OPEN INNOVATION IN SCIENCE

OIS research conference

RESEARCH CONFERENCE @

The Space

2025
May 14–16

Vienna, Austria

ASSOCIATION FOR ADVANCING SCIENCE AND INNOVATION

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Welcome to the Open Innovation in Science (OIS) Research Conference 2025!

Collaborations between academia and industry have for decades been a cornerstone of scientific advancement, innovation, and impact. From technology transfer to licensing agreements and public-private partnerships, these traditional models have enabled valuable knowledge flows across sectors. Yet today, the context for collaboration is shifting. Technological advances, global crises, evolving policy landscapes, and growing societal expectations are prompting new questions about the adequacy of established models – and inspiring a variety of initiatives that experiment with alternative forms of engagement. As these developments unfold, we need to reflect: *Which models serve current and future needs best? What roles can openness and new forms of transdisciplinary collaboration play in academia-industry interaction? And under what conditions do new approaches offer real value – scientifically and societally?*

This year's special conference theme – "The Future of Academia–Industry Collaboration: Drivers, Opportunities, and Risks of Novel Forms of Engagement" – provides an opportunity to explore these questions in depth. We will discuss how evolving approaches – such as iterative co-creation, open sharing of research assets, and integrated feedback loops between scientists and companies – may shift not just the practice but also the purpose of collaboration. At the same time, we will examine the tensions these models may entail around issues like incentives, institutional logics, impact pathways, and boundary-spanning capabilities. We are particularly interested in the mechanisms and conditions under which more open and dynamic forms of engagement succeed – or struggle.

These reflections take on even greater significance against the backdrop of current geopolitical developments, including increased governmental influence over academic institutions and mounting threats to institutional autonomy. The recent experiences of U.S. universities – ranging from funding cuts to politically motivated constraints on research agendas – are not isolated events, but part of a broader pattern that highlights the fragility of values such as academic freedom, scientific independence, and open inquiry. As collaborations between science and industry become more intertwined, we need to understand how these developments intersect – both enabling and challenging new types of academia–industry partnerships and other forms of collaborations between scientists, researchers and societal actors.

While the 2025 theme offers a timely focal point, the conference continues to engage with the broader Open Innovation in Science agenda. Throughout the program, we explore related topics such as crowd and citizen science, transdisciplinary collaboration, and the role of AI in Open Science – helping us understand how openness can reshape not only how science is done, but also who is involved, whose knowledge is valued, and how research can achieve both scientific breakthrough and greater societal relevance.

We are also pleased to share that this year marks a new chapter for the conference: for the first time, the OIS Research Conference is being formally organized by the Association for Advancing Science and Innovation (www.a-asi.org) – a collaborative effort of the core organizing institutions from Copenhagen Business School (CBS), ESMT Berlin, and Warwick Business School (WBS). This formalization reflects our commitment to building a lasting platform for critical engagement, constructive experimentation, and cross-sector dialogue on the future of science and innovation.

As always, the success of the OIS Research Conference depends on you – our participants. Whether you are presenting a paper, sharing feedback, give impulses or engage in experimentation and discussion, your contributions create the energy and insight that define this event.

We are excited to have you with us in Vienna, and we look forward to the conversations ahead.

The Organizing Team

The Organizing Team

SUSANNE BECK

Assistant Professor

Warwick Business School

CHRISTOPH GRIMPE

Professor

Copenhagen Business School

MARION POETZ

Associate Professor

Copenhagen Business School

HENRY SAUERMANN

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European School of Management and Technology (ESMT) Berlin

The organizers of the OIS Research Conference 2025 warmly thank the following organizations for their support:

Contents

Keynote
by Scott Stern
May 14 | 12:30 – 13:30

Scott Stern

Scott is the David Sarnoff Professor of Management in the Technological Innovation, Entrepreneurship, and Strategic Management Group at the MIT Sloan School of Management. In his research, he explores how innovation and entrepreneurship differ from more traditional economic activities, and the consequences of these differences for strategy and policy. Recent studies include the impact of university research on both the quantity and quality of entrepreneurship, the drivers and consequences of entrepreneurial strategy, the impact of regional clusters, and the role of institutions in shaping the accumulation of scientific and technical knowledge. Scott has worked widely with practitioners in bridging the gap between academic research and the practice of innovation and entrepreneurship. In 2018, he joined the National Academies of Science, Engineering, and Medicine's Board on Science Technology and Economic Policy (STEP).

Keynote on special conference theme:
The Private and Social Returns to Innovation Networks: A Marginal Approach

There is a large positive gap between the social versus private returns to innovation, arising in large part from the presence of innovation spillovers. These spillovers are, in turn, mediated by the structure of social networks, in which the (formal and informal) relationships between researchers shape the diffusion of knowledge. Importantly, both the density and structure of these networks are not randomly assigned, but reflect the choices of individuals within that network to (endogenously) form specific network connections. To the extent that the private incentive to form a network connection does not fully account for the potential innovation spillovers that might result from that connection, the private incentives for network formation will be too low (and distorted in particular ways). Building on the development of network tools for marginal network analysis (notably, Elliott and Golub (2019)), it is possible to use an analysis of the eigenvalues of the marginal network matrix to obtain sharp results about the relative social optimality of a particular network configuration. Specifically, under conditions that are reasonable for the study of innovation networks, a particular innovation network will be socially optimal if (and only if) the maximal eigenvalue associated with the marginal network matrix is equal to 1. This striking result arises from the way in which the maximal eigenvalue aggregates the marginal benefit analysis at each node to a measure of the marginal social impact of a given network structure. A consideration of specific examples suggests that there may be significant underinvestment in network formation, and that a marginal networks approach to characterizing the gap between the private versus social returns to network formation offers novel insight for the study of innovation and science.

OIS Experimentation Session

May 15 | 13:30 – 14:30

Each year, participants of the OIS Research Conference are given the opportunity to experiment with and reflect upon novel approaches to incorporating open and collaborative practices related to the special conference theme. This year, we focus on drivers, opportunities and risks of novel forms of academia-industry collaboration.

We will explore a growing tension at the core of emerging open university-industry collaboration platforms: how openly should the outcomes of co-created research be shared to achieve the goals of translation, innovation, and societal impact - while minimizing unintended collaboration barriers? As new forms of engagement promise more dynamic ways of working together, the experiment invites participants to explore the risks, limits, and possibilities of openness itself. The answers may challenge widely held assumptions – and shape future directions for Open Science platforms and other emerging university-industry collaboration models.

OIS Debate (co-sponsored by AOM TIM Division):
The Future of Academia-Industry Collaboration: Drivers, Opportunities, and Risks of Novel Forms of Engagement

May 15 | 14:30 – 16:00

Moderator: Henry Sauermann

PANELISTS

Marie Louise Conradsen

Marie Louise is the Head of the AU Center for Open Innovation in Science in the Dean's Office, Natural Sciences at Aarhus University. Her center hosts and operates the ODIN and Plant2Food Open Innovation in Science platforms, facilitating open and collaborative research projects on precompetitive drug discovery and plant-based food. Marie Louise works closely with the university's tech transfer office to identify how and when different combinations of proprietary and open mechanisms will create most impact from university's research. Collaborating in several international research projects, she also aims to map the anatomy of open university-industry collaborations and explore the link between openness and commercialisation – and to find new practices for cross-organisational collaboration. She holds a PhD from Copenhagen Business School and a MSc in Molecular Biology and The History of Science from Aarhus University.

