bibliographic coupling-based cosine similarities between classes and generates network visualizations with seed positions and movement constraints. Through careful sequencing and smoothening of node movements across 24 frames per second, cohesive movie clips can be created comprising 1240 maps. This dynamic representation offers insights into the interconnectedness and progression of knowledge domains. The paper discusses the challenges and experiments involved in optimizing the visualization sequence and highlight potential applications in quantitative science studies communication and education. This research underscores the power of network visualization techniques in distilling complex bibliographic data into accessible narratives of scientific advancement.

Exploring the use of Résumé for Research and Innovation Narrative CVs in live postdoc recruitments.

Becky Ioppolo (University of Cambridge), Jessica Hampton (University of Liverpool), Lara Abel (University of Cambridge), Mollie Etheridge (University of Cambridge), Noam Tal-Perry (University of Cambridge), Adrian Barnett (Queensland University of Technology), Katherine M. Dawson (University of Cambridge), Zoe Matthews (University of Cambridge), Kate Murray (University of Cambridge), Sylvia Osborn (University of Cambridge), Liz Simmonds (University of Cambridge) and Steven Wooding (University of Cambridge).

Abstract. It has been suggested Narrative CVs (NCVs) will increase recruitment of underrepresented groups and give more weight to wider contributions of academic researchers, though no empirical evidence exists on whether they achieve this. In a randomised controlled trial of five postdoctoral recruitments at the University of Cambridge, candidates were asked to submit a cover letter, Standard CV (SCV) and NCV. Panel members ranked candidates based on their cover letter and either their SCV or NCV. Then, panel members saw the full applications, ranked candidates again, and the recruitment continued as usual. Afterwards, we interviewed panel members and candidates about their experiences. While NCVs allow detailing wider contributions, they may be less suitable for early career recruitments. NCVs may introduce bias around language, writing- and self-presentation skills. Additional guidance and familiarity with NCV formats may increase potential benefits of their use in academic recruitment.

Finding 'similar' universities using ChatGPT. A large-scale comparison using ETER data.

Benedetto Lepori ([Università della Svizzera italiana](#)) and Mario Gay ([Università della Svizzera italiana](#)).

Abstract. It has been recently argued that ChatGPT might become a serious competitor to quantitative approaches to identify similar institutions for the purposes of comparing research performance. However, it is largely unknown how ChatGPT finds out 'similar' universities and whether results depend on the information provided by the user, and are stable over different queries. To address these questions, in this paper we resort to a sample of more than 1,000 universities included in the European Tertiary Education Register (ETER). We test different queries providing different levels of information on the focal university and we compare results we similarities computed from quantitative data in ETER. Preliminary results suggest that, indeed, ChatGPT is able to identify some good peers, but that results strongly depend on the querying strategy and on the universities' characteristics.

Adoption of the ORCID identifier by European Research Council grantees hosted in Spain.

Borja González-Albo ([Spanish National Research Council \(CSIC\)](#)), Luz Moreno-Solano ([Spanish National Research Council \(CSIC\)](#)) and María Bordons ([Spanish National Research Council \(CSIC\)](#)).

Abstract. This study analyses ORCID iD adoption among researchers with a Spanish host institution who received a European Research Council (ERC) grant in 2014-2020. We study the use of ORCID iD among the researchers and different characteristics of their ORCID records, that is: record completion, record dynamics (date of creation and last updating date) and main updating path. ORCID coverage of individuals' research outcomes is compared to that of other databases such as Web of Science and Scopus and a number of causes that could lead to differences in coverage are being investigated. Several factors may influence the degree of adoption of the identifier and the completeness of the records: personal factors, publisher and journal policies and institutional/organizational policies.

Is Open Access heritable? A big data analysis of mentorship impact on publishing practices in Information and Computing Sciences.

Carlos Areia ([Digital Science, University of Coventry](#)), Kathryn Weber Boer ([Digital Science, Cornell University](#)) and Michael Taylor ([Digital Science, University of Wolverhampton](#)).

Abstract. One source of qualitative data about research culture is the influence of mentorship on publishing practices. Here we consider the effect of mentorship on open access (OA) publishing for researchers with more than 50% of their publications in the field of Information and Computing Sciences (ANZSRC 2020 Field of Research 46), which includes scientometrics. Analysing data of nearly 150,000 mentors and 450,000 mentees, we found $37.06 \pm 22.99\%$ OA publishing for mentors and $40.19 \pm 31.65\%$ for mentees. Our regression model suggests that if a mentor is fully committed to publishing open access (100% of publications), this increases the likelihood of mentees publishing OA by 85.21%, with high statistical significance ($p < 0.001$). Our study supports the idea of leading by example and the power of mentorship in fostering a culture of transparency in research.

On the relationship between gender inequalities and research dissemination patterns in Latin America.

Carolina Pradier (School of Library and Information Science, University of Montreal), Diego Kozlowski (School of Library and Information Science, University of Montreal), Natsumi S. Shokida (School of Library and Information Science, University of Montreal), Monica Novoa (School of Public Policy, Georgia Institute of Technology), Thema Monroe-White (Schar School of Policy and Government and School of Computing, George Mason University), Vincent Larivière (School of Library and Information Science, University of Montreal).

Abstract. Throughout the 20th century, an academic circuit established itself in Latin America, focusing on research topics specifically relevant to the region. However, its activity is highly vulnerable to the region's pervasive political and economic instability and, despite having a relatively gender-balanced research community, women remain underrepresented in scientific publishing. Through an analysis of scientific publications indexed in Dimensions, this article explores the relationship between gender inequalities in the scientific field and the integration of Latin American researchers into the regional and global academic circuits between 1993 and 2022. Our findings show cycles of strengthening and weakening of the regional circuit. Despite a general increase in women's participation in research over the period, gender disparities persist: women tend to be more involved in the regional circuit, while men hold a stronger presence in the global circuit.

Research data management and sharing in educational research.

Celia Martínez-Córdoba (Universitat de València), Lidya Groppi-Bosch (Universitat de València), Rafael Aleixandre-Benavent (Universitat de València), Andrea Sixto-Costoya (Universitat de València), Inmaculada Chiva-Sanchis (Universitat de València) and Adolfo Alonso-Arroyo (Universitat de València).

Abstract. The burgeoning volume of data generated in scientific research remains untapped, constraining its potential to drive advancements. Openness and accessibility of data are paramount for scientific progress. Within the educational realm, the lack of data sharing and reuse presents significant challenges. This study delves into the perceptions and practices of Educational Sciences researchers regarding data sharing in Spain through a survey-based approach. The findings reveal a diversity in data management practices, with a tendency towards publication on academic platforms and a shared responsibility among team members, albeit with some centralization in the hands of the principal investigator. While the perception towards data sharing is generally positive, a substantial percentage of researchers still refrain from engaging in this practice, coupled with a lack of formal data management plans. These findings underscore the imperative to cultivate a culture of transparency, collaboration, and accountability in data management within the educational scientific community.

An open science dashboard for the biomedical community: a user-centered design.

Chantal Ripp (Digital Transformation and Innovation Program, University of Ottawa), Anna Catharina Vieira Armond (Metaresearch and Open Science Program, University of Ottawa Heart Institute), Rebecca N Hancock (Curtin Institute for Computation, Faculty of Science and Engineering, Curtin University), Cameron Neylon (Curtin Institute for Computation, Faculty of Science and Engineering, Curtin University), Delwen L. Franzen (QUEST Center for Responsible Research, Berlin Institute of Health at Charité), Vladislav Nachev (QUEST Center for Responsible Research, Berlin Institute of Health at Charité), Gabriel Pelletier (Tanenbaum Open Science Institute, The Neuro, McGill University), Maia Salholz-Hillel (QUEST Center for Responsible Research, Berlin Institute of Health at Charité), Marc Albert (Metaresearch and Open Science Program, University of Ottawa Heart Institute), Stefanie Haustein (School of Information Studies, Faculty of Arts, University of Ottawa) and Kelly Cobey (Metaresearch and Open Science Program, University of Ottawa Heart Institute).

Abstract. The adoption of UNESCO's Recommendations on Open Science cemented open science's (OS) position as a global science policy. Despite the recognition of its importance, policymakers often do not typically monitor adherence with their policies. This research-in-progress paper presents the development of an automated biomedical OS dashboard to track practices at the institutional level. The development of the dashboard follows a user-centered design. We were able to successfully automate, using primarily open source tools, a total of 9/19 open science practices identified from a community-consensus Delphi study. Each of these practices achieved greater than 85% reliability compared to a manual extraction exercise used to validate the automation of each OS practice. Results from the usability testing indicate that users find the information clear and easy to understand, with modifications made to the dashboard to improve interpretation of metrics and usability.

*Are quality assessments in science affected by numerical anchors that are not related to quality?
Empirical results from a survey of authors assessing previously cited papers.*

Christian Ganser (Ludwig-Maximilians-Universität Munich, Department of Sociology) and Lutz Bornmann (Science Policy and Strategy Department, Administrative Headquarters of the Max Planck Society).

Abstract. Many studies have investigated anchoring effects. Anchoring occurs when initial values are used by humans as starting points in assessments. We investigated the prevalence of anchoring effects in the quality assessments of scientific papers. In a survey, we asked corresponding authors to assess the quality of articles they have cited in previous papers. The respondents were randomly assigned to several experimental groups receiving numerical anchors (related or not related to quality). Our results show that there is a small, but statistically significant effect of a random number (numerical access code to the questionnaire) presented to the respondents. Similar to other studies that have investigated the existence of anchoring effects in assessments, our study could demonstrate the existence of an anchoring effect in research evaluation. Researchers seem to be influenced by numbers – i.e., numbers without any relationship to the quality of the evaluated paper – in their assessment of papers.

Groundbreaking research and disruption: Empirical results on the correlation between assessments of groundbreaking research by peers and disruption index scores.

Christian Leibel (Administrative Headquarters of the Max Planck Society; Ludwig-Maximilians-Universität München), Alexander Tekles (University of Passau), Dag W. Aksnes (Nordic Institute for Studies in Innovation, Research, and Education (NIFU)) and Lutz Bornmann (Administrative Headquarters of the Max Planck Society).

Abstract. The study by Park et al. (2023), who found that disruptive innovations in science have been declining since the end of World War II, triggered a public debate about an apparent lack of major scientific achievements. Is it possible that not all important contributions to the progress of science are disruptive as measured by the metric used by the authors? The metric used by Park et al. (2023), the disruption index, might not be suitable for identifying major scientific achievements. In this paper, we test whether the disruption index (DI1, DI5) corresponds with researchers' self-assessments whether their own publications are groundbreaking research. We find that 1) the scientific community defines groundbreaking science as research that is novel and important, 2) the DI1 and the DI5 fail to identify such important and original publications, 3) citation impact might be a better indicator of groundbreaking research than the DI1 and the DI5.

Towards a framework for the appropriate use of bibliometric indicators in research evaluation.

Cinzia Daraio (Sapienza University of Rome), Juan Gorraiz (Dept Bibliometrics & Publication Strategies, University Vienna) and Wolfgang Glänzel (ECOOM, KU Leuven).

Abstract. Recently, research evaluation using quantitative methods has received much criticism, both from a part of the scientific community and from recent initiatives at the European level calling for a rethinking of research evaluation by applying mainly peer-review. We focus on the use of bibliometric indicators in an evaluative context. We sketch a general framework of criteria that should be considered in the use of bibliometric indicators in order to ascertain whether their use, in the specific evaluation context, is appropriate for its intended purpose or not. Are bibliometric indicators always inappropriate, or should they be used with care and skill, with respect to the evaluative problem under consideration? In this paper we caution against “throwing the baby out with the bathwater” and advocate the idea that bibliometric indicators, even the number of publications and citations received, if used “appropriately” can still be extremely useful for research evaluation.

Do science maps from open access literature capture the overall topic structure of an academic field? A study on sustainable food research.

Cristian Mejia (The University of Tokyo).

Abstract. This study compares the science map of sustainable food research constructed using only open access (OA) publications to that using all papers. Citation network analysis revealed 17 and 15 clusters in the OA and full datasets, respectively, with good correspondence between the two at the cluster level. However, at the subcluster level, several specific topics present in the full network were absent from the OA representation. The results suggest that while OA science maps capture broad research trends, they may miss granular subtopics. This has implications for researchers relying solely on OA data for scientific mapping.

Race and gender representation and topical alignment in South African scholarly publications.

Diego Kozłowski (School of Library and Information Science, University of Montreal), Sydney N. Lodge (School of Computing and the Scheller School of Business, Georgia Institute of Technology), Carolina Pradier (School of Library and Information Science, University of Montreal), Georgina Maku Cobla (School of Public Policy, Georgia Institute of Technology), Thema Monroe-White (Schar School of Policy and Government and School of Computing, George Mason University), Vincent Larivière (School of Library and Information Science, University of Montreal), Dorothy Ngila (National Research Foundation, South Africa) and Cassidy R. Sugimoto (School of Public Policy, Georgia Institute of Technology).

