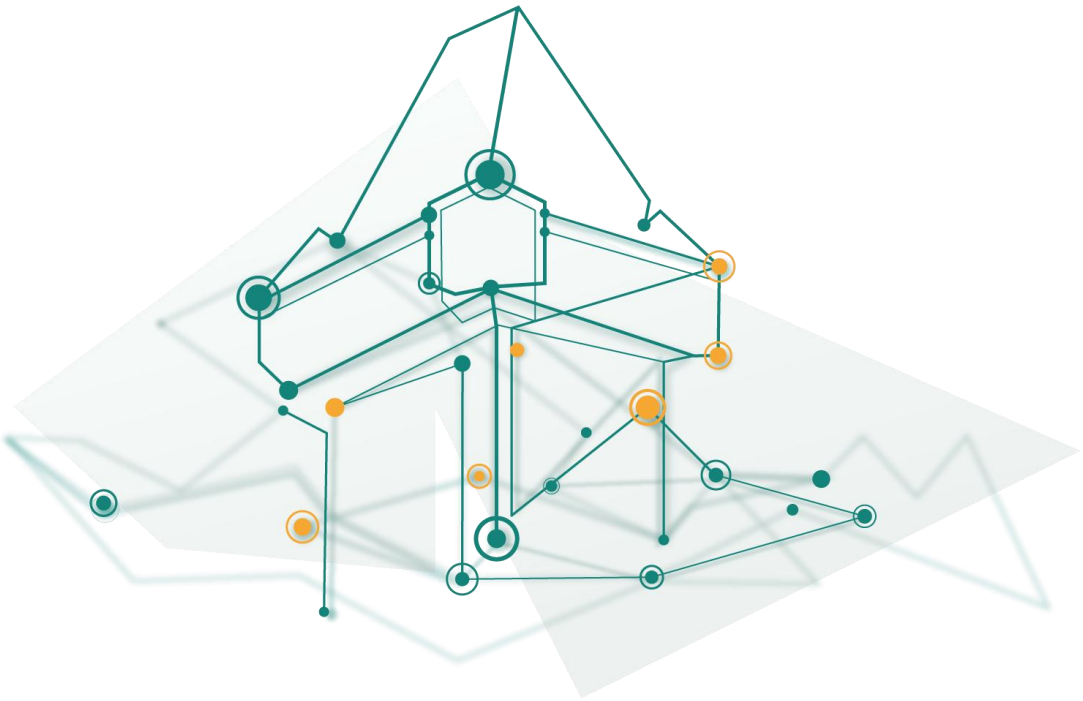
Book of Abstracts

24th STS Conference Graz 2026

Critical Issues in Science, Technology and Society Studies

4 – 6 May 2026



STS Science, Technology and Society Unit

IAS-STS institute for advanced studies on science, technology and society

Book of Abstracts

24th STS Conference Graz 2026

Critical Issues in Science, Technology and Society Studies

4 – 6 May 2026

Edited by: Spök, Armin; Jahrbacher, Michaela; Thomas, Emily Jean

Cover picture: STS Unit

2026 Verlag der Technischen Universität Graz

Technikerstraße 4, 8010 Graz

verlag@tugraz.at, www.tugraz-verlag.at

ISBN 978-3-99161-097-7

DOI 10.3217/978-3-99161-097-7

Table of Content

Keynotes 5

1: AI in Public and Private Sector Organizations: Accountability, Trustworthiness, Transparency 8

2: Fairness and Artificial Intelligence 22

3: Co-laborative Technology Development in the Context of Generative AI 33

4: Data Disruptions 39

5: The Sociology of Digital Gaming Communities 44

6: Infrastructure Im/Possibility: Human Labour and Policies Behind the Third “AI” Bubble 48

7: Epistemic Staging on Video Platforms: How Aestheticization Shapes Valid Knowledge in Digital Media 54

9: Data Multiple: An Inquiry into Methodologies onto Ontologies of Data 61

10: Governing Complex Digital Research Infrastructures 67

11: Workshop: Research Strategies and Hands-on Practices – AI in the Scientific Work Process 78

12: Digital Criminology – Bridging Technologies, Human Practices and Environments 80

13: Feminist Critique in AI: Searching for the New Grounds 93

15: Gender Equality Under Pressure: Current Challenges and Potential Ways Forward 98

17: Capacity Building to Engage in Inclusive Sex and Gendered Research 105

18: Diversity as an Analytical Object: STS Perspectives on the Making of Human Difference 111

20: Disambiguation of Guiding Key Terms and Concepts Within the Sustainability Transformation 118

21: In Search for the Desirable, Sustainable and Just Bioenergy 122

22: Emerging Socio-Technical Challenges in Advancing Sustainable Energy Transitions 126

23: Green Hydrogen Energy Transitions in the Global South: Pathways, Potentials, and Challenges 135

24: Science as a Compass and a Catalyst: Guiding Behavior Change in an Age of Transformation 143

25: Sufficiency in Practice: Theories, Discourses, and Experiments for Sustainable Futures 148

26: Infrastructures, Genomics and AI: How can Stakeholder Engagement for One Health Be Meaningful in a Globalized World? 158

27: Community Food – Food Community: Travelling Between Niche and Mainstream 162

28: Smart Cities in the Making: Leveraging GIS and Remote Sensing for Sustainable Urban Futures 169

29: Diffracting STS and the Classroom: Teaching and Transforming STS between Epistemic Traditions, Institutional Structures, and Artifical Intelligence 172

30: Between Openness and Commodification – Underrepresented Facets of Knowledge Transfer 178

32: Innovation and Intervention for Equitable Nature-Society Transformations 185

33: Disrupting the Narrative: Regional Innovation Cultures and it's Continuities.....190

34: Identifying Gaps in Social and Ethical Foresight Methodology for Nano-Enabled Advanced Technologies.....194

35: Towards a Joint Transdisciplinary Research Agenda of Engaged Science and Technology Studies and Relational Ethics of Technology 199

38: STS Perspectives in Society: Health – Ethics – Sociotechnical Change 206

Cancelled Sessions: 8, 14, 16, 19, 31, 36, 37

Keynotes

What Roles and Responsibilities for STS in Turbulent Times – The Case of Climate Change

Silke Beck

TUM School of Social Sciences and Technology, Germany

The talk invites us to explore how, in times of ecological and political turbulence (climate change, biodiversity loss, geopolitical upheaval), STS scholars can make sense of the political constellation and respond to novel challenges not only for politics but also for science. The talk aims to illustrate these challenges using the example of climate change, which is often cited as a prime example of trends in contemporary society (U. Beck). The talk illustrates this, focusing on the Intergovernmental Panel on Climate Change (IPCC). The panel is tasked with summarizing the state of climate research and, in doing so, it mirrors and magnifies challenges facing research worldwide: amid geopolitical upheaval, new evidence that global warming is accelerating, and concerns that attention to climate change is taking a back seat to issues like artificial intelligence and security. Within its seventh assessment cycle (AR7), the panel has responded to these ongoing challenges by convening two co-located workshops entitled *Engaging Diverse Knowledge Systems* and *Methods of Assessment* in Feb. 2026 in Reading UK.

How can we make sense of this political moment, challenging what is taken for granted – the constitution of democracy and international order? What can we contribute to understanding the novel geopolitical situation and the rise of political populism, as expressed in resistance to science and mistrust of experts, as well as cuts in public funding for research? Does our situated, relational understanding of science in the making address only the symptoms of the political constellation (such as illiteracy and corporate actors' misinformation campaigns)? Or how can we address the social, societal, and political changes in which knowledge-making is embedded, which are mirrored and magnified in scientific controversies (such as geopolitical conflicts, loss of political ownership, agency, and honor from the public)? Taking the STS sensitivities for positionality, reflexivity, and responsibilities seriously, what are STS understandings of democracies, and how do they justify our public and political engagements? The talk illustrates how these challenges invite us to rethink the political roles and responsibilities of STS scholarship as well as our conceptual understanding of science in society.

The Mirage of a World-Brain of Global Data: STS Facing Goliath

Klaus Lindgaard Høyer

University of Copenhagen, Denmark

Health data are intimate. They often relate to moments where people feel most vulnerable. Therefore, the very act of writing down people's disease history was guarded by strong norms of confidentiality when clinical documentation practices gradually became standardized in the early 20th century. Now, well into the 21st century, these norms are eroded through digitization. Increasingly, health care information is uploaded to digital platforms, broken up into discrete data elements, and exchanged – not just among care providers but with administrators, researchers, and industry, nationally and internationally. New EU regulation makes it mandatory to share data collected digitally in the course of clinical care. Data are now desired for training AI, for innovation, for management, and for international disease monitoring efforts. An old mirage keeps reappearing – the notion of a world-brain of all data, all information, all knowledge available in one place. STS provides pertinent challenges to the mirage – but it has very powerful proponents. What makes the Goliath of data listen?

Foregrounding Continuities in the Age of "Disruptive" Technologies

Janaki Srinivasan

University of Oxford, United Kingdom

The times we live in (variously described as the Age of Information, Data or AI) have often been called "disruptive." Moreover, disruption is largely seen as positive in this framing. But even where it is perceived as negative, what is seldom in question is the characterisation of contemporary times solely through its discontinuities with what came before. What are the implications of focussing on discontinuities and looking away from continuities? In this talk, I will highlight the social costs of eliding continuities, specifically the histories of collective action on which our technological present is built. Towards this, I will draw on my research on the politics of digital exclusion in India over the last two decades.

My talk will centre two categories of digital interventions – price information systems and platform work. Based on my research on the role of mobile phones in the circulation of price information among fishers in Kerala, and on labour conditions on gig work platforms in India, I examine the consequences of framing these as instances of technological novelty first and foremost. In the case of the fishers, I argue that a focus on mobile phones took attention away from the decades of fishers' collective action that had fundamentally shaped the constraints and possibilities of the social worlds within which mobile phones and price information now circulated. A somewhat different instance of highlighting disruption comes from location-based gig work platforms (ride hailing, food and grocery delivery, and home services platforms among others) and draws on my work with Fairwork India[1]. Globally, such platforms have offered the newness of their technology and business models as reasons to delay regulatory oversight over them. I show how this framing additionally presents a barrier to learning from earlier eras of labour organisation in the country. I point to a counter-example, where Indian gig worker collectives drew on the experience of informal workers' organisations from the 1960s to build provisions for regulating gig work.

Speaking to core STS interests in socio-technical imaginaries and the politics of how technology is framed, this talk will ask: what possibilities open up when we decentre disruption and centre continuities in the social and political lives of technologies? In so doing, I point to the crucial role that alternative imaginaries from our past could play in reimagining our collective futures.

[1]https://fair.work/en/ratings/india/

1: AI in Public and Private Sector Organizations: Accountability, Trustworthiness, Transparency

Session Chairs:

Anita Thaler, IFZ, Austria

Susanne Sackl-Sharif, Department of Educational Sciences, University of Graz, Austria

Trustworthy AI in Practice? Gender and Diversity Perspectives on AI Implementation in Youth Work

Susanne Sackl-Sharif[1], Sabine Klinger[1], Christopher Pollin[2], Christian Steiner[2]

[1]University of Graz, Austria; [2]Digital Humanities Craft, Austria

The deployment of artificial intelligence in the public and social sectors has been accompanied by the development of normative frameworks that promise trustworthiness. The European Union's AI Act and the Assessment List for Trustworthy AI, developed by the High-Level Expert Group on Artificial Intelligence (AI HLEG), set out fundamental requirements such as non-discrimination, fairness, human oversight and accountability. However, the extent to which these ethical guidelines are adopted by organisations remains under-examined. This is a particularly critical issue in youth work, where AI systems impact vulnerable populations and professionals must address the dual challenges of navigating children's and young people's AI-mediated lifeworlds and integrating AI into their own work practices.

Within this context, we conducted the AI@youthwork research project from 2024 to 2025*. The project aimed to investigate the current use of AI in Austrian youth work organisations, the reasons for its use or non-use, the potential for discrimination that professionals see in AI and their need for knowledge to enable them to use AI reflectively. Our mixed-methods approach began with exploratory expert interviews and a workshop with four youth work managers, followed by an online survey with 303 youth work professionals. Finally, we ran five participatory design labs with over 40 practitioners in Austria, developing future scenarios for the reflective and inclusive use of AI in their field.

Based on our empirical findings, this paper examines how Austrian youth workers interpret and apply 'trustworthy (accountable) AI' from gender- and diversity-sensitive perspectives. The paper theoretically distinguishes between rule-based systems, predictive machine learning models and generative AI, analysing how different system architectures produce distinct forms of bias, ranging from normative category decisions in rule-based systems to stereotypical patterns in the training data of generative models. Drawing on feminist technology studies, we examine how these technological systems reflect and reproduce social relations and power structures (Bath 2009; Richter 2022).

The survey findings reveal the systematic marginalisation of concerns about discrimination within professional risk assessment. Although professionals recognise that AI has the potential to perpetuate prejudices across various dimensions of discrimination, including gender, race, age, ethnicity, religion, social background and sexual orientation, they prioritise technical-legal

concerns such as diagnostic accuracy, data protection and legal liability over bias amplification. Consequently, technical and legal issues dominate professional considerations, while concerns about fairness and non-discrimination remain marginalised.
Furthermore, qualitative analysis reveals a widespread belief in the ability of AI tools to make objective and unbiased decisions, particularly with regard to predictive risk models for child welfare assessments. Professionals anticipated that AI systems would produce transparent decisions and eliminate emotional bias. Some even suggested that larger data sets would render human intuition and subjective judgement irrelevant. However, these same professionals also recognised that AI can reproduce societal stereotypes through biased training data and development processes dominated by privileged perspectives. This contradiction demonstrates the coexistence of techno-solutionist framings and critical consciousness without productive integration. These findings reveal a crucial discrepancy between the principles of trustworthy AI and their implementation within youth organisations. While the AI HLEG framework considers non-discrimination to be as important as technical requirements, our research shows that professionals implement trustworthiness selectively, prioritising accuracy, data protection and legal compliance while marginalising concerns about fairness.

*The AI@youthwork project was carried out at the University of Graz in cooperation with Digital Humanities Craft and x-samples from 2024 to 2025 and financed by the Future Fund of the Styrian Provincial Government.

Algorithmic Decision-Making and AI in Child and Youth Welfare: A Systematic Review of International Experience and Implications for Austrian Policy and Practice

Ilona Horwath

University for Continuing Education Krems, Austria

The ongoing digitalization of public administration and the expanding deployment of information and communication technologies—particularly algorithmic processes and artificial intelligence (AI)—are fundamentally transforming social work and child and youth welfare services. In Germany and Austria, this transformation remains in its early stages, marked by pilot projects, initial conceptual frameworks, and emerging guidelines (Linnemann et al., 2025; Macsenaere, 2025; Beckmann et al., 2023). Research indicates that the use of AI in child and youth welfare often lacks systematic approaches and comprehensive evaluations (Löhne et al., 2023). By contrast, international examples from the US, the Netherlands, Scandinavia, the UK, and Australia demonstrate more advanced implementation, offering a broader range of applications and empirical data on their impacts.
Central questions in child and youth welfare research and policy concern how to measure, evaluate, and predict the outcomes of interventions designed to support families, children, and adolescents in need. The digitalization of public management and services has raised expectations about how algorithmic decision-making (ADM) and AI can support professionals and improve areas such as documentation, decision-making, information provision, and counseling. Current applications include risk assessment (Lehtiniemi, 2024; McNellan et al., 2022), evaluation of maltreatment reports (Gibbs et al., 2024), prediction of maltreatment

(Lanier et al., 2019), prediction of successful placements in out-of-home care (Trudeau et al., 2023), integration of AI and chatbots into youth mental health care (Marshall et al., 2025), and the development of evidence-based child welfare policy (Lanier et al., 2019).

However, the use of algorithmic systems also poses significant risks. Studies show that ADM in child and youth welfare can increase frontline workers' workloads, introduce biased decisions, and harm both professional practice and the individuals and families served by these systems (Saxena & Guha, 2022; Eubanks, 2017). Ethical considerations—such as responsibility, accountability, trustworthiness, and transparency—are frequently overlooked in practice (Lanier et al., 2020). Participatory design principles and systematic evaluation procedures remain rare (Hall et al., 2024). While some research has explored practitioners' perspectives on the usefulness and practicality of algorithmic tools (Gibbs et al., 2022; Kawakami et al., 2022; Lehtiniemi, 2024), there is a notable lack of comprehensive, systematic analysis of their effects on organizational processes and the quality of outcomes.

This contribution provides a systematic analysis of empirical findings on the outcomes of ADM and AI in child and youth welfare. It examines how data and processes in the field are transformed by AI, and whether and how accountability, trustworthiness, and transparency are addressed and embedded. The analysis also considers what stakeholders in the professional field identify as fostering the development of "trustworthy AI." Drawing on international experiences and evaluation results, the paper contextualizes the specific challenges and opportunities for Germany and Austria.

The analysis reveals that, while AI offers innovative solutions for child and youth welfare, its sustainable and equitable impact depends on the consistent implementation of ethical, participatory, and evaluative standards. This requires not only technical but also organizational, legal, and societal frameworks that enable critical reflection and continuous adaptation of systems. The paper argues for the adaptation of international best practices, consideration of local specificities, and the design of AI development in child and youth welfare as a participatory, transparent, and responsible process.

References

Beckmann, J.; Binder, H.; Lohse, K. (2023): Digitalisierung in der Kinder- und Jugendhilfe Grundprinzipien, Leistungen, Schutzauftrag und strukturelle Bedingungen vor dem Hintergrund zunehmend digitaler Lebenswelten von Kindern und Jugendlichen. Rechtsgutachten des Deutschen Instituts für Jugendhilfe und Familienrecht e. V. (DIJuF), Heidelberg.https://dijuf.de/fileadmin/Veranstaltungen/Dokumentation/DJHT/JAdigital_Rechtsgutachten_2023_ Teil_1.pdf [27.01.2026]

Eubanks, V. (2017): Automating Inequality. How High-Tech Tools Profile, Police, and Punish the Poor. St. Martin's Press.

Daniel J. Gibbs, Audrey Loper, Amanda Farley, Jenny L. Afkinich, Imani C. Johnson & Allison J. Metz (2024:) Implementing Algorithmic Decision-Making Tools in Child Welfare Systems: Practitioner Perspectives on Use and Usefulness, Journal of Technology in Human Services, 42:4, 277-311, DOI: 10.1080/15228835.2024.2402982

Elif Gökçearslan, Sevgi Tiktaş Çelik, Emel Tuba Akdeniz & Emel Öztürk (17 Mar 2025): The Touch of Artificial Intelligence in Social Work: Analysis of Social Investigation Reports in Child Welfare with ChatGPT, Journal of Evidence-Based Social Work, DOI: 10.1080/26408066.2025.2480396

Lanier, P., Rodriguez, M., Verbiest, S. et al. (2020): Preventing Infant Maltreatment with Predictive Analytics: Applying Ethical Principles to Evidence-Based Child Welfare Policy. Journal of Family Violence 35, 1–13. https://doi.org/10.1007/s10896-019-00074-y

Tuukka Lehtiniemi (2024) Contextual social valences for artificial intelligence: anticipation that matters in social work, Information, Communication & Society, 27:6, 1110-1125, DOI: 10.1080/1369118X.2023.2234987

Anna Kawakami, Venkatesh Sivaraman, Hao-Fei Cheng, Logan Stapleton, Yanghuidi Cheng, Diana Qing, Adam Perer, Zhiwei Steven Wu, Haiyi Zhu, and Kenneth Holstein. 2022. Improving Human-AI Partnerships in Child Welfare: UnderstandingWorker Practices, Challenges, and Desires for Algorithmic Decision Support. In CHI Conference on Human Factors in Computing Systems (CHI '22), April 29-May 5, 2022, New Orleans, LA, USA. ACM, New York, NY, USA. https://doi.org/10.1145/3491102.3517439

Linnemann, G.; Löhe, J.; Rottkemper, B. (Hg.): Künstliche Intelligenz in der Sozialen Arbeit: Grundlagen für Theorie und Praxis, Beltz Juventa, 2025.