Thomas Durcan

Thomas is an Associate Professor at McGill University and Director of the Early Drug Discovery Unit (EDDU) at The Neuro. His research focus is on applying patient-derived stem cells towards the development of phenotypic discovery assays and 3D organoid models for both neurodegenerative and neurodevelopmental disorders. As director of EDDU, he oversees a team of over 25+ research staff and students, committed to applying novel stem cell technology, combined with CRISPR genome editing, organoid models, and novel multiOmics approaches towards elucidating the underlying causes of these complex disorders. Partnering with industry, the Open Science platform's goal is to accelerate the development of new therapeutics for the clinic. In 2019, he was the first recipient of the "The Cyril and Dorothy, Joel and Jill Reitman Foundation Prize for Open Science in Action". Thomas is also a Neuro Killam Scholar and a recipient of the Neuro Killam Trust Memorial Fund.

Lee Fleming

Lee is at UC Berkeley in Industrial Engineering and Operations Research in engineering and Management of Organizations in the Haas School of Business. His latest work provides a causal model of science and technology knowledge spillovers, a longitudinal and field-wide analysis of image duplication fraud in Alzheimer's research, evidence for the value of government investment in research, and a linked database of inventors and scientists that illustrates how Pasteur Quadrant Researchers (PQRs) provide increased novelty and impact across both technology and science. His dissertation developed theories of invention as recombinant search processes across complex spaces. Between 1998–2011 he served (ultimately) as the Albert J. Weatherhead III Professor of Business at Harvard. He founded and served at UC Berkeley as the Director of the Fung Institute for Engineering Leadership from 2011–2021.

Maria-Theresa Norn

Maria-Theresa is an Associate Professor and Head of Scientific Advice at the Centre for Technology Entrepreneurship at the Technical University of Denmark (DTU). She is also affiliated with the Danish Centre for Studies in Research and Research Policy at Aarhus University. Her research explores systemic enablers and barriers to science-based entrepreneurship and innovation, with a particular focus on university-industry collaboration, technology entrepreneurship and entrepreneurial ecosystems. She has a strong interest in Open Innovation in Science, specializing in open science partnerships. She has previously worked as part of the management team of a Danish nonprofit think tank on science, innovation and education policy, in a private policy consultancy, and continues to serve on various policy-oriented expert panels and committees.

Brian Uzzi

Brian is the Richard L. Thomas Professor of Leadership at the Kellogg School of Management, Northwestern University. He co-directs the Northwestern Institute on Complex Systems (NICO), The Ryan Institute on Complexity, and holds professorships in sociology and the Mc Cormick School of Engineering. His research uses social network science and computational methods to explain outstanding human achievement. He received various teaching and scientific research prizes worldwide in the social, physical, and computer sciences. He also consults organizations and governments in over 35 countries.

OIS Junior Paper Development Workshop
(co-sponsored by Warwick Business School):
May 16 | 13:30 – 16:00

Moderator: Christoph Grimpe

Junior PDW reloaded! After last year's success we continue with the Junior Paper Development Workshop format to help junior scholars (PhD students and Post-docs) advance research ideas and papers on openness and collaboration in science and science-based innovation.

We kick-off the session with a panel discussion in which our mentors from the OIS community share their insights on navigating their early career journey and discuss career-related questions from the audience. In the subsequent roundtables, mentors discuss and provide feedback on early-stage and advanced work.

This year's mentors are:

- **Pablo D'Este** (INGENIO (CSIC-UPV), Polytechnic University of Valencia)
- **Lee Fleming** (UC Berkeley)
- **Stijn Kelchtermans** (KU Leuven)
- **Olga Kokshagina** (University of Sydney & Learning Planet Institute)
- **Cindy Lopes Bento** (KU Leuven)
- **Brian Uzzi** (Kellogg School of Management, Northwestern University)

Thank you very much for your support!

Paper 1:
The Republic of Translationational Medicine

Johnathon Liddicoat, James Parish, Mateo Aboy

This paper introduces a new theory explaining a 'hidden' yet productive pharmaceutical innovation system. The theory challenges the traditional view that pharmaceutical companies and patents are necessary for drug development. Conventional theories assert that patents are crucial for companies to recoup the high costs of clinical trials. However, recent empirical evidence reveals that hospitals and universities are conducting numerous late-stage (phase II and III) trials for new uses of existing drugs without patent protection. This paper explains how non-market incentives, namely, a combination of open science and user innovation, encourage clinicians, scientists, and patients to engage in the process.

Theorists typically assume that hospitals and universities cannot surmount the barriers to drug development, especially the scientific expertise and financial costs. However, this paper assembles evidence demonstrating that the barriers to conducting clinical trials are significantly lower than commonly perceived. For example, hospitals and universities spend less than 10% of pharmaceutical companies on trials.

Two benefits of hospital and university drug development are that it will almost certainly lead to (i) cheap(er) treatments that (ii) pharmaceutical companies are not interested in. Aware of these advantages (but not the details of this theory), the EU, US, Australian and UK governments have begun piloting systems to convert results from hospital and university trials into new authorised treatments. However, whether society realises the systems potential depends on how well policymakers understand it.

After outlining the theory and system, this paper aims to lay a path for future research by outlining three research topics: (i) fundamentals, focussing on incentives and the productivity of the system; (ii) whether the system is a model for producing new treatments and whether this model complements and conflicts with the conventional model built on market incentives; and (iii) improvements to the systems, which includes some fundamental issues in science, such as publication of trial results. These topics indisputably build on aspects of the modern, dynamic innovation ecosystem, such as co-creation between patients, scientists, and clinicians, as well as open sharing and re-use of data using new technologies. At the same time, though, the theory raises the unexpected policy option of minimising or excluding academic-industry collaborations from the development process. This issue must be explored in future research, too.

Paper 2:
The end of dilemmas: Joint U-I labs as a collective way to create Open Innovation in Science

Elise Ratier, Quentin Plantec, Pascal Le Masson, Benoît Weil

While the benefits of university-industry collaborations (UICs) are well-documented, the mechanisms that enable these partnerships to simultaneously achieve scientific discovery and technological invention remain underexplored. This study investigates the management processes of joint university-industry (U-I) labs (Meissner et al. 2022), a distinct organizational model for UICs designed to deliver both academic and industrial impact. Drawing on 40 interviews and extensive secondary data from 13 joint U-I labs managed by the French National Centre for Scientific Research (CNRS), we identify the managerial conditions that foster an optimal balance between proximity and independence among academic and industrial stakeholders.

This balance emerges as a cornerstone for leveraging mutual benefits, allowing stakeholders to sequentially draw on each other's ideas and resources. The key management conditions include dual institutional embeddedness, annual or on-demand adjustments to the research program, proportional resource
contributions, and a progressive selectivity in partner engagement through prior internships and PhD collaborations before establishing the joint lab. Together, these elements ensure that joint U-I labs mitigate typical UIC challenges such as cultural misalignment and conflicting objectives, while maintaining flexibility and fostering innovation and new scientific questions.

Our findings reveal four mechanisms underlying the success of joint U-I labs: resource accumulation, administrative simplification, exploration of the unknown, and balancing proximity with stakeholder independence. These mechanisms allow labs to mobilize diverse resources, streamline collaboration processes, and create a shared yet flexible research agenda. Additionally, by fostering both cognitive and organizational proximity while preserving the independence of academic and industrial actors, joint U-I labs overcome typical challenges in UICs, such as cultural misalignment and goal divergence.