Abstract. Decades after apartheid, South Africa grapples with persistent racial and gender inequalities, notably in labor and education. This study employs the South Africa Knowledgebase (SAK) to analyze racial and gender disparities among South African researchers, uncovering insights into academic representation, collaboration patterns, and thematic distributions. Our results reveal significant underrepresentation of Black and Coloured authors, particularly women, in South African research, relative to national population proportions. Gendered patterns emerge, with women's peak participation occurring earlier in their careers, suggesting targeted policies to sustain their involvement. Field and topic distributions reflect intersectional identities, impacting knowledge production and reinforcing societal inequalities. Active science policies are imperative to address underrepresentation and its detrimental effects on innovation and societal equity. Understanding the root causes demands comprehensive examination across educational and career pathways.

Grey matters: Integrating Grey Literature and Mainstream Media Mentions into Scientometric Analysis.

Dirk Derom (Centre for R&D Monitoring (ECOOM), R&D Central, Vrije Universiteit Brussel), Padin Fazelian (Centre for R&D Monitoring (ECOOM), R&D Central, Vrije Universiteit Brussel) and Walter Ysebaert (Centre for R&D Monitoring (ECOOM), R&D Central, Vrije Universiteit Brussel).

Abstract. This study describes a proof of concept for the integration of grey literature and, more specifically, mainstream media mentions of academic researchers within scientometric and bibliometric analyses. The Python pipeline automatically and on a large scale harvests, contextualizes, and evaluates researchers' mentions in mainstream media against their academic activities. Merging data from FRIS, OpenAlex, and Belga.Press databases, we developed a methodology to discern mentions related to genuine research from academic expertise or those mentions driven by a researcher's non-academic activities. A scoring is assigned for each mention to differentiate between research-specific and more general expertise. In the process, each step is logged, traceable, and fully transparent, compliant with the push towards Open Science. This approach enhances the understanding of a researcher's public visibility and equally contributes to more informed assessments of research impact, paving the way for more refined metrics in academic evaluations.

Incentivizing, excluding, and enduring: On the complexities of quantitative research assessment in Lithuania.

Eleonora Dagiene (CWTS, Leiden University; Institute of Communication, Mykolas Romeris University), Vincent Larivière (Université de Montréal) and Ludo Waltman (Centre for Science and Technology Studies (CWTS), Leiden University).

Abstract. Lithuania's research assessment prioritises Web of Science publications, aiming for international impact. This paper examines the policy, introduced in 2012, of excluding articles from journals with low impact factor or suspected citation inflation. We analyse how this suspension policy affected domestic journals and researchers' behaviour. The results show that Lithuanian researchers' publications in foreign outlets increased, but concerns remain about the chosen outlets' quality and potential continuing manipulation of Web of Science metrics. These are initial findings of a broader study exploring policy dynamics and unexpected consequences of quantitative research assessment.

Bridging Science and Policy: The role of the EU Industrial R&D Investment Scoreboard.

Elisabeth Nindl (European Commission - Joint Research Center), Hugo Confraria (European Commission - Joint Research Center), Nicola Grassano (European Commission - Joint Research Center) and Pietro Moncada-Paternò-Castello (European Commission - Joint Research Center).

Abstract. This study assesses the influence of the EU Industrial R&D Investment Scoreboard, comparing its citations in scientific publications and policy documents. Findings show a steady increase in citations over time, indicating its growing importance. The Scoreboard's broad reach encompasses diverse research topics and disciplines, with citations primarily referencing specific insights from the reports and combining data with patents. Citations in policy documents occur more frequently than in scientific publications, suggesting higher relevance for the policy community. The decreasing citation window to recent Scoreboard vintages indicates immediate relevance for policy stakeholders. The analysis offers new quantitative approach to understand the flow of knowledge between science and policy.

What contributes to gender parity in science? A Bayesian Network analysis.

Elvira González-Salmón (Universidad de Granada), Zaida Chinchilla-Rodríguez (Instituto de Políticas y Bienes Públicos (IPP), Consejo Superior de Investigaciones Científicas (CSIC)), Gabriela F. Nane (Delft Institute of Applied Mathematics, Delft University of Technology) and Nicolas Robinson-Garcia (Universidad de Granada).

Abstract. We retrieve data from Dimensions, the World Bank Open Data (WBOA) and the UNESCO Institute for Statistics (UIS) to construct a country level longitudinal dataset including the yearly number of researchers by gender. Our aim is to predict when each country will reach gender parity and which factors may influence the increase of the proportion of women in science. Here we present some preliminary findings using the ARIMA and Exponential Smoothing forecasting models, and a first attempt to look into influencing factors using Bayesian Networks.

Measuring publication relatedness using controlled vocabularies.

Emil Dolmer Alnor ([Aarhus University](#)).

Abstract. Measuring the relatedness between scientific publications has important applications in many areas of bibliometrics and science policy. Controlled vocabularies provide a promising basis for measuring relatedness because they address issues that arise when using citation or textual similarity to measure relatedness. While several controlled-vocabulary-based relatedness measures have been developed, there exists no comprehensive and direct test of their accuracy and suitability for different types of research questions. This paper reviews existing measures, develops a new measure, and benchmarks the measures using TREC Genomics data as a ground truth of topics. The benchmark test show that the new measure and the measure proposed by Ahlgren et al. (2020) have differing strengths and weaknesses. These results inform a discussion of which method to choose when studying interdisciplinarity, information retrieval, clustering of science, and researcher topic switching.

Exploring the composition and structure of journals' editorial boards.

Evangelina Becerra ([Institute for Advanced Social Studies \(IESA-CSIC\)](#)) and José Luis Ortega ([Institute for Advanced Social Studies \(IESA-CSIC\)](#)).

Abstract. The aim of this communication is to present a preliminary exploration of a recent sample of journals' editorial boards. Using we scraping, we have extracted 0.96M editors from 10k journals that belong to 15 scholarly and commercial publishers. The results show that the proportion of editors in each publishing house is associated to the volume of published articles. In comparison with Open editors, this new updated sample includes 40% more editors from 125% more journals. And finally, the structure and composition of the journals' editorial boards changes according to publisher type. Commercial and centralized publishers (Frontier and MDPI) present homogeneous boards with simple structure. However, traditional scholarly publishers (Oxford UP, Cambridge UP) describe a varied range of roles with imprecise definition of roles.

The Rise of Deep Learning: Exploring the Impact of Open Science and Computing Capabilities on Regional Diffusion of Artificial Intelligence.

Fazliddin Shermatov ([University of Turin \(Sorbonne University\)](#)), Stefano Bianchini ([University of Strasbourg](#)) and Aldo Geuna ([University of Turin](#)).

Abstract. This research aims to investigate the impact of open access datasets and deep learning algorithms on the regional adoption of artificial intelligence, focusing on the emergence of deep learning and frontier research. Open datasets mitigate monopolistic barriers, yet complexities demand higher compute, revealing a trend of de-democratization of science. Complex algorithms and datasets align with greater computational needs, underscoring the role of compute in AI frontiers. In addressing this question, we create a comprehensive novel dataset for the AI research output and computational capacity of nations, segregated by academia and industry. Surprising trends that characterized the computation capacity landscape were de-democratization and loosening concentration of compute capacities in the early 2010s, followed by a rise in unequal concentration characterized by the US and China, and later by EU high-performance computing initiatives that moved the national computing benchmarks.

Gender diversity and eco-innovation.

François Perruchas ([Universitat de Valencia](#)), Susanne Bühner-Topçu ([Franhofer ISI](#)), Davide Consoli ([INGENIO \[CSIC-Universitat Politecnica de Valencia\]](#)), Nicolò Barbieri ([University of Ferrara](#)) and Richard Woolley ([INGENIO \[CSIC-Universitat Politecnica de Valencia\]](#)).

Abstract. This paper investigates the relation between gender diversity of inventor teams and quality of inventions for mitigation or adaptation to climate change. Using patent data, we use a range of indicators to assess if the presence of female inventors is associated with more original, novel and impactful inventions. We find the opposite association between gender diversity and patent quality, although these results do not hold using different measure of aggregation.

The Role of Mobility in Mitigating Core-Periphery Inequalities: Contribution Statements of African Scholars in International Collaboration.

Francois Van Schalkwyk (University of Stellenbosch), Elvira González-Salmón (Unit for Computational Humanities and Social Sciences (U-CHASS), EC3 Research Group, University of Granada), Márcia R. Ferreira (Complexity Science Hub) and Nicolas Robinson-Garcia (Unit for Computational Humanities and Social Sciences (U-CHASS), EC3 Research Group, University of Granada).

Abstract. This paper explores the impact of international mobility on the distribution of tasks within core-periphery scientific collaborations, particularly focusing on Africa. Utilizing a dataset with contributions statements from ScienceDirect, the study categorizes publications and author contributions from 2017-2023 involving African researchers. It finds significant disparities in task assignment, where authors from the global scientific periphery often perform menial roles. The paper highlights that mobility, especially international, potentially mitigates these inequalities by positioning periphery scholars in more substantial roles, enhancing their visibility and career progression. Initial results indicate that mobile researchers tend to secure prominent authorial positions and are more involved in conceptual and supervisory tasks. These findings suggest that increasing international mobility and integration into global networks could promote a more equitable distribution of intellectual labour and recognition in global science collaborations.

Scholarly outputs generated under University-Industry Collaboration in Brazil: a bibliometric analysis for impact evaluation.

Gabriel Falcini dos Santos (Science and Technology Policy Department, Unicamp) and Sergio Monteiro Salles-Filho (Science and Technology Policy Department, Unicamp).

Abstract. University-Industry Collaboration is increasingly vital for R&D investment and technological innovation. Brazil's limited engagement, according to the 2023 Global Innovation Index, underscores the significance of analysing Embrapii-supported projects. Embrapii, the Brazilian Company of Research and Industrial Innovation, was funded by the federal government and fosters research-industry partnerships. Using Matching, an impact evaluation method, we compare bibliometric indicators of Embrapii-related publications with non-related counterparts. Data sourced from Embrapii and Web of Science reveal that Embrapii enhances scientific collaboration with industry and encourages research tailored to local needs. Additionally, it boosts the academic profiles of participating researchers. Our findings suggest Embrapii's positive influence on Brazilian scientific output and industrial technology, offering a potentially replicable model for other nations, particularly in the Global South.

Open research in public-private research partnerships: comparing practices in Ireland and Denmark.

Gail Sheppard (School of Business, Maynooth University), Alesia Zuccala (Department of Communication, University of Copenhagen) and Kalpana Shankar (School of Information and Communication Studies, University College Dublin).

Abstract. Research funders have invested significant resources in both open research and fostering public-private research partnerships (PPRP) with an eye to commercialising publicly funded research. However, there has been little discussion of how PPRP navigate open research mandates when intellectual property (IP) rights are at stake. Drawing on policy documents and interviews with researchers in Ireland and Denmark, this work in progress paper reports challenges and opportunities in open research and commercialisation for researchers working in digital health research. Interviewees referred to lack of time and knowledge, insufficient institutional support and mentoring, and private sector reluctance to disclose data as impediments to effective PPRP collaborations in both open research and commercialisation. Future work will include interviews with other stakeholders in the research ecosystem to further explore policy and practice around open research and commercialisation.

Well-tailored words: Comparing the fit of articles within scholarly journals to their citation rates.

Geoff Krause (Dept. of Information Science, Dalhousie University), Rebecca Marjoram (Dept. of Information Science, Dalhousie University) and Philippe Mongeon (Dept. of Information Science, Dalhousie University).

Abstract. The articles published within a scholarly journal reflect the research interests and activities of the community of authors contributing to them; it is not only the underlying ideas that may be shared, but the language used to express them. This work-in-progress uses the text of articles' abstracts to attempt to further understand the relationship between scholarly articles and the journals in which they are published, and, through these, the communities and disciplines in which research takes place. An indicator of journal fit, leveraging cosine similarity, is used to characterize the positioning of articles within seventy-five journals across three subject areas, and is compared to the articles' citation impact. A weak but significant correlation is found between the two, and differing distributions of fit across journals is observed.

Reassessing Scholarly Impact: Exploring the Role of Non-Scientific Factors in Peer Review and Bibliometric Evaluation.

Giovanni Abramo (Universitas Mercatorum, Laboratory for Studies in Research Evaluation), Ciriaco Andrea D'Angelo (University of Rome "Tor Vergata") and Leonardo Grilli (University of Florence, Dept of Statistics, Computer Science, Applications "G. Parenti").

Abstract. Quality and scholarly impact are essential attributes of scientific publications, yet their assessment methods and the influence of non-scientific factors remain under scrutiny. This study investigates the adequacy of peer review in capturing the long-term impact of publications, considering extrinsic factors beyond intrinsic scientific quality. Leveraging data from the Italian Research Assessment Exercise and Web of Science, we analyze the relationship between reviewer-assigned quality scores and citation-based impact while accounting for non-scientific characteristics. Our findings underscore the significance of non-scientific factors in scholarly impact assessment, potentially overlooked by traditional peer review. We contribute to the ongoing debate between peer review and bibliometric evaluation methods, advocating for a balanced approach that acknowledges the scholarly impact of research alongside its quality. Policymakers and research institution leaders should consider these findings when designing evaluation frameworks to promote impactful research.

How can we identify endogenous quality criteria?

Grit Laudel (Technical University Berlin).