Löhe, J.; Linnemann, G.; Rottkemper, B. (2023): Der Einsatz von Künstlicher Intelligenz in der Kinder- und Jugendhilfe im DACH Raum. In: Jugendhilfe 61(5), p. 415-421.

Macsenaere, M. (Hg.): Künstliche Intelligenz in der Kinder- und Jugendhilfe. Ernst Reinhardt Verlag, 2024.

Claire R. McNellan, Daniel J. Gibbs, Ann S. Knobel, Emily Putnam-Hornstein (2022): The evidence base for risk assessment tools used in U.S. child protection investigations: A systematic scoping review, Child Abuse & Neglect, Volume 134, https://doi.org/10.1016/j.chiabu.2022.105887.

Marshall, N.J., Loades, M.E., Jacobs, C. et al. Integrating Artificial Intelligence in Youth Mental Health Care: Advances, Challenges, and Future Directions. Curr Treat Options Psych 12, 11 (2025). https://doi.org/10.1007/s40501-025-00348-x

Saxena, D.; Guha, S. (2024): Algorithmic Harms in ChildWelfare: Uncertainties in Practice, Organization, and Street-level Decision-making. ACM J. Responsib. Comput. 1, 1, Article 2. https://doi.org/10.1145/3616473

Kimberlee J. Trudeau, Jichen Yang, Jiaming Di, Yi Lu, David R. Kraus (2023): Predicting successful placements for youth in child welfare with machine learning, Children and Youth Services Review, Volume 153, https://doi.org/10.1016/j.childyouth.2023.107117.

Keeping Humans in the Loop: How Responsibility and Authority Are Reassembled in AI-Assisted Recruitment

Nathania Mante, Sarah Barnard, Jen Robinson

Loughborough University, United Kingdom

Keeping Humans in the Loop: How Responsibility and Authority Are Reassembled in AI-Assisted Recruitment" Abstract The increasing use of artificial intelligence (AI) in recruitment has raised concerns about bias, accountability, and responsibility in organisational decision-making. In response, policy and technical discussions often promote "human-in-the-loop" systems to reduce the risk of algorithmic discrimination and unfair outcomes. Research in Science and Technology Studies (STS) and critical studies of algorithms has shown that AI systems do not simply automate decisions. Instead, they reshape how responsibility and power are shared between people and technologies (Latour, 2005; Beer, 2017; Amoore, 2020). However, there is still limited empirical research on how human involvement is actually carried out, justified, and enforced in everyday organisational settings where AI recruitment tools are used.

This paper draws on semi-structured interviews with 38 HR professionals in the United Kingdom and Ghana to examine how responsibility and authority are understood in AI assisted recruitment. Using Actor–Network Theory (ANT) as an analytical framework, recruitment is viewed as a socio-technical network made up of human actors (such as HR professionals and hiring managers), non-human actors (including algorithms and training data), and organisational priorities (such as efficiency, fairness, and accountability) that together shape hiring decisions (Callon, 1986; Latour, 2005). This perspective moves away from seeing AI as a neutral tool and instead focuses on how decisions and responsibilities emerge through relationships between people, technologies, and organisational practices.

The findings show that AI systems are mainly used as efficiency tools, especially at early stages of recruitment such as screening and shortlisting candidates. Human actors are then brought in at later stages to review decisions, make final choices, and provide ethical oversight. Participants repeatedly describe this division of labour as necessary for ensuring fairness, accountability, and trust in the recruitment process. However, rather than directly resolving ethical concerns, human involvement often serves to reassure organisations that AI use is under control. In this way, responsibility is shared across the socio-technical system rather than clearly assigned to either humans or technologies. This supports previous research showing that humans often take on responsibility around automated systems, particularly when decisions are questioned or challenged (Elish, 2019).

Participants also discuss gender discrimination and bias in recruitment, but these concerns are often explained through references to historical data, past hiring practices, or limits in algorithmic design. Gender inequality is commonly described as something AI systems may inherit from existing data rather than actively produce in current recruitment decisions. As a result, responsibility for addressing bias is frequently placed on improving data quality or relying on human judgement. While this approach allows organisations to demonstrate ethical awareness, it can also shift attention away from deeper structural inequalities that shape recruitment outcomes. This reflects feminist and critical data research that warns against treating inequality as a purely technical problem, as this can hide broader social and organisational power relations (Noble, 2018; D'Ignazio & Klein, 2020).

The paper makes three main contributions to research on AI and organisations. First, it provides empirical insight into how “human-in-the-loop” systems operate in practice, rather than how they are described in policy or design guidelines. Second, it shows that human involvement in AI-assisted recruitment functions as a form of moral and organisational work that helps manage accountability and maintain organisational legitimacy. Third, it demonstrates how gender bias is not simply removed or reproduced, but actively managed through technical and procedural approaches that redistribute responsibility without necessarily addressing underlying inequalities. By examining AI-assisted recruitment as a socio-technical process, the paper contributes to debates on algorithmic governance, shared responsibility, and the organisation of ethics in the workplace (Amoore, 2020; Beer, 2017).

References

Amoore, L. (2020). Cloud ethics: Algorithms and the attributes of ourselves and others. Durham, NC: Duke University Press.

Beer, D. (2017). The social power of algorithms. Information, Communication & Society, 20(1), 1–13. https://doi.org/10.1080/1369118X.2016.1216147

Callon, M. (1986). Some elements of a sociology of translation: Domestication of the scallops and the fishermen of St Brieuc Bay. In J. Law (Ed.), Power, action and belief: A new sociology of knowledge (pp. 196–233). London: Routledge.

D’Ignazio, C., & Klein, L. F. (2020). Data feminism. Cambridge, MA: MIT Press.

Elish, M. C. (2019). Moral crumple zones: Cautionary tales in human–robot interaction. Engaging Science, Technology, and Society, 5, 40–60. https://doi.org/10.17351/ests2019.260
Latour, B. (2005). Reassembling the social: An introduction to actor-network-theory. Oxford: Oxford University Press. Noble, S. U. (2018). Algorithms of oppression: How search engines reinforce racism. New York: New York University Press.

In the Loop, Out of Sync: Moral Cognition in Human-Robot Interactions

Ritsaart Reimann, Markus Kneer

University of Graz, Austria

The ubiquitous integration of AI-powered systems in morally consequential decision-making procedures raises a thorny question: when such systems generate harm, who should be held responsible? A prominent regulatory response proposes that suitably designed control architectures can ensure that blame is appropriately allocated. To live up to this promise, such architectures must track how responsibility is produced in practice: they must be sensitive to the sociomaterial cues, scripts, and expectations they embed, as well as to how those expectations distribute agency and blame across the sorts of complex sociotechnical arrangements they attempt to regulate [1]. Regulatory regimes that fail this test risk being

perceived as arbitrary or unfair, potentially undermining compliance and legitimacy [2].

We conducted two preregistered online experiments (n = 780) to investigate how laypeople attribute blame under two of the most widely discussed control arrangements: loop-based control structures [3] and control structures that either satisfy or violate Santoni de Sio and van den Hoven's [4] track-and-trace requirements. Both experiments involved exposing participants to brief vignettes describing the deployment of an AI-powered triage system that misclassifies an incoming patient, resulting in a preventable fatality. All vignettes mentioned four agents that might be thought to bear some degree of responsibility for this outcome: the AI system (Astra), a human operator (the nurse), the system's designers (IT staff), and the system's commissioners (the hospital board).

Experiment 1 (n = 260) exposed participants to one of three loop-based control configurations: human-in-the-loop (explicit authorization required), human-on-the-loop (intervention permitted), or human-out-of-the-loop (fully autonomous implementation). Responsibility attributed to the AI varied little across conditions. Responsibility assigned to human agents, however, shifted systematically. Removing the operator from the loop consistently redirected blame toward designers and commissioners, suggesting that lay judgments compensate for diminished proximal control by pushing accountability upstream. Strikingly, participants did not differentiate between in- and on-the-loop configurations, suggesting that the norms, standards, and scripts encoded into loop-based regulatory frameworks are misaligned with how responsibility is produced and assigned in practice.

Experiment 2 (n = 520) extended Experiment 1 by manipulating whether the triage system violated or satisfied Santoni de Sio's and van den Hoven's track-and-trace requirements. Responsibility attributed to the AI again remained stable across conditions. Violating track and trace substantially increased blame attributions to upstream actors (IT staff and board members), but only marginally decreased blame to the nurse. This pattern suggests that operational proximity serves as a powerful moral cue for locating accountability, even in cases where the substantive grounds for holding frontline operators responsible are significantly weakened.

Taken together, our data suggest that neither of the architectures considered here can comfortably accommodate the descriptive reality of how laypeople assign responsibility in human–AI interactions. Neither loop-based oversight relations nor track-and-trace requirements succeed in directing blame along the pathways they prescribe. This misalignment exposes a friction at the heart of contemporary AI governance: if responsibility is allocated in ways that diverge from widely shared moral expectations, regulatory regimes risk being experienced as arbitrary or unfair. Effective governance will therefore require approaches to accountability that integrate, rather than overlook, the cognitive, cultural, and technological dynamics that shape how responsibility is actually understood in hybrid human–AI systems.

References

[1] Suchman, L. A. (2007). Human-machine reconfigurations: Plans and situated actions. Cambridge university press.

[2] Danaher, J. (2016). Robots, law and the retribution gap. E&I Technology, 18(4), 299–309.

[3] Crootof, R., Kaminski, M. E., Price, W., & Nicholson, I. I. (2023). Humans in the Loop. Vand. L. Rev., 76, 429. [4] Santoni de Sio, F., & Van den Hoven, J. (2018). Meaningful human control over autonomous systems. Frontiers in Robotics and AI, 5, 323836.

Monitoring AI at Work: Accountability, Transparency, and the Governance of AI

David William Walker

Joanneum Research Forschungsgesellschaft mbH, Austria

Monitoring AI at work: accountability, transparency, and the governance of AI Keywords: AI governance; accountability; transparency; AI Observatory; monitoring infrastructures As AI systems are increasingly embedded in organisational practices across public and private sectors, questions of accountability, trustworthiness, and transparency have moved from primarily abstract ethical concerns to matters of practical governance in organisational contexts. Public debates on AI and work are, however, still largely shaped by speculative expectations of automation and productivity gains, while systematic empirical evidence on how AI is currently transforming work, employment, and social inequalities remains fragmented. This contribution addresses this gap by focusing on how AI-related labour impacts are monitored, interpreted, and rendered accountable in organisational and policy contexts. As these impacts cut across organisational boundaries and are only partially visible at the level of individual workplaces, public authorities have a particular responsibility to intervene by establishing governance and monitoring arrangements that enable systematic oversight. Drawing on an empirical study commissioned by the Austrian Federal Ministry for Labour and Economy, this contribution examines the potential development of an AI Observatory as a governance instrument for accountability and transparency. The study combined a comprehensive review of academic and policy literature with an analysis of existing AI observatories and available national, European, and international data sources. This was complemented by expert interviews and stakeholder workshops involving labour market actors as well as data and policy experts. Based on this material, a monitoring concept was outlined covering five analytical dimensions: technological change, labour market impacts, qualification requirements, social inequality, and governance, alongside alternative institutional scenarios for embedding an AI Observatory in practice.

Rather than treating AI as an autonomous driver of change, we conceptualised AI implementation as a socially negotiated and often contingent process. Implementation depends on regulatory contexts, organisational expectations and beliefs about AI, strategic choices, and the degree of worker involvement and support. The findings indicate that empirically observable impacts of AI to date primarily concern changes in tasks, work organisation, qualification profiles, and management practices. In contrast, robust evidence of large-scale employment displacement remains limited, highlighting the gap between dominant public narratives and observable organisational developments.

At the same time, the study reveals significant blind spots in existing monitoring and data infrastructures. While some gendered inequalities are partially captured, broader intersectional effects remain unevenly visible. In addition, practices of algorithmic management and worker surveillance, as well as indirect environmental and health-related impacts, are addressed in fragmented ways across statistical and regulatory regimes, constraining both organisational and public accountability.

Further blind spots include unclear allocations of responsibility across organisational hierarchies and vendor relationships, particularly in contexts where AI systems are procured, adapted, or maintained by external providers. In such settings, accountability is often dispersed between management, IT units, and third-party vendors. Additional gaps arise from fragmented procurement and deployment processes, informal work practices and everyday workarounds, as well as failed, stalled, or symbolic AI implementations that leave little empirical

trace. While some of these blind spots could, in principle, be addressed through improved indicators, data linkage, or qualitative monitoring approaches, others, such as gradual shifts in autonomy, work intensity, or the normalisation of algorithmic control, are difficult to capture systematically and resist quantification.
Making these limits explicit is central to the analysis. It underscores that AI observatories cannot provide comprehensive oversight of AI-related labour impacts. Instead, they shape which impacts become visible, comparable, and politically actionable, thereby both constraining and enabling organisational and public accountability. Against this backdrop, the contribution argues that accountability and trustworthiness in organisational AI cannot be reduced to compliance with abstract ethical principles alone. Rather, they depend on monitoring practices and data infrastructures that make unequal, contested, and emerging impacts visible before they are normalised through organisational routines.

Trustworthiness Under Pressure: Accountability Gaps in AI-Enabled Research Organisations

Saskia Schrader, Nebi Herrmann Ceylan, Tobias Schreier, Philine Pommerencke, Susanne Draheim, Michael Gille, Sabine Wöhlke, Marina Tropmann-Frick

Hamburg University of Applied Sciences, Germany

The rapid diffusion of artificial intelligence (AI) into academic research practices raises funda mental questions about the preparedness of research organisations. Errors, hallucinations, fail ures of reproducibility, and limited interpretability challenge established safeguards of scientific reliability when research is conducted with AI. At the same time, AI tools promise productivity increasing cognitive augmentation and improved competitiveness, albeit at the cost of “illusions of understanding”, where users overestimate epistemic control and insight (Messeri & Crockett, 2024).
This interdisciplinary contribution examines how research organisations currently conceptualise and regulate AI-supported research in Responsible Conduct of Research (RCoR) Guidelines and contrasts these frameworks with the expanding ecosystem of AI products spanning the entire research pipeline. Methodologically, the paper combines two empirical components: First, the results of a focused thematic analysis of selected RCoR Guidelines as indicators of organisa tional self-concept and self-regulation. Second, we present a systematic screening of AI-based products that aim to support not only discrete research tasks but increasingly the organisation of research itself. Our analysis points to systemic challenges: Guidelines often frame AI as a tool, while market o erings - and, critically, scientific literature (Sætra, 2025) - increasingly po sition AI as a methodologically co-constitutive actor, at times assuming quasi-co-scientist roles. This dynamic jeopardises trust in the role of traditional research organisations. We argue that pervasive AI use generates trust-undermining systemic risks along two dimensions: Internally, collective knowledge production depends on shared rules and standards, thus RCoR frame works might become compromised in their role to stabilise expectations and coordinate epis temic labour. Externally, the role of these standards in strengthening public trust in scientific re sults is being called into question.

Situating these findings in STS scholarship, we connect AI governance in research to shifts in agency, processes of commodification (Zubo, 2023) and legally encoded opacity (Pistor, 2019). In the workshop, we would like to discuss indications of an emerging trust gap and a recalibra tion of RCoR frameworks that reflects a conceivable shift in organisational practice and self-per ception. The aim is to reflect accountability, transparency and trustworthiness in research or ganisations, given the methodological role of AI.
Background of this contribution is a four-year research project funded by the German Federal Ministry of Research, Technology and Space that focuses on the development of Responsible AI-oriented metrics to ensure the ethical deployment of AI in research organisations. The devel opment of these metrics is based on, among other things, the principles of the AI Act and the Ethics Guidelines for Trustworthy AI of the EU High-Level Expert Group on Artificial Intelligence.

References

Messeri, L., & Crockett, M. J. (2024). Artificial intelligence and illusions of understanding in scientific research. Nature, 627(8002), 49-58.

Pistor, K. (2019). The code of capital: How the law creates wealth and inequality.

Sætra, H. S. (2025). The rise of the research automaton: science as process or product in the era of generative AI?. AI & SOCIETY, 1-15.

Zuboff, S. (2022). Surveillance capitalism or democracy? The death match of institutional orders and the politics of knowledge in our information civilization. Organization Theory, 3(3).

Tackling 'Trust-Issues of AI' With a Transdisciplinary Technology Development Approach

Anita Thaler[1], Hans-Jürgen Eidler[2], Richard Hohensinner[3], Hermann Kaindl[4], Belgin Mutlu[3], Peter Schaefer[2]

1: IFZ, Austria; 2: Robert Bosch AG; 3: Pro2Future; 4: WU Wien

'Trustworthy AI' is a widely used and heavily cri cized concept. The term itself is part of AI policy documents, most prominently in the European AI act (European Parliament 2024), leading to ques ons in technology development, how 'trustworthiness' can be embedded into the very machinery. However, cri cs refer not only to decades-long research on the complexity of human trust, but the specific power rela ons and ques ons of responsibility in the mul faceted actor network of AI systems (Freiman 2023).
In this paper, we present an ongoing transdisciplinary project focused on implemen ng a Retrieval-Augmented Genera on (RAG) framework that uses a locally hosted Large Language Model (LLM). This approach enables secure access to sensi ve company data and documenta on while suppor ng the efficient answering of complex hardware–soware interface ques ons. By grounding model outputs in verified internal knowledge sources, the system significantly reduces hallucina ons, increases the reliability of responses, and strengthens overall user trust in the results.

The project team comprises engineers, as well as researchers from computer science, legal studies, psychology, and feminist STS, because the project “TrustInLLM” is funded by the Austrian FFG in the framework of a digital innova on programme emphasizing interdisciplinarity, diversity and human centred design. However, to apply a diversity sensi ve human-centred technology design approach was new to most of the engineering and computer science team.

This process started end of 2024 with an on-site visit at the par cipa ng company and several bilateral knowledge co-crea on meetings to discuss poten al uses cases in the par cipa ng company, and the RAG technology in general. The knowledge co-crea on mee ngs were either taking place online using a Miro board or face to face.

Un l March 2025, a stakeholder map was created and interview guidelines developed with feedback from the engineering and computer science team. The stakeholder mapping was important to iden fy diverse key persons within the company with different experience and status levels, who could give insights into different important perspec ves to the RAG implementa on, like from a union representa ve, a data security expert and different domain experts. The iden fied stakeholders were either already using a prototype RAG framework or could poten ally use one in the future.

The analysis of transcripts nine structured interviews produced data about various users’ needs and different (future) use cases, which were then translated into technical requirements formulated in structured natural language. This involved classifying users’ wishes and needs according to the usual dis nc on between func onal vs. non-func onal requirements, and in addi on to the less widely used concepts of goals and so-goals. We made explicit references from the requirements specifica on created in this way into the interview-analysis, installing so-called pre-traceability.

In the presenta on, we will focus on the stakeholders’ narra ves of how an LLM-based AI system works, and why and under which circumstances they could (or never would) trust the specific RAG system, and how the project team aimed to translate those ‘trust-issues’ into the very technologies.