This research contributes to UIC (Rybnicek and Königsgruber 2019) and the Open Innovation in Science (Beck et al. 2022) literature in three ways. First, it refines the understanding of managerial micro-foundations within joint U-I labs, offering insights into their unique capacity to sustain double objectives over time. Second, it highlights the importance of hybrid governance models in achieving longevity and mutual satisfaction for academic and industrial stakeholders. Finally, it expands the open innovation and science theory by presenting a framework for team-level management that balances proximity and independence at a team level. This framework transcends the use-inspired basic research model (Stokes 1997), situating U-I collaborations within the broader paradigm of Open Innovation in Science (OIS).

Paper 3:
The effect of publicly co-funded industry-science collaboration on scientific production

Cindy Lopes Bento, Paul Hünermund, Maikel Pellens

The paper investigates the impact of publicly co-funded industry-science collaboration programs on scientific productivity and direction. These programs are designed to integrate competitive research funding with science commercialization policies, aiming to stimulate collaboration between academic researchers and firms. While previous studies have focused on their effect on firm growth and commercialization, this research examines their implications for academic scientists' knowledge production
and research agenda.

Using a unique methodology, the authors leverage a budget allocation mechanism that introduces exogenous variation in funding decisions. This design allows for robust causal inference beyond the constraints of traditional regression discontinuity designs. The analysis covers 682 principal investigators (PIs) participating in the program under review, examining their publication, citation, and patent records before and after their involvement in the program.

Key findings indicate that participation in the program leads to an increase in top-tier scientific publications without negatively impacting the direction of research agendas or overall productivity. Notably, the additional publications stem from collaborations with industry co-authors, highlighting knowledge spillovers as a driving mechanism rather than increased lab capacity or expanded academic networks. This suggests that the programs benefits are tied to the quality and nature of collaborations rather than simply providing financial resources.

Interestingly, less established scientists appear to benefit more significantly from these collaborations, indicating that such programs may help early-career researchers enhance their visibility and impact. Moreover, the effect varies across disciplines, with researchers in fields like information and communication technologies experiencing stronger positive outcomes.

The study concludes that industry-science collaborations under Eurostars complement rather than substitute traditional academic research. By fostering high-quality outputs without redirecting research agendas, these collaborations demonstrate the potential to bridge academic and commercial goals effectively. However, the authors caution that their findings are contextual, relying on a landscape where traditional research grants coexist with translational programs. Further research is recommended to explore cross-program complementarities, long-term effects on scientific networks, and broader policy implications.

Paper Session 2: Science-Innovation Nexus

May 14 | 16:00 – 17:30

Chair: Christoph Grimpe

Discussant: Hans Christian Kongsted & Maria-Theresa Norn

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Paper 4:
A scientist-inventor crosswalk

Emma Scharfmann, Matt Marx, Lee Fleming

We describe and provide a new dataset of researchers who publish science and invent a U.S. patent, from 1976 to 2023. We describe the cross-walk of these individuals' fields of science and classes of technology, institutional and organizational affiliations, consistently high geographic concentration and shift towards wealthy and western counties within the U.S. The two-corpora linkage of careers enables large sample evidence of researchers who create greater novelty and impact, across both science and technology, relative to pure scientists or pure inventors.

Paper 5:
The evolution of corporate science in Europe: Characterizing publication patterns and scientific novelty

Alejandro Raga Espinosa, Oscar Llopis

This study examines the phenomenon of Corporate Science (CS), defined as private, for-profit firms engaging in scientific publication, with a specific focus on the European context. Existing research on CS has primarily centered on three perspectives: descriptive studies of corporate publishing activity, organizational aspects behind scientific publishing, and the consequences of corporate science. However, two critical aspects remain understudied: the nature of scientific output produced by for-profit firms and its potential technological impact, as well as the scarcity of studies in non-US contexts, particularly in Europe.

To address these gaps, this study poses two fundamental research questions: what are the key stylized facts about corporate science in Europe, and what is the degree of novelty and disruptiveness of corporate science produced in Europe. The proposed methodology combines different datasets, including OpenAlex to compile articles published by EU companies, and Orbis for financial and ownership information at the firm level. The study will implement novelty and scientific disruption indicators following established methodologies to compare corporate publications with those from traditional academic institutions.

Prior research has primarily relied on citation or journal-based metrics, such as total citations or journal impact factor, to assess the impact of corporate scientific output. However, other crucial dimensions of corporate science, such as its degree of novelty or disruption, remain largely unexplored. Additionally, the limited focus on non-US contexts has led to a significant knowledge gap in understanding regional specificities, particularly in Europe, where the European Paradox – the observed gap between strong scientific output and comparatively weaker industrial innovation performance – presents a unique research opportunity.

The research aims to advance our understanding of corporate science in three ways: by developing and analyzing an extensive dataset of European corporate publications, by assessing the novelty and disruption of corporate scientific output beyond traditional citation-based metrics, and by providing systematic evidence on how industrial scientists contribute to the scientific community in terms of scientific output.

Paper 6:
Scientists in Stokes' Quadrants: Unveiling research impact, collaboration, and competition

Carolin Haeussler, Charlotte Musso, Maria P. Roche

Scientific research is widely recognized as the cornerstone of innovation and societal progress (Adams, 1990; Jaffe, 1989; Fleming and Sorenson, 2004). The diverse nature of scientific activities – spanning basic, applied, use-inspired, and curiosity-driven research – raises critical questions about how these approaches shape discovery and impact. Over the past decade, research funding increasingly focuses on applicability and measurable outcomes (Franzoni et al., 2022). Concerns about the declining disruptiveness of scientific research (Zeng et al., 2023; Bloom et al., 2020) have fueled debates about whether current priorities adequately support transformative discoveries. However, significant gaps remain in our understanding of (1) how different types of research are linked to diverse outcomes, ranging from generating novel discoveries to enabling new applications, and (2) how these research types interact with collaborative and competitive dynamics within the scientific production process.

This paper addresses this question by analyzing researchers that can be situated in Stokes quadrant model (Stokes, 1997). Bohr's Quadrant represents fundamental inquiries; Edison's Quadrant focuses on applications, and Pasteur's Quadrant combines both into use-inspired science. The "Unclassified Quadrant," neither primarily application-driven nor focused on fundamental understanding, has received limited attention. Recent work by Narayanamurti and Tsao (2023) suggests this quadrant may have been overlooked in its power to advance science, warranting further investigation.

Drawing on a 2014 survey of 8,409 researchers across nine disciplines and career stages (Thursby et al., 2018) and bibliometric data from Dimensions AI, this paper examines the relationship between quadrant categorization, competitive pressures, collaborative practices, and various types of research impact. In doing so, we assess a range of different outcome measures such as scientific quantity, quality, level of disruptive science (Zeng et al., 2023) and patent citations to science (Marx and Fuegi, 2020) to explore paradigm-shifting discoveries and translational impact.

Preliminary findings show that Pasteur and Edison Quadrant researchers are highly productive but have fewer extreme outliers in impactful contributions. Pasteur researchers are notably collaborative, particularly in information exchange and sharing feedback, but face intense competition for funding and publishing. Edison researchers demonstrate moderate collaboration openness, with competitive pressures primarily focused on industry and commercialization. Bohr Quadrant researchers have lower productivity but excel in quality through occasional transformative contributions, standing out for their high collaboration within scientific networks, while facing strong competition in funding and publications. The "Unclassified Quadrant," with moderate productivity but high quality, reflects untapped potential for fostering innovative advancements but operates with limited collaboration and low competition, pointing to being a host for "curiosity-driven" types of researchers.