Abstract. The empirical study of the quality criteria researchers apply when they assess each other's work is currently lacking a methodological discussion about the suitability of the available methods for this purpose. This is partly due to the missing theoretical foundations including the reluctance by scholars to define the concept of research quality itself. Starting from a concept of research quality as a collective frame of a scientific community, I discuss the conditions under which five approaches to the empirical study of field-specific quality criteria are applicable and the informational yield of these approaches.

Tree Index: a new widescale indicator on contribution to mentorship.

Guillaume Roberge (Elsevier), David Campbell (Elsevier), Elisabeth Browning (Elsevier), Danielle Dong (Elsevier), M'Hamed el Aisati (Elsevier) and Olivier Dumon (Elsevier).

Abstract. Bibliometric indicators have historically focused on counts of publications and received citations as research performance markers. While these provide relevant context into the contribution of researchers, their focus is quite narrow. One of the main missions of academic institutions is training the next generation of researchers. This methodology paper first describes a Tree Algorithm uncovering mentor–mentee links within research mentorship networks using Scopus. It subsequently delves into the construction of a Tree Index measuring the contribution of senior researchers to mentoring the next generation of researchers. Some descriptive results are then presented to illustrate their potential use in exploring the mentorship contribution of senior researchers across countries. These tools also provide unique opportunities to deepen our understanding of the dynamics of research mentorship networks. Such possibilities are introduced in the paper's discussion.

Exploring Generative AI for Citation Context Typing.

Gustaf Nelhans (University of Borås) and Johan Eklund (University of Borås).

Abstract. This study explores integrating generative AI to enhance citation context typing. Using Claude LLM, we generate synthetic data aligned with the Citation Typing Ontology (CITO) to train a classifier. This supervised learning experiment involves training a classifier to identify citation types using this synthetic data. We evaluate the classifier's performance on uncategorised citation statements. Additionally, we extend our analysis to test the classifier trained on English language citation context statements on statements extracted from Swedish and German research publications. A novel aspect of this work lies in the fusion of bibliometrics and experimental work in semantic modelling, employing language models to train machine learning models for research content evaluation. While acknowledging the inherent limitations of machine learning algorithms, we propose further testing using real-time scenarios and human evaluators. This study aims to push the boundaries of research methodology by integrating generative AI beyond text generation into the research process itself.

Exploring Cognitive Characteristics in Weak Signals Perception within Science and Technology foresight.

Haiyun Xu (Business School, Shandong University of Technology), Huiling Zhang (Taiyuan Library), Chunjiang Liu (Chengdu Literature and Information Center, Chinese Academy of Sciences), Xin Zhang (Chengdu Literature and Information Center, Chinese Academy of Sciences) and Shuying Li (Chengdu Literature and Information Center, Chinese Academy of Sciences).

Abstract. This paper systematically explores weak signal characteristics within science and technology (S&T) in its early perception, aiming to uncover future trends and enhance technological risk prevention. It begins by summarizing weak signal connotations and lifecycle characteristics, followed by a bibliometric analysis of early weak signals in S&T forecasting. To dynamically grasp weak signal changes and transformations, the study analyzes signal dimensions between weak and strong signals, exploring characteristic differences and potential transformation paths from a cognitive and evolutionary standpoint. Early weak signals in S&T foresight are marked by obscurity and high uncertainty, posing perception challenges. By contrasting signal attributes, including low visibility, uncertainty, fragmentation, subjectivity, predictiveness, and implicit knowledge gaps, the study lays a theoretical foundation for early weak signal perception in S&T foresight research and practice.

From Local to Global: A Study of Geographical Trends in the Citations to Chinese and Indian research.

Henrik Karlstrøm (Nordic Institute for Studies in Innovation, Research and Education), Dag W. Aksnes (Nordic Institute for Studies in Innovation, Research and Education), Håvard Rustad Markussen (Nordic Institute for Studies in Innovation, Research and Education) and Fredrik Niclas Piro (Nordic Institute for Studies in Innovation, Research and Education).

Abstract. In this paper we analyze changes in Chinese and Indian publishing patterns over the past two decades, with a particular focus on geographical differences in citation patterns. Our empirical analyses, set against the backdrop of the incredible growth in these two countries' scientific output, reveal four main points. First, both countries' publications are increasingly cited and are accounting for larger shares of the global citation pool. Second, they have witnessed a drastic decline in country self-citation ratios, i.e., they have become relative more important as references in the publications of other countries. Third, both countries are increasingly cited by other countries. Fourth, while Chinese publications receive citations from all over the world, Indian research is less globally cited. The study is framed within a geopolitical and research policy context.

Can Peer Review Accolade Awards Motivate Reviewers? A Large Scale Quasi-Natural Experiment.

Houqiang Yu (Sun Yat-sen University), Yian Liang (Sun Yat-sen University) and Yinghua Xie (Sun Yat-sen University).

Abstract. The utilization of accolade awards to incentivize reviewers is highly common, but its effectiveness remains uncertain. This study seeks to investigate how receiving an accolade award affects reviewers' subsequent motivation. We perform a large-scale, global, and all-disciplinary analysis based on quasi-natural experiments. 6604 awarded reviewers and 179,737 reviewers are matched as experimental and control groups respectively. The difference-in-differences (DID) method is conducted to examine the accolade awarding effects. After receiving an accolade award, reviewers, on average, reviews about four fewer manuscripts, and this reduction follows a V-shaped pattern. Additional analyses are conducted to examine how individual differences and economic-cultural factors influence the accolade awarding effects. The sharp decrease in marginal utility of accolades, the ethical nature of peer review, and the unexpected properties of accolade awards are the mechanisms that generate the negative effect. The academic community should reassess the existing incentive strategies on reviewers.

Does mobility help to build bridge of collaboration between origin and destination country.

Huilin Ge (Leiden University), Clara Calero (Leiden University) and Rodrigo Costas (Leiden University).

Abstract. Academic mobility is a phenomenon in today's academic landscape that facilitates global collaboration and knowledge transfer. Despite the benefits of academic mobility, concerns about brain drain persist, and fears of inequalities in mobility dynamics start to emerge. Our research explores the relationship between mobile researchers and the collaboration ties with their country of origin, revealing a remarkable trend: mobile academics maintain varying degrees of collaboration with their origin countries after moving. Scholars migrating from higher-income countries to lower-income ones exhibit a strong inclination to maintain ties with their high-income origins, but the reverse is not observed. These findings suggest unequal benefits of mobility regarding the collaboration ties and highlight the necessity for implementing policies and initiatives geared towards nurturing more beneficial international research collaboration and harnessing the contributions of mobile scientists.

Mapping Open Science Scholarly Literature.

Isabelle Dorsch (ZBW – Leibniz Information Centre for Economics), Madelaine Hare (Digital Transformation and Innovation, University of Ottawa), Philippe Mongeon (Department of Information Science, Dalhousie University) and Isabella Peters (ZBW – Leibniz Information Centre for Economics).

Abstract. Scholarly literature on open science over the past several decades has paralleled developments in research policy and practice, proliferated alongside mandates and directives, and increased in volume. Navigating the conceptually wide-ranging and versatile topic of open science makes analyzing its body of literature an ongoing challenge, often approached with a range of methods and perspectives. We use co-citations and direct citations to map the scholarly literature on open science and identify eleven clusters: open data, psychology-replication, tech and industry, participatory research, scholarly communication, neuroscience-reproducibility, social justice and diversity, public health-COVID-19, bio-data, publication bias/meta-research, and eating disorder-COVID-19, using Louvain community detection. This survey of the literature would prove useful for those looking to calibrate their research efforts with a dynamic and multifaceted area of inquiry, better navigate the field to understand its topical landscape, and perhaps influence or chart a course for the trajectory of scientific discourse related to open science.

Comparing publication profiles of Finnish universities, state research institutes and universities of applied sciences.

Janne Pölönen ([Federation of Finnish Learned Societies](#)), Otto Auranen ([Research Council of Finland](#)) and Elina Late ([Tampere University](#)).

Abstract. In this study we use eight field-normalised indicators to analyse publication profiles of Finnish universities, state research institutes and universities of applied sciences across major fields of science. Data consists of 162,362 publications (years 2019–2021) from the national VIRTAs publication information service. Results indicate that the three research sectors differ considerably in their publication profiles. While universities of applied sciences are more distinct from universities and state research institutes overall, analysis by fields of research also shows variation between all sectors. Field-normalised indicators show that differences regarding science communication, multilingualism and bibliodiversity, as well as domestic publishing and collaboration are mission driven rather than based on distinct field profiles. Publication data across sectors improves our understanding of heterogeneity of institutional landscape across fields of science. We conclude that assessment and funding criteria need to consider the mission of the institutions and the institutional background of individual researchers.

How novelty and feasibility inform research funding decisions.

Jian Wang ([Lancaster University Leipzig](#)) and Erin Leahey ([University of Arizona](#)).

Abstract. There is concern that funding agencies are increasingly risk-averse, in response, new programs have been established to support novel research. We study one such program, the Reinhart-Koselleck-Projects programme at the German Research Foundation. We make two contributions to the literature: First, we go beyond the track record of the applicant and incorporate the novelty of the proposed project. Second, we bring feasibility into investigation. We find no penalty against novel proposals or applicants (i.e., applicants have a high share of novel publications in their track record) but a negative interaction between them. Novel projects from less novel applicants are especially likely to win funding, while novel projects from more novel applicants are the least likely. Feasibility is rewarded and mitigates the penalty against novel applicants. Feasible projects from highly novel applicants are especially likely to win funding while less feasible projects from highly novel applicants are the least likely.

Why the Disruption index cannot identify the most important literature in the field of Amyotrophic Lateral Sclerosis?

Jingyi Xu ([School of Information Management, Nanjing University](#)), Yizhe Yuanzhang ([School of Information Management, Nanjing University](#)), Xin Liu ([School of Information Management, Nanjing University](#)) and Jiang Li ([School of Information Management, Nanjing University](#)).

Abstract. The Disruption (D) index is a network-oriented metric that measures the extent to which a specific paper disrupts the existing literature. This study aimed to assess the accuracy of the D index by analyzing a sample of literature on Amyotrophic Lateral Sclerosis (ALS). The findings indicated that the D index did not effectively identify the most significant ALS-related literature. As a result, we suggested that bibliometric indicators encounter challenges in accurately assessing the importance of biomedical literature, particularly in the context of drug research and development, which heavily relies on foundational work in the field and cannot be overlooked in references.

Scientific impact: Blessing or curse? Researchers' happiness and work-life balance.

Joaquín M. Azagra-Caro (INGENIO (CSIC-UPV), Universitat Politècnica de València) and Ana Tur-Porcar (Universitat de València).

Abstract. Scientific impact is key to progress and rewarding for researchers. However, the culture of scientific impact puts researchers under competitive pressure, especially when career advances are based on quantitative indicators of scientific impact. The objective of this study is to analyse the effect of scientific impact on the happiness of researchers. Our findings, based on one of the largest two-wave surveys of researchers so far (over 2,200 Spanish researchers), reveal a negative effect of scientific impact on researchers' happiness. This effect is mitigated by the enhancement of work/personal life, indicating the role of achieving a harmonious balance between professional success and personal life. Our study uncovers the positive moderating influences of prosocial motivation and creativity on the relationship between scientific impact and work/personal life enhancement. These findings underscore the importance of cultivating an environment that nurtures scientific impact based on the motivation to contribute to society and creative processes.

Data citation and reuse (2004-2023).

Joerg Sixt (Digital Science), Mark Hahnel (Digital Science) and Kathryn Weber-Boer (Digital Science).

Abstract. One of the pillars of Open Science is the publication of research data. Firstly, open research data supports the reproducibility and scrutiny of research. Secondly, re-use of the data by others can make research more efficient. We are trying to measure the adoption of these ideas in the scientific community by counting datasets and their citations in publications using Dimensions data on Google BigQuery (GBQ). We show that the number of cited datasets and citing publications has increased massively but yet remains a very small subset of the registered datasets. We analyse the numbers by repository and subject and raise a number of questions around citation policy as well as future avenues of research.

Funding flows in Africa according to Dimensions grant data.

Jonathan Dudek (CWTS, Leiden Univ), Jeroun van Honk (CWTS, Leiden Univ), Isabel Basson (CREST, Stellenbosch University), Carole de Bordes (CWTS, Leiden Univ), Ismael Rafols (CWTS, Leiden University) and Rodrigo Costas (CWTS, Leiden University).

Abstract. Most African countries have low domestic research funding and receive a significant portion of their funding from foreign sources. Consequently, it is of special interest to understand funding flows and their influence on African research. The Dimensions (Digital Science) database brings together information from publications and projects funded by more than 500 funding agencies from more than 40 countries. By combining grant (project) data and funding acknowledgments in publications, we analyse funding flows to African countries: who are the main funders? which countries and organizations do they support? what issues do they prioritize? The study will also explore the possibilities and limitations of using Dimensions funding-related data for the analysis of funding flows between global regions.

An analysis of the suitability of OpenAlex for bibliometric analyses.

Juan Pabo Alperin (ScholCommLab & School of Publishing, Simon Fraser University), Jason Portenoy (OurResearch), Kyle Demes (OurResearch), Vincent Larivière (School of Library and Information Science, University of Montreal) and Stefanie Haustein (ScholCommLab, School of Information Studies, University of Ottawa).