References

European Parliament (2024). Regula on (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on ar ficial intelligence and amending Regula ons (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Direc ves 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Ar ficial Intelligence Act) (Text with EEA relevance). Document 32024R1689. In: Official Journal of the European Union, 12.7.2024. h p://data.europa.eu/eli/reg/2024/1689/oj

Freiman, Ori (2023). Making sense of the conceptual nonsense ‘trustworthy AI’. In: AI and Ethics, 1351–1360.

Operationalizing Trustworthy AI in SMEs: The AI Readiness Radar

Elisabeth Frankus, Kerstin Plank, Ingrid Paola Marin Cabezas

Institute for Advanced Studies, Austria

Small and medium-sized enterprises (SMEs) are increasingly integrating AI systems into their daily operations - from customer chatbots to inventory forecasting - and are facing acute challenges in implementing regulatory frameworks such as the EU AI Act into practical business management. While trustworthy AI principles promise accountability, transparency, and fairness, their implementation depends heavily on the organizational context, as well as internal company resources and capabilities. Often, a dedicated AI team or compliance departments are required for implementation.

This contribution presents the AI Readiness Radar, developed in the project “AI Catalyst for SMEs” (Interreg AT-CZ 00036). It is a multidimensional assessment tool for SMEs, conceptually grounded in research on organizational AI readiness and responsible AI governance that treats AI adoption as a multidimensional processAccordingly, the project developed a three-dimensional framework encompassing aspects of management, technology, ethics and legal governance (Jöhnk et al., 2021; Nortje & Grobbelaar, 2020). Rather than framing AI implementation as purely technical, it highlights the need to align strategy, competencies and resources, data and infrastructure, and governance structures. Against this backdrop, the Radar assesses organizations' AI readiness based on three dimensions:

(1) Management, including strategy, skills, and resource allocation;
(2) Technology, with a focus on data quality, IT infrastructure, and cybersecurity; and
(3) Ethics/law/governance/culture, with reference to compliance, accountability structures, corporate culture, and responsible AI practices.

This structure reflects research findings that emphasize that successful and responsible AI implementation requires coordination between strategic, technical, and governance-related organizational factors (Cisco, 2023; Ferreira et al., 2023). Ethical and trustworthy AI is thus considered an organizational challenge that encompasses internal guidelines, skills development, and governance regulations in addition to technical implementation (Crockett et al., 2023; Cunha & Estima, 2023).

The online ‘AI Readiness Radar’ uses standardised self-assessment questions. Its results indicate a company’s AI readiness and provide practical recommendations. It offers managers and employees in SMEs a structured basis to evaluate readiness and identify governance-related challenges. Initial pilot tests, including workshops with first SMEs, show that the radar helps to

(1) uncover tensions between efficiency-oriented AI implementation, legal compliance and accountability;
(2) align organisational practices with principles for responsible AI; and
(3) initiate internal learning and negotiation processes on acceptable forms of AI use.

We position the AI Readiness Radar as a practical organizational tool that translates abstract principles for trustworthy AI into context-sensitive diagnoses. Rather than prescribing universal

solutions, it empirically demonstrates how SMEs can manage the operationalization of accountability, transparency, and responsible AI under conditions of limited resources and changing regulatory expectations.

References

Cisco. (2023). Cisco AI Readiness Index Intentions Outpacing Abilities. https://www.cisco.com/c/dam/m/en_us/solutions/ai/readiness-index/documents/cisco-global-ai readiness-index.pdf (last access: 05.02.2026).

Crockett, K., Colyer, E., Gerber, L., & Latham, A. (2023). Building Trustworthy AI Solutions: A Case for Practical Solutions for Small Businesses.

Cunha, P. R., & Estima, J. (2023). Navigating the Landscape of AI Ethics and Responsibility. In N. Moniz, Z. Vale, J. Cascalho, C. Silva, & R. Sebastião (Eds.), Progress in Artificial Intelligence (Vol. 14115, pp. 92–105). Springer Nature Switzerland.

Ferreira, R. M. F. D., Grilo, A., & Maia, M. J. (2023). A Maturity Model for Industries and Organizations of All Types to Adopt Responsible AI—Preliminary Results.

Jöhnk, J., Weißert, M., & Wyrtki, K. (2021). Ready or Not, AI Comes—An Interview Study of Organizational AI Readiness Factors. Business & Information Systems Engineering, 63(1), 5–20.

Nortje, M. A., & Grobbelaar, S. S. (2020). A Framework for the Implementation of Artificial Intelligence in Business Enterprises: A Readiness Model. 2020 IEEE International Conference on Engineering, Technology and Innovation (ICE/ITMC), 1–10.

Prompt Transparency and Accountability in Organisational genAI Systems to Support Course Descriptions Improvement

Benedikt Brünner, Michael Furch, Kajetan Hoffmann, Philipp Leitner

Graz University of Technology, Austria

As generative AI (genAI) systems play an increasingly important role in knowledge computation within public-sector organisations, questions of accountability, transparency, and trustworthiness are evolving from normative concerns to practical issues. This paper presents the results of an explorative design-based research (DBR) study into a genAI-based chatbot that was developed to support academic sta in reflecting on course descriptions by providing them with structured, section-specific feedback. Rather than automating evaluation or decision-making processes, the system has been intentionally designed to serve as a reflective tool that supports human judgement.

The chatbot was developed through multiple DBR iterations involving an interdisciplinary working group on AI in teaching, and pilot feedback from academic staff. It generates structured, section-specific feedback on course descriptions based on a modular set of system prompts aligned with institutional quality criteria. The system supports bilingual feedback and

is implemented as a chatbot to enable lecturers to easily interpret and apply the feedback to their workflow.

In line with ethical AI principles and ongoing debates surrounding the AI Act, the system operationalises trustworthiness through infrastructural and organisational design choices. Feedback generation relies on in-house, open-weight language models, and all data processing remains within institutional hardware. Feedback is accessible only to individual lecturers via single sign-on and is neither shared with third parties nor used for performance monitoring, thereby reinforcing voluntariness and user control.

The chatbot can be conceptualized as a socio-technical actor embedded in a network of lecturers, institutional quality frameworks, and educational infrastructures. According to Actor–Network Theory, the chatbot functions as a mediating artifact that translates institutional norms into prompts and questions. The mediation renders implicit quality criteria visible and actionable. In this sense, the chatbot establishes an obligatory passage point within curricular practices. It does not enforce compliance or automate judgement; rather, it structures moments of interruption and reflection. While pedagogical authority and responsibility remain with the lecturers, the system shapes the conditions under which reflexive engagement occurs. Agency emerges relationally through interaction among human actors, institutional standards, and technical artifacts. This configuration redefines quality development as a situated socio-material practice by integrating institutional governance into everyday teaching workflows instead of externalizing it as a separate evaluative mechanism.

A central contribution of this paper is its explicit treatment of accountability. Rather than being located in the model outputs themselves, responsibility for the system’s behaviour lies in the design and governance of the system prompts. The system's creators are accountable for the prompt logic, which incorporates institutional norms, quality criteria, and pedagogical assumptions. By making all system prompts transparent and accessible through the chatbot interface, as well as reusable in other local AI applications, the system redefines transparency as a sociotechnical design practice, rather than as the post hoc explainability of outputs. This enables users to critically engage with, reinterpret and contest AI-generated feedback, while also making the normative assumptions embedded in AI-mediated evaluation visible.

Drawing on Science, Technology and Society (STS) perspectives on algorithmic governance and infrastructuring, the paper argues that trustworthy AI in organisational contexts emerges from aligning technical design, institutional responsibility and user agency. The study empirically demonstrates how transparency and accountability can be realised in everyday AI systems without displacing human judgement or responsibility. At the same time, it discusses the limitations of prompt-based transparency, particularly with regard to underlying institutional constraints or open weight genAI models. Overall, the paper contributes to STS debates on trustworthy AI by o ering a concrete example of how ethical principles can be operationalised through infrastructural design in the public sector, particularly in higher education.

2: Fairness and Artificial Intelligence

Session Chairs:

Ana Maria Jaramillo, Graz University of Technology, Austria

Fariba Karimi, Graz University of Technology, Austria

Thomas Aumüller, Graz Universtiy of Technology, Austria

Bernhard Wieser, Graz University of Technology, Austria

Simone Kopeinik, Know Center Research, Austria

Dominik Kowald, Know Center Research, Austria

Does Fostering a Digital Mindset Help in Creating Equal Opportunities for AI Usage?

Pia-Zoe Hahne, Marion Roßhap

FH des BFI Wien, Austria

Fairness and artificial intelligence have a complicated connection: on one hand, the technology itself risks unfair treatment of certain minorities, for instance when AI applications are implemented in the criminal justice system (Coeckelbergh, 2022; Hofmann et al., 2024). In a now infamous example, the United States employed an AI system to assess how likely a person is to reoffend and if they should be given parole. However, the system disproportionately assumed that black inmates were more likely to reoffend even if they had a better chance of reintegrating; hence, actively discriminating against black people and leading to their unfair treatment in the parole process. Yet, there is another layer to the relation between AI and fairness as the usage of emerging technologies places users with less digital skills at an unfair disadvantage. Although the usage of new digital technologies such as AI seems ubiquitous in desk jobs, non-desks workers also experience a rising need in digital competences (Waldhauser, 2024a). When distinguishing between desk- and non-desk workers, non-desk workers showed less confidence in their ability to use digital technologies or even expressed direct antipathy towards new technologies; therefore, potentially creating difficulties in accessing new positions, gaining new skillsets, or actively participating (Waldhauser, 2024a). Hence, discussing fairness in AI not only relates to the recreation of biases, but also unequal access and one's own competences in the usage of digital technologies such as AI, resulting in exclusion of 'non-competent' users.

This contribution critically examines the concept of the 'digital mindset' in the workplace context. The digital mindset theory is based on Dwecks' growth mindset theory which traditionally finds application in the educational sector. It had been observed that pupils had clear, implicit views about their own intelligence, which influenced their efforts at school

(Dweck, 1986). Building on various mindset theories, Waldhauser (2024b) defines digital mindset as the cognitive framework within which interaction with digital technology is perceived, and the perception of one's own ability to understand digital tools and platforms. When considering AI, this means that approaching the technology with curiosity and openness allows for growth while a negative attitude already predetermines a negative outcome (Waldhauser, 2024b). However, although the fostering of a digital mindset makes it possible for workers to combat unfair access to roles based on digital skills and instead provides opportunities to learn, recent critiques highlight that the development of a growth mindset has little impact on the actual success of, for example, students (King & Trinidad, 2021; Zrudlo, 2025). Instead, one of the main contributors seems to be the socio-economic background of the individual: if a person is not financially or socially secure, a positive mindset cannot overcome these surrounding factors. Additionally, viewing the (successful) adoption of new digital technologies such as AI as a matter of one's individual mindset risks a deterministic, linear perspective on the development of technology instead of leaving room for the social shaping of technology (Bijker et al., 2012). This deterministic outlook on technology development and adaption risks focussing solely on factors of efficiency and productivity of technology without considering individual human strengths and abilities; hence, no longer focussing on human flourishing (Hahne & Schmoelz, 2026; Nida-Rümelin & Staudacher, 2024; Schmoelz, 2020; Werthner et al., 2019). Still, fostering a digital mindset in employees still allows for a fairer access to new digital technologies like artificial intelligence but needs to be situated in theories on inclusion and social shaping of technology.

References

Bijker, W. E., Hughes, T. P., & Pinch, T. (Eds). (2012). The social construction of technological systems: New directions in the sociology and history of technology (Anniversary ed). MIT Press.

Coeckelbergh, M. (2022). The Political Philosophy of AI: An Introduction. Polity.

Dweck, C. S. (1986). Motivational processes affecting learning. American Psychologist, 41(10), 1040–1048. https://doi.org/10.1037/0003-066X.41.10.1040

Hahne, P.-Z., & Schmoelz, A. (2026). Trusting the Machine: A Digital Humanist Perspective on Misplaced Trust in Artificial Intelligence. AI and Ethics. https://doi.org/10.1007/s43681-025-00923-1

Hofmann, V., Kalluri, P. R., Jurafsky, D., & King, S. (2024). AI generates covertly racist decisions about people based on their dialect. Nature, 633(8028), 147–154. https://doi.org/10.1038/s41586-024-07856-5

King, R. B., & Trinidad, J. E. (2021). Growth mindset predicts achievement only among rich students: Examining the interplay between mindset and socioeconomic status. Social Psychology of Education, 24(3), 635–652. https://doi.org/10.1007/s11218-021-09616-z

Nida-Rümelin, J., & Staudacher, K. (2024). Philosophical Foundations of Digital Humanism. In H. Werthner, C. Ghezzi, J. Kramer, J. Nida-Rümelin, B. Nuseibeh, E. Prem, & A. Stanger (Eds), Introduction to Digital Humanism (pp. 17 30). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-45304-5_2

Schmoelz, A. (2020). Die Conditio Humana im digitalen Zeitalter. Zur Grundlegung des Digitalen Humanismus und des Wiener Manifests. MedienPädagogik. Zeitschrift Für Theorie Und Praxis Der Medienbildung, (20), 208-234. https://doi.org/10.21240/mpaed/00/2020.11.13.X

Waldhauser, B. (2024a). Digital Mindset in der mittleren Lebensphase. Eine phänomenologische Analyse individueller Ergebnisse im Umgang mit digitalen Technologien (Working Paper No. 119). https://fhpub.fh vie.ac.at/urn/urn:nbn:at:at-fhbfiw:3-1106

Waldhauser, B. (2024b). Digital Mindset. Theoretische Grundlagen und konzeptionelle Ansätze in der bisherigen Literatur (Working Paper No. 117). https://fhpub.fh-vie.ac.at/urn/urn:nbn:at:at-fhbfiw:3-1088

Werthner, H., Lee, E., Akkermans, H., Vardi, M., & et al. (2019). Wiener Manifest für Digitalen Humanismus. https://www.informatik.tuwien.ac.at/dighum/wpcontent/uploads/2019/07/Vienna_Manifesto_on_Digital_Humanism_DE.pdf

Zrudlo, I. (2025). An Analysis of Growth Mindset Theory and Interventions in Education. Studies in Philosophy and Education. https://doi.org/10.1007/s11217-025-10029-0

Fair Agents: Navigating Societal Impact in Multi-Agent Personalization Systems

Andrea Forster[1,3], Peter Müllner[1,2,3], Thomas Gremsl[3], Dominik Kowald[1,3]

1: Know Center Research GmbH, Austria; 2: University of Graz, Austria; 3: Graz University of Technology, Austria

The rapid emergence of agentic AI promises unprecedented capabilities to plan, act, and interact with humans, other AI agents, and technological infrastructures. These interactions rely on well-designed interfaces that enable effective communication, coordination, and collaboration between multiple agents. However, agent-centric AI raises profound ethical, social, and privacy challenges: distributed decision-making can blur accountability, autonomous actions reduce transparency and trust, and continuous data exchange introduces privacy risks. As AI agents increasingly operate as interconnected systems rather than isolated tools, it becomes crucial to investigate their design, implementation, and governance to ensure that they remain fair, privacy-aware, and socially aligned.

In this extended abstract, we briefly outline related work in this field and our plans for future research, focusing on societal aspects such as fairness:

Recent work shows that AI agents exhibit human-like social influence effects with important systemic risks. Bellina et al. (2026) demonstrate that language model agents conform to incorrect group consensus under social pressure, overriding correct individual reasoning and amplifying bias. These risks are particularly concerning in personalization and recommender systems, where agents mediate attention, information access, and preference formation. Deldjoo et al. (2024) further highlight that generative personalization systems intensify societal risks by enabling individualized content generation and making it harder to assess

recommendation diversity, biases, accountability, and intervention due to non-determinism and unpredictability.

On the other hand, however, Lazar et al. (2025) argue that agentic personalization systems can solve shortcomings of traditional systems, which infer user preferences from implicit behavioral signals (e.g., clicks) and are dependent on large-scale data collection and surveillance, thus raising significant privacy concerns and encouraging passive consumption. In contrast, agentic personalization systems are not inherently dependent on massive amounts of behavioral signals because they can understand items in terms of natural language and images. Furthermore, they can potentially improve user agency by enabling conversation and explicit querying.

Aird et al. (2024) propose a social-choice-based framework in which multiple fairness agents dynamically negotiate competing objectives, a paradigm that could be extended to mitigate conformity and coordination failures. Yet, its generality necessitates participatory design, stakeholder governance (Lee et al., 2019), inference-time validation, and long-term societal evaluation to ensure agentic systems remain trustworthy, explainable, and socially aligned. In our work, we plan to address societal risks, such as, transparency, privacy, and especially fairness in agentic AI systems. Specifically, we propose to use social choice theory as a framework to coordinate multiple agents in ways that can mitigate these societal risks. Based on Aird et al. (2024), we aim to model fairness as the outcome of the aggregation of multiple agents' (possibly competing) objectives, rather than as a single and isolated criterion. We hope that this perspective offers a path to mitigate societal risks while enabling transparent and socially responsible agent behavior in multi-agent AI systems.

References

Aird, A., Farastu, P., Sun, J., Stefancová, E., All, C., Voida, A., ... & Burke, R. (2024). Dynamic fairness-aware recommendation through multi-agent social choice. ACM Transactions on Recommender Systems, 3(2), 1-35.

Bellina, A., De Marzo, G., & Garcia, D. (2026). Conformity and Social Impact on AI Agents. arXiv preprint arXiv:2601.05384.

Deldjoo, Y., He, Z., McAuley, J., Korikov, A., Sanner, S., Ramisa, A., ... & Ricci, F. (2024). Recommendation with generative models. arXiv preprint arXiv:2409.15173.

Lazar, S., Thorburn, L., Jin, T., & Belli, L. (2025). The moral case for using language model agents for recommendation. Inquiry, 1-25.

Lee, M. K., Kusbit, D., Kahng, A., Kim, J. T., Yuan, X., Chan, A., ... & Procaccia, A. D. (2019). WeBuildAI: Participatory framework for algorithmic governance. Proceedings of the ACM on human-computer interaction, 3(CSCW), 1-35.

Degrowth and Justice in the Context of AI, Data Literacy and Datafication

Linda Nierling[1], Tomáš Filo[2,] Christian Kerschner[3]

1: Karlsruhe Institute of Technology (KIT), Germany; 2: Charles University Prague; Czech Republic, 3: WU - Vienna University of Economics and Business, Austria

In recent years the Degrowth movement and discourse have galvanized critical discussions on alternative socio-technological imaginaries, visions and the role of technology and innovation for a just socio-ecological transformation of our society. By criticizing established ideas of progress and growth, the respective literature offers a radical observation scheme (D'Alisa et al. 2015, Kallis et al. 2025). With regard to technology, the debate in the Degrowth community covers a spectrum from highly sceptical attitudes towards technology towards more enthusiastic openings towards science and innovation practices. The latter is particularly evident for the case of digitalization as well as framing and practicing innovation as a social framework, e.g. democratisation of technology, supporting justice and elaborating on socio-technical innovations (Böschen et al. 2018, Kerschner et al. 2018, Sharma et al. 2025).