These findings underscore the importance of maintaining diverse research approaches to drive innovation and societal progress. Each quadrant demonstrates unique dynamics in productivity, impact, collaboration, and competition, shaped by distinct pressures and practices. By highlighting the different contributions of each quadrant, particularly the underexplored Unclassified Quadrant, this paper informs science policy and funding strategies. It advocates for a more nuanced and inclusive research ecosystem that better supports transformative discoveries across all types of science.

Paper 7:
Balancing societal and scientific impact: Investigating the role of public and patient involvement (PPI) in medical research

Paul Emmanuel Anckaert, Egor Burda, Christoph Grimpe, Paul Hünermund, Marion Poetz, Rossella Salandra

Governments, funding agencies, and scientific journals increasingly advocate for collaboration between scientists and non-scientific stakeholders to enhance the impact of scientific research (European Commission, 2024; Fecher & Hebing, 2021; Pham, 2016; Russell et al., 2020). Efforts to open the scientific research process via citizen or crowd science approaches have indeed yielded many benefits, such as supplying labour and resources and enabling access to diverse knowledge inputs (e.g., Beck et al., 2022; Sauermann & Franzoni, 2015). In the medical sciences, patients and members of the public are frequently engaged as co-producers of research, leveraging their direct experiences to steer scientific inquiry towards particularly relevant issues (Aiyegbusi et al., 2023; Baumann et al., 2022). However, while such involvement is expected to increase societal relevance, concerns remain regarding its effects on research rigor and scientific impact (Beck et al., 2024; Burns et al., 2021; Franzoni et al., 2021; Weingart et al., 2021). Ultimately, patient and public involvement (PPI) is a challenging task. It requires additional resource commitments (Beck et al., 2022) and complex scientific concepts might be difficult to communicate to non-scientific actors (Pham, 2016). Hence, involving non-scientific stakeholders may also hinder scientific progress (Burns et al., 2021). In that sense, our understanding of the actual effect of patient and public involvement (PPI) on scientific research in terms of both its scientific and societal impact is limited – a research question this study aims to investigate.

We investigate this question through two complementary empirical studies in the context of medical research. Here, it is common for PPI initiatives to follow a 'user crowd' paradigm, whereby users of science, typically patients, bring experiential knowledge to the research project (Beck et al., 2022; Poetz and Sauermann, 2024). These personal connections to the research topic are central to PPI initiatives, defined as "research being carried out 'with' or 'by' members of the public rather than 'to', 'about' or 'for' them" (NIHR, 2021). Such contributions may encompass various activities, including study design, data analysis, manuscript drafting and dissemination.

Study 1 leverages a natural experiment based on data on publications in the British Medical Journal (BMJ), one of the most prestigious medical journals. In 2014, the BMJ adopted a new patient and public partnership strategy to promote the co-creation of scientific research, which consists of two elements. First, authors submitting research papers are required to document if and how they involved patients and the public in their work or justify the lack thereof. This information is then included in the published version of the article. Second, in addition to traditional peer review, the submitted research papers are also being sent for peer review by patient and public reviewers. We seek to leverage this information to study the actual effect that patient and public involvement had on scientific (i.e., citations in scientific literature), policy (i.e., citations in policy documents, such as clinical practice guidelines), and societal (i.e., mentions in social media and news outlets) impact of co-produced BMJ articles.

Study 2 draws on articles published in the BMJ Open, which also requires authors to acknowledge whether the study involved patients and/or the public. As articles with PPI may systematically differ from those without (e.g., Lang et al., 2022), we build a carefully matched sample and account for researcher-specific characteristics to explore the effect of patient and public involvement on the scientific and policy impact of the focal papers. We seek to expand this initial investigation in several ways: Using text analysis, we aim to categorise the types and extent of PPI in the articles under study. We will also analyse referees' reports to explore how PPI shapes their evaluations.

Paper 8:
Leveraging the collaborative power of AI and citizen science for sustainable development

Dilek Fraisl, Linda See, Muki Haklay, Steffen Fritz, Ian McCallum

The United Nations (UN) Sustainable Development Goals (SDGs) were launched in 2015 to steer global development efforts towards achieving sustainability by 2030. However, as this deadline approaches, many countries have failed to produce the data needed to track progress in SDG achievement. For example, data are still lacking for around half of the 92 environmental SDG indicators, while only 15% of targets are on track to be met by 2030, with all SDG targets having insufficient data. Other issues include poor data quality, lack of data sharing, infrequent data collection and the lack of disaggregated data, which makes the targeting of local interventions difficult.

To address these challenges, attention has turned to the use of alternative data sources, such as remotely sensed data, mobile data and citizen science. Successful examples that use data from citizen science have already been demonstrated for SDGs 3, 11, 14 and 15, with increasing interest from the UN and National Statistical Offices (NSOs) to engage with citizen science initiatives. However, barriers related to perceived data quality, the lack of data representativeness, the lack of awareness of citizen science, the capacity to handle these data and the absence of national legal frameworks continue to hinder the integration of citizen science data into SDG monitoring and reporting.

In parallel, recent advancements in artificial intelligence (AI) through the emergence of new generative AI tools have created considerable interest in understanding how AI can benefit sustainable development and overcome many of the data challenges faced by NSOs and international organizations. AI has the potential to enhance human well-being, boost economic productivity, foster innovation and assist in addressing major global issues, including hunger, climate change, health and education, all of which are relevant to SDGs. However, the use of AI also comes with many challenges and risks, including the financial and environmental costs and unequal access to technology, but there are also biases in the data used to train the models, which can lead to the creation of unreliable responses (so-called hallucinations) and even the generation of deliberate misinformation. Citizen science can help overcome some of these challenges by providing data that recognize the unique characteristics of local contexts and increase public engagement with the technology while addressing large data gaps in the SDG framework.

In this presentation, we discuss the roles that AI and citizen science have and could play in the context of the SDGs, and how their integration can address barriers and risks related to their individual adoption. First, we consider the ways in which AI technologies are and could be integrated into citizen science initiatives, now and in the future, particularly in light of recent developments in generative AI. We then discuss the converse situation, highlighting the need to incorporate citizen science methodologies into AI systems, which could address challenges relevant for use of AI technology for the SDGs. Finally, we present a roadmap for harnessing the collaborative power of AI and citizen science for sustainable development.

Paper 9:
No crowdless future? Potential roles of AI in different crowd paradigms

Linus Dahlander, Henry Sauermann

As artificial intelligence (AI) continues to reshape the landscape of scientific research, its integration with crowdsourcing – a vital element of open innovation in science – offers both opportunities and challenges. Crowdsourcing paradigms have traditionally relied on human contributors for diverse tasks, ranging from large-scale data collection to ideation and problem-solving. With AI's rapid advancements, its role to automate, augment, or manage crowds necessitates a deeper exploration of the implications for scientific progress.

We build on Beck et al. (2022) by categorizing crowdsourcing into five distinct paradigms: crowd volume, broadcast search, user crowds, community production, and crowd wisdom. We then argue that each paradigm is characterized by dimensions such as task nature (physical vs. cognitive), complexity, routinization, types of inputs (knowledge, preferences, effort), knowledge explicitness (explicit vs. tacit), and the nature of contributions (independent, pooled, interdependent). These dimensions not only define the rationale for involving crowds but also shape how AI can be effectively integrated.