Abstract. Scopus and the Web of Science have been the foundation for research in the science of science even though these traditional databases systematically underrepresent certain disciplines and world regions. In response, new inclusive databases, notably OpenAlex, have emerged. While many studies have begun using OpenAlex as a data source, few critically assess its limitations. This study, conducted in collaboration with the OpenAlex team, addresses this gap by comparing OpenAlex to Scopus across a number of dimensions. The analysis concludes that OpenAlex is a superset of Scopus and can be a reliable alternative for some analyses, particularly at the country level. Despite this, issues of metadata accuracy and completeness show that additional research is needed to fully comprehend and address OpenAlex's limitations. Doing so will be necessary to confidently use OpenAlex across a wider set of analyses, including those that are not at all possible with more constrained databases.

Taming complexity: narrative CVs in grant funding evaluations.

Judit Varga (CWTS, Leiden Univ.), Wolfgang Kaltenbrunner (CWTS, Leiden Univ) and Helen Buckley Woods (University College London).

Abstract. This short paper presents preliminary findings from a research project investigating the uptake and use of so-called narrative CVs in review panels for research funding decisions. Our analysis draws on empirical material collected through interviews and participant observation in two subsequent panel meetings of a funding program for early career researchers of the Dutch national research council NWO. As expected, we find that the recent introduction of a narrative CV in this program has not instantaneously transformed evaluative practices. Rather, the emphasis on substantive narrative accounts of applicants' achievements, combined with the backgrounding of quantifiable evidence such as publication counts and metrics, leads reviewers to gradually problematize and reconsider previously dominant definitions of quality. Our analysis showcases exemplary situations in which such reflection becomes apparent, and it highlights different ways in which reviewers try to resolve newly underdetermined evaluative situations.

Policy Values of Technological Innovation Support Policies for Small and Medium-sized Enterprises: South Korean Stakeholder Differences and Consensus.

Juil Kim (Korea Institute of S&T Evaluation and Planning (KISTEP)).

Abstract. Small and medium-sized enterprises (SMEs) play a crucial role in the South Korean economy, and policies supporting their technological innovation are of significant importance. Despite substantial government efforts in this regard, opinions on the efficiency and values underlying these policies vary. This study examines the policy values shaping technological innovation support policies for SMEs and explores stakeholder differences and consensus. Drawing on conflicting values such as excellence vs. universality, autonomy vs. accountability, and economic effects vs. publicness, the research analyzes responses from 51 stakeholders, including SMEs, university researchers, research institution researchers, and government officials. The findings reveal divergent perceptions among stakeholders, emphasizing the value-based policy redesign to better support technological innovation in SMEs.

They Collaborate, But Do They "Co-Produce?" Examining Academic Scientists' Collaborative Patterns with Non-Academics.

Julia Melkers (Arizona State University), Nicolas Robinson-Garcia (INGENIO (UPV-CSIC) Universitat Politècnica de València) and Luyu Du (Arizona State University).

Abstract. Academics are no longer isolated scientists and engineers. Collaboration is the norm of science, and the co-production of academic research with non-academics is recognized as critical to producing research that can lead to broader impacts. However, the dynamics and outcomes of such collaborative efforts, particularly in terms of co-production of new knowledge, remain less understood. This study investigates the publication patterns of academic scientists collaborating with non-academic partners across various sectors. We use data from a robust national survey and related lifetime bibliometric data to quantitatively analyze these collaborative patterns. A notable aspect of our work is that we categorize collaborative ties by research and non-research, as well as by sector. The implications for the results of this study are relevant to the growing body of work on co-production of knowledge and will contribute to the scientific and technical human capital model.

Academic Age Standards Underestimate Global South Career Stages and Research Capacity Building — An Outlook of the Scientific Workforce of Colombia.

Julian D. Cortes (School of Management and Business, Universidad del Rosario | Engineering School, Universidad de Los Andes), Nicolas Robinson-Garcia (EC3 Research Group, Department of Information and Communication, University of Granada), Zaida Chinchilla-Rodríguez (Consejo Superior de Investigaciones Científicas (CSIC) - Instituto de Políticas y Bienes Públicos (IPP)) and Maria Catalina Ramirez-Cajiao (Engineering School, Universidad de Los Andes).

Abstract. The academic age (AA) measures a researcher's experience in producing scientific knowledge. It has an impact on national and institutional policies, including career incentives and funding. However, there have been few studies conducted in global south countries. Our aim was to compare and refine different AA approaches for the Colombian scientific workforce. We used official national data on knowledge products and researchers' assessment. We found that AAs for different academic activities did not show multi-collinearity. Additionally, comparing national rankings with international research career standards revealed significant disparities. This may lead to an underestimation of researchers' capacity building in the global south under AA computation and interpretation standards. Our preliminary findings contribute to discussions about the complexity and necessity of defining career stages, with consideration for diversity and inclusiveness.

Does weak tie matter for technological innovation? Evidence from patent collaboration network.

Keye Wu (Laboratory of Data Intelligence and Interdisciplinary Innovation, School of Information Management, Nanjing University), Ziyue Xie (School of Information and Communication Studies, Charles Sturt University), Tao Wang (Laboratory of Data Intelligence and Interdisciplinary Innovation, School of Information Management, Nanjing University), Zihan Zhang (Laboratory of Data Intelligence and Interdisciplinary Innovation, School of Information Management, Nanjing University) and Li Zhang (Laboratory of Data Intelligence and Interdisciplinary Innovation, School of Information Management, Nanjing University).

Abstract. As open innovation is widespread, collaborative R&D has been viewed as a main paradigm for technological innovation. Inspired by the weak tie theory originated from social network, our study tries to figure out weak ties effect in collaborative patent level and examine the contribution of knowledge distance. Relying on the 24,017 collaborative patents in the pharmaceutical field, we constructed the annual patent collaboration network and measured tie strength for each pairwise collaborator. We further quantified patent innovation performance in terms of impact, disruptiveness and market value. The results indicate weak partnerships are conducive to increasing technological disruptiveness, but have limitation in broadening technological impact and market value. Technological inventions generated from strong collaboration could have more technological audience when combining distant knowledge components. Our study not only verifies the weak tie effect in patent collaboration network, but also provides new insights for developing collaborating strategies.

Two Decades of Scientific Misconduct in India: Retraction Reasons and Journal Quality among Inter-country and Intra-country Institutional Collaboration.

Kiran Sharma (BML Munjal University).

Abstract. Research drives progress, but misconduct threatens development. Analyzing 3,244 retracted papers by Indian researchers, downloaded from Retraction Watch, we find an alarming upward trend in retractions, though shorter durations suggest journals' efforts against misconduct. The data showed that 60% of the retracted papers are affiliated with private institutions, often retracted due to fake peer reviews. This trend could be attributed to incentivizing publication quantity over quality in private institutions, potentially fostering unfair publishing practices. Public and medical institutions face data integrity issues, while plagiarism retracts papers in conferences and non-Scopus journals. 80% of retracted papers show domestic collaboration. Furthermore, when examining top journals in terms of retraction frequency within domestic collaborations, they typically fall within the Q2 and Q4 categories, whereas in international collaborations, they are predominantly found in the Q1 category.

Annual article processing charges for six large scholarly publishers.

Leigh-Ann Butler (University of Ottawa), Madelaine Hare (University of Ottawa), Nina Schönfelder (Bielefeld University), Eric Schares (Iowa State University), Juan Pablo Alperin (Simon Fraser University) and Stefanie Haustein (University of Ottawa).

Abstract. Article processing charges (APCs) were devised as an alternative to subscriptions that could support open access (OA) publishing but have since become a financial barrier for authors and a lucrative source of revenue for scholarly publishers. APCs are difficult to track as they vary by publisher, journal and over time. Reliable and comprehensive annual data is challenging to gather, eliciting a diverse range of approaches to estimate and monitor APC spending. This paper introduces a dataset of APCs of six large commercial publishers – Elsevier, Frontiers, PLOS, MDPI, Springer Nature and Wiley – between 2019 and 2023, produced from snapshots collected from publisher websites and via Wayback Machine. Data includes journal metadata, collection methods and annual APC price list information in several currencies for 8,722 unique journals and 36,618 journal-year combinations. The dataset can support library collection development and scientometric analyses on APCs for gold and hybrid OA journals.

Geography in Scientific Practice and Country Biases.

Leyan Wu (Wuhan University), Akрати Saxena (Leiden University) and Vincent Traag (Leiden University).

Abstract. Recent decades witnessed a steady increase in international scientific collaboration, alongside debates on nationalist tendencies in scientific practices and global disparities in citation flows. Geographical proximity has been shown to influence collaboration and citation rates, yet how this affects global patterns remains unclear. Addressing this gap, we examine the interplay of geography and country-level effects in collaboration and citations using OpenAlex data. Analysing 1.6 million publications with 6.8 million collaborations, and 3.7 million citations, we unveil distinct distance dependencies and country-level effects. Collaborations between countries decline slower with distance compared to intra-country collaborations. Surprisingly, citations between countries display lower distance dependence above a certain threshold, while intra-country citations decrease notably. These findings suggest that geographical factors alone do not determine inter-country collaborations and citations, hinting at underlying country-level effects that we will explore further in follow-up research. This study advances our understanding of the complex dynamics shaping international scientific engagement.

Research Evaluation Metrics and Authorship Dynamics.

Liwei Zhang ([Shandong University](#)) and Jue Wang ([Nanyang Technological University](#)).

Abstract. This study examines how research evaluation policies affect scholarly behavior, in the context of Chinese universities. China's evaluation metrics primarily acknowledge the first authors and corresponding authors due to their perceived major contributions. This creates pressure among scholars to secure these limited roles, as typically only two such positions are available per publication. By comparing the prevalence of co-first and co-corresponding authorships in China to other countries from 2001 to 2021, the study highlights a significant increase in co-first and co-corresponding authorships in China following the implementation of these policies, with much higher rates than seen internationally. These findings illustrate the ways in which performance evaluation criteria can inadvertently steer research practices, leading to potential manipulations of research output. The implications of this study are significant for policy-making in research evaluation, underscoring the importance of considering the unintended consequences of such policies.

Unlocking Author Profiles in Orcid: Evaluating Openalex's Accuracy by Identifying Spanish-Affiliated Authors.

Lorena Joaquina Delgado Quirós ([Institute for Advanced Social Studies \(IESA\), Spanish National Research Council \(CSIC\)](#)) and Jose Luis Ortega ([Institute for Advanced Social Studies \(IESA\), Spanish National Research Council \(CSIC\)](#)).

Abstract. This conference paper evaluates OpenAlex's accuracy identifying ORCID profiles with Spanish affiliations. Spanish author profiles (150k) from ORCID are analysed to illustrate the degree of overlap according to OpenAlex, a newly available bibliographic resource. The objective is to identify potential patterns that might explain the biases in data overlap and the instances of non-overlap. The results show that the retrieval of ORCID profiles has an overlap of 53.9% in OpenAlex. Additionally, for the non-overlapping profiles in OpenAlex, a sample of publications from these authors was studied, revealing that 47.21% do not have their ORCID field filled in the metadata of authorship in the publication, suggesting that the reason might stem from an external factor, such as editorial processes

Decoding Knowledge Claims: The Evaluation of Scientific Publication Contributions through Semantic Analysis.

Luca D'Aniello ([University of Naples Federico II](#)), Nicolás Robinson-García ([University of Granada](#)), Massimo Aria ([University of Naples Federico II](#)) and Corrado Cuccurullo ([University of Campania Luigi Vanvitelli](#)).

Abstract. The surge in scientific publications challenges the use of publication counts as a measure of scientific progress, requiring alternative metrics that emphasize the quality and novelty of scientific contributions rather than sheer quantity. This paper proposes the use of Relaxed Word Mover's Distance (RWMD), a semantic text similarity measure, to evaluate the novelty of scientific papers. We hypothesize that RWMD can more effectively gauge the growth of scientific knowledge. To test such an assumption, we apply RWMD to evaluate seminal papers, with Hirsch's H-Index paper as a primary case study. We compare RWMD results across three groups: 1) H-Index-related papers, 2) scientometric studies, and 3) unrelated papers, aiming to discern redundant literature and hype from genuine innovations. Findings suggest that emphasizing knowledge claims offers a deeper insight into scientific contributions, marking RWMD as a promising alternative method to traditional citation metrics, thus better tracking significant scientific breakthroughs.

Cognitive and Geographical Proximities Across Universities: Evidence from the OpenAlex Database.

Luís Borges (CAPES/UNICAMP) and Alysson Mazoni (UNICAMP).

Abstract. We analyzed scientific collaboration networks using the OpenAlex database through BigQuery. Upon setting a threshold of a minimum of 60,000 works, we identified 473 distinct universities worldwide. The effect of geographical proximity on scientific collaboration was measured in kilometers. For cognitive proximity, we rely on a new classification recently proposed by researchers from Leiden University. To analyze the relationship between cognitive and geographical proximity among universities, we applied the gravity model of spatial interaction and count data models. The results revealed an average 10.27% reduction in collaboration for every 1,000 km of distance between two universities.