In this paper we are drawing on relevant Ecological-Economic and systems ecological literature and beyond referring to technology, innovation and justice in order to develop a critically reflective perspective on data and datafication. This will be achieved in three steps. First, the debate on Degrowth and Technology will be outlined, thus, the state of the art and the articulation of the problem orientation of the Degrowth perspective on technology will be summarized with a focus on justice and connected to AI literacy, data and datafication (Kerschner et al. 2018, Grunwald 2018, Pansera et al. 2024, Sand 2025, Schneider et al. 2022, Smith & Ely 2025) Second, a critical appraisal of digitalization and datafication will be offered, inspired by selected authors - in particular Georgescu-Roegen, Illich (e.g. 1973), Ellul, Holling and Tainter (1988) - for elaborating a framework suited to inform and further develop an approach towards AI and Data literacy in the context of Degrowth.
From a biophysical and complex systems perspective developments in datafication and AI are seen as a potential final phase of a self-augmenting technological system driven by fossil fuel energy. A consistent theoretical explanation is provided for the paradox of a quest for efficiency improvements and increased labour productivity that seems to lead to an explosion of information (data). This is coupled with an explosion of required energy and ("unproductive") human time to manage and make sense of this information and eventually a loss of autonomy and resilience. Third, the paper will close by outlining premises for dealing with this trend through a more reflective and convivial approach to datafication and data and AI literacy in-line with a just Degrowth society. Here, potentials and challenges of AI will be identified by integrating recent socio-technical developments, e.g. the use of LLMs in science or implications for the public discourse on AI (Barandiaran et al. 2024, Jahnel et al. 2025, Lange et al. 2023).

References

Barandiaran,X.E., Calleja-López, A., Carol Romero, A.M. (2024). Decidim, a Technopolitical Network for Participatory Democracy. Philosophy, Practice and Autonomy of a Collective Platform in the Age of Digital Intelligence. Springer Chambridge

Böschen, S.; Lösch, A.; Nierling, L. (2018). Degrowth: diskursive Normalisierung als innovatorische Radikalisierung? Zeitschrift für Diskursforschung, (2.Beiheft 2018), 43–70

D'Alisa, G., Demaria, F., Kallis, G. (2015). Degrowth A Vocabulary for a New Era, Routledge Grunwald, A. (2018). Diverging pathways to overcoming the environmental crisis: A critique of eco-modernism from a technology assessment perspective. Journal of cleaner production, 197, 1854–1862.

Illich, I. (1973). Tools for conviviality. Harper & Row

Jahnel, J., Nentwich, M., Riousset, P., Milchram, C., Kehl, C., & Albrecht, S. (2025). Generative AI in policy-oriented technology assessment (ITA-manu:script 25-01).

Kallis, Giorgos; Hickel, Jason; O'Neill, Daniel W; Jackson, Tim; Victor, Peter A; Raworth, Kate; Schor, Juliet B; Steinberger, Julia K; Ürge-Vorsatz, Diana (2025). Post-growth: the science of wellbeing within planetary boundaries. The Lancet Planetary Health. **9** (1): e62 – e78.

Kerschner, C.; Wächter, P.; Nierling, L.; Ehlers, M.-H. (2018). Degrowth and Technology: Towards feasible, viable, appropriate and convivial imaginaries. Journal of cleaner production, 197.

Lange, S., Santarius, T., Dencik, L., Diez, T., Ferreboeuf, H., Hankey, S., Hilbeck, A., Hilty, L.M., Höjer, M., Kleine, D., Pohl, J., Reisch, L.A., Ryghaug, M., Schwanen, T., Staab, P. 2023. Digital Reset. Redirecting Technologies for the Deep Sustainability Transformation. Oekom**.**

Pansera, M. Lloveras, J.; Durrant, D. (2024). The infrastructural conditions of (de-)growth: The case of the internet. Ecological Economics.

Sand, M. (2025). Technological Utopianism and the Idea of Justice. Springer

Schneider, C.; Wilke, N.; Lösch, A. (2022). Contested Visions for Transformation. The Visions of the Green New Deal and the Politics of Technology Assessment, Responsible Research and Innovation, and Sustainability Research. Sustainability, 14 (3), Article no: 1505.

Sharma, A., Pansera, M., & Lloveras, J. (2025). Science, Technology and Innovation for a Post-growth Society. Science, Technology and Society.

Smith, A., & Ely, A. (2025). From Limits to Growth to Post-growth: The International Politics of Technology in Historical Perspective. *Science, Technology and Society*, *30*(2), 230-258.

Tainter, J. A. (1988). The collapse of complex societies. Cambridge University Press.

Platform Audibility and Fairness in Music Recommendation

Joseph Callaly

Monash University, Australia

Research on recommender systems has developed in two partially connected strands. Computer science has advanced formal accounts of fairness in rankings and recommendations, with attention to bias, discrimination, and unequal visibility. STS and adjacent work has examined platforms as infrastructures that sort, govern, and format cultural circulation through metrics, interfaces, and classification. Within music streaming and short form video, recommendation operates through sequential media where exposure takes the form of timed positions within sessions. This sequentiality makes distribution a question of minutes and transitions, and it makes listening a site where allocation and habituation converge.

This contribution asks how music recommender systems produce a culture of listening through the routine management of continuity. It develops platform audibility as a concept for describing how systems allocate time bound opportunities to be heard within session sequences. The paper positions audibility as a fairness relevant outcome that links technical pipeline decisions to patterned access to listening time.

The methods combine infrastructural reading of recommender architectures with qualitative analysis of public empirical accounts. The infrastructural reading focuses on how pipeline components establish comparability that enables ordering, including loudness normalisation, perceptual coding, metadata grammars, and eligibility filters. The empirical component draws on publicly available documentation of platform design practices and on listener and creator accounts that describe how continuity, surprise, and transition comfort are experienced and anticipated during everyday use. The analysis mobilises STS concepts of commensuration and classification to trace how heterogeneous sonic material becomes comparable as a candidate for allocation.

The argument yields two main results. First, sequence-based recommendation relies on continuity produced upstream of ranking, where formatting and eligibility procedures reduce variance in playback conditions and constrain the space of permissible transitions. This regime supports repeated experiences of smooth adjacency that present continuity as a default listening condition. Second, these repeated experiences cultivate a learned disposition termed parametric listening, where expectations about acceptable transition smoothness align with calibrated thresholds and ranking objectives. In this setting, fairness concerns extend to the distribution of session time and to the patterned advantages conferred on items that travel well through continuity regimes. Audibility becomes an allocative outcome that can be analysed alongside familiar fairness concerns about visibility and representation.

The paper contributes to STS by linking fairness debates on recommender systems to the material practices that render sound comparable and governable in sequence. It proposes a shift toward analysing fairness in terms of durational allocation and transition governance, with implications for audit practices and accountability frameworks for cultural platforms.

Fair Scholar: Auditing Scholarly Recommendations for Fair Access

Thomas Aumüller, Fariba Karimi, Ana María Jaramillo, Diego Baptista Theuerkauf

TU Graz, Austria

The automation of scholarly discovery through recommender systems raises critical questions about fairness, bias, and the distribution of visibility within scientific knowledge systems. Beyond reflecting scientific landscapes, these systems shape visibility, attention, and resources while often amplifying historical and structural disparities embedded in data, methods, and design decisions. While in recent literature, algorithmic fairness has been used to assess biases in scholar recommender systems, there is a research gap on the daily use of these tools by a broad audience of scientists and how their algorithmic governance could be enhanced. We designed FairScholar, a browser extension that provides an interactive view of scholarly recommendation feeds, enabling users to interact in a parallel interface with alternative rankings resulting from configurable re-ranking methods (considering fairness, accuracy, and diversity criteria). By exploring how rankings shift and the possibility of criteria selection, rooted in explanations of the ranking mechanisms and assessed metrics, FairScholar intends to increase the algorithmic explainability, literacy, and governance of scholar recommender systems.

Algorithmic Funding Futures: A Practice-Theoretical Sociology of AI and a New Approach on Fairness in Research Funding

Carolin Thiem

VDI/VDE-IT, Germany

What kinds of sociotechnical futures could emerge when algorithms play a central role in evaluating funding applications and monitoring compliance? Bitte das abstract an dieser Frage ausrichten Abstract (English, sociological and practice-theoretical perspective) What kinds of sociotechnical futures emerge when algorithms become central actors in the evaluation of funding applications and the monitoring of compliance? Taking a sociological and practice theoretical perspective, this paper approaches research funding not as a neutral allocation mechanism but as a set of situated practices in which decisions, responsibilities, and values are continuously enacted. Across Europe, funding agencies increasingly deploy algorithmic systems to support or automate assessment, ranking, and oversight processes. These systems do more than optimize workflows: they reconfigure everyday evaluative practices, redistribute epistemic authority, and reshape relations between applicants, reviewers, administrators, and technical infrastructures. By becoming embedded in routine funding work, algorithms participate in defining what counts as “good” research, acceptable risk, and legitimate impact. The paper analyzes how such algorithmic arrangements may stabilize particular futures of science—favoring standardization, predictability, and data-intensive forms of accountability—while potentially marginalizing exploratory, interdisciplinary, or socially

embedded research practices. Drawing on Science and Technology Studies, the contribution explores how these emerging sociotechnical futures are performed in practice and how reflexive governance could counteract new forms of opacity, bias, and inequality. It argues that understanding algorithms as practice-shaping actors is crucial for designing funding systems that remain democratic, transparent, and socially responsive.

Reference

Beer, D. (2017). The social power of algorithms. Information, Communication & Society, 20(1), 1–13. https://doi.org/10.1080/1369118X.2016.1216147

Jasanoff, S. (2015). Future imperfect: Science, technology, and the imaginations of modernity. In S.

Jasanoff, S., & Kim, S.-H. (2015). Dreamscapes of modernity: Sociotechnical imaginaries and the fabrication of power. Chicago: University of Chicago Press.

Kitchin, R. (2017). Thinking critically about and researching algorithms. Information, Communication & Society, 20(1), 14–29.

Schatzki, T. R. (2002). The site of the social: A philosophical account of the constitution of social life and change. University Park, PA: Penn State University Press.

Schatzki, T. R. (2021). Practices and their futures. In A. Hui, T. Schatzki & E. Shove (Eds.), The nexus of practices (pp. xx–xx). London: Routledge

Artificial Intelligence and the Social Visibility of Disabled People

Narges Naraghi[1,2], Matthias Wölfel[2,3], Linda Nierling[1]

1: Institute for Technology Assessment and System Analysis, KIT, Germany; 2: Institute for Intelligent Interaction and Immersive Experience, Karlsruhe University of Applied Sciences; 3: Faculty of Business, Economics and Social Sciences, University of Hohenheim, Germany

This study aims to examine how current Artificial Intelligence (AI) systems are reshaping the social visibility of disabled persons. The articulation of our research problem roots in the intersection of two different avenues in two distinctive research fields: one in disability studies and the other in AI ethics. While political philosophy of disability and disability studies increasingly promote social representations of disability (Arneil, 2009; Mitra, 2006), ethics in AI pays limited attention to specific socio-public harms of AI for marginalized groups (Birhane, 2021). In a more pragmatic viewpoint, AI ethics lacks concrete engagement with the dangers of AI for marginalized social groups (Birhane et al., 2022), including disabled persons. This shortsightedness shapes a dilemmatic notion of AI and raises the question of whether AI is enabling or further disabling, for disabled individuals (Naraghi et al., 2025).
Placed in the intersection of disability studies and AI ethics, this work fills the research gap by offering a deepened understanding of how emerging AI technologies might cause harm to

disabled persons. Further, it could shed light on the ongoing redefinition of the social visibility of disabled persons. To reflect on these questions, the supporting body of the literature revolves around how the social understanding and representation of disability in the digital world is predominantly coupled with stigmatizing (Tekkar & Tripathi, 2022; Tsatsou, 2020), stereotyping (McGowen et al., 2025), and medicalizing (Lillywhite & Wolbring, 2024; Tsatsou, 2020). These trends, coupled with technical and social barriers of inclusive design for disabled persons, lead to this social group often being left out in AI design (Sieber et al., 2024; Whittaker et al., 2019). Accordingly, the second part of the supporting literature for this study would be the socio-public dynamics and harms of AI systems (Bariffi, 2021; Katzman et al., 2023; Solaiman et al., 2023).

The method for collecting data for this study is a focus group, where the disabled participants reflect on three pre-defined scenarios, covering private, professional, and public domains of social life. Respective scenarios, developed based on and chosen among the everyday lives of a contemporary person, would be centered around using a dating app, educating oneself for a skill, and pursuing activism. In each scenario, participants will be asked to position themselves on the scenarios and reflect on their lived experiences, either via the direct utilization of AI or through the AI in the background of their daily activities, such as AI-mediated public services. The gathered data would be analyzed qualitatively through a framework of social visibility (Brighenti, 2010). The expected results of this study are to show how AI might affect the visibility of disabled persons in various activities in their daily lives. This contribution enriches the context of socio-political and representational harms of AI for disabled persons, and contributes to developing nuanced societal agendas for a deepened understanding of AI fairness.

References

Arneil, B. (2009). Disability, self image, and modern political theory. Political Theory, 37(2), 218–242. https://doi.org/10.1177/0090591708329650

Bariffi, F. J. (2021). Artificial Intelligence, Human Rights and Disability. Pensar - Revista de Ciências Jurídicas, 26(2), 14–1. https://doi.org/10.5020/2317-2150.2021.12704

Birhane, A. (2021). Algorithmic injustice: a relational ethics approach. In Patterns (Vol. 2, Number 2). Cell Press. https://doi.org/10.1016/j.patter.2021.100205

Birhane, A., Ruane, E., Laurent, T., S. Brown, M., Flowers, J., Ventresque, A., & L. Dancy, C. (2022). The Forgotten Margins of AI Ethics. ACM International Conference Proceeding Series, 948–958. https://doi.org/10.1145/3531146.3533157

Brighenti, A. M. (2010). Visibility in social theory and social research. In Visibility in Social Theory and Social Research. Palgrave Macmillan. https://doi.org/10.1057/9780230282056

Katzman, J., Wang, A., Scheuerman, M., Blodgett, S. L., Laird, K., Wallach, H., & Barocas, S. (2023). Taxonomizing and Measuring Representational Harms: A Look at Image Tagging. www.aaai.org

Lillywhite, A., & Wolbring, G. (2024). Coverage of well-being within artificial intelligence, machine learning and robotics academic literature: the case of disabled people. AI and Society, 2537–2555. https://doi.org/10.1007/s00146-023-01735-9

McGowen, L., So, E., & Walker, J. (2025). The impact of the use of Artificial Intelligence on people with disabilities. In Conference on Human Factors in Computing Systems - Proceedings. Association for Computing Machinery.

Mitra, S. (2006). The capability approach and disability. In Journal of Disability Policy Studies (Vol. 16, Number 4, pp. 236–247). https://doi.org/10.1177/10442073060160040501

Naraghi, N., Nierling, L., & Wölfel, M. (2025). Enabling Dilemma of AI for Disabled Individuals. In G. Getzinger, M. Jahrbacher, & R. Prunč (Eds.), Book of Abstracts, 23rd STS Conference Graz 2025 (pp. 367–391). Technischen Universität Graz. https://openlib.tugraz.at/book-of-abstracts-23rd-sts-conference-graz-2025-2025

Sieber, R., Brandusescu, A., Adu-Daako, A., & Sangiambut, S. (2024). Who are the publics engaging in AI? Public Understanding of Science, 33(5), 634–653. https://doi.org/10.1177/09636625231219853

Solaiman, I., Talat, Z., Agnew, W., Ahmad, L., Baker, D., Blodgett, S. L., Chen, C., Daumé, H., Dodge, J., Duan, I., Evans, E., Friedrich, F., Ghosh, A., Gohar, U., Hooker, S., Jernite, Y., Kalluri, R., Lusoli, A., Leidinger, A., … Subramonian, A. (2023). Evaluating the Social Impact of Generative AI Systems in Systems and Society. http://arxiv.org/abs/2306.05949

Tekkar, P., & Tripathi, S. R. (2022). Social Stigma and Self: A Psycho-social Study of People with Visual Impairment. Indian Journal of Health and Wellbeing, 13(3), 335–342.

Tsatsou, P. (2020). Digital inclusion of people with disabilities: a qualitative study of intra-disability diversity in the digital realm. Behaviour and Information Technology, 39(9), 995–1010. https://doi.org/10.1080/0144929X.2019.1636136

Whittaker, M., Alper, M., Bennett, C. L., Hendren, S., Kaziunas, L., Mills, M., Ringel Morris, M., Rankin, J., Rogers, E., Salas, M., & Myers West, S. (2019). Disability, Bias, and AI (Workshop report by AI Now Institute).

3: Co-laborative Technology Development in the Context of Generative AI

Session Chairs:

Céline Gressel, University of Tübingen, Germany

Monde Spindler, University of Tübingen, Germany

Lisa Koeritz, University of Tübingen, Germany

Sonja Pfisterer, University of Tübingen, Germany

Finding Common Ground: Interdisciplinarity & (Gen) AI

Jana Hecktor, Lisa Koeritz

University of Tuebingen (IZEW), Germany

It is evident that artificial intelligence has become an increasingly pervasive technology. The rise of generative AI in recent years has only heightened this development and AI systems are now playing an important role in many different societal discourses. However, data and knowledge about these specific societal discourses are needed in order to train and fine-tune the AI systems and to better understand their potential as well as their risks. Given that AI systems are always situated somewhere between society and computer science, the research on AI should also always be interdisciplinary. (See for example: Dignum et al., 2023).

Interdisciplinary work on AI not only requires the willingness of different disciplines to collaborate, but a shared understanding must be established, which involves translating between disciplines and closing the gap of epistemic differences. This can mean to focus on goals, shared vocabularies and their similar or different meanings as well as on the differences or similarities in research methods. Translation itself also requires different competencies, from communication skills to epistemic reflexivity, to researchers and institutions, who acknowledge the necessity thereof.

Within the context of AI interdisciplinary translation is additionally complex, as the processes of AI systems themselves can be considered different layers of translation. From social discourses to data, from data to models, from models to generated output to the concrete use cases and the different ways, people deal with AI systems and their output (see for example Crawford, 2021).

Building on previous workshops at the STS-CH Conference 2025 and an international Workshop on “Aligning AI with Society”, this presentation explores three unique use cases for interdisciplinary work on AI. They show different ways to foster the dialogue between disciplines, as well as how to raise awareness of the challenges and opportunities that can be found.

The first example is based on discussion results from a transatlantic workshop focusing on an interdisciplinary understanding of AI alignment in society: Scholars from fields such as law,

philosophy and computer science were brought together to discuss shared concepts, goals and vocabulary.
The second example focuses on the use of generative AI in scenario creation. An interdisciplinary group of researchers, as well as individuals from the tech industry, have attempted to find ways to prompt systems such as ChatGPT to assist with scenario design (see Pribizz Website).
The third example uses Generative AI assistance in interacting with ethics guidelines. An interdisciplinary group of researchers created a system to search AI ethics guidelines to allow the attic source of ethics guidelines in PDF documents to become a queryable knowledge base (see ANKER Website).
All three use cases highlight the wide-ranging ways in which interdisciplinary work can employ AI systems as well as how to talk interdisciplinarily about AI. We aim to show not only the potential of new collaboration foundations but also significant challenges in seamlessly integrating AI into discourse or on AI as an effective tool as well as the need for critical discourse.

References

Crawford, K. (2021). The Atlas of AI: Power, Politics, and the Planetary Costs of Artificial Intelligence. Yale University Press. https://doi.org/10.2307/j.ctv1ghv45t

Dignum, V. et al. (2023) On the importance of AI research beyond disciplines. arXiv preprint. Available at: https://arxiv.org/abs/2302.06655.