For example, in the crowd volume paradigm, exemplified by crowd science projects like eBird, AI may enhance task scalability by automating data processing and providing real-time feedback to improve human observations. Here, AI's strengths lie in instantaneous processing, accuracy in routine tasks, and the ability to manage large-scale participation. In the broadcast search paradigm, AI may play a dual role by generating novel solutions and supporting human creativity, but challenges emerge in preserving diversity and fostering innovation. Similarly, in community production, AI may be most useful in assisting collaborative efforts by organizing discussions, structuring tasks, and enhancing the integration of distributed knowledge.

Our conceptual framework highlights the specific AI capabilities that align with each paradigm and dimension, offering a structured lens for evaluating the evolving relationship between humans and machines. AI's ability to process vast amounts of data, interact dynamically with contributors, and manage complex workflows introduces efficiencies but also raises ethical and practical considerations, particularly regarding trust, transparency, and the risk of human skill erosion.

We argue that the future of crowdsourcing in science lies in hybrid models where AI and human contributors work in tandem. Tasks requiring tacit knowledge, ethical judgment, and diversity remain uniquely human domains, even as AI advances. This balance is crucial for sustaining the inclusivity, creativity, and engagement that underpin the success of open innovation initiatives.

By providing a comprehensive mapping of AI's potential across crowdsourcing paradigms, this research contributes to the discourse on open innovation in science. It may ultimately equip researchers, policymakers, and practitioners with actionable insights for designing AI-integrated crowdsourcing initiatives that not only enhance scientific output but also preserve the social and educational benefits of human participation.

Paper Session 4: Organizational Design for Openness and Collaboration in Science

May 15 | 11:00 – 12:30

Chair: Christoph Grimpe
Discussant: Despoina Filiou & Paolo V. Leone

Paper 10:
Building Open Science ecosystems: Insights from the iGEM synthetic biology competitiont

Olga Kokshagina, Marc Santolini

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An increasing number of institutions globally are fostering Open Science (OS) as a research approach. For example, OS is mandatory under Horizon Europe, operating on the principle of being "as open as possible, as closed as necessary." OS encourages collaboration across academia, industry, public authorities, and citizen groups, often relying on open communities of contributors organized beyond traditional boundaries (Franzoni & Sauermann, 2014; Poetz & Sauermann, 2024; Gulati et al., 2012). These ecosystems are characterized by self-organized, bottom-up processes, collective problem-solving, emerging roles and norms, and open development (Nielsen, 2011).

Under the umbrella of open innovation in science, studies of Crowd Science have gained traction among researchers and practitioners (Beck et al., 2022). These ecosystems challenge conventional notions of who conducts science and what constitutes good science. While participatory science initially focused on structured data collection, extreme citizen science has shown how stakeholder involvement enables co-defining research questions with those possessing participatory knowledge (Haklay, 2018). Such approaches have a long history in agricultural sciences (Chambers, 1994) and have expanded into fields like geography (Rowland, 2012), medical research (e.g., monitoring self-reported symptoms; Greshake Tzovaras et al., 2021), and life sciences (Kokshagina, 2021). The rise of open and participatory ecosystems has coincided with the proliferation of third places, makerspaces, fab labs, and collaborative platforms. These physical or online spaces foster transdisciplinary collaboration, where projects emerge and evolve. The quality of participation in knowledge creation, prototyping, and informal relational processes generates cohesion and impact, which traditional institutional structures may overlook. However, embracing these practices is challenging: a) researchers often lack training in collaborative and participatory methods; b) non-scientific participants may struggle with data collection and analysis, leading to low-quality contributions; c) sustaining open collaborative initiatives incurs high coordination costs. Implementing OS effectively requires shifts in researcher, disciplinary, and institutional practices, affecting multiple levels of the research landscape. Understanding these ecosystems is crucial.

This research investigates one of the largest collaborative OS ecosystems: the international Genetically Engineered Machines (iGEM) competition in synthetic biology, active since 2003. iGEM has become a cornerstone of the field, promoting open, collaborative solutions to real-world problems using standardized DNA elements (BioBricks). The competition fosters community-based learning, emphasizing ethical and safety considerations. Since its inception with five teams, iGEM has grown to include over 4,300 teams from 40 countries, contributing significantly to synthetic biology innovation and producing alumni who often launch startups (Jainarayanan et al., 2021). Teams annually use BioBricks to create solutions, culminating in a Jamboree where projects are judged based on collaboration and documentation, with wikis serving as key evaluation tools. These data enable analysis of collaboration networks and the impact of OS in synthetic biology (Santolini et al., 2023). This study conducts an ethnography of iGEMs evolution, analyzing secondary data, including team publications (Jainarayanan et al., 2021), competition rule changes, BioBricks (Santolini et al., 2023), and iGEM EPIC's mapping of startups (2021). We develop a timeline of iGEMs key milestones and compare historical data with current practices through interviews with teams. Findings offer insights into rule changes, organizational dynamics, and stakeholder engagement, contributing to understanding the interplay between iGEM and its broader socio-economic, cultural, and technological contexts.

Paper 11:
Exploring professional identity transformation of scientists through capability-building interventions

Veronika Kentošová, Marion Poetz, Agnieszka Radziwon

Technological advancements, along with social and systemic changes, often necessitate professionals to transform their identities (Perez et al., 2024; Kyratsis et al., 2017), as these developments usually require modifications to their activities and the development of new capabilities (Raste & Murthy, 2024; Reay et al., 2017). Despite the common belief that external forces influencing professional identities present innovation opportunities, such forces are sometimes misinterpreted or unrecognized due to professionals' extensive and specialized knowledge – a phenomenon described as the "professional paradox" (Nelson & Irwin, 2014). This paradox is particularly evident in the scientific profession, where an individual's unique set of knowledge and skills – central to their professional identity – may not always align with the acceptance of innovative initiatives and often provoke skepticism or even reluctance (Lifshitz-Assaf, 2018).

While existing literature on professional identity transformation predominantly focuses on role transitions (e.g., Ashforth, 2000; Tansley & Tietze, 2013; Conroy & OLeary-Kelly, 2014), work- and task-related changes (e.g., Morales & Lambert, 2013; Nelson & Irwin, 2014; Perez et al., 2024), and professional role socialization (e.g., Ho, 2009; Becker, 1961; Becker & Geer, 1958), to the best of our knowledge, it offers limited insight into how organizations can address the professional paradox, as well as mitigate and facilitate tensions involved in professional identity transformation.

To address this gap, our paper explores the role of organizational interventions (von Thiele Schwarz et al., 2021) in identity transformation. As professional identity is strongly shaped by training and education (Lamb & Davidson, 2005), we focus on the role of capability-building interventions (Lambert et al., 2022), addressing the following research question: How can capability-building interventions influence the transformation of professional identities?

We draw on data from a capability-building program in Germany and Austria, designed to help scientists experiment with open and collaborative science principles. Using a qualitative longitudinal approach, we analyze professional identity transformation across three stages: before, during, and after the program. Our data sources include interviews, ego network maps, observations, surveys, motivational letters, CVs, and professional online profiles.