Spatial Patterns in Scientific Production: Evidence from Brazil.

Luís Fabiano Farias Borges (CAPES), Jesús Mena-Chalco (UFABC) and Bruno Brandão Fischer (UNICAMP).

Abstract. Spatial scientometrics aids in understanding the global distribution and impact of scientific production, guiding strategic decision-making and resource allocation for scientific and technological advancement. This study investigates Brazilian scientific collaboration networks from 2010 to 2019, analyzing factors related to geographical and institutional proximities using the Lattes Platform. Starting from a database of 232,966 Ph.D. holders, we observed that 105 municipalities maintained more than 80% of research collaborations, which corresponds to approximately 2% of the total municipalities in the country. Geographical distance's effect on scientific collaboration was analyzed using count data and spatial interaction models. The results showed an average 9.2% decrease in national collaboration for every 100 km of distance between researchers.

The identification of highly cited researchers in literature databases: How are different approaches to identify these researchers able to capture Nobel laureates?

Lutz Bornmann (Administrative Headquarters of the Max Planck Society), Rainer Frietsch (Fraunhofer Institute for Systems and Innovation Research) and Sonia Gruber (Fraunhofer Institute for Systems and Innovation Research).

Abstract. Since many years, Clarivate has used publication and citation data to identify exceptional researchers – highly cited researchers (HCRs). HCRs can be defined differently; the approach of Clarivate is one possibility among several others. For example, HCRs can be identified by considering field-normalized citation rates or absolute numbers of citations; inclusion or exclusion of self-citations; and all authors, only corresponding authors or only first authors. In this study, we are interested in the question of how the different approaches (variants) are able to identify Nobel laureates. Do the different HCRs lists contain a similar number of laureates, and what are the reasons for different results? Our findings show that the different variants of defining HCRs lead to very different representations of Nobel laureates in the identified sample.

Understanding the Motivations and Barriers to Academic Scientists' Engagement in Co-Production of Knowledge.

Fehler! Verweisquelle konnte nicht gefunden werden. Luyu Du (Center for Organization Research and Design (CORD), Arizona State University) and Julia Melkers (Center for Organization Research and Design (CORD), Arizona State University).

Abstract. In the contemporary scientific landscape, the notion of knowledge co-production between academics and non-academics is increasingly recognized as crucial for bridging scientific research with societal needs. However, little is understood about the specific factors that motivate or impede these non-traditional yet meaningful research collaborations. Using a unique national survey dataset of over 30,000 tenured and tenure-track faculty from 9 STEM disciplines across U.S. research-extensive institutions, this study will investigate the individual and organizational factors influencing academic scientists' decisions to engage in knowledge co-production. This research contributes to a deeper understanding of the facilitators and barriers to knowledge co-production, offering insights for policymakers and university leaders to foster environments that facilitate collaborative efforts for enhancing societal impacts of research.

Initiating discipline-specific Open Science Monitoring with the Open Science Dashboard for Earth Sciences.

Maaïke Duine (Open-Access-Büro Berlin), Anastasiia Iarkeva (Berlin Institute of Health at Charité (BIH), QUEST Center for Responsible Research) and Andreas Hübner (Forschungs- und Publikationsservices, Universitätsbibliothek der Freien Universität Berlin).

Abstract. With the increased importance attributed to Open Science Practices, Open Science Monitoring becomes more relevant as well. As Open Science practices differ across scientific disciplines, monitoring models should be flexible and context should always be provided. In this paper, we describe how we initiated discipline-specific monitoring with the development of an Open Science Dashboard for the Earth Sciences Department at Freie Universität Berlin.

Imagining impact.

Magnus Gulbrandsen (University of Oslo, Centre for Technology, Innovation and Culture), Gemma Derrick (University of Bristol), Silje Maria Tellmann (University of Oslo) and Knut Jørgen Vie (University of Oslo).

Abstract. Societal impact is an important criterion for evaluating grant proposals, which means that researchers must outline how their projects will contribute to such effects. This makes grant proposals an interesting setting for investigating how visions of desirable futures make it into concrete plans for knowledge development. In this paper, we analyse the impact section of nearly 400 research proposals submitted to the Research Council of Norway within two calls for proposals within each of three different research fields. A preliminary analysis (analysis is ongoing) indicates that the way in which desirable futures are tied to concrete plans differs a lot between fields but less between different types (applied/basic) of research. Mainly, the visions about desirable futures and how research may contribute to them are generally formulated, with weak links to research plans. One reason might be that these visions in practice matter little for the evaluation of the proposals.

The use of non-institutional email addresses in retracted publications with special attention to mass retractions due to fraudulent peer review.

Marc Luwel (Centre for Science and Technology Studies, Leiden University) and Nees Jan van Eck (Centre for Science and Technology Studies, Leiden University).

Abstract. The explosion of cases of peer review fraud and activities of paper mills pose a systemic threat to the integrity of the scientific publishing process. By linking the Retraction Watch and Web of Science databases, metadata of retracted publications are analysed. In the period 2007-2021, the use of non-institutional email addresses by these publications' reprint authors increased by more than 20%, mainly due to an even larger increase from authors with a postal address in India and especially China. Among the journals with the most retracted publications, the use of non-institutional email addresses by reprint authors differs greatly: from 7 to 99%. It is also surprising that only 36% of the mainly Chinese reprint authors of the mass retracted publications in Hindawi journals used a non-institutional email address. These results indicate that caution is recommended and not to automatically red-flag publications as fraudulent when non-institutional email addresses are used.

Breaking Bias: Measurements, Potentials, and Limitations for Modelling Study Success by Performance and Diversity Factors.

Maria Krakovsky (Vienna University of Economics and Business), René Krempkow (Internationale Hochschule), Larissa Bartok (University of Vienna), Karl Ledermüller (Vienna University of Economics and Business) and Julia Spörk (Vienna University of Economics and Business).

Abstract. This study investigates the influence of performance and diversity factors on student success using machine learning models. Two case studies from Austrian universities are presented, comparing the predictive power of models with and without diversity indicators. While performance indicators seem to have larger impact on student success, diversity factors can slightly improve model accuracy and help identify at-risk students. However, the importance of the use of diversity indicators in predictive models varies depending on the study program, the student population and on the aim with which the analysis is carried out. The study highlights the potential and limitations of using machine learning models to predict student success and emphasizes the need for context-specific analysis to avoid generalization and ensure fair and effective interventions.

Discovering, Identifying and Gauging (DIGging) epistemic properties of research processes and fields.

Markus Hoffmann (Technical University Berlin), Jochen Gläser (Technical University Berlin), Grit Laudel (Technical University Berlin) and Susanne Wollin-Giering (Technical University Berlin).

Abstract. Epistemic properties of research processes and research fields play a crucial role in comparative science studies. However, they are rarely defined, and no protocols for their empirical identification exist. In this paper, we compare five methods—participant observation, interviews, document analysis, surveys, and bibliometrics—for their potential to discover, identify and gauge epistemic properties. The discussion relies on our own experiences with comparative empirical research and on the literature.

Bibliometric Network Visualization with OpenAlex: An Analysis of the Quantum Computing Hardware Ecosystem.

Martin Sand (Cyber-Defence Campus, armasuisse Science and Technology, EPFL Innovation Park), Alain Mermoud (Cyber-Defence Campus, armasuisse Science and Technology, EPFL Innovation Park) and Julian Jang-Jaccard (Cyber-Defence Campus, armasuisse Science and Technology, EPFL Innovation Park).

Abstract. As the field of bibliometrics gradually shifts towards open data, OpenAlex becomes an increasingly popular data source for analysis. However, bibliometric analysis through network visualization is still mostly conducted with proprietary databases, which impacts the reproducibility of the results. In this paper, we provide a feasibility study for analyzing the academic landscape surrounding emerging technologies, using the case of quantum computing hardware, in order to assess the construction of bibliographic networks with OpenAlex data and VOSviewer. The tools were able to produce subject similarity networks through bibliographic coupling, collaboration networks through coauthorship analysis and co-occurrence networks with OpenAlex concepts. However, this study highlights several limitations, notably the lack of interactability with static VOSviewer representations, which can conceal important data points, and no support for co-citation analysis.

Measuring interdisciplinarity at the section-level of full-text scientific publications.

Max Meier (KU Leuven), Julie Callaert (KU Leuven), Bart Thijs (KU Leuven) and Bart Van Looy (KU Leuven).

Abstract. Identifying the degree of interdisciplinarity in scientific publications is conventionally done by applying diversity measures to the reference list of a publication. Such data is widely available in publication databases, and debates have traditionally focused on appropriate classification schemes, the level of granularity, and the properties of the applied measures. An under-explored issue however, is that not every reference is equal; in the context of interdisciplinarity, references can differ in the types of knowledge that they integrate. By retrieving the full-text of publications, relating the references to their respective sections and measuring interdisciplinarity at the section-level, we explore differences of interdisciplinary knowledge integration and discuss differences in impact.

Scientific progress or societal progress? A language model-based classification of the aims of the research in scientific publications.

Mengjia Wu (University of Technology Sydney), Gunnar Sivertsen (Nordic Institute for Studies in Innovation, Research and Education), Lin Zhang (Wuhan University), Fan Qi (Wuhan University) and Yi Zhang (University of Technology Sydney).

Abstract. The classification of research by its aims has been a long-term focus in quantitative science studies and R&D statistics. The classical distinction, used by OECD since 1963, is between basic and applied research. In our prior research, we found it useful to distinguish between scientific and societal progress as the two main research objectives in a quantitative analysis of abstracts in scientific publications, which led to developing and testing an automated method for large-scale classification. In this study, we conduct a comprehensive evaluation of existing text classification techniques, including traditional text mining, pre-trained, and large language models (LLMs). Our findings demonstrate that fine-tuning domain-specific pre-trained BERT models remains highly competitive even compared to generative LLMs for our task, resulting in a 5-7% accuracy improvement. Through a case study involving 2.3 million scientific articles, we illustrate how the classification of the main aims of research works across diverse subject categories.

Delineating Gender Studies through bibliometric analysis.

Natsumi Solange Shokida (École de bibliothéconomie et des sciences de l'information, Université de Montréal), Diego Kozłowski (École de bibliothéconomie et des sciences de l'information, Université de Montréal) and Vincent Larivière (École de bibliothéconomie et des sciences de l'information, Université de Montréal).

Abstract. The multidisciplinary nature of Gender Studies poses challenges for bibliometric analyses, but new computational tools can be incorporated to identify publications related to Gender Studies even when they are scattered across multiple disciplines. In this paper, we apply bibliometric techniques and natural language processing on the Dimensions database to build a dataset of scientific publications that allows for the analysis of Gender Studies and its influence across different disciplines. This is achieved through a methodology that combines a core of specialised journals, and keyword search over titles. These keywords are obtained by applying Topic Modeling (BERTopic) to the corpus of titles and abstracts from the core. The resulting dataset comprises over 1.5 million articles published between 1970 and 2020, spanning four languages. It enables characterization of Gender Studies in terms of addressed topics, citation/collaboration dynamics, and institutional/regional participation, offering a methodology adaptable to diverse interdisciplinary studies.

Different representations of forest science in bibliographic databases and the (in-)visibility of Tanzanian research: applying an epistemic (in-)justice lens.

Nelius Boshoff (Stellenbosch University), Similo Ngwenya (Stellenbosch University), Amani J. Uisso (Tanzania Forestry Research Institute (TAFORI)), Susanne Koch (Technical University of Munich), Rodrigo Costas (Leiden University) and Jonathan Dudek (Leiden University).

Abstract. Inspired by a search for epistemic justice, the study examines the representation of Tanzanian forest science in five databases: Dimensions, OpenAlex, Scopus, Web of Science and a manually compiled set of articles in Tanzanian journals. It also ascertains whether profiles of three epistemic elements (alignment of research to national research priorities, national region studied, and forest type studied) differ between the databases. Initial findings of the ongoing research indicate that OpenAlex has the highest coverage of Tanzanian forest science articles and that it incorporates all the forest science articles of the other databases (excluding those in the Tanzanian dataset). In fact, 87% of articles in Tanzanian journals do not appear in the other databases' forest science collections. This is a form of epistemic injustice as the invisibility of large parts of forest science produced by Tanzanian authors collectively marginalises them and ultimately prevents them from fully participating in scientific meaning-making.

Reproducibility of qualitative research: an integrative review of concepts, barriers and enablers.

Nicki Lisa Cole (Know-Center GmbH), Sven Arend Ulpts (Aarhus University), Matthew Good (University of Oslo), Agata Bochynska (University of Oslo), Barbara Leitner (Amsterdam University Medical Center), Eva Kormann (Graz University of Technology) and Tony Ross-Hellauer (Know-Center GmbH).

Abstract. Increased institutional efforts to bolster reproducibility have generated resistance among some qualitative researchers and sparked debates within the qualitative research community because interventions to support it are largely aligned with quantitative epistemologies. In this integrative review guided by the PRISMA framework, we aim to capture and synthesize conceptualizations of reproducibility within qualitative research, and to identify the factors and practices that enable or undermine it. We identified 248 papers for inclusion and extracted and analysed both quantitative and qualitative data. We find (preliminarily) that the discourse in the literature is oriented more around the values of transparency, credibility and rigor, rather than reproducibility, and that data sharing and reuse are frequently discussed. The literature identifies overlaps between qualitative research practices and Open Science and suggests that though there may be barriers to data sharing within qualitative research, there are also solutions for overcoming them.