ANKER: https://integrierte-forschung.net/projekte/anker/
Pribizz: https://www.pribizz.de/

How is the Everyday Work of Co-Laboration Changing Through GenAI

Ina Krause

TU Dresden, Germany

The dynamics of socio-technical transformations in the modern world of work have been described over the past three decades using terms such as informatization (Zuboff 1988, Boes et al. 2014), digitization (Pfeiffer 2021), datafication (Huben/Prietel 2018), and virtualization (Krause 2023). All these terms are used by technology and work sociologists, and STS researchers to describe the socio-technical interrelationships between the introduction and adaptation of web-based, networked data processing technologies in the work context and the transformation of the working practices of skilled workers in various areas of the world of work.
A systematic distinction between the aforementioned paths of technology development was proposed early on by Hirsch-Kreinsen 2016, who pointed in particular to the path of transformation in working environments, which is driven by the ongoing automation and simplification of production technology, in contrast to two other transformation dynamics driven by data processing technologies and the establishment of global and digital network technologies. Krause (2023; Krause & Oertel 2024) followed this line of thinking and identified different logics of modern working societies (industrial-imprinted productivity logic,

information-based logic, virtual-networked logic) in order to differentiate different paths of transformation of work organizations at the meso level of society and, associated with this, different work orientations that shape the dynamic transformation of work practices, forms of collaboration at work, concepts of human machine interaction, and leadership concepts at the micro level of society.

This article uses the framework of this debate to further discuss how generative artificial intelligence tools and the evolving infrastructure associated with the introduction and deeper adaptation of these tools in the work context and in the further development of production technology—such as Copotes—are initiating another transformation path that can be described as “cognitive simplification.”

This path builds on the working logic of industrial productivity, but implements this logic in knowledge-based areas of the world of work where cognitive tasks long seemed impossible to automate—until the 2010s (Autor/Dorn 2013). With generative AI tools, we are now seeing that it is possible to simplify human cognitive tasks and automate some of the human cognitive abilities. At the meso level of society, this opens up a new socio technical and socio-economic optimization dynamic that aims to improve human productivity in solving cognitive work tasks through interaction with generative AI technology. This development has a strong impact on collaboration between humans in the work context.

However, this development raises two key questions that are essential for a deeper understanding of work co-laborations in the context of generative AI:

> On the one hand, social science studies must examine how people acquire knowledge, skills, and professional competencies in digital, virtually integrated, and AI-based, cognitively simplified work environments. This requires observing learners’ learning and teachers’ teaching practices as well as their practical actions when using generative AI-based applications in learning contexts such as vocational training and universities. We are currently seeing significant processes of change here. (Krause 2026 under review) On the other hand, a second question arises: namely, how knowledge and innovations are collaboratively produced and reproduced in digital, virtually networked, and AI-based cognitively simplified work environments.

This second question will be the focus of further discussion in this article: In this context, new dynamics of co-laboration are unfolding in digital, virtual, and AI-based, cognitively simplified work environments. On the one hand, co-laboration is being spatially and temporally reconfigured through the digital and virtual networking of human actors, whereby the fixed structures of industrially shaped work environments—with regionally defined work and co-laboration locations as well as strictly defined daily working hours— are increasingly losing significance, while open, project-based, performance-oriented work co-laborations are gaining importance. In this new framework, technological systems such as co-laboration platforms, virtual data storage, or IT-based communication systems and communication applications like Slack, Asana and Co. play a mediating role, making co-laboration possible within these spatially and temporally loosely coupled structures.

With the intensifying development of generative AI applications, however, the emergence of new interactions or even co-laborations between humans and generative AI assistants can be observed. Generative AI expands the range of possibilities for the mediating role that technological systems, tools and applications can assume in the context of human collaborative work practices. For example, the constant availability of AI applications (day and night, location-independent, consistent quality) has a significant effect on these applications

replacing human co-laboration, consultation, or support services in specific contexts.
In these developments, which are currently beginning to emerge, a tension arises in which the cognitive simplification enabled by generative AI applications competes with the willingness to collaborate with human colleagues and to hold up the continuous exchange of knowledge in work contexts between humans. There is a risk that the constantly available AI assistance will be attributed greater performance and reliability than collaborative human actors or human experts.
To prevent these developments from leading to a potential loss of collaborative human action—or, more accurately, to design generative AI applications as tools to support human co-laboration—clear and understandable descriptions of the application areas, as well as the possibilities and limitations of generative AI applications, are required, as is currently being discussed in the debate surrounding Social explainable AI (sXAI) applications (see Rohlfing et al. 2026). As well as the development of AI literacy and AI competencies (Chiu 2025) through vocational and academic education processes that enable a cognitively responsible use of generative AI applications in work contexts.
This paper/contribution aims to discuss these dynamics and provides examples from the f ields of vocational training and academic education, where a change in practices in co laboration between students and between students and AI technology is currently clearly visible.

References

Autor, D./Dorn, D. (2013): »The Growth of Low-Skill Service Jobs and the Polarization of the US Labor Market«, in: American Economic Review 103 (5), S. 1553-1597

Boes, A./Kämpf, T./Langes, B./Lühr, T. (2014): »Informatisierung und neue Entwicklungstendenzen von Arbeit« in: AIS-Studien, 7 (1), S. 5-23.

Chiu T. K. F. (2025) AI literacy and competency: definitions, frameworks, development and future research directions, Interactive Learning Environments, 33(5), 3225–3229. https://doi.org/10.1080/10494820.2025.2514372

Hirsch-Kreinsen, H. (2016): »Zum Verhältnis von Arbeit und Technik bei Industrie 4.0«, in: APUZ 66 (18-19), S. 10-16

Houben, D./Prietl, B. (Hg.) (2018): »Datengesellschaft. Einsichten in die Datafizierung des Sozialen«, Bielefeld: transcript.

Krause, I. & Oertel, S. (2024). The transformation of work in the digital age: Coworking spaces as community based models of work organization. In E. Weik, C. Land, R. Hartz (Eds.) The handbook of organizing economic, ecological and societal. Berlin, Boston: De Gruyter, pp. 125 – 144.

Krause, I. (2023). Entkoppelte Arbeitswelten. Betriebliche Arbeitsorganisationen und neue Intermediäre im Strukturwandel postindustrieller und virtueller Arbeitsgesellschaften. Bielefeld: transcript.

Krause, I./ Sambamurthy, N. (2025): New approaches to vocational training through the cognitively responsible use of AI tools. Implementation and negotiation of AI in the context of vocational and corporate training systems. Conference Speech 14th ILERA Conference; Durham, GB.

Pfeiffer, S. (2021): »Digitalisierung als Distributivkraft. Über das Neue am digitalen Kapitalismus«, Bielefeld: transcript.

Rohlfing, K. J.; Främling, K.; Lim, B.; Alpsancar, S.; Thommes, K. (2026): Social Explainable AI. Communications of NII Shonan Meetings. 1st ed. 2026. Singapore: Springer Nature Singapore; Imprint Springer.

Dangerous Co-Laborative Epistemic Practices

Jacqueline Bellon

Universität Tübingen, Germany

This talk intends to give illustrative examples of dangerous co-laborative epistemic practices in the fields of higher education and academic research addressing GenAI use in knowledge-related domains such as acquiring knowledge as a learner (e.g., as a student or layperson acquiring AI literacy), providing knowledge transfer (e.g., as an educator), contributing to knowledge production and dissemination (e.g., as a publishing researcher).
This will include an overview of current research on GenAI human-machine interaction related to epistemic practices, e.g., on cognitive offloading (Kosmyna et al. 2025), the development of critical thinking (Gerlich 2025) and on problematic GenAI use in publishing processes. The author will also present their own approach (Bellon 2024) to explaining the origins of some of the mentioned problematic epistemic practices.
It will furthermore include an experience report on using theoretical frameworks and practical GenAI exercises to promote Critical AI literacy in a Master Program on "Applied AI" in a class on "Fairness in AI" taught by the author at Fachhochschule Südwestfalen.
In this class and in each winter semester, 120 part-time students who already work in f ields such as Information Technology (IT), medicine, industry-related software or hardware development and logistics, the military, and others, learn the basics of AI ethics and do practical activities involving the use of text, image, and video generators to gain awareness of the potential risks and downfalls of overtrusting GenAI outputs (Robinette 2026), producing "AI botshit" (Hannigan et al. 2024), buying into problematic ideologies (Torres 2024) and other ethical and epistemic aspects such as gaining awareness of culturally specific AI imaginaries (Cave & Dehal 2023).

References

Bellon, Jacqueline. 2024. „Plausibel, aber unwahr. Sozialisation und Wahrscheinlichkeitspapageien“. In Technik sozialisieren?, herausgegeben von Jacqueline Bellon, Bruno Gransche, und Sebastian Nähr Wagener, Bd. 10. techno:phil. Aktuelle Herausforderungen der Technikphilosophie. Metzler.

Cave, Stephen, Kanta Dihal, Stephen Cave, und Kanta Dihal, Hrsg. 2023. Imagining AI: How the World Sees Intelligent Machines. Oxford University Press.

Gerlich, Michael. 2025. „AI Tools in Society: Impacts on Cognitive Offloading and the Future of Critical Thinking“. Societies 15 (1): 6. https://doi.org/10.3390/soc15010006.

Hannigan, Tim, Ian P. McCarthy, und Andre Spicer. 2023. „Beware of Botshit: How to Manage the Epicstemic Risks of Generative Chatbots“. SSRN Scholarly Paper 4678265. Rochester, NY, Dezember 28. https://papers.ssrn.com/abstract=4678265.

Kosmyna, Nataliya, Eugene Hauptmann, Ye Tong Yuan, u. a. 2025. Your Brain on ChatGPT: Accumulation of Cognitive Debt when Using an AI Assistant for Essay Writing Task. Juni 10. https://doi.org/10.48550/arXiv.2506.08872

Robinette, Paul, Wenchen Li, Robert Allen, Ayanna M. Howard, und Alan R. Wagner. 2016. „Overtrust of robots in emergency evacuation scenarios“. 2016 11th ACM/IEEE International Conference on Human Robot Interaction (HRI), März, 101–8. https://doi.org/10.1109/HRI.2016.7451740

Torres, Émile P. 2024. „Understanding the TESCREAL Bundle of Ideologies and its Implications for Global Justice“. Conference presentation. https://www.youtube.com/watch?v=tk1WZKzGgyE.

4: Data Disruptions

Session Chairs:

Thomas Zenkl, University of Graz, Austria

Jo Bates, University of Sheffield, United Kingdom

Datafication of Casework: From Decontextualisation to Disruption in Social Services Provision

Irina Zakharova, Stefanie Büchner

Leibniz University Hannover, Germany

Reducing bureaucracy, simplifying organisational processes, providing citizen-oriented services – the datafication of welfare state is in full swing. In social organisations such as child protection services or job centres, such data are composed into individual profiles. In contrast to self-created profiles, public service organisations tend to arrange data around the problems they address: Citizens therefore are often processed not as individuals, but as cases. As such, cases are managed, circulated, and ultimately addressed, e.g. by relocating a child in cases of their endangerment. Typically, street-level caseworkers taking up or engaging temporally in a new case would engage in recontextualisation of a case working together with clients and colleagues to collectively produce a thorough case description and a situated understanding of case-related problems. With datafication of casework, more data about the case are being accumulated and shared, while less resources are available to the complex processes of recontextualisation.

This creates a tension between intended data disruption through recontextualisation, e.g. by updating and repairing case data, and the tendency to replace recontextualisation with data driven decision support for caseworkers. The grave consequences of such disruptions became visible in such prominent examples of failed welfare datafication as the AMS algorithm (Allhutter et al., 2020). This contribution hence addresses case processing as a widely understudied site of ambivalent data disruptions. We specifically ask how data disruptions are produced and avoided in organisational case work based on empirical vignettes from social welfare and education.

To do so, we bring together sociological perspectives on casework in social organisations and critical data studies (CDS). Drawing on the former, we discuss the multiple and heterogenous conditions of organisational scarcity, from lack of organisational and administrative resources to societal polycrises which increase pressure on social organisations to perform faster and manage higher quantities of cases at the same time (Büchner et al., 2026). Building upon CDS research into data frictions (Bates, 2018) and data movement (Kitchin et al., 2025) we engage analytically with decontextualisation of cases when they become datafied and expectations of seamless case processing and sufficiency of data for complex decisions. Departing from this conceptual background, we identify ambivalences of data disruptions within datafied casework.

On the one hand, intended (and assumed as taken for granted) data disruption does not widely take place in processing cases within and between organizations. Why not? Organisations expect their members to recontextualise data before using it (e.g. update it, find mistakes, disentangle data about multiple family members to single ones). However, available data are very likely not reassessed, but used as a basis for decision-making (uncertainty absorption), and because reassessment and recontextualisation need additional time (that is intended to be reduced by datafication) and effort (repair work). On the other hand, unintended data disruption grows from a mismatch between decontextualised case data (often in form of factors, standing beside each other, allowing little sensemaking of the actual problems of the case, how the factors do or do not contribute to the problem) and the lived experiences making up the case-related problem situated sociomaterially, e.g. risk of development impairments in cases for child endangerment. In sum, this contribution explores the forces constituting data disruptions in casework as an understudied site of social welfare provision.

References

Allhutter, D. et al. (2020). Algorithmic Profiling of Job Seekers in Austria: How Austerity Politics Are Made Effective. Frontiers in Big Data, 3.

Bates, J. (2018). The politics of data friction. Journal of Documentation, 74(2), 412–429.

Büchner, S. et al. (eds.). (2026). Fall und Fallförmigkeit: Organisationen als Kontexte von Fallbearbeitung. transcript.

Kitchin, R. et al. (2025). Data mobilities: Rethinking the movement and circulation of digital data. Mobilities, 20(5), 1002–1020.

Frictions in Implementing Human-Assisted RPA in Primary Healthcare

Iiris Lehto[1], Marja Alastalo[2]

1: University of Eastern Finland, Finland; 2: University of Eastern Finland, Finland

In this presentation, we explore frictions in the implementation of a Robotic Process Automation (RPA)–based robot designed to automate a small data validation task in primary healthcare in one of Finland´s 21 wellbeing services counties. Using breakdown and friction as analytical lenses (Edwards, 2011; Bates, 2018), we examine the sociotechnical dynamics shaping the robot's operation and the human assistance it requires.

The wellbeing services counties were established at the beginning of 2023 as part of an administrative reform that transferred responsibility for organising healthcare, social services, and rescue services from municipalities to these counties. The counties have been encouraged to adopt advanced digital technologies, with the expectation that staff workloads will be reduced and services organised on the basis of effectiveness data.

Although AI-based technologies are being introduced into healthcare, RPA technology continues to be used. In the studied case, the RPA did not use AI, as the organisation was highly cautious about the legal and data protection implications of data-driven solutions. RPA robots are often described as 'digital workers' assigned to mundane routine tasks. Such

software robots typically mimic actions previously performed by human workers, such as sending emails, and can only process structured, digitised data. The studied robot operated in conjunction with a checklist that scanned the primary healthcare patient information system's database and checked data entries on a daily basis.

The robot was introduced to reduce the workload of the main users of the patient information system and the data team, as well as to improve the quality of primary healthcare data. Prior to the robot's implementation, the main users and the all-female data team were responsible for sending reminder emails to healthcare professionals regarding missing or incorrect data entries. Following the implementation of the RPA, responsibility for sending these reminders was delegated to the robot which sent an email notification once a week. High quality data are essential at both local and national levels, as they are used, for example, to support data driven management and to underpin the allocation of state funding to wellbeing services counties.

Empirically, the presentation draws on two and a half years of ethnographic fieldwork. which consists of fieldnotes from over 70 weekly online meetings and 15 semi-structured interviews. We were shadowing the data team responsible for preparing standardised healthcare data for secondary uses, including management, statistics, and research. The team was established to support digital healthcare and data-driven management in response to challenges such as labour shortages and limited funding.

We identify four sources of friction that constrained automation and disrupted data flows: technical failures, legislation and national guidelines, austerity and cost-saving pressures, and organisational complexity and hierarchies. Examining these frictions in detail makes it possible to assess whether the technology is suitable for the task at all. Rather than reducing 1 work, the robot generated new forms of labour, including monitoring, maintenance, interpretation, coordination, and emotional work. We conceptualise the robot as a human assisted technology to make this labour visible. (Alastalo & Lehto, 2025.)

By foregrounding frictions rather than seamless automation, this presentation contributes to science and technology studies by offering an empirically grounded account of how RPA is negotiated in complex public healthcare organisations and by highlighting affective dimensions, such as frustration, as integral to data work.

References

Alastalo, M. and Lehto, I. (2025) "Frictions in Automating Routine Data Work : A Human Assisted Robot in Datafied Healthcare in Finland", Science & Technology Studies, 38(4), pp. 57–74.

Bates J (2018) The politics of data friction. Journal of Documentation 74(2): 412–429.

Edwards PN (2010) A Vast Machine: Computer Models, Climate Data, and the Politics of Global Warming. Cambridge: MIT Press.

Data Cleaning as Data Disruption

Pinar Barlas

University of Western Ontario, Canada

Training datasets, which fuel “Artificial Intelligence” (AI) systems built using machine learning, are often the origin of the discriminatory, harmful patterns which appear in the outputs of such systems. One essential step in the creation or handling of training datasets is the process called “data cleaning,” which may involve correcting known errors in the value of a datapoint, removing outliers, filling in datapoints left blank, among other practices. The specific process can vary in amount and type of intervention of the data between projects; due to the context-specific and contested nature of what “dirty” and “clean” data mean, practitioners draw on their experience, habits, and discretion to determine how the dataset changes.

Despite the long history of STS scholarship on data work [such as Star 1983] which informs studies of dataset creation for machine learning, such as collection and annotation [e.g., Muller et al. 2021], not much attention has been paid to the data cleaning step. I argue that the classification practices [Bowker & Star 2000] inherent in deciding which data is “dirty” and must be cleaned (versus data that is “clean enough” to work with), and the invisible, infrastructural [Star 1999] nature of data cleaning both necessitate investigating the data cleaning step as a site where power relations shape the data. This is even more important in the light of recent findings, which have shown that the marginal position that disadvantaged populations hold in society translates into their data being unwanted “dirty” data—such as outliers [Simson, Fabris, & Kern 2024; Kaltenhäuser et al. 2025].

The theoretical lens I propose is that of Discard Studies [Liboiron & Lepawsky 2022], which looks at wasting practices as techniques of power. By viewing data cleaning as discarding practices (whether the data is removed, transformed, or otherwise altered), behaviors that are often seen as mundane can instead be recognized for their potential to further discrimination. With my work, I draw attention to how data that “disrupts the flow” is treated and connect it to downstream negative outcomes for marginalized groups, opening up new avenues for research and interventions into systems of power.

References

Bowker, G. C., & Star, S. L. (2000). Sorting Things Out: Classification and Its Consequences. MIT Press.

Kaltenhäuser, K., Slaats, T., Muller, M., & Holten Møller, N. (2025). Beyond Accuracy: Rethinking Outlier Detection in Asylum Data. ACM Journal on Responsible Computing, 2(1), 1 28. https://doi.org/10.1145/3718986

Liboiron, M., & Lepawsky, J. (2022). Discard studies: Wasting, systems, and power. The MIT Press.