Insights from our study have the potential to extend identity theory (Stryker, 1987; Thatcher & Zhu, 2006; Stets & Burke, 2000) and professional identity theory (Stets & Serpe, 2013; Chreim, Williams & Hinings, 2007; Ashforth, Harrison & Corley, 2008) by illustrating how capability-building interventions (Lambert et al., 2022) shape professional identity transformation (Pratt, Rockmann & Kaufmann, 2006; Jain, George & Maltarich, 2009; Perez et al., 2024). Additionally, our empirical evidence contributes to understanding the role of such interventions in promoting open and collaborative science practices, their influence on professional identity transformation, and the mitigation of professional misinterpretations of innovative initiatives (e.g., Nelson & Irwin, 2014; Lifshitz-Assaf, 2018), particularly within highly autonomous professions (Mieg, 2022). In addition, we provide practical insights for policymakers and practitioners interested in implementing open and collaborative science initiatives, particularly through training and professional development programs.

Paper 12:
Moral imperatives of novel industry-academic collaboration networks: Rise and fall of external legitimacy in value ambiguity

Robin Gustafsson, Sirkka L. Jarvenpaa

How do evolving moral imperatives influence legitimacy judgments when decision rights of innovation policy shift from governmental control to industry-academic collaboration networks? Such shifts, supported by market-creating policies, are often expected to enhance economies by bolstering innovation competitiveness, increasing employment, and improving overall national prosperity (Boon & Edler, 2018; Mazzucato, 2016). These trends are evident in recent national AI policies, where governments have relinquished control over public funding allocations for AI technologies (Silva et al., 2025). A parallel can be observed in the hydrogen economy, where decisions regarding substantial public investments have moved outside governmental control, relying on assumptions rather than evidence of technological performance and societal benefits.

To explore these dynamics, we examined two large industry-academic collaboration networks by conducting interviews with network leaders, researchers, and external stakeholders; attending meetings; and analyzing documents from 2008 to 2014. We also conducted retrospective interviews in 2016 and 2017. This period encompassed the formation and subsequent decline of two networks established under a novel national funding instrument. Much like the current scenarios in the AI and hydrogen economies, these networks were designed to address major technological transformations and rejuvenate two critical industry sectors upon which the national economy heavily depended. The public funder granted these networks significant autonomy, allowing them to define their innovation portfolios, organize collaboration, and evaluate outputs independently. The transfer of decision-making authority – the license to operate – was intended to encourage risk-taking and foster unconventional organizational and governance approaches. However, the values against which these networks' performance would be judged were deliberately left undefined.

Over the eight years of our study, we documented how the values of key external stakeholders, including ministry officers, policy-makers, and politicians, evolved, shifting focus among breakthrough research, engagement with small and medium-sized enterprises, international collaboration, and commercialization. This multiplicity and fluidity of values introduced ambiguity, resulting in unstable legitimacy for both the networks and the public funder. The funding agency, having ceded its decision-making authority, also lost control over the value systems to establish credible criteria for evaluating the networks' legitimacy – particularly moral legitimacy – sufficient to satisfy politicians, media, industry leaders, and academic institutions.

Even the network that had garnered considerable relational legitimacy through its stewardship and collaboration with policymakers failed to achieve taken-for-granted legitimacy. Consequently, both innovation networks faced external challenges and were abruptly cut off from government subsidies.

Current models of legitimacy work do not adequately address the ambiguous value conditions faced by institutionally innovative but also institutionally contested entities (Deephouse, et al., 2017; Suddaby, Bitektine, & Haack, 2017). Existing frameworks for industry-academic networks and ecosystems focus primarily on internal legitimacy (Granstrand, & Holgersson, 2020; Thomas & Ritala, 2022). Our study contributes to the open innovation literature by theorizing about novel collaboration models operating within ambiguous value environments, exploring the actions and interactions that foster legitimacy as well as the conditions that precipitate its decline among collaboration networks, policymakers, and the public.

Paper 13:
The governance of open science: A comparative analysis of two open science consortia

Ellen Abrams, Paolo V. Leone, Alberto Cambrosio, Samer Faraj

Recent open science efforts recognize that the efficient, credible, and transparent development of scientific knowledge relies on the capacity to verify and reuse the "intermediate resources" employed throughout the research process, including data, computer code, and other research material. Prior research has shown that the disclosure of such resources is often hindered by the incentives and disincentives perceived by individual scientists. Beyond the level of individual incentives, however, the sharing of intermediate resources is obstructed by the governance norms that inform these incentives in the first place, such as the norms of authorship and evaluation. Thus, our central research question asks how the limitations of the established norms of authorship and evaluation are addressed at the organizational level within open science consortia that are premised on the sharing of intermediate resources. Drawing on qualitative methods, we present an in-depth comparative analysis of two open science consortia–the Canadian Open Neuroscience Platform (CONP) and The Cancer Genome Atlas (TCGA) – that illustrates how the limitations of the established norms of authorship and evaluation are navigated in brain and cancer research, respectively. Our findings show that the governance mechanisms designed and implemented in CONP and TCGA reflect two distinct forms of governance, one distributed and the other layered, which are characterized by different understandings of scientific authorship and evaluation. Our study thus contributes to ongoing debates on open science and the governance of scientific collaboration by shedding light on the relationship between governance forms and variable conceptions of authorship and evaluation.

Paper 14:
Equalizers or amplifiers? How Generative AI reshapes scientific inequality through open-access citations

Xinyin Tang, Yi Ding, Zhewei Zhang

The widespread adoption of generative AI (GenAI) has profoundly reshaped knowledge-intensive tasks, eliciting mixed outcomes across various domains (Susarla et al., 2023). Such transformative behavior has triggered widespread societal impacts, particularly in reshaping how information and knowledge are created, accessed, and distributed (Maryam et al., 2024). For instance, while some studies suggest that GenAI may deepen existing inequalities in various occupations, others emphasize its potential to reduce gaps by enabling wider access to resources (Humlum et al., 2024; Capraro et al., 2024). In the context of scientific research, disparities in access to academic resources and knowledge – driven by factors such as language, geographic location, and academic seniority (Evans, 2008) – underscore critical questions about how GenAI might influence the equity of knowledge dissemination.

In this study, we examine the impact of GenAI on scientific inequality by analyzing citation patterns in open-access (OA) journals given that GenAI models are predominantly trained on publicly available data. OA journals have been promoted to mitigate scientific inequality as they can provide unrestricted access to scientific knowledge and encourage broader participation in research dissemination. GenAI's advanced capabilities offer new opportunities to access and analyze vast amounts of information, especially from publicly available sources, including content that traditional tools may overlook or find time-intensive to process. This can expand citation diversity in the short term, benefiting OA journals by attracting a wider and potential audience through more varied and inclusive references, thereby enhancing the dissemination of scientific knowledge. However, these advantages also present challenges. The ease of information retrieval enabled by GenAI could alter existing citation patterns, shifting researchers focus toward more accessible or widely discussed content. It may lead to potential dilution of citation content diversity and academic rigor in the long term. This prompts a critical question: Does the widespread adoption of GenAI support or hinder OA journals' goal of reducing inequality in scientific research?

We conducted an empirical analysis based on the dataset collected from PubMed, containing 0.9 million articles published between January 2021 and December 2023. Specifically, we used the release of ChatGPT as a quasi-experimental setting and conducted difference-in-difference analyses. We compared the influence of ChatGPT on articles' non-academic citations – an article's citations from public sources such as books, blogs, white papers, and reports, between OA and non-OA journals. Preliminary findings show a significant increase in non-academic citations of OA journal articles after ChatGPT's release. Further heterogeneity analyses show that the increase primarily stems from articles in OA journals with lower journal impact factors (JIF), while articles in higher JIF journals experienced a decline. Additionally, articles from multidisciplinary OA journals saw a notable rise in non-academic citations, suggesting shifts in how research is accessed and utilized. Over the next three months, we plan to further explore how these shifts in citation patterns may be affected by factors traditionally contributing to inequality, such as regions, languages, and author seniority, to better understand GenAI's impacts on inequality in scientific research.