Complexity and Competitiveness: Analyzing Knowledge Production's Impact on Productivity in European Metropolitan Regions.

Nico Pintar ([Austrian Institute of Technology](#)) and Thomas Scherngell ([Austrian Institute of Technology](#)).

Abstract. Economic development varies both within and among countries. Productivity differences play a key role in explaining this variation. Besides numerous other factors contributing to productivity differences, technological advancement enabled by innovation and knowledge production are regarded as the most crucial. From the perspective of industrial and innovation policy, knowledge that is more difficult to replicate and disseminate across geographic locations provide long-term competitive advantage. In response to this, the concept of knowledge complexity has emerged to empirically address the elusive concept of knowledge quality. In this study, we investigate the relationship between regional knowledge complexity and total factor productivity growth using a spatial econometric modeling approach. Our results indicate that regions stand to gain by prioritizing the production of complex knowledge internally or by enhancing their integration with neighboring regions to leverage the advantages of complex knowledge. Nonetheless, depending solely on spillover effects may not be a sustainable long-term strategy.

What's in a team? Variability and discrepancies in the conceptualization and operationalization of scientific teams.

Nicolas Robinson-Garcia ([University of Granada](#)), François van Schalkwyk ([Centre for Research on Evaluation, Science and Technology \(CREST\), Stellenbosch University](#)), Mayra M. Tirado ([School of Public Affairs, Arizona State University](#)), Victoria Pham ([School of Public Affairs, Arizona State University](#)) and Julia Melkers ([Arizona State University](#)).

Abstract. This study explores the conceptualization of 'team science' within the field of scientometrics, identifying key attributes that define scientific teams through a systematic literature review and AI-assisted analysis. We examine definitions and operationalizations from 26 pivotal studies, synthesizing a unified definition centred on three main attributes: interdisciplinary composition, shared goals, and collaborative effort. Our findings highlight the diversity and inconsistency in current descriptions, suggesting a need for a more standardized framework. This paper contributes to the discourse on team science by proposing a refined, empirically testable definition aimed at enhancing comparative studies and improving team dynamics in scientific research.

Exploring Citation Impact in Circular Economy Research: An Analysis of Expected Citations Based on LLM-Generated Lexical Similarities Between Papers.

Niloufar Farrokhzad ([KU Leuven, FEB, ECOOM](#)), Mehmet Ali Abdulhayoglu ([KU Leuven, FEB, ECOOM](#)) and Bart Thijs ([KU Leuven, FEB, ECOOM](#)).

Abstract. We present a novel approach for estimating citation impact in circular economy research using Large Language Models to create lexical similarity relationships between papers. By applying cosine similarity, we weigh the estimated citations for each paper based on the citations of their most similar papers. This approach builds on the concept of related records and employs a bottom-up clustering methodology for citation-based assessments, enhancing the granularity and accuracy of bibliometric analysis. Our dataset consists of publications from 2001 to 2022 sourced from the Web of Science Core Collection and processed by ECOOM. Using this comprehensive dataset, we identify thematic clusters and apply normalization by publication year, cluster, and document type to achieve the most accurate citation estimations. This combined normalization strategy yielded improved results, providing a more nuanced understanding of citation impact in CE research.

Transparency in the secondary use of health data: Assessing the status quo of guidance and best practices.

Olmo van den Akker (QUEST Center for Responsible Research), Robert Thibault (Stanford University), John Ioannidis (Stanford University), Susanne Schorr (QUEST Center for Responsible Research) and Daniel Strech (QUEST Center for Responsible Research).

Abstract. In this review, we explored what guidance exists to improve transparency in studies reusing health data. We found that there are a substantial number of research papers that provide guidance for study preregistration and methods reporting. Guidance on data sharing and code sharing is rare, possibly because of the unique nature of real-world health data. Institutional documents often lack guidance on transparency topics. With regard to patient registries, there is substantial heterogeneity in the extent to which they require researchers to be transparent. On patient registry websites, registration and results reporting are most often mentioned as desirable in use-and-access policies but calls or justifications for improving other transparency aspects are rare. Concluding, the guidance to improve the transparency of real-world health data studies seems to be initiated primarily bottom-up. Health organizations and patient registries would do well to use this bottom-up guidance and implement it in formal guidance documents.

Coverage and metadata availability of African publications in OpenAlex: a comparative analysis.

Patricia Alonso-Álvarez (Department of Library and Information Sciences, UC3M; INAECU Institute, UC3M-UAM) and Nees Jan van Eck (Centre for Science and Technology Studies, Leiden University).

Abstract. Unlike traditional proprietary data sources like Scopus and the Web of Science (WoS), OpenAlex emphasizes its comprehensiveness, claiming an extra coverage of humanities, non-English languages, and the Global South. Strengthening diversity and inclusivity in science is crucial for ethical and practical reasons. This paper analyses OpenAlex's coverage and metadata availability of African-based publications. For this purpose, OpenAlex is compared with Scopus, WoS, and African Journals Online (AJOL). We first compare the coverage of African publications in OpenAlex against that of WoS, Scopus, and AJOL. We then assess and compare the available metadata for OpenAlex, Scopus, and WoS publications. The analysis shows that OpenAlex offers the most extensive publication coverage. Regarding metadata, OpenAlex offers a high coverage of publication and author information. It performs worse regarding affiliations, references, and funder information. Importantly, the results also show that metadata availability in OpenAlex is better for publications also indexed in Scopus and WoS.

Researcher mobility and individual research agendas.

Paul Donner (German Centre for Higher Education Research and Science Studies (DZHW)) and Clemens Blümel (German Centre for Higher Education Research and Science Studies (DZHW)).

Abstract. This study investigates whether researchers whose published research record is more thematically broad —covering more, and more semantically distant, topics— are also characterized by specific patterns in their mobility between research organizations and countries. We study a large sample of productive authors in STEM fields who have been active in Germany. Our results show that specific types of international mobility go together with slightly elevated epistemic breadth. Some disciplines, such as geosciences and astronomy, are comprised of researchers with low average epistemic breadth, while others, primarily computer science subfields, have many high-epistemic breadth researchers.

Affinity patterns in international collaboration: an asymmetrical perspective applied to French–North African co-publications.

Paul Khayat (Elsevier), Tyle Martindale (Elsevier) and David Campbell (Elsevier).

Abstract. An Asymmetrical Probabilistic Affinity Index (PAIASym) is introduced to capture preferential ties between countries while accounting for the perspective of the leading country in scientific co-publications. Unlike the traditional PAI, it assesses country–country affinities assuming that the country of the corresponding author plays a more significant role in shaping partnerships as opposed to treating all countries as equal contributors. Joint publications led by France with North African partners (Algeria, Morocco, Tunisia), or vice-versa, revealed distinct trends of asymmetrical preferences when analyzed in the context of the global co-publication network since 1996. Early on, both groups had similar and strong affinity for each other regardless of who led the research. Later on, the affinity diverged as France's partnership preference declined when in a leading role, more steeply compared to North African countries' affinity to partner with France when they were leading. The usefulness of PAIASym is discussed from various perspectives.

Academic patenting in the EU-27, Switzerland and Canada: changing patterns and differences across countries.

Peter Neuhäusler (Fraunhofer ISI) and Rainer Frietsch (Fraunhofer ISI).

Abstract. Academic patents are one of the most important means of technology transfer from science to industry. The work presented here offers a reliable method to identify academic patents, i.e. patents invented by a researcher affiliated to a university plus patents filed by the university itself - at large scale across a number of countries (EU-27, Switzerland, Canada). The analyses show considerable differences in the ownership patterns of academic patents across countries, mainly reflecting the existing/missing regulation of ownership (e.g. Bayh-Dole act like regulations, professors' privilege). Quality differences - this is still under examination in the work in progress - are hypothesized to exist between academic patents filed by companies and by academia itself.

Do new forms for peer review influence the quality of the review? A case study based on interviews and text analysis.

Peter Van Den Besselaar (Vrije Universiteit Amsterdam) and Charlie Mom (TMC research Amsterdam).

Abstract. The peer review system is under pressure as invited reviewers increasingly reject the review invitation due to time constraints. Therefore, it is needed to find alternative ways of reviewing that are less time consuming and at the same time producing high quality reviews. One of the proposed alternatives is the Peer Circle (PC), where a team of reviewers collectively evaluates grant applications. One of the PC team members starts with a structured review, and the other members are expected to comment only on those parts of the application they are familiar with, which is expected to save substantial time. At the same time, the evaluation should be comprehensive and detailed enough to have at least the quality of the conventional reviews. This paper reports parts of the results of the evaluation study which focus on a comparison between the two types of reviews and their quality.

Cognitive diversity and the future of crises: an analysis of the topic space of the biological sciences.

Pierre Benz (School of Library and Information Science, University of Montreal), Vincent Larivière (School of Library and Information Science, University of Montreal), Diego Kozlowski (School of Library and Information Science, University of Montreal), Natsumi S. Shokida (School of Library and Information Science, University of Montreal) and Carolina Pradier (School of Library and Information Science, University of Montreal).

Abstract. This paper proposes to address the relationship between cognitive diversity and research topics among biologists. It asks whether biologists who are ‘open’ to a greater variety of topics are also more prompt to tackle issues relative to current global crises, or if some key topics like climate change, biodiversity and global health are confined to rather institutionally hermetic disciplinary landscapes. To answer this question, we propose to map a topicspace as a combination of latent topic modeling and multiple correspondence analysis. Such a method allows us to relate topics with proprieties of both journals and authors. It also provides an empirically informed framework to measure the cognitive diversity of biologists, with reference to the distance between their topics in the topicspace. Sample for preliminary analysis is based on all publications (40,130) from all professors of biology in Switzerland between 2008 and 2020.

Researchers in the disciplinary matrix: A geometric map of science based on topics and disciplines.

Radim Hladík (Centre for Science, Technology, and Society Studies, Institute of Philosophy of the Czech Academy of Sciences) and Yann Renisio (Centre for Research on social InequalityS, CNRS/SciencesPo).

Abstract. This study presents a new approach for constructing an epistemological coordinate system to locate individual researchers within the disciplinary landscape of science. Using a comprehensive national dataset, a topic model is built based on a semantic network of publications. Compositional data transformation techniques enable a geometric analysis of topics across disciplines. The results confirm alignment between disciplinary classification and the topic model and reveal main axes – Culture vs. Nature and Life vs. Non-life – that structure the scientific knowledge space. The method has implications for science policy and evaluation practices.

Privilege in publishing: Investigating the impact of scientific reputation on peer review outcomes.

Rebecca Marjoram (Dalhousie University), Geoff Krause (Dalhousie University) and Philippe Mongeon (Dalhousie University).

Abstract. Researchers advance knowledge and their careers by publishing their work in peer-reviewed journals to share discoveries, but also build the scientific reputation of the author(s). Biases in publication based on personal attributes and citation inequality exist, but the hurdle of new or marginalized researchers adapting their work to match journal scope is less explored. We investigated the relationship between scientific reputation and fit of articles to their journal. Using journals from Library and Information Sciences, the fit of each article to their journal was determined. The number of citations and number of publications for each author in the journals were obtained, and their impact on journal fit was modelled. Our preliminary findings do not offer strong support to the hypothesis that more established scholars are more likely to publish articles that do not fit the scope of the journal in which it is published.

Research careers and research assessment reform: a ‘public values’ perspective

Richard Woolley (INGENIO, CSIC-Universitat Politecnica de Valencia), and Shauna Stack (Institute of Advanced Studies)

Abstract. This paper contributes to studies of research careers as a mediating structure that links knowledge production activities and societal institutions and expectations. It develops a ‘public values’ conceptual framework for understanding research careers, building on existing approaches from the sociology of science. It discusses this framework in the context of recent approaches to the reform of research assessment. It argues that a public values approach to research careers is sensitive to the heterogeneity of research careers – in terms of scientific disciplines and career stage – while providing a coherent framework for thinking about these careers in the context of evolving societal expectations about the contributions of publicly funded science.

Assessing bibliodiversity through reference lists: A text analysis approach.

Roberto Cruz Romero (German Centre for Higher Education Research and Science Studies (DZHW)), Dimity Stephen (German Centre for Higher Education Research and Science Studies (DZHW)) and Stephan Stahlschmidt (Unit of Computational Humanities and Social Sciences (U-CHASS), EC3 Research Group, University of Granada).

Abstract. The presence or absence of publishers in large bibliographic databases highlights tangible and symbolic differences between small and large publishers, underlining their diverging incentive structures. To assess these differences, this contribution explores reference data from small (open access) publishers' journals in the Web of Science and Scopus. The analysis focuses on references that are not indexed in these databases and examines them from a text-as-data approach. The study frames two dimensions of relevance – visibility and impact – as proxies for assessing the scholarly bibliodiversity represented by small (open access) publishers' journals. Overall, the analysis identifies regional and linguistic specificities in the cited references and some observable thematic differences compared to articles from larger publishers. In particular, it can be argued that the visibility and impact of small (open access) publishers' publications is rather limited in these databases, thus hindering a broader bibliodiversity in the publishing landscape.