Muller, M., Wolf, C. T., Andres, J., Desmond, M., Joshi, N. N., Ashktorab, Z., Sharma, A., Brimijoin, K., Pan, Q., Duesterwald, E., & Dugan, C. (2021). Designing Ground Truth and the Social Life of Labels. Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems, 1–16. https://doi.org/10.1145/3411764.3445402

Simson, J., Fabris, A., & Kern, C. (2024). Lazy Data Practices Harm Fairness Research. The 2024 ACM Conference on Fairness, Accountability, and Transparency, 642–659. https://doi.org/10.1145/3630106.3658931

Star, S. L. (1983). Simplification in Scientific Work: An Example from Neuroscience Research. Social Studies of Science, 13(2), 205–228. https://doi.org/10.1177/030631283013002002

Star, S. L. (1999). The Ethnography of Infrastructure. American Behavioral Scientist, 43(3), 377–391. https://doi.org/10.1177/00027649921955326

5: The Sociology of Digital Gaming Communities

Session Chairs:

Philip Baumbach, Technical University Berlin, Germany

Ingo Schulz-Schaeffer, Technical University Berlin, Germany

Nicolas Zehner, Technical University Berlin, Germany

Daniel Grönefeld, Technical University Berlin, Germany

Hate Raids on Twitch: An Intersectional Exploration of Black Women Gamers on a Streaming Platform

Jovel Morgan

Technical University of Munich, Germany

This paper (thesis) examines the intersectional experiences of Black women gamers on Twitch, focusing on how visibility, harassment, and community are shaped by platform design, socio-political context, and digital labor. Drawing on Patricia Hill Collins's (2000) four domains of power (structural, disciplinary, cultural/hegemonic, and interpersonal) I analyze how race and gender co-produce both vulnerability and resistance within live streaming cultures, particularly during and after the 2021 'Hate Raids.'

The study is based on qualitative interviews with five Black women or femme-presenting Twitch streamers, alongside a NETnographic (Kozinets) analysis of Twitch's blogs, Community Guidelines and Black Girl Gamers (BGG) website and Twitch summits. Together, these data sources reveal that Black women streamers occupy a paradoxical position: they are hyper-visible as symbols of diversity yet structurally unsupported within Twitch's governance and recommendation systems. Algorithmic logics that reward engagement often penalize marginalized creators, while moderation tools shift the burden of safety onto streamers themselves, intensifying emotional and aAective labor.

The findings also situate these platform dynamics within a broader political timeline. The year 2020 marked a moment of heightened corporate attention to diversity, equity, and inclusion (DEI), coinciding with global racial justice movements and increased visibility for organizations such as BGG. However, by 2024–2025, this momentum encountered significant backlash. Online reactions to Twitch and BGG's public support for Black and marginalized communities reveal patterns of ridicule and hostility, reflecting wider anti 'woke' and anti-DEI discourses. In this context, Black women streamers are often perceived as 'political' by mere presence, disrupting the fantasy of gaming as an apolitical space of escapism.

Despite these pressures, Black women streamers actively cultivate communities of support, unity, and resilience. Drawing on Ruha Benjamin's (2022) concept of viral justice, this paper argues that these practices (shared knowledge, defense, and intentional community-building)

function as small, accumulative acts of resistance that challenge platform neglect. Rather than relying solely on institutional protection, streamers transform Twitch into a site of collective imagination, where community becomes both shield and strategy.
This paper contributes to feminist STS, game studies, and platform studies by centering Black women's digital labor and community practices as critical sites of knowledge production. It argues that meaningful inclusion on platforms like Twitch cannot be achieved through visibility alone but requires structural accountability and a rethinking of how safety and community are valued in digital economies.

How Pokémon GO Reflects Spatial Inequality. Playing the Game in Cape Town and in Berlin

Ingo Schulz-Schaeffer[1], Philip Baumbach[2]

1: TU Berlin, Germany; 2: TU Berlin, Germany

When Pokémon GO was launched in 2016, it became a global phenomenon, visibly changing public spaces around the world. Even after the global hype has subsided, Pokémon GO is still the most successful location-based smartphone game. Pokémon GO turns public space into the habitat of the Pokémon, digital creatures, players can catch, collect, and evolve. Landmarks of any kind can become PokéStops and Gyms, game elements where players can collect game items and engage in battles between Pokémon. To play the game, users must move around in physical space to get close enough to the Pokémon, PokéStops, or Gyms to interact with them.
One factor influencing the usability of public spaces as playing fields for Pokémon GO is whether people feel safe walking around in an area and moreover safe enough to take out their smartphones and divert some of their attention to the game. For the Pokémon GO players we interviewed in Berlin and other cities of the Global North, safety issues were of minor concern. For our interviewees from Cape Town, however, due to a high level of street crime, safety is the main factor influencing the players' spatial practices of playing the game. Safety from crime is unequally distributed in Cape Town, less ensured by the police (or private security companies) in poorer neighborhoods than in the city center and the middle-class northern and southern suburbs. For Capetonians, it is common knowledge that in some areas there is a high risk of being robbed of one's mobile phone if you take it out, what for playing Pokémon GO one obviously has to do. The Cape Flats provide the most obvious case of how the safety situation affects playing Pokémon GO. The Cape Flats where during apartheid the non-white population of Cape Town was forced to settle is until today the poorest part of the city and is affected by high levels of gang related crime. Nearly all of our interviewees including those living there view this area as unsuitable for playing the game. The uneven distribution of safety thus constitutes a pronounced form of spatial inequality.
This spatial inequality is reflected on the cyber-physical playing field of Pokémon GO in an equally uneven distribution of game elements (Pokémon, PokéStops, and Gyms). This is because the density of game elements results from players' activities. Thus, in areas where people do not play the game there are there are significantly fewer game elements than in areas with many active players. However, in areas where there are few game elements it is

much less fun to play the game compared to areas with many PokéStops, Gyms, and spawning Pokémon. In this way, the game not only reflects spatial inequality. For its players it also reproduces and reinforces spatial inequality.
In our presentation we will discuss how Pokémon GO players perceive spatial inequality as reflected in the game and how players deal with it. Focusing on playing the game in Cape Town we will discuss the mechanisms through which spatial inequality is reproduced and reinforced within Pokémon GO. For comparison, we will show what kinds of spatial inequalities are influencing how players in Berlin and other cities of the Global North experience the game. Against this backdrop we will discuss how spatial inequality affects the community-building of Pokémon GO players.

The Subject in the Virtuality of Computer Role-Playing Games. A Psychoanalytical-Educational Concept.

Lilly Drogies

Leopold-Franzens-University Innsbruck, Austria

Computer role-playing games can induce various specific states in players, ranging from immersion, presence and flow to identification with one's own avatar. These processes are driven by the narrative and the decision-making opportunities it presents, but at the same time require players to actively 'engage' with the game play.
The CRPG Baldur's Gate 3 serves as a case study: It features a dense plot, a customisable avatar, morally ambiguous decisions, and para-social interactions with NPCs through which players can form emotional bonds and identify with characters. Larian Studios have extended the levels of immersion and presence, which are usually tied to the game world, into the reality outside the game. In their "Panels from Hell", the fan community was included in a form of participatory public sphere during the early access phase through live game play sessions, insights into the development process and discussions of design decisions; this suggests an increased sense of self-efficacy in relation to the game world and further blurs the boundaries between reality and virtuality.
Furthermore, players share their emotionally charged gaming sessions, discuss moral decisions, recount and pass on their gaming experiences, for example in online forums, Discord servers or on social media, and in doing so develop shared narratives, insider codes and memetic references. In this way, immersion, presence, flow and avatar identification are embedded in collective practices in which belonging and identity are negotiated within the gaming community. From a sociological perspective, these practices can be analysed as socio-technical arrangements in which game mechanics, development infrastructures and player communities co-produce forms of digital communitisation and emerging publics.

Cheetah Games: Applying Behavioral Analysis to Digital Deviance in Multiplayer Online Worlds

Kim Covent[1], Sandra Adiarte[2]

1: Lokale Politie Gent, Belgium; 2: Bond University, Australia

Online multiplayer games have evolved into complex digital ecosystems where players interact through avatars, chat systems, and persistent worlds. These virtual environments offer rich opportunities to observe behavioral patterns, assess emerging risks, and detect deviance. In this paper, we apply a multi-channel behavioral analysis framework— traditionally used in law enforcement and intelligence contexts—to online gaming spaces. Drawing on mechanics and behaviors typical of massively multiplayer online role-playing games (MMORPGs), we explore how movement, identity construction, and interaction reveal early indicators of misconduct, from bullying and stalking to theft and insider threats.

Central to our analysis is the metaphor of the cheetah—a predatory digital actor who operates at the margins of visibility. To detect such players, we propose five behavioral channels: avatar construction and identity signals, engagement and presence patterns, in-game communication, interaction behavior, and toxicity. Building on these, we introduce two assessment tools: a five-channel risk model and a complementary threat trajectory model. These tools were inductively developed from interdisciplinary expertise in psychology, criminology, game studies, and behavioral threat assessment. We chose to keep the paper conceptual at this stage—excluding case studies—to focus on clarity and framework design. By offering structured markers and multi-channel indicators, our work contributes a scalable, practical lens for identifying risk and guiding proportionate interventions in digital environments. By defining baseline behavior and identifying multi-channel red flags, we aim to offer actionable guidelines for professionals, including developers, moderators, and security analysts.

6: Infrastructure Im/Possibility: Human Labour and Policies Behind the Third “AI” Bubble

Session Chairs:

Sébastien Antoine, Maynooth University, Ireland

Gwendolin Barnard, University of Graz, Austria

Human Oversight: Imagining the Labor That Makes "AI" Possible

Fabian Fischer

Austrian Academy of Sciences, Austria

Human oversight has become a cornerstone of discussions about artificial intelligence (AI). High-level guidelines claim that "an AI system can never replace ultimate human responsibility and accountability" (UNESCO, 2022, p. 22) or propose "human-in-the-loop (HITL), human-on-the-loop (HOTL), or human-in-command (HIC) approach[es]" (Independent High-Level Expert Group on Artificial Intelligence, 2019, p. 16) to achieve human oversight. However, the reasons why human oversight is beneficial are sometimes unclear or diverging: What are the problems human oversight is expected to address? More pressingly, how is human oversight expected to be implemented? What kind of human labour is expected under this term? While this issue has become of heightened concern with the proliferation of AI across many contexts since the rise of generative AI such as ChatGPT, the discussion has a precursor in algorithmic decision making, where the difference between automated and semi-automated decision making - i.e. the extent to which human work is involved in the creation of a decision - has already been the subject of legal rulings, as in the SCHUFA ruling of the European Court of Justice in late 2024.

Quite often, these characterisations of human-AI interactions focus on "AI" and a single human individual as involved actors. I aim to widen the focus and include organisations as crucial actors in implementing these concepts (Büchner, Dosdall & Constantiou, 2024), especially as humans can end up as moral crumple zones (Elish, 2019) that carry the burden of responsibility in case of accident and failure despite limited control. Guidelines on the responsible use of generative AI in research frequently state that researchers ultimately remain responsible for the scientific output, highlighting how responsibility is located at human individuals, while many organisations encourage and push the use of generative AI. We are thus confronted with socio-technical hybrids – with accompanying issues such as distributed and hybrid agency (Law, 1994), autonomy (Savolainen, & Ruckenstein) and understanding guidelines as infrastructure (Star & Ruhleder, 1996).

In this work, I investigate what the problem is represented to be (Bacchi, 2009) in the human oversight discourse across three levels: (1) Cornerstone high-level ethical guidelines; (2) legal texts such as the GDPR and the AI Act and accompanying legal cases and (3) institutional guidelines for the use of AI in scientific organisations and public administration. The research is guided by the following questions: What problems are being identified that human oversight

is represented to address? How is responsibility and agency negotiated and distributed across different actors involved in these complex socio-technical systems? Which infrastructures are envisioned to support human oversight? Preliminary insights suggest that the human oversight creates frictions with goals “AI” is expected to realise and that fuel the current "AI bubble", such as efficiency, scalability, objectivity and obsolescence of human labour.

References

Bacchi, C. (2009). Analysing policy: What’s the problem represented to be? Pearson.

Büchner, S., Dosdall, H., & Constantiou, I. (2024). The Organization in the Loop: Exploring Organizations as Complex Elements of Algorithmic Assemblages. In Algorithmic Regimes: Methods, Interactions, and Politics. Amsterdam University Press.

Elish, M. C. (2019). Moral Crumple Zones: Cautionary Tales in Human-Robot Interaction. Engaging Science, Technology, and Society, 5, 40–60.

Independent High-Level Expert Group on Artificial Intelligence. (2019). Ethics Guidelines for Trustworthy AI. European Commission.

Law, J. (1994). Organizing modernity. Blackwell.

Savolainen, L., & Ruckenstein, M. (2024). Dimensions of autonomy in human–algorithm relations. New Media & Society, 26(6), 3472–3490.

Star, S. L., & Ruhleder, K. (1996). Steps Toward an Ecology of Infrastructure: Design and Access for Large Information Spaces. Information Systems Research, 7(1,), 111–134.

UNESCO. (2022). Recommendation on the Ethics of Artificial Intelligence. United Nations Educational, Scientific and Cultural Organization.

Situating AI. From Hegemonic AI Ethics to Infrastructures of Hope Grounded in Real-World Contexts and Concerns

Astrid Mager

Austrian Academy of Sciences, Austria

A plethora of AI ethics principles and frameworks have been developed over the past years, supposedly global, but largely drafted in the Global North. Critical research has therefore called for AI ethics for the Majority World to counter the ‘global violence’ hegemonic AI perpetrates (Ricaurte 2022). This relates to questions of epistemic injustice (Fricker 2007) and who gets to have a say in AI ethics and governance. In our own work, we introduced the notion of “situated ethics” to discuss how ethical frameworks can be grounded in the lived experiences and sociotechnical realities of diverse communities around the globe (Mager et al. 2025). Extending this work, we currently investigate how representatives from policy, industry, and civil society, especially from the Majority World - Africa, Asia, and Latin America -, are developing pragmatic, hopeful, and contextually grounded engagements with AI. Empirically,

this research draws from four participatory online workshops that convened 24 stakeholders across sectors to co-map what is working in their regions in relation to AI platforms, policies, and practices. These range from civic data commons in India and AI-for-agriculture initiatives in Kenya, to feminist data cooperatives in Latin America and creative AI interventions in Southeast Asia. Findings from these workshops will be triangulated with a crowdsourced database of around 100 hopeful technology interventions from civic actors and 15 blog pieces from diverse stakeholders from the Global South. Conceptually it advances the notion of hopeful technologies as a counterpoint to Silicon Valley's deterministic techno-optimism. It argues for reclaiming optimism as an epistemic stance—one that centers community resilience, care-based design, and incremental progress rather than grand narratives of transhumanism, disruption or doom.

In the STS Graz workshop, I will conceptualize this research using the notion of infrastructures of hope. Particularly focusing on the four prompts of the online workshops – identification, scale, networks, and vision –, I will tease out the human labor and infrastructural requirements that are involved in building hopeful AI practices and governance. Building on infrastructure studies, I will conceptualize infrastructure as a continuous process rather than a clear-cut product. Emphasizing processes of infrastructuring (Karasti and Blomberg 2018) allows us to draw together the human labor, institutional contexts, and ethics frameworks that are all at stake in the development and governance of AI. Opening up AI infrastructures – both theoretically and empirically – can help us move beyond closed, corporate AI infrastructures and foreground collaborative efforts of infrastructuring rooted in openness, inclusion, and social justice. This particularly applies to the Global South that has long been marginalized in global AI ethics and yet started to develop AI infrastructures and practices of their own grounded in creativity, collaboration, and concerns of the people on the ground. What we could learn from Global South communities and initiatives in regard to the building of infrastructures of hope that are driven by social necessity, resourcefulness, and situated ethics rather than speculative futurism will be finally discussed.

Acknowledgments:
This collaborative research is carried out together with the Inclusive AI Lab at Utrecht University: https://inclusiveailab.org/ It is work-in-progress; a joint paper is currently developed by Payal Arora, Guanqin He, Astrid Mager, Taina Bucher, Ahmed Al Khateeb, Chux Daniels, Dyah Pitaloka, Hind Arroub, Pan Ji, Sumita Sharma, which has been invited to the special issue "The Imaginative Landscape of AI: Visions, Positions, Conflicts" (co-edited by Andreas Hepp & Nathan Schneider for the International Journal of Communication).

References

Fricker M (2007) Epistemic Injustice: Power and the Ethics of Knowing. Oxford: Oxford University Press.

Karasti H and J Blomberg (2018) Studying infrastructuring ethnographically. Computer Supported Cooperative Work 27: 233-265.

Mager A, M Eitenberger, J Winter, B Prainsack, C Wendehorst, & P Arora (2025) Situated ethics: Ethical accountability of local perspectives in global AI ethics. Media, Culture & Society, 47(5), 1028 1041. https://doi.org/10.1177/01634437251328200

Ricaurte P (2022) Ethics for the majority world: AI and the question of violence at scale. Media Culture & Society 44(4): 726–745.

Learning to Debug? Conceptualizing the Requirements for Generative AI to Learn Implicit Knowledge

Wolfgang Eppler, Clemens Ackerl, Reinhard Heil

KIT, Germany

In contemporary discourses on “skills shortages,” generative AI (genAI) is increasingly being positioned as a substitute for skilled human labor. This expectation rests on a strong assumption: that genAI systems can acquire not only explicit, codified knowledge but also the implicit knowledge embedded in everyday work practices (see Khalili & Jahanbakht, 2026). From a practice oriented and STS/TA-informed perspective, this assumption is far from trivial. Implicit knowledge is not merely possessed or stored but enacted through situated engagement with material objects, tools, and feedback from the world. Two methods of transferring implicit knowledge can be distinguished: first, by attempting to make it explicit by consulting skilled human agents, possibly with the help of genAI and second, by acquiring it through experience by genAI as an agent itself – that is, through learning within and through practices.

This contribution examines the conditions under which genAI could be said to learn implicit knowledge, using the practice of debugging program code as an empirical and conceptual reference point. Debugging is approached not as a straightforwardly transferable skill, but as a situated practice that unfolds through iterative interaction with code, development environments, and error feedback. Against this background, the paper argues that current genAI systems can only partially fulfill the conditions required for learning implicit knowledge.

Conceptually, the argument draws on the SECI model of knowledge conversion (Nonaka & Takeuchi, 1995) and analytical pragmatism (Brandom, 1998, 2008). The SECI model conceptualizes the transfer of implicit knowledge into communicable forms through externalization, as well as the transfer of implicit knowledge from one agent to another. Brandom’s analytical pragmatism complements this account by analyzing the relationships between implicit practices and explicit linguistic expressions. Crucially, Brandom emphasizes that these two strands are interdependent and can only operate purposefully through a feedback loop, drawing on the Test–Operate–Test–Exit model (Miller et al., 1960).

This contribution identifies three conditions for successfully transforming explicit knowledge into implicit knowledge:

(1) An implicit practice must prove to be goal-oriented in the practical handling of objects.
(2) An explicit practice must be able to specify an implicit practice.
(3) A loop that feeds back the result of an operation for testing is fundamental.

The central argument advanced here is that contemporary genAI systems fulfill the second condition. To satisfy the first condition, genAI would require the capacity for continuous, multimodal learning that allows for ongoing adaptation of its world model through practice. To satisfy the third condition, genAI would need to be able to interlink implicit and explicit knowledge through feedback about the state of the world (grounding).

As a result, claims that genAI can replace skilled labor rely on a narrow understanding of knowledge as representation rather than enacted through practices. This conference contribution thus argues that genAI remains dependent on socio-technical constellations in which human actors, material infrastructures, and organizational arrangements provide the practical grounding that AI systems themselves lack. From a practice-theoretical perspective, this challenges dominant imaginaries of automation and calls for closer scrutiny of how

„learning“ is distributed across human–machine assemblages rather than located within AI systems alone.