Paper 15:
Generative AI and Open Science: The impact of large language models on open-access publishing and the publishing ecosystem

Gernot Pruschak

Artificial intelligence has become a crucial part of modern science. While AI-driven detection and modeling techniques have already transformed the life and natural sciences over the past decade, most social scientists have only begun to exploit AI capabilities with the advent of publicly available large language models (LLMs) like ChatGPT and Gemini. Nevertheless, these models are now already frequently used to code qualitative research data, enhance named-entity recognition and even systematically review literature. Concerning the latter, there exists evidence showing that LLMs can effectively filter large bodies of literature, identifying and classifying key works. It is therefore not surprising that both, students and researchers increasingly rely on generative AI for literature reviews.

However, the use of LLMs in literature screening has also faced resistance from scientific publishers who are concerned about their intellectual property rights. Major publishers like Elsevier and Wiley excluded LLMs from training on their full-text databases, limiting their access to abstracts and open-access articles. While this restricts the generalizability of LLM-driven literature reviews, it may positively influence open science by increasing publishing and citation rates of open-access articles. After all, researchers using LLMs are naturally directed toward open-access content in their literature searches while those publishing articles put more efforts and resources into open-access publishing to ensure increased visibility.

Our research explores this phenomenon by comparing open-access publishing and citation rates prior and after the widespread adoption of LLMs. Our preliminary findings from business research show an increase in open-access publishing rates in FT-50 journals from 42.05% in 2022 to 45.16% in 2023. This 3.11% rise is significantly above the average yearly increase of 1.30% observed between 2012 and 2022. Considering that OpenAI introduced ChatGPT, the most widely used LLM in business research, in November 2022, the substantial increase in open access publishing provides support for our hypothesis that the introduction of LLMs enhanced open access publishing.

While our first results are already promising, we are currently working on further developing this early-stage research. First, we are extending our analysis by not only comparing publication rates of open access articles but also investigating whether there are changes in the shares of open access articles cited in a paper. Second, we will differentiate between different types of open access publishing. Third, we will extend our analysis to top level outlets from other scientific disciplines to allow for interdisciplinary comparisons. Fourth, we will leverage a difference-in-difference model to allow for causal interpretation of our results.

Our findings offer several implications for enhancing opportunities for leveraging open research approaches. While we explicitly address artificial intelligence and its positive influence on open science approaches (i.e., open access publishing), we also demonstrate the influence of LLMs on the (social) scientific ecosystem. As a case in point, our results indicate that restrictive policies set by commercial publishers can actually backfire with researchers turning to open access publications instead.

SESSION 6

Paper 16:
From the Ivory Tower to Capitol Hill: Which academics get a voice in congress?

Astrid Ulv Thomsen, Yotam Sofer

Examining economic academics' engagement with public policymakers, this paper investigates the impact of technological changes on the composition of expert witnesses, in the context of testimony before the U.S. Congress. The diffusion of scientific knowledge through academic engagement with non-academic spheres of society is considered a crucial driver of development and growth. Extant literature has increased our knowledge of individual-level determinants of engagement and documented gender stratification in engagement with industry. However, this research has tended to focus on STEM researchers and commercial collaboration forms. At the same time, we know that salient attributes such as gender seem to shape the research and inventions that are produced by scientists. Increasing our understanding of how, and by whom, social scientists' knowledge is disseminated to government is therefore of great importance.

Leveraging an extensive dataset of all economists testifying before the U.S. Congress between 1946–2023 this article makes two contributions. First, we document historical trends and patterns in economists' congressional hearings participation focusing on gender, geographic proximity to Congress, and elite institutional affiliations. Second, utilizing a COVID-19 related policy change in Congress we show that technological tools reducing the opportunity costs for certain demographic groups changed the composition of witnesses significantly. We document that female economists have historically been underrepresented in this form of academic engagement but have seen an upward trend as their representation in the broader field increased. After the implementation of online hearings, women were significantly more likely to give testimony, compared to men. The results also show that while overall, the geography and institutional status of expert witnesses did not change, an increase in the probability of female economists from these groups is documented. Our results imply that digital tools promoting flexibility can alleviate disparities in high-impact dissemination by academics, which in turn can increase policymakers' access to high-quality researchers with a diverse pool of ideas, perspectives, and knowledge.

Paper 17:
Contests and technology transfer: Effectiveness, demand incentives and negotiation support

Xavier Durán, Jorge Guerra, Beatriz Yemail

Firms are increasingly using contests to source external technologies, including those developed by academic inventors.

We identify the impact and key mechanisms of sourcing new technologies through an open innovation contest designed to emphasize demand pull and seeker-solver support in the technology co-development and technology-transfer agreement project. The BioB contest was a multistage contest that involved three stages: i) an open call for and selection of 15 Colombian firm strategic biotech challenges, ii) an open call to academic inventors for solutions for these 15 challenges and iii) once firm had selected solutions, the Program Execution Unit (PEU) accompanied and supported each firm-solver pair in the co-development of the technology, its validation, and technology transfer negotiation process.

We coded surveys and in-depth interviews to contest participants and control group agents to identify the contests' impact on the probability of signing a technology transfer agreement. For each contest challenge/solution project performed by an agent (firm/solver), we compared it to projects performed by the same agent for the same challenge/solution in which the agent searched independently through the market for technology. Additionally, we also collected information for a control group of agents that did not participate in the contest. Next, we used a linear probability model to identify the effect of the contest by comparing treated projects to non-treated projects developed by the same agents on the same challenge/solution using the market for technology and to control group agents' projects also using the market for technology.

Results suggest this contest increased the probability of reaching a technology transfer agreement by more than 50 percent, compared to market driven technology transfer. The impact was underpinned by (i) the contest's selection of strategic, specific, and real challenges, and (ii) the program execution unit (PEU) acting as a third and neutral party.

Our study makes four contributions. First, we estimate the impact of the intervention compared to market driven technology transfer, in a setting that emphasizes technology transfer in a real-world complex setting rather than ideation in a stylized setting, as most of the existing literature (Boudreau, Lacetera and Lakhani 2011). Second, strategic, specific and real challenges represent an effective way to communicate demand to academic inventors acting as solvers; this complements the view that academics are motivated by real world industry problems and impact (Cohen, Sauermann and Stephan 2018). Third, the PEU helped both firms and solvers to share information and form a common vision about the technology, its advantages, limitations, and fit with the firm specific setting, all reducing asymmetric information; we offer subjective based quantitative evidence on the role of asymmetric information in technology transactions and transfer (Arrow 1962, Arora et al 2009). Fourth, firms that perform internal R&D to create a new technology that subsequently fails, are in a better position to write more specific and real challenges and are also less likely to face internal (R&D) competition to external technologies. This is a dynamic and subtle view on the complementarity between creative and absorptive dimensions of R&D investment (Cohen and Levinthal 1989).

Paper 18:
Joining evenly while remaining unlike: How do plural and balanced participation in inter-sectoral research collaborations influence scientific impact?

Pablo D'Este, Fredrik N. Piro, Dima Yankova, Siri Borlaug, Alfredo Yegros

Knowledge co-production involving academic and non-academic actors is increasingly expected to promote research that advances fundamental understanding and addresses societal problems (Norström et al., 2020; Williams et al., 2020). The science policy discourse emphasises that research of high quality and relevance is most effectively achieved through co-production by academic and non-academic actors, since this mode of research prioritizes diverse perspectives and active participation of relevant stakeholders (Nature, 2018; OECD, 2024). However, despite these expectations, whether, and to what extent, knowledge co-production results in substantive contributions to science is open to debate.

The purpose of this paper is to examine the relationship between co-production processes and scientific impact, by looking at two distinct features of knowledge co-production: participants' diversity (plurality) and degree of involvement (balanced participation). Our analysis draws on two main data sources: projects funded by the EU FP7-Cooperation Programme, which involve participants from multiple institutional sectors (e.g., universities, companies, PROs, government agencies, among others); and bibliometric data derived through a combined search strategy from the EU Project Database and the Web of Science. The final sample consists of 6,658 collaborative inter-sectoral research projects.

We measure project-level scientific impact as the count of highly cited publications (i.e., papers among the top 10% most cited worldwide) resulting from the project. To assess plurality, and its potential for knowledge recombination, we draw on social network research and build an indicator that captures the count of triads involving participants from distinct institutional sectors (relative to the maximum number of possible triads that can be formed among project participants). Finally, the degree to which project participants display balanced levels of involvement in a particular research project is assessed by information on funding allocated to each participant. We compute the distribution of the overall project budget among individual project participants (both within and between institutional sectors) to assess the degree of balance of partners' involvement. We use ordinary least squares (OLS) and count data regression models to study the relationship between plurality, degree of balanced participation and scientific impact at the project level.

Our preliminary results indicate that greater plurality and higher degree of balanced participation in inter-sectoral research collaborations are both positively associated with scientific impact of project findings. In addition, we find that a more balanced involvement of partners from the same institutional sector (i.e., within balanced participation) strengthens the relationship between plurality and scientific impact. We discuss the implications of these findings to the literature on knowledge co-production and to the assessment of transdisciplinary research processes.

Paper 19:
From rejection to revival: How scientists re-propose ideas to new audiences

Johanna Schnier, Valentina Tartari

The rejection of ideas is a common experience across creative and professional domains, from entrepreneurs and employees to novelists and scientists. How individuals respond to the rejection of their ideas is a critical yet underexplored question in innovation research. Existing research suggest that rejections provide valuable feedback, encouraging creators to revise their ideas to better align with audience preferences. However, we propose an alternative approach: creators may strategically choose to resubmit their rejected ideas without modification when evaluating audiences change. Revising ideas is costly, requiring significant time, cognitive effort, and coordination, with uncertain benefits. In contrast, resubmitting a previously rejected idea to a new audience offers a chance for acceptance without incurring these costs. We term this behavior strategic idea revival.

Using data from the proposal submission and review process at the Novo Nordisk Foundation, we provide evidence for strategic idea revival. This review process features publicly announced committee compositions, allowing applicants to track changes in evaluators over time. First, we show that applicants are significantly more likely to resubmit proposals when a larger proportion of evaluators responsible for the original rejection have exited the committee. Second, we find that applicants are substantially and significantly more likely to resubmit nearly identical proposals, or boomerang proposals, when all evaluators have left compared to when none have. Importantly, strategic idea revival benefits applicants: boomerang proposals achieve funding likelihoods comparable to modified proposals while avoiding the substantial costs of revision.

These findings highlight a calculated strategy employed by creators to navigate the uncertainty and costs associated with idea revision. By leveraging changes in evaluating audiences, creators can revive their rejected ideas while conserving valuable resources. This study sheds new light on the role of rejection in shaping innovation efforts, emphasizing the strategic choices creators make in response to audience dynamics.

Paper 20:
Being your own Master: How constraints on academic freedom affect graduates' career choices

Hans Christian Kongsted, Yotam Sofer, Valentina Tartari

"Taste for science" is generally considered a defining feature of academic research and central in the career decisions of junior scientists. While this concept encompasses a variety of aspects related to academic work, this paper focuses on a specific component, namely the level of autonomy enjoyed in early-career academic research. This paper examines how a reduction in research autonomy offered by academia impacted the career choices of PhD graduates and reshaped the allocation of scientific talent across sectors. Drawing on administrative data covering the population of PhD graduates in Denmark in STEM- and health-related fields from 2011 to 2018, we exploit a policy change that reduced the research autonomy offered by academic postdoctoral positions while leaving other sectors unaffected. We find that the policy change increased the share of graduates transitioning to industry while reducing the share remaining in academia, in particular when looking at graduates with pre-graduation publications. Further, for those who chose industry positions, a shift away from high-tech industries toward medium-high-tech industries is observed, reflecting how the release of graduates with stronger scientific abilities influenced the distribution of talent within the private sector. These findings highlight the pivotal role of research autonomy in shaping career trajectories and provide evidence on how funding policies and autonomy provisions affect the allocation of research-inclined talent.

Paper 21:
Quantifying scientific recognition process in complex awarding systems

Ching Jin, Yifang Ma, Anthony Olejniczak, Brian Uzzi

Prizes confer credibility to individuals, ideas, and disciplines; provide financial incentives; and foster community-building celebrations. Despite considerable efforts to study the influence of prizes on scientists and scientific growth, most research focuses on individual prizes. Little is known about the broader recognition ecosystem and how prizes interact with one another. Gaining insight into these interactions can significantly enhance our understanding of how collective recognition, fame, and credit are allocated, amplified, and disseminated within the scientific community. It can also help us predict future winners and emerging hotspots in science. In this study, we curated three large-scale datasets on prizes, documenting the prize-winning records of more than 13,000 recipients across over 6,000 prizes. This allowed us to construct a dynamical scientific prize network based on co-prizewinners and develop a minimal selection model that accurately captures both individual prize-winning trajectories and the collective behavior of the entire prize system. Our analysis further reveals a concerning trend: many prizes founded after 2000 disproportionately emphasize winners of already established prizes and ignoring new emerging talents. This overemphasis jeopardizes diversity and inclusivity in science, potentially stifling groundbreaking discoveries. By understanding and addressing these patterns, we can ensure that the scientific recognition system evolves to better support innovation and equity in the years to come.

OIS Case Session

May 14 | 17:30 – 18:00 & May 15 | 12:30 – 13:30

Moderator: Susanne Beck

In this session, researchers and experts from different disciplines will showcase novel approaches and tools to practicing openness and collaboration in diverse fields of research. Conference participants can learn about the cases by engaging with the case owners as part of an interactive exhibition setting (online and offline).

Project 1:
The contributions of citizen science to SDG monitoring and reporting on marine plastics

Dilek Fraisl, Linda See, Rachel Bowers, Omar Seidu, Kwame Boakye Fredua, Anne Bowser, Metis Meloche, Sarah Weller, Tyler Amaglo-Kobla, Dany Ghafari, Juan Carlos Laso Bayas, Jillian Campbell, Grant Cameron, Steffen Fritz, Ian McCallum

Project 2:
Linking transfer activities with their societal impact in early-stage applied research processes

Elisabeth Heine, Samira Lambertz, Oliver Pänke

Project 3:
The Cancer Mission Lab: Bridging distant knowledge systems in mission-driven funding

Thomas Palfinger, Lara Arth, Mathieu Mahve-Beydokhti

Project 4:
Empowering researchers for Open Science: The impact of OLS programsservices

Doaa Abdelkader

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OIS research conference

May 14–16, 2025

The Space

Vienna, Austria