Usage of OpenAlex for creating meaningful global overlay maps of science on the individual and institutional levels.

Robin Haunschild (Max Planck Institute for Solid State Research) and Lutz Bornmann (Max Planck Society).

Abstract. Global overlay maps of science use base maps that are overlaid by specific data (from single researchers, institutions, or countries) for visualizing scientific performance such as field-specific paper output. A procedure to create global overlay maps using OpenAlex is proposed. Six different global base maps are provided. Using one of these base maps, example overlay maps for one individual (the first author of this paper) and his research institution are shown and analyzed. A method for normalizing the overlay data is proposed. Overlay maps using raw overlay data display general concepts more pronounced than their counterparts using normalized overlay data. Advantages and limitations of the proposed overlay approach are discussed.

How does the pandemic shape scientific collaboration and novelty? Evidence from the publications of Hong Kong.

Rong Ni (Nanyang Centre for Public Administration (NCPA), Nanyang Technological University) and Jue Wang (Nanyang Centre for Public Administration (NCPA), Nanyang Technological University).

Abstract. Scientific collaboration and novelty are fundamental drivers of progress in knowledge and innovation. However, the emergence of the COVID-19 pandemic disrupted traditional scholarly communication channels, potentially shaping both short- and long-term effects on scientific endeavors. Using WoS publication data from Hong Kong between 2017 and 2022, this study investigates the pandemic's impact on both scientific collaboration and the novelty of research. Our analyses of 125,290 papers show that the pandemic has crowded out the proportion of international collaborative papers, except for Life Sciences & Biomedicine. Internal collaboration within Hong Kong has notably increased since 2021. Additionally, we find that the pandemic has negatively influenced the novelty, yet cross-border or inter-institutional collaboration acts as a significant moderator in offsetting this effect. This study contributes to understanding the importance of maintaining a collaborative scientific community and revealing the resilience and adaptability of academic communities when facing unprecedented challenges.

Boundary Spanners in Academia: The Economic Influence and Field Preferences.

Sichao Tong (National Science Library, Chinese Academy of Sciences) and Liying Yang (National Science Library, Chinese Academy of Sciences).

Abstract. In academia, the role of the "boundary spanner"—which describes individuals or organizations capable of facilitating inter-organizational communication—is increasingly considered crucial for knowledge communication and collaboration. This study defines a "boundary spanner" as a researcher who affiliates with organizations across sectoral boundaries and utilizes a bibliometric approach to explore the correlation between boundary spanners and economic growth, and the research preference profile of these roles at the income group level. Tracking the development of boundary spanners' production and the strong association with GDP suggests the positive influence of economic growth. Our results regarding research field preference show that boundary spanners from high-income countries are active widely in most research fields, while in the upper-middle-income group, boundary spanners show a preference for fields related to mathematics, computer science, physical sciences, and engineering. Our findings, linking boundary spanners to economic growth, might offer fresh insights into the evolution of boundary spanners in academia.

Preprint citation patterns since the COVID-19 pandemic.

Steffen Lemke (CAU Kiel University), Kristin Biesenbender (ZBW - Leibniz Information Centre for Economics) and Isabella Peters (ZBW - Leibniz Information Centre for Economics & CAU Kiel University).

Abstract. Challenges of the COVID-19 pandemic, as well as recent science policy initiatives, induced increasing interest in preprints as a format for scholarly communication. However, regarding their use and acceptance by scholars, preprints still seem in an uncertain position. We aim to shed light on the actors who cite preprints by analyzing (1) which publishers' publications make particularly high use of preprints and (2) whether authors who have themselves posted preprints (or published other forms of Open Access) are also more likely to cite preprints (or other forms of Open Access). Our findings indicate some substantial differences between citation patterns of a set of COVID-19-related preprints and a similar control set of non-preprints, as well as a correlation between authors' Open-Access-affinity when publishing and their Open-Access-affinity when citing. Our future work will go into better differentiation between disciplines and research fields.

Disruption Indices: The Science of Science's new cloths.

Sven Ulpts (Aarhus University) and Jesper Wiborg Schneider (Aarhus University).

Abstract. Using a case study, we argue that the disruption indices do not capture epistemic disruption in focal papers as implied by most. The case contains disruption index calculations for three Nobel Prize papers representing a multiple discovery ('click-chemistry'). We end the paper by elaborating why the disruption index is incapable of identifying epistemically disruptive papers in science.

Unexpected consequences of Dutch Open Science policy. The effects on Dutch scholarly publishing.

Thed van Leeuwen (Centre for Science & Technology Studies - Leiden University), Lieuwe Kool (Amsterdam University Medical Center) and Ingrid Wijk (Maastricht University).

Abstract. In this study we aim at some unintended consequences of science policy regarding open access publishing by Dutch academics. Various actors in the system have advocated different forms of open access publishing, and our study will unravel how publishing occurs in various forms of open access publishing (Gold versus Hybrid), and for two types of scholarly publishing, the general output of the Netherlands and the output for which authors located in the Netherlands are corresponding authors. A special focus will be on any underlying field differences across the Dutch scholarly landscape. The study shows that contrary to national and international efforts, the main focus of Dutch academics is on Hybrid open access publishing.

Exploring the role of digital technological relatedness for regional diversification into complex green technologies.

Theresa Bürscher (Austrian Institute of Technology), Thomas Scherngell (Austrian Institute of Technology) and Martina Neuländtner (Austrian Institute of Technology).

Abstract. We shift attention to the development of green technologies in European regions, aiming to unveil the role played by digital knowledge in facilitating green diversification. Conceptually drawing on the literature on evolutionary economic geography, we construct indicators capturing different types of digital technological relatedness at the level of European regions drawn from regionalised patent data. By estimating a spatially lagged logit model (SLX), we find that related pre-existing digital technologies matter more for green than for non-green diversification. Further, while the existence of related digital technologies encourages regional development into complex green domains, our results suggest that regions do not rely on digital knowledge when diversifying into non-complex green technologies.

Data-sharing as an epistemic practice - Re-conceptualizing data sharing when one takes the content of research seriously.

Theresa Velden (DZHW).

Abstract. This contribution discusses what it means to understand the sharing of research data not only as a social practice, but as an integral part of research practices. It reviews recent literature, assesses progress made and remaining gaps, and outlines a re-conceptualization of data sharing that results from taking the content of research seriously.

Field size as a predictor of “excellence.” The selection of subject fields in Germany’s Excellence Initiative.

Thomas Heinze (Bergische Universität Wuppertal), Isabel Habicht (Bergische Universität Wuppertal) and Dirk Tunger (Forschungszentrum Jülich).

Abstract. We investigate the selection of subject fields in Germany’s “excellence initiative,” a two-phase funding scheme administered by the German Research Foundation (DFG) from 2005 to 2017 to increase international competitiveness of scientific research at German universities. While most empirical studies have examined the “excellence initiative’s” effects at the university level (“elite universities”), we focus on subject fields within universities. Based on both descriptive and logistic regression analyses, we find that the “excellence initiative” reveals a stable social order of public universities based on organizational size, that field selection is biased toward those fields with many professors and considerable grant funding, and that funding success in the second phase largely follows decisions from the first phase. We discuss these results and suggest avenues for future research.

Scoping Review of Open Science Impact.

Thomas Klebel (Know-Center), Nicki Lisa Cole (Know-Center GmbH), Lena Tsipouri (Opix) and Tony Ross-Hellauer (Know-Center GmbH).

Abstract. This paper presents a comprehensive scoping review of the academic, societal, and economic impacts of Open Science (OS), utilizing the PRISMA-SCR methodology. By systematically reviewing literature published from 2000 to 2022, we identify and appraise evidence related to the effectiveness of OS in enhancing research efficiency, quality, and equity; its role in societal engagement and policy-making; and its economic benefits such as productivity and innovation. Our findings highlight substantial impacts across these domains, particularly in areas of Open Access and Citizen Science, yet also underscore significant gaps in comprehensive impact evidence, particularly concerning Open Methods and Open Evaluation. This review not only maps the existing landscape but also underscores the urgent need for further large-scale, multi-method research supported by increased funding to better understand the causal impact pathways and broader implications of OS.

Sleeping Beauties in OpenAlex.

Thomas Scheidsteger (IVS-CPT, Max Planck Institute for Solid State Physics) and Robin Haunschild (IVS-CPT, Max Planck Institute for Solid State Research).

Abstract. We present the first systematic and comprehensive search for publications with delayed recognition (also called “Sleeping Beauties”, SBs) indexed in the freely available bibliographic database OpenAlex applying the parametric algorithm by van Raan and Winnink (2019) with sleeping times of 10, 20, and 30 years. We find SBs between 1909 and 2008, and compare the time development of the number of SBs with that of the overall number of publications, references, and citation counts in OpenAlex. We calculate a probability of SB occurrence. Moreover, we discuss the SB distribution over the 19 top-level concepts in OpenAlex during these 100 years and find a remarkable prevalence of the concepts from the humanities Art, History, and Philosophy as well as Computer Science.

Openness of performance-based funding for research and valorisation in Flanders since 2004.

Tim Engels (University of Antwerp).

Abstract. In this paper I reflect on aspects of openness and discussions concerning possibilities for openness in the performance-based funding systems for research and valorisation that are in place for universities and higher education institutions in Flanders since 2004 (Luwel, 2021). Comparability, quantification and transparency across institutions are essential elements of a performance-based funding system that distributes subsidies across those institutions. Nonetheless, the need and wish to take into account diversity and impact resurfaces regularly. Within institutions many examples of valuation of activities and results beyond those that can be measured comparatively are apparent. In sum, the meaning of openness and taking into account diversity and impact differs depending on levels of governance and goal-orientation.

How does SDG Related Research Differ?

Tommaso Ciarli (UNU-MERIT, United Nations University and SRPU, University of Sussex), Hugo Confraria (Joint Research Centre (Seville), European Commission), Ed Noyons (Leiden University) and Ismael Rafols (CWTS, Leiden University).

Abstract. This paper examines the characteristics and impact of research related to the Sustainable Development Goals (SDGs), aiming to understand specific features of SDG-related research compared to non-SDG related research. The findings reveal that SDG-research research, especially on SDGs related to people and society (such as poverty alleviation, education, gender equality, and justice) are more likely to be cited in policy documents, indicating their relevance for public use, and to adopt features of open science, such as open access and interdisciplinary. However, these publications are less likely to mention funding and are less likely to be cited in academic publications compared to non-SDG-related research, suggesting a disconnect between potentially more impactful research and academic recognition. Results reveal gaps in research funding priorities while emphasizing the importance of considering the societal relevance of research alongside traditional excellence criteria.

Funding decision and applicants' careers. A case study of an early career grant.

Torger Möller (German Centre for Higher Education Research and Science Studies (DZHW)).

Abstract. The paper analyses the funding decision of an early career program from Germany and the impact on further academic careers. The main results are: Gender does not play a role in funding decisions, but age is a factor: younger applicants have significant better chances. A higher journal impact promotes funding in Biology and Medicine. Grantees in the fields of chemistry, medicine and physics have a better chance of obtaining a professorship 15 years after applying than those who are not funded. In contrast, this is not a significant factor for career success in biology; instead, male applicants and a higher number of publications significantly increase the chances of being appointed.

Are there factors that influence the quality of funding acknowledgements in publications?

Torger Möller (German Centre for Higher Education Research and Science Studies (DZHW)), Barbara Scheidt (Juelich Research Center, Central Library) and Andreas Meier (Juelich Research Center, Central Library).

Abstract. It is crucial for funding acknowledgement analyses that the funding data in the bibliometric databases is of high quality. One factor for data quality is to what extent the funding recipients fulfill their obligations and acknowledge the funding in their publications. This question has hardly been investigated to date. A data set of 32,640 publications from final reports of research projects of the German Research Foundation (DFG) was used to investigate the factors that influence the quality of funding information. Some of the factors are personal characteristics of the applicants (age, first application), number of co-authors, international collaborations, affiliation, discipline, open access status, PP top10%, length of the funding text and publication year. The results show that more than 90% of publications correctly named the DFG as the funding body, while the correct project number is less named (66%). However, the quality of funding increases over the years (2012-2020).

Openness of universities towards the society - extent and limits of knowledge transfer in all disciplines.

Ulrich Schmoch (Fraunhofer ISI) and Hendrik Berghäuser (Fraunhofer ISI).

Abstract. Knowledge transfer is an important issue in higher education and reflects the openness of universities towards the society. The debate on knowledge transfer is focussed on technology transfer, but since about ten years, some papers also analyse the knowledge transfer in non-technical disciplines. We are presenting results from a large survey at German university professors with a fine differentiation by disciplines, transfer partners and transfer mechanisms. We assess the activities and the structures of knowledge transfer, defined as transfer to or cooperation with non-scientific actors. A variety of different transfer partners and transfer mechanisms can be determined, in particular their level of relevance. On this basis, we can determine the similarity or dissimilarity of disciplines in terms of transfer, calculate the transfer intensity by discipline and identify the share of professors with low transfer activities, i.e. the extent and limits of knowledge transfer.