References

Brandom, R.B. (1998). Making It Explicit: Reasoning, Representing, and Discursive Commitment. Harvard University Press.

Brandom, R.B. (2008). Between Saying and Doing: Towards an Analytic Pragmatism. Oxford University Press.

Miller, G. A., Galanter, E., & Pribram, K. H. (1960). Plans and the structure of behavior. Henry Holt and Co.

Khalili, N., & Jahanbakht, M. (2026). Unveiling the Unspoken: A Conceptual Framework for AI Enabled Tacit Knowledge Co-Evolution. Knowledge, 6(1), 1.

Nonaka, I., & Takeuchi. H. (1995). The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation. Oxford University Press

Humans Behind the “AI” Machine: A Worker-Based Perspective on LLMs Used as Search Engines

Sébastien Antoine[1], Isabela Andrade[2], Fernanda Drummond[3]

1: Maynooth University, Ireland; 2: Pontifícia Universidade Católica de Minas Gerais, Brazil; 3: Independent Scholar

The very algorithmic logic of generative pre-trained transformers implies that the generation of the model’s “answer” to the user’s query would invariably be ruled by a matrix of probability of appearance of the next word, one word after another. This probabilistic behaviour thus creates two major issues: a tendency to plagiarize original training data, on the one hand; and a total lack of assessment of the internal and external consistency of the content created, on the other hand. As underlined by Emily Bender and Chirag Shah (2022), these significant limitations of the very design and practical operation of LLMs thus make them extremely problematic when used as search engines. Still, almost all preeminent search engine companies are now rushing to implement so-called “AI” answers or modes, hurrying deployment in an attempt to force adoption by end users, getting them hooked as quickly as possible as a way to create product dependency and mitigate the colossal losses incurred by the massive computational power required by such brute-force language models.

But what happens when foundational models trained on the whole content of the internet – i.e., on a largely undisclosed, uncurated, unlabelled and unmoderated raw bulk of training “material” – are being sold as being able to provide trustworthy answers? How, if indeed possible, do these companies square the circle of potential harmful or deceptive results inevitably generated at some point by the integration and forced feedings of LLMs in their search products?

As with content moderation (Roberts, 2019) on social media and other walled garden

platforms, human supervision and ranking – often through companies from or based in the Majority World, subcontracted by tech giants or startups from the Minority World – proved unavoidable to tackle issues (Gray and Suri, 2019). As always in the case of rushed deployment (Shestakofsky, 2017), human labour thus ended up being the primary variable of adjustment of the deployment of so-called automatic systems (Casilli, 2019).

Carried out by highly qualified workers, often from the field of the humanities and social sciences, such fine-tuning is thus critical in addressing the proclaimed aim of "reducing arm" – itself often overshadowed by an obsessive concern to avoid as many legal issues or PR nightmares as possible for hosting companies. Still, these crucial tasks are overwhelmingly performed under precarious working conditions and toxic management contexts, for wages an order of magnitude lower than those paid to tech workers designing the underlying models.

This contribution to the Graz STS conference workshop on the labour and legal infrastructures of the recent "IA" hype will thus take the form of a conversation between researchers and practitioners employed in content ranking and curation prior to the deployment of such LLMs search engine in a major Latin American market.

Addressing the challenges and intensity of daily ranking tasks, the highly generalized and vague nature of the responses provided, and their register of plausible deniability and potential effects on end users, the conversation will highlight how – much more than just silent cogs in the "AI" machine that these companies try so hard to reduce humans to, including through NDAs and other precarious and exploitative conditions – the reflexivities and critical perspective of rankers and data workers regarding such systems and the way they work are actually sources of alternative possibilities: taking radically into account the very production of the "training" input content itself, much more than focusing on the stochastic outputs of these synthetic text-extruding machines (Bender, 2024; Bender and Hanna, 2025).

References

Bender EM (2024) Synthetic text extruding machines: A linguist-eye view on their narrow range of applicability. In: Department of Linguistics Colloquium Talk, UCLA.

Bender EM and Hanna A (2025) The AI Con: How to Fight Big Tech's Hype and Create the Future We Want. New York: Harper.

Casilli A (2019) En attendant les robots: Enquête sur les travailleurs du clic. Paris: Editions du Seuil.

Gray ML and Suri S (2019) Ghost work: How to stop Silicon Valley from building a new global underclass. Boston: Houghton Mifflin Harcourt.

Roberts ST (2019) Behind the Screen: Content Moderation in the Shadows of Social Media. Yale University Press.

Shah C and Bender EM (2022) Situating Search. In: ACM SIGIR Conference on Human Information Interaction and Retrieval, pp.221-232.

Shestakofsky B (2017) Working Algorithms: Software Automation and the Future of Work. Work and Occupations 44(4): 376-424.

7: Epistemic Staging on Video Platforms: How Aestheticization Shapes Valid Knowledge in Digital Media

Session Chairs:

Ronald Staples, Friedrich-Alexander-University Erlangen-Nürnberg, Germany

Vincent Steinbach, Friedrich-Alexander-University Erlangen-Nürnberg, Germany

Ambiguous Bodies: Anthropomorphic Artifacts Online

Kimberly Schlüter

Johannes Gutenberg University Mainz, Germany

On video platforms such as TikTok, users are regularly confronted with ambiguous content that is detached from its original production contexts and embedded in rapidly circulating streams of short-form videos (Bhandari/Bimo 2022: 8). Seemingly mundane clips - such as videos of sleeping infants - may, upon closer inspection, turn out to depict so-called Reborn Dolls: hyper realistic yet lifeless anthropomorphic artifacts. These videos exploit and mobilize aesthetic conventions associated with human infants on social media, including visual framing, naming practices, role attributions, and caregiving performances. As a result, recipients are confronted with irritating perceptions of similarity, leading to momentary misrecognitions in which images of dolls are mistaken for images of human infants.

This paper conceptualizes these moments of confusion not as perceptual errors or individual misreadings, but as outcomes of platform-specific conditions. It asks how aestheticized modes of presentation contribute to these misrecognitions and how platform-specific features (such as the algorithmically curated For You Page, the short duration and rapid sequencing of videos, and platform-immanent filters and editing tools) actively shape conditions under which perceptions of similarity between human infants and anthropomorphic artefacts become likely, intelligible, and consequential.

Empirically, the paper draws on digital ethnography (Schellewald 2021) and reconstructive, hermeneutic analyses of individual comments posted under TikTok videos featuring Reborn Dolls (Kurt/Herbrik 2014). These comments constitute communicative follow-ups in which viewers actively seek, demand, or themselves produce clarification. Various strategies can be observed here: Commenters engage in explicit categorization (“real baby” versus “doll”), requests for disclosure, accusations of deception, or ironic reframings of the seen.

By examining how boundaries are drawn, ambiguity is resolved, and normative order is re established, this study builds upon foundational STS work on boundary work (Gieryn 1983) while extending it through the theoretical framework of human differentiation (Hirschauer 2023) to analyze which differentiations are made relevant and with what consequences. It combines an analysis of the conditions that give rise to perceptions of similarity and epistemic ambiguity with a reconstruction of the practices through which clarity and categorical certainty are sought to be (re)established. The findings show that claims to knowing “what this is” are justified not through factual verification but through references to aesthetic cues, plausibility, and the

perceived authenticity of the staged presentation. By foregrounding ambiguity as an outcome of aestheticized epistemic staging and platform-specific conditions, the study contributes to STS debates on digital epistemic cultures and underscores the importance of attending to the sociomaterial, visual, and affective conditions under which epistemic validity is produced and contested in contemporary digital media.

References

Bhandari, Aparajita; Bimo, Sara (2022): Why´s Everyone on TikTok Now? The Algorithmized Self and the Future of Self-Making on Social Media, in: Social Media + Society, January-March 2022, S. 1-11.

Gieryn, Thomas F. (1983). Boundary-Work and the Demarcation of Science from Non science: Strains and Interests in Professional Ideologies of Scientists. American Sociological Review 48 (6):781-795.

Hirschauer, Stefan (2023): Telling People Apart: Outline of a Theory of Human Differentiation. In: Sociological Theory 41 (4): 352-376.

Kurt, Ronald; Herbrik, Regine (2014): Sozialwissenschaftliche Hermeneutik und hermeneutische Wissenssoziologie, in: Baur, Nina; Blasius, Jörg (Hrsg.): Handbuch Methoden der empirischen Sozialforschung. Wiesbaden: Springer, S. 473-491.

Schellewald, Andreas (2021): Communicative Forms on TikTok. Perspectives From Digital Ethnography, in: International Journal of Communication 15 (2021), S. 1437-1457.

Representing Ageing in Care Homes on TikTok: Aesthetics and Visibility

Edit Pauló

ELTE Eotvos Lorand University, Hungary

TikTok is commonly imagined as a platform dominated by younger users and aesthetic norms that privilege youth, attractiveness, and entertainment. In this context, the emergence of TikTok channels featuring older adults living in residential care homes raises questions about who is entitled to represent ageing and institutional care, and under what conditions such representations acquire visibility and legitimacy. This presentation examines two Hungarian TikTok channels that depict older adults in care homes but are not officially run by the institutions themselves. Instead, the channels are operated by individual actors connected to the care homes, raising the question of who holds the epistemic authority to initiate and curate such public representations of older residents.

The presentation conceptualises these channels as hybrid formations at the intersection of institutional care contexts and platform capitalism. While embedded in environments shaped by professional responsibilities and ethical constraints, the creators operate within TikTok's attention economy, where affective appeal, recognisability, and aesthetic optimisation are crucial for reach. This hybrid position complicates traditional notions of epistemic authority: knowledge about ageing and care is not conveyed through expert discourse but through processes of epistemic staging: personalised, visually engaging, and emotionally resonant

narratives that are designed to circulate, attract attention, and be recognised as meaningful on the platform.

The presentation focuses on processes of aestheticisation and ethical negotiation in the representation of older adults. The two channels employ distinct strategies: one features multiple recurring residents, while the other centres on a single “star” figure whose personal life history and struggles are foregrounded. Across both cases, humour, “cute” or heart-warming framings, and varying degrees of realism structure how ageing is made understandable and engaging for audiences. These aesthetic choices intersect with ethical questions concerning consent, impairments, and the potential voyeuristic consumption of older lives, particularly when vulnerability becomes a source of attention and engagement. Methodologically, the research adopts an exploratory qualitative case study approach. Data collection includes semi-structured interviews with the creators of the TikTok channels, qualitative content analysis of selected videos, and an initial analysis of comments. This design allows for examining how creators reflect on their motivations, ethical boundaries, and representational decisions, as well as how audiences respond to and validate these portrayals.

By analysing care home–related TikTok content, the presentation contributes to sociological debates on ageing, media, and digital knowledge production. It argues that these channels produce culturally resonant forms of knowledge about ageing and institutional life through aestheticised, personalised storytelling, blurring boundaries between information and entertainment. In doing so, they exemplify how platform-specific logics reshape who can speak about ageing, how authority is claimed, and which representations gain epistemic legitimacy online.

Surface Knowledge. How Children Make Sense of Content Recommendations

Julian Ernst

Justus Liebig University Giessen, Germany

A picture that switches to a sequence of still images when hovered over (or long-pressed on touch devices), a short text, and various kinds of numbers – this brief phenomenological description captures key elements of content recommendations on the surface of video platforms such as YouTube. These surface cues provide users with partial information about what a video might be about. Constitutive elements of recommendations include thumbnails (preview images), video titles (including hashtags), indicators such as view counts, and the publishing channel’s name, among others. These elements help users orient themselves when choosing among recommended videos that are algorithmically curated by recommendation engines, which aim to create personalized content environments for users (Schrage 2020). While interactions with algorithmic systems and their outputs on digital platforms have been examined and theorized extensively across Communication Studies (e.g., Wendt et al. 2024), Science and Technology Studies (e.g., Bucher 2018; Seaver 2019, 2022), and Media Education (e.g., Ernst 2024a, 2024b; Klinge 2024), the curated elements themselves – and their sub-elements (thumbnails, titles, view counts, etc.) – have so far received little attention as factors shaping users’ experience and literacy.

Drawing on empirical insights from a study on children's (ages 11–13) understandings of algorithmic recommendations on YouTube (AUTHOR), and on theoretical perspectives from affordance theory (Davis 2020), postphenomenology (Verbeek 2005), and digital and media literacy studies, this contribution examines how these surface elements constitute affordances and how children interact with them in order to make sense of videos before actually watching them. Based on the empirical material, I present reconstructions of different sources of knowledge that children acquire and activate when interpreting video recommendations. The study comprises 26 focus groups (n = 120 children) conducted in Zurich, Switzerland, and investigates how children understand content recommendations on YouTube. All focus groups were video-recorded and analyzed using a coding approach informed by Grounded Theory (Glaser & Strauss 2009). By focusing on late childhood, the study addresses the epistemic efforts of experienced and routinized users of digital video platforms (mpfs 2025). A key finding is that children frequently experience discrepancies between thumbnails or titles and the videos they ultimately watch. In several cases, such moments become the starting point for further reflections on the recommendation system and its underlying logic. Building on these findings, I sketch a conceptual framework for what I call surface knowledge – that is, knowledge generated from platform surface cues (rather than from the video content itself). Drawing loosely on Flusser (1993) and Benjamin's (2019) adaptation of the concept of "thin description" for digital technologies, the framework aims to conceptually capture how surface elements of recommendations structure children's sense-making and guide their navigation of algorithmically curated video environments.

References

Benjamin, R. (2019). Race After Technology. Abolitionist Tools for the New Jim Code. Polity Press.

Bucher, T. (2018). If...Then. Algorithmic Power and Politics. Oxford University Press.

Ernst, J. (2024a). Kind – Algorithmus – Welt: Postphänomenologische Analysen kindlicher Alltagserfahrungen mit YouTubes Recommendation Engine. MedienPädagogik: Zeitschrift für Theorie und Praxis der Medienbildung, 357–378. https://doi.org/10.21240/mpaed/00/2024.09.13.X

Ernst, J. (2024b). Understanding algorithmic recommendations. A qualitative study on children's algorithm literacy in Switzerland. Information, Communication & Society, 1–17. https://doi.org/10.1080/1369118X.2024.2382224

Flusser, V. (1993). Lob der Oberflächlichkeit. Für eine Phänomenologie der Medien: Vol. Schriften. Bollmann.

Glaser, B. G., & Strauss, A. L. (2009). The discovery of grounded theory: Strategies for qualitative research. Aldine Transaction.

Klinge, D. (2024). Algorithmische Wissenskonstruktionen und designte Vermittlungsweisen. Pädagogische Modi Operandi digitaler Technologie. Beltz Juventa.

Livingstone, S., Jessen, R. S., Stoilova, M., Stänicke, L. I., Graham, R., Staksrud, E., & Jensen, T. (2025). Can platform literacy protect vulnerable young people against the risky affordances of social media platforms? Information, Communication & Society, 0(0), 1–18. https://doi.org/10.1080/1369118X.2025.2518254

Medienpädagogischer Forschungsverbund Südwest (mpfs) (2025). JIM-Studie 2025 Jugend, Information, Medien. Basisuntersuchung zum Medienumgang 12- bis 19 Jähriger.

Seaver, N. (2019). Knowing Algorithms. In digitalSTS. A Field Guide for Science & Technology Studies (pp. 412–422). Princeton University Press.

Seaver, N. (2022). Computing Taste: Algorithms and the Makers of Music Recommendation. University of Chicago Press. https://press.uchicago.edu/ucp/books/book/chicago/C/bo183892298.html

Verbeek, P.-P. (2005). What Things Do: Philosophical Reflections on Technology, Agency, And Design (Illustrated Edition). Pennsylvania State University Press.

Wendt, R., Riesmeyer, C., Leonhard, L., Hagner, J., & Kühn, J. (2024). Algorithmen und Künstliche Intelligenz im Alltag von Jugendlichen. Forschungsbericht für die Bayerische Landeszentrale für neue Medien (BLM). Nomos Verlagsgesellschaft.

Aesthetics and Epistemic Authority: Videographic Essays on Artificial Intelligence and the Performance of Knowledge

Leon Branko Colic

Carl von Ossietzky Universität Oldenburg, Germany

„Wikipedia is no credible source“ or „YouTube Videos won’t teach you school topics“ were typical statements of teachers and adults in my life while growing up in the 2000s, while our world became increasingly digitalized and I developed deep interest in video essays or „videographic essays“ on video platforms like YouTube. It frustrated me as a teenager, when my gained knowledge was viewed as illegitimate, but this was not a personal issue, instead it points at the broader issue of institutional epistemic authority versus platform-based epistemic cultures. Nowadays as a lot of knowledge is digitally available many still view this point of contention as relevant, to legitimize or characterise something as „valid“ knowledge. But when working with audiovisual media in academic (and in my case artistic) contexts the question is no longer just, who creates, what kind of content, but how these epistemic forms are aesthetically created.

Academic Filmmaking or the creation of essayistic, audiovisual productions by academics has been around for decades or even centuries (Gills, Grant, O’Leary 2024, p. 8). The „videographic essay“ or „videographic criticism“ are part of this development and rethink and critique „moving images through the repurposing of moving image text(s)- with or without voice-over.“ (Morton 2017, p. 131). But video essays on YouTube are neither always produced by academics nor is every essayistic video about other moving images (even though this is a major part of video essays). Yet „videographic essays“ are evermore present on Youtube or other platforms and vary in field and topic, professionalism and personal insights, usage of sources and citation – there even was a copyright and plagiarism scandal in the film-video-essay-niche on YouTube – and mainly video essays use different styles, modes and techniques to capture attention and perform credibility and validity.

To reflect the manifold forms of contemporary audiovisual content a broader definition and categorisation of videographic essay is needed. This is especially important, because many people copy and paste opinions and ideas from those videos into their own mind and reproduce them. Video essayist are surely not the most influential or famous YouTubers, but they often (re)define and nurture certain aesthetics, that are recreated by others and shape, what people or certain groups view as trustworthy. Currently one topic is dominating a lot of scientific and public discourse and shapes our perception of trust and knowledge – that is Artificial Intelligence, which is also a frequent topic in videographic commentary and critique. Those videos offer a large corpus for an analysis of video essays, that could help to create a broader definition of „videographic essays“. I analyze the audiovisual modes in videographic essays comparatively, focusing on how they perform credibility, authority and epistemic validity. Also it helps to highlight, what kind of videographic content might be reproduced by AI and where these epistemic techniques of aesthetics might challenge these emerging video formats. In the end I would like to redefine video essays or „videographic essays“, categorize forms and aesthetics of video essays and highlight their epistemic effects.

Weaponised Weather - Design Research in Climate Disinformation Cultures

Helga Thors[1], Dorothea Olesen[1], Kjartan Thors[1], Max Greiner[1], Aina Garcia[2], Maria Martin[2], Nuria Sanchez[2], Laia Pascual[2]

1: Iceland University of the Arts, Iceland; 2: Elisava, School of Design and Engineering, Barcelona, Spain

Weaponised Weather is a student-led design-research toolkit and a series of short form, platform native video works that address how climate change is perceived, politicised, or dismissed today.
The production team proposes a situated, practice-based reflection on post digital and post truth conditions, foregrounding design research as a critical tool for exposing and negotiating the political, technical, and aesthetic constraints that shape contemporary knowledge production and climate communication.
The group will offer interactive insights into the Weaponised Weather video-works, succeeding an initial launch at Elisava in Barcelona in May 2026 and preceding further launches at Iceland University of the Arts in Reykjavík in November 2026 and the Vilnius Academy of Art in 2027.

Context

Weaponised Weather is developed by a transnational student-led research group from the Iceland University of the Arts (LHÍ, Reykjavík) and ELISAVA (Barcelona), under the academic supervision of Marteinn Sindri Jónsson and Saúl Baeza. The group operates within the Erasmus+ project Climate Truth Crisis (CTC), which investigates the implications of climate change scepticism on democracy and public trust. Other CTC outputs include an active website (climatetruthcrisis.eu), an online glossary (climatetruthcrisis.eu/glossary) and a forthcoming academic publication.

Method

Weaponised Weather draws on close readings of social-media ecosystems that actively shape climate denial and misinformation, including influencer economies, conspiracy-theory narratives, and masculinity-oriented online cultures (e.g. manosphere-adjacent, conservative formats). Rather than analysing these spaces solely at the level of content, the research group investigates formal and structural mechanisms, seeking to strategically reverse platformed discursive systems, formats, and ideological/ polemic repertoire in order to plant seeds of doubt, open interpretive space, and shift perspectives. In this sense, the project understands design research as an intervention into the politics of knowledge dissemination itself, probing what happens when academic inquiry adopts and reworks the stylistic and affective grammars of disinformation.

Output

The project is structured without any pretense of finished “solutions” to the wicked problem of contemporary climate disinformation. The output is a set of video works. These works address selected terms from the Climate Truth Crisis glossary, such as capitalism, conspiracy theory, eco-fascism, environmental racism, and lobbying, not as isolated topics, but as interconnected narrative economies that shape how climate change is perceived, politicised, or dismissed.

9: Data Multiple: An Inquiry into Methodologies onto Ontologies of Data

Session Chair:

Fabian Pittroff, Ruhr University Bochum, Germany

The Ambiguity of Openness: Data Hidden Behind Data Availability Statements

Ana Slavec[1,2], Una Vuletić[1,2]

1: Faculty of mathematics, natural sciences and information technologies, University of Primorska, Slovenia; 2: InnoRenew CoE, Institute Andrej Marusic, University of Primorska, Slovenia

Despite the growing number of institutional and journal policies that require data-sharing, most researchers still do not make their data Findable, Accessible, Interoperable and Reusable, resulting in low compliance with FAIR principles (Wilkinson et al.2016). When needing to substantiate that in Data Availability Statements (DAS), authors frequently use the phrase “data available upon request” as a workaround.

Although such statements imply willingness to provide access, previous studies have demonstrated that they rarely translate into actual data sharing. Requests are often ignored or declined, and when responses are given, the process may involve obstacles such as restrictive conditions, lengthy negotiations, or ambiguous data-ownership issues, ultimately rendering access impractical (e.g., Savage & Vickers, 2009). This gap between stated and enacted openness suggests that DAS often serve more as a formal compliance marker than a genuine mechanism for transparency.

To evaluate how this practice unfolds in our own institutional context, we analysed a set of publications from our research organisation published in 2024 and found that approximately one quarter relied on the “available upon request” formulation. We subsequently contacted the corresponding authors of these papers and requested either that they deposit their data in an appropriate repository or share their datasets with us directly so that we could assess the quality, completeness, and documentation of the materials.

The responses revealed a reluctance to engage in data sharing. A substantial number of authors did not reply, while others declined for reasons such as unclear data ownership, ethical constraints, participant confidentiality, or concerns about the time required to prepare datasets for reuse. Only a minority of researchers were willing to provide access to any materials, and even when data were shared, the level of documentation varied significantly. These findings underscore how the phrase “data available upon request” often masks deeper structural, ethical, and procedural barriers that prevent data from becoming accessible.

In addition to reporting these empirical findings, the paper reflects on the ethical challenges associated with studying data that are nominally accessible but effectively hidden behind interpersonal communication and negotiation. Issues arise regarding how to design fair and respectful request procedures, how to interpret non-responses without penalising researchers acting under legitimate constraints, and how to balance the need for methodological rigor with sensitivity to disciplinary norms and institutional pressures. By examining both the outcomes

of data requests and the dilemmas behind stimulating cooperation, we highlight how data availability is not a simple technical attribute, but a socially situated practice shaped by expectations, professional identities, and the everyday realities of research work.

References

Savage, C. J., & Vickers, A. J. (2009). Empirical study of data sharing by authors publishing in PLoS journals. PLOS ONE 4(9), e7078. https://doi.org/10.1371/journal.pone.0007078

Wilkinson, M. D., Dumontier, M., Aalbersberg, I. J., Appleton, G., Axton, M., Baak, A., Blomberg, N., Boiten, J.-W., Bonino da Silva Santos, L., Bourne, P. E., Bouwman, J., Brookes, A. J., Clark, T., Crosas, M., Dillo, I., Dumon, O., Edmunds, S., Evelo, C. T., Finkers, R., … Mons, B. (2016). The FAIR Guiding Principles for scientific data management and stewardship. Scientific Data, 3, 160018. https://doi.org/10.1038/sdata.2016.18

Different Data Ontologies and Multiple "Good Data" Enactments: Lessons from a Transdisciplinary Visualisation Project with Neurosurgeons, Computer Graphics Scientists, and Sociologists

Julia Kurz

TU Dortmund, Germany

This talk draws on the empirical experiences of a transdisciplinary project involving neurosurgeons, computer graphics scientists, and sociologists which aimed at the development of cooperative diagnostic visualisations of relevant medical patient data. The underlying idea was that, as visual oriented practitioners, neurosurgeons could benefit from using visual forms in their daily work on the hospital ward, which is full of collecting, discussing, assessing and documenting patient data in written, seen, felt and spoken form. At the same time, data visualisation was considered a means of supporting cooperation between the neurosurgeons.

To develop a mobile, digital application for visualized medical patient data, all project participants had to engage intensively with the neurosurgeons´ data, as well as their data collection and usage patterns. The neurosurgeons themselves were also involved.

Firstly, it became apparent, that all neurosurgeons use similar data sets during patient cure and sort data along categories like objective/subjective, ir/relevance, un/trustworthiness. Within these everytime similar ontological pattern the datas' pertinenece unfolded in different situations and/or with different persons in different manifestations and, consequently, multiple practices of enacted patient cure. The medical patient data themselves have often of a rather qualitative, singular and constantly evolving nature, and as such, they require careful handling. This aspect of the neurosurgeons' data turned out to be a significant challenge during the development of the mobile application. To represent the data in a visualized form the medical patient data, which was enacted in multiple forms during every-day-work on the ward, had to be made unambiguous, unequivocal, and very explicit in order to be programmable.

Thereby it became clear, that the the non-medical project partners' understanding was based

on a different ontological conception of the respective data: Computer graphics scientists repeatedly attempted to introduce quantitative measures for the medical patient data, that had been qualitatively defined by neurosurgeons, because they consider good data visualisations to be quantitative based. All pure qualitative work would be too bespoke and not sufficiently transferable enough to other contexts to constitute a good data visualisation. Meanwhile, the sociologists insisted on the cooperative functions of different data representations, regardless of the multiple non-cooperative ways in which data can be enacted. This is because they understand the medical patient data as part of the social organisation of medical work (Strauss et al. 1985), as component of a process that is subject to interpretations. Therefore, for them, good data is data that is good edited for cooperation. So, secondly, medical patient dataset became “more than one, but less than many” (Strathern 1991 quoted in Mol 2002: 72), on different layers.
In my talk I will present the different ontologies and related enactments of medical patient data within the project and illustrate how they interact and coordinate with one another. I will then relate these to theories of multiplicity and fluidity (Mol & Law 1994), before briefly outlining how multiplicity can be detected through qualitative, ethnographically focused research.

References

Mol, A. (2002). The body multiple: Ontology in Medical Practice. Durham & London: Duke University Press.

Mol, A., Law, J. (1994) Regions, Networks and Fluids: Aneamia and Social Topology, in: Social Studies of Science 24 (4, Nov): 641-671.

Strathern, M. (1991) Partial Connections. Savage, Md.: Rowman and Littlefield

Strauss, A., Fagerhaugh, S., Suczek, B., & Wiener, C. (1985). Social organization of medical work. University of Chicago Press.

Virtual Data: Research Data Practices in the Postdigital Humanities

Fabian Pittroff

Ruhr University Bochum, Germany

It seems to be generally accepted that research data and their management are essential for planning, conducting, and funding all kinds of research (European Commission 2018; German Research Foundation 2015). At the same time, disciplines handle their data very differently according to their phenomena and traditions (Borgman 2015; Leonelli/Tempini 2020). Especially in the humanities, there is no consensus on the role and value of research data (Krämer 2025; Poljak Bilić/Posavec 2024; Thoegersen 2018), as well as tensions between the semantics and practices of research data management (Hellstrand et al. 2025; Tóthp-Czifra 2019). The paper aims to contribute to a more in-depth understanding of this situation by building on critical data studies, especially research on smaller datasets (Borgman 2015; Kitchin/Lauriault 2015) and everyday data practices (Feinberg 2022; Hepp et al. 2022). Against this backdrop, the paper examines research practices in the humanities and the multiple ways

in which data is created and used in their disciplines.
To this end, the paper draws on an ongoing, multi-year praxiography (Mol 2002), which is embedded within a long-term research institution comprising 60 researchers from the fields of humanities and social sciences. Through participant observation, interviews, and experimental design, the study focused on everyday practices of researchers, most of whom not identifying as digital humanists. Conceptually, the study builds upon infrastructure research (Bowker/Star 2000), attempts to sidestep the problem of representation (Latour 1990; Rheinberger 2006), and proposals of ontological multiplicity (Hoeyer 2023; Mol 2002). This paper shifts attention to the humanities, investigating how data practices remain committed to interpretive traditions (Krämer 2025). Studies of data in the humanities remain rare, especially when it comes to what might be called postdigital humanities: researchers who, without identifying as digital humanists, work with humanistic approaches on digital and non-digital topics while conducting essential parts of their everyday work using digital technologies.
The notion of 'virtual data' refers to multiple ways in which humanities researchers in the field create and use data. These include mundane practices such as note-taking and annotation, which the paper understands as practices to temporarily fix traces of meaning (Pittroff 2026). Data created in this way can be described as virtual because they are treated as preliminary and incomplete. They are provisional fixations of meaning that refer to other possibilities (Derrida 1983; Luhmann 1971). In this context, attempts to catch meaning as data can be experienced as a restriction, albeit an inevitable one. The paper will discuss how humanities researchers nevertheless do their work, dealing with small, personal data that are rarely measured or counted, but often otherwise recorded, observed, or felt.

References

Borgman, C. L. (2015): Big data, little data, no data. MIT Press.

Bowker, G. C./Star, S. L. (2000): Sorting things out. MIT Press.

Derrida, J. (1983): Grammatologie. Suhrkamp.

European Commission (2016): Guidelines on FAIR Data Management. Feinberg, M. (2022): Everyday adventures with unruly data. MIT Press.

German Research Foundation (2015): Grundsätze zum Umgang mit Forschungsdaten.

Hellstrand, M. et al. (2025): FAIR for whom?, Big Data & Society 12(2).

Hepp, A. et al. (2022): New Perspectives in Critical Data Studies. Springer.

Hoeyer, K. (2023): Data Paradoxes. MIT Press.

Kitchin, R./Lauriault, T. P. (2015): Small data, GeoJournal 80, 463–475.

Krämer, S. (2025): Der Stachel des Digitalen. Suhrkamp.

Latour, B. (1990): Drawing things together, in: Lynch/Woolgar, Representation in scientific practice. MIT Press, 19–68.

Leonelli, S./Tempini, N. (2020): Data Journeys in the Sciences. Springer.

Luhmann, N. (1971): Sinn als Grundbegriff der Soziologie, in: Habermas/Luhmann, Theorie der Gesellschaft. Suhrkamp, 25–100.

Mol, A. (2002): The body multiple. Duke UP.

Pittroff, F. (2025): Geist in den Daten, in: Bolz et al., Wissenschaft und Technologie kommunizieren. Transcript.

Poljak Bilić, L./Posavec, K. (2024): FAIRness of Research Data, Publications 12(6).

Rheinberger, H.-J. (2006): Experimentalsysteme und epistemische Dinge. Suhrkamp.

Thoegersen, J. L. (2018): Yeah, I Guess That's Data, Portal, 491–504.

Tóth-Czifra, E. (2019): The risk of losing thick description.

Synthetized Reality? Exploring Epistemic Gaps Between Synthetic and Authentic Data

Stefan Strauß

Austrian Academy of Sciences, Austria

Data synthesis is an issue of growing concern in the socio-technical discourse on AI-based technologies which deserves more attention and critical research. The increasing diffusion of AI systems reinforces the generation and use of synthetic data. Synthetic data is artificially generated to reproduce certain characteristics of real-world data. This enables, for instance, creating digital twins (e.g. in medicine & health, architecture & design etc.) useful for simulations of real-world settings without the need to use real data (Nikolenko 2021). A synthetic turn triggered by AI is inter alia observable in healthcare systems (cf. Poddar/Rao 2025) and the world economic forum frames sythentic data as new frontier in AI (WEF 2025). Basically, data synthesis implies combining and condensing information based on data extraction. One aim is to reduce complexity and optimize data usage. This enables a broad range of novel approaches to simulate real-world settings and bears potential to reduce certain risks, e.g., according security, privacy and data protection. However, the extensive use of artificial data can also have opposing effects and lead to oversimplification of complex phenomena. Particular risks are significant loss in quality and degeneration of data up to complete collapse of AI-based data models (Shumailov et al. 2024). Hence, in contrast to its great potentials, this development also involves a number of serious challenges with inherent conflicts and ambiguities.

Based on the premise that the increasing diffusion of AI amplifies the production and use of synthetic data, this talk explores the wider societal consequences and effects of this development. Of particular concern is the question, how synthetic data affects the relation between authenticity and syntheticity and what sociotechnical impacts stem from this. Both concepts are not necessarily contradictory. However, the AI-driven boost in the use of synthesized data affects notions on these concepts and how they are interrelated. Because despite of technical notions, synthesis is a multifaceted concept with various different meanings ranging from its philosophical dimension, e.g., in a Kantian sense, to chemical and

biological processes, synthesis in architecture and design etc. (cf. Gramelsberger et al. 2014; Larese 2022). Hence, considering the various usage domains of AI systems, it is particularly interesting how the basic concept of synthetic data affects common conceptualizations of synthesis. The analysis therefore also refers to the multiple dimensions of synthesis and explores overlaps and differences in the AI discourse. It will be argued that at its core, a synthetic turn in AI can reinforce classical conflicts between "the natural and the artificial" which is a fundamental issue of so-called "wicked problems" (Rittel/Webber 1973; Strauß 2021). The way, synthetic data is generated and used in different contexts thus has influence on the efficacy of approaches to avoid wicked problems of AI. The talk ties in with former research on critical AI literacy (Strauß 2024; Strauß 2026 forthcoming) and discusses potential approaches to deal with the corresponding challenges. A revitalization of philosophical and epistemic notions of synthesis grounding on prudence and rationality might be crucial to tackle the societal risks of an AI-based synthetic turn.

10: Governing Complex Digital Research Infrastructures

Session Chairs:

Karin Grasenick, Convelop Cooperative Knowledge Design GmbH, Austria

Michaela Th. Mayrhofer, Papillon Pathways, Austria

Sustainability by Design in Data Infrastructures: Towards a Holistic Conceptual Framework

Ciara Staunton[1,2,3]

1: Royal College of Surgeons, Ireland; 2: University of Kwazulu-Natal, South Africa; 3: University of Modena, Italy

Data infrastructures are increasingly complex sociotechnical systems, shaped by distributed data architectures, cross-border collaboration, and layered governance arrangements. While sustainability is frequently invoked in discussions of research infrastructures, it is often treated narrowly reduced to questions of long-term funding, technical maintenance, or institutional continuity. This contribution advances a conceptual framework for sustainability by design that reframes sustainability as a holistic, multi-dimensional property of data infrastructures, rather than a single outcome or endpoint.

The framework conceptualises sustainability as comprising distinct but interdependent dimensions, including legal and regulatory sustainability, ethical and social sustainability, technical and data sustainability, organisational and governance sustainability, and financial sustainability. Each dimension is associated with specific indicators that can be used to assess whether an infrastructure is designed to endure, adapt, and retain legitimacy over time. These indicators do not seek to eliminate complexity or resolve competing demands, but rather to make tensions visible and governable within complex, multi-actor environments. By focusing on design choices made at early stages of infrastructure development, the framework highlights how sustainability can be operationalised through anticipatory governance, role clarity across distributed actors, adaptive oversight mechanisms, and data governance practices that remain responsive to evolving societal, scientific, and regulatory expectations. Particular attention is paid to how technical standards and interoperability requirements interact with broader social and ethical commitments, revealing sustainability as a dynamic process of negotiation rather than a static condition.

Rather than proposing a prescriptive governance model, this contribution offers a structured lens for analysing and navigating the frictions inherent in complex digital research infrastructures. By articulating sustainability as a set of dimensions and indicators embedded in governance practice, the framework aims to support more reflexive, resilient, and legitimate

forms of coordination across interdisciplinary and transnational research settings.

The Need for Novel Trustworthiness Indicators for Artefacts in Research Infrastructures

Katharina Flicker, Andreas Rauber, Peter Knees

TU Wien, Austria

Research infrastructures (RIs) are getting increasingly important. On the one hand they support efficiency: denser networks of researchers, labs, research performing organizations and academia-industry co-operations conduct research – thereby supplying, contributing and sharing ever more data, code, tools, services, etc. Interdisciplinary cooperations provide access to expertise from different scientific fields while digitization speeds up science communication (digital publishing, pre-prints). Seen against this background, complexity increases efficiency and supports cutting-edge research.

However, these developments also rise tension: Given the flood of new players it gets increasingly hard to select (trustworthy) partners for collaboration, to decide which data, tools and services to re-use, or whether their fitness for purpose can be trusted (rather than verified, as end-to-end verification is not possible given the increasing complexity). Interdisciplinarity adds to the challenges due to the lack of understanding of the respective “other” disciplines and the awareness of the potential for misunderstandings in communication. The flood of information produced via fast-paced (grey-literature) publications including massive amounts of “supplementary material” (data, code, workflows) further exacerbate the situation. Thus, traditional quality (fitness for purpose) indicators that we used to base decisions (such as choosing collaboration partners, or what to re-use) on have started to fail: For example, university rankings might not be fully transparent or measure the specific performance needed for a decision (Goglio, 2016; Moustafa, 2024); the peer-review process is widely perceived as flawed (Smith, 2006); end-to-end verification of data provenance, tool quality and process correctness might be impossible, too time-consuming or costly; impact factors, citation numbers, download counters, star ratings can be (and are?) easily manipulated (Ibrahim et al., 2025; Macdonald, 2023).

We define RIs rather broadly – acknowledging that infrastructure has multiple dimensions. It is both embedded and transparent, operating metaphorically beneath social and technical systems so that it does not need to be reconsidered each time it is used to accomplish a task. It typically becomes noticeable only when it breaks down. Infrastructure also reflects standards and practices that are learned through processes of enculturation within a user community. Rather than being created from scratch, it is usually developed incrementally in modular forms (Slota et al., 2017).

Based on these considerations, we conducted research across scientific disciplines, seniority levels and cultures to address the problem of identifying quality indicators (with a focus on trust and trustworthiness) of data and code/tools shared via RIs, from the perspective of researchers as the main users of research infrastructures. We started out with a semi structured interview-series amongst researchers across disciplines (e.g. Computer Sciences, Chemistry