Evidence base of Oncology Clinical Practice Guidelines – A bibliometric comparison of Germany and the UK.

Valeria Aman (German Centre for Higher Education Research and Science Studies) and Nikita Sorgatz (German Centre for Higher Education Research and Science Studies).

Abstract. This work builds on our study presented at last year's STI where we showed that relevance of journals for medical guidelines is independent from their impact factor (JIF). We expand on it in three ways: first by expanding our scope by comparing two countries, second by diving deeper into the characteristics of guideline references and third by exploring how these characteristics depend on national research context. We observe some overlap as well as considerable heterogeneity in the types of papers cited across two different guideline programs studied. We also find that both German and UK guidelines preferentially cite national research, showing the importance of a local science base, funding bodies and the value of local journals. Compared to the UK German guidelines cite significantly less research from Asia indicating possible bias.

Improving research productivity. A systematic literature review.

Valeria Arza (CONICET and CENIT/EEYN/UNSAM), Diego Chavarro (Research Policy Solutions, Bogotá, Colombia), Tommaso Ciarli (UNU-MERIT; Maastricht, Netherlands) and Hugo Confraria (Joint Research Centre (Seville), European Commission, Spain).

Abstract. This paper presents a systematic literature review analysing research productivity, drawing on over 200 selected documents. We analyse factors that explain the reported decline in recent literature (Bloom et al., 2020) and the proposed remedies. While a clear consensus on a decline in research productivity is lacking, we argue that changes in R&D routines and incentives are necessary to improve the return on research investment. Among these changes, we examine the potential role of open science practices.

How Open Code and Data Unveiled Errors in Measuring Scientific Disruption.

Vincent Holst (Vrije Universiteit Brussel), Andres Algaba (Vrije Universiteit Brussel), Floriano Tori (Vrije Universiteit Brussel), Sylvia Wenmackers (KU Leuven) and Vincent Ginis (Vrije Universiteit Brussel, Harvard University).

Abstract. Recently, a new research field has emerged called Science of Science. As the name suggests, its main goal is to detect structural patterns in science itself. A prominent example is the widely recognized study by Park et al. (2023) that reported a decline in the disruptiveness of scientific and technological knowledge over time. However, our recent preprint (Holst et al., 2024) fundamentally questions these results. In this paper, we show how openness helped us to detect a software bug that hid a large amount of maximally disruptive outliers, which turns out to be the main driver behind the reported decline of disruption. Additionally, we elaborate on the challenges that we faced revolving around closed-source databases used in the study by Park et al. (2023).

OpenAlex as a source of national research activity and impact: a comparison with Web of Science.

Vincent Larivière (University of Montreal), Philippe Mongeon (Dalhousie University), Juan Pablo Alperin (Simon Fraser University) and Stefanie Haustein (University of Ottawa).

Abstract. This study compares OpenAlex and Web of Science (WOS) to explore country-level differences in research output and citations. Comparing database snapshots from May 2022, we find that OpenAlex indexes more papers with country information in absolute numbers but WOS maintains significantly higher percentages of documents with affiliation information. Issues with country metadata can especially be observed for Chinese publications, where the number of publications decreases sharply after 2011. Despite OpenAlex's gaps in country metadata, strong correlations between the databases are observed, particularly in recent years. However, challenges persist in the availability and quality of citation data, leading to uneven comparisons across countries. We argue that structural inequalities in metadata reinforce existing disparities introduced by WOS, particularly disadvantaging regions with less visible research output, in particular in Africa. This underscores the need for ongoing attention and improvements of OpenAlex metadata.

Matching author profiles across bibliographic databases: Mapping out overlap in the United States.

Wenceslao Arroyo-Machado (School of Public Affairs, Arizona State University), Mattia Caldarulo (Department of Public Policy, Rochester Institute of Technology), Timothy P. Johnson (Department of Public Policy, Management, and Analytics, University of Illinois Chicago) and Eric W. Welch (School of Public Affairs, Arizona State University).

Abstract. This paper addresses the challenge of accurately matching author profiles across the major bibliographic databases OpenAlex, Scopus, and Dimensions, using the United States as a case study. The study aims to quantify and evaluate the overlap of author profiles. The methodology includes an analysis of bibliographic records published between 2018 and 2022, matching author profiles through database-specific identifiers. It was found that although the overlap between Scopus and OpenAlex is lesser (66%-68%), the matches are more precise and exact. In contrast, Dimensions struggles with its disambiguation process, leading to a significant number of profiles that do not match precisely and instead aggregate into individual profiles from other databases, creating inconsistencies. Future research will delve deeper into these discrepancies and evaluate their implications on bibliometric analyses at the author level.

Bibliometric Study on the Writings Authored by Zuo Qiu Ming: A Critical Response to the Claim of a Single Authorship for ZUOZHUAN and GUOYU.

Wenjie Hua (Wuhan University), Chucheng Wan (Sun Yat-sen University), Taiyu Wang (Wuhan University), Yang Xu (Nankai University), Rongjia Liu (Nankai University) and Yanxi Chen (Tianjin Medical University).

Abstract. The paper challenges traditional views on the single authorship of the ZUOZHUAN and GUOYU, proposing four bibliometric approaches to identify the authorship of these two ancient Chinese classics. Leveraging lexical and syntactic statistical methods, the study investigates narrative content and linguistic patterns. Lexically, it employs the Bert-Ancient-Chinese model to analyze function and non-function word usage, respectively through valency statistics and word frequency statistics, revealing significant stylistic differences between the texts. Syntactically, N-Gram models and part-of-speech dynamic chains are utilized to assess textual similarities. The four statistic results suggest that the authorship attribution based on the Book of Han's record may be inaccurate, concluding that ZUOZHUAN and GUOYU likely had different authors, challenging the long-standing notion of a single authorship—Zuo Qiu Ming.

Comparing scientific, policy and societal impact of climate change research: Interdisciplinarity and its influence.

Wenjing Xiong (Zhejiang University), Zhichao Fang (Renmin University of China) and Hui-Zhen Fu (Zhejiang University).

Abstract. Interdisciplinary research is increasingly regarded as the strategy for dealing with complex and comprehensive problems, attracting the attention of scientists, policymakers and the public. However, a comprehensive understanding of scientific, policy and societal impact from an interdisciplinary perspective of interdisciplinarity remains unclear. Taking the climate change research as sample, this study compared the differing influence of interdisciplinarity on scientific, policy, and societal impact, employing the indicators of integrated interdisciplinarity and its three components (variety, balance and disparity). The results showed that inverted U-shaped relationships were observed between interdisciplinarity and both scientific and policy impact, while a positive correlation was identified between interdisciplinarity and societal impact. In contrast to the positive impact of disparity on these impacts, variety exhibited a positive effect on scientific and policy impacts within a certain range, although the positive marginal effect diminished with increasing variety. Increased balance did not necessarily lead to higher scientific citations.

Detecting weak signals of potential disruptive technologies using SAOX semantic analysis and outlier detection method.

Xin Li (Beijing University of Technology), Ning Gao (Beijing University of Technology) and Qianqian Xie (Leiden University).

Abstract. Detecting weak signals of potential disruptive technologies and identifying disruptive technologies as early as possible is crucial for corporate R&D strategic layout and technological innovation strategic decisions. Patents are considered to be important carriers of disruptive technologies, and patent data may contain a large number of weak signals of potential disruptive technologies. In view of the current shortcomings of weak signals detection and patent semantic mining of potential disruptive technologies, we proposed a weak signals detection framework for potential disruptive technologies using SAOX structural semantic analysis and outlier detection method. Green hydrogen production technology was used as a case study to verify the feasibility and effectiveness of the framework. This paper provides a new research framework and insights for the early identification of disruptive technologies.

Reframing the Disruption index by incorporating citation intentions.

Xin Xie (Nanjing University) and Jiang Li (Nanjing University).

Abstract. This study proposes a feasible framework to combine the disruption index with citation intentions to further understand the progress of scientific advances. Our analyses are mainly based on the Semantic Scholar Academic Graph dataset, which provides classified intentions of background information, methodology and result comparison. In order to ensure the assessment accuracy, we focus on papers published from 1969 to 2019 and investigate the distributions and trends of both the three original indexes measuring disruption and the nine variants with intents. The results verify the claim that science is becoming less disruptive both from the overall perspective and from the viewpoint of three citing intentions. And we also prove the convergent validity of the disruption variants with intents through calculating Spearman rank correlations.

How does ClinicalTrials.gov Impact Company Innovation?

Yazhou Niu (Nanjing University).

Abstract. Pharmaceutical companies may have incentives to exaggerate the therapeutic effects of their developed products during the clinical stage, which endangers the health of patients. To increase transparency in clinical practice, the NIH established ClinicalTrials.gov in 2000, which indicates a significant impact on medicine. However, little evidence shows how ClinicalTrials.gov affects medical enterprises' innovation. By identifying the patent application activities through USPTO, Pubmed, and Compustat, we used coherent DID to prove the impact of ClinicalTrials.gov on innovation. We found that the emergence of ClinicalTrials.gov reduced the number of patent applications and led to a shift in R&D directions. This effect can also be moderated depending on firm size, probably because small companies are more incentivized to manipulate data. Hence, we suggest agencies could consider wide-ranging influences when formulating open science policies.

A Data Framework for Evaluating the Scientific and Socio-Economic Impact of Research Infrastructures in China.

Yizhan Li (National Science Library, CAS), Zhiqiang Wang (Department of Information Resources Management, School of Economics and Management, University of CAS), Qingqiang Wu (Department of Digital Media Technology, Xiamen University), Lu Dong (National Science Library, CAS) and Zexia Li (National Science Library, CAS).

Abstract. Quantitatively evaluating the operational status and the scientific and socio-economic impact is an effective method for assessing the efficiency of RIs. However, implementing objective and effective evaluation requires support from systematically organized, long-term, high-quality data. In this paper, we propose a thematic data framework for evaluating RIs, aiming to create a multi-tagged, fine-grained, and deeply correlated facility thematic dataset with the support of intelligent analytical tools. This model aims to achieve deep correlation among multi-dimensional data, encompassing strategic text, RI management, technical performance, scientific and technological outputs, and socio-economic impacts.

Are Funding Agencies lacking accountability of Equity, Diversity and Inclusion data?

Yohanna Juk (Universidade Estadual de Campinas), Karen E F Pinto (Universidade Estadual de Campinas), Sergio Salles-Filho (Universidade Estadual de Campinas), Bernardo Cabral (Universidade Federal da Bahia), Evandro Cristofolletti (Universidade Estadual de Campinas), Gabriela Tetzner (Universidade Estadual de Campinas) and Emily Campgnolli (Universidade Estadual de Campinas).

Abstract. Recent events have reinforced the need to implement responsible research assessments to address different inequalities in science, such as those based on gender, race, and language. Funding agencies (FAs) play a central role in either mitigating or perpetuating these inequities, with significant influence over societal priorities and policies. This study investigates how ten FAs worldwide are addressing Equity, Diversity, and Inclusion (EDI) in their funding activities, examining aspects beyond gender, including the existence of dedicated EDI departments, the implementation of bias-elimination guidelines in peer review processes, systematic evaluations of diversity data, and the public availability of such data. Although our analysis is confined to ten agencies, the findings aim to offer insights into broader EDI integration trends across the scientific funding landscape, revealing a shift towards a more intersectional approach to EDI among these entities.

Impact of Inter-Community Collaboration in Large-scale Research Infrastructures on Scientific Performance.

Ze-Xia Li (National Science Library, Chinese Academy of Sciences), Ming-Ze Zhang (National Science Library, Chinese Academy of Sciences) and Li-Li Wang (UNU-MERIT, Maastricht University).

Abstract. In the context of Large-scale Research Infrastructures (LSRIs), based on the publication data collected from five world-leading Synchrotron light sources, this study discovers that inter-community collaboration can improve academic teams' scientific performance. Specifically, LSRIs' staff scientists participating in users' teams assist in outputting more disruptive and novel scientific knowledge. However, as user-oriented facilities, the participation of staff is still at an underrepresented status. Therefore, more actions to construct collaborative relationships and encourage scientific communication and interactions between users and staff should be carried out in future research in LSRIs.

How does science influence policy? Insight into citation relationships between AI policies and research articles.

Zhe Cao (Wuhan University), Lin Zhang (Wuhan University), Ying Huang (Wuhan University) and Gunnar Sivertsen (Nordic Institute for Studies in Innovation, Research and Education (NIFU)).

Abstract. The importance of science-based policy support has been widely recognized, but how science influences policy remains insufficiently explored. This study aims to examine how policies cite research articles and trace the complex interplay between research and policymaking. Based on over 1.6 million citation links between articles and policies related to artificial intelligence (AI), diverse types of simple or intricate pathways of policies citing articles are identified. Whereas articles from EU countries primarily serve policymaking of inter-governmental organizations (IGOs) and EU, articles from USA significantly support both domestic and foreign policymaking. Notably, IGOs' policies are crucial intermediaries for articles to indirectly influence policymaking. Another finding is that natural science has increasingly participated in the formulation of AI-related policies. Besides providing these new observations, this contribution develops new concepts and methods for both the direct and indirect policy impact of research by taking into account how different policy formulations influence each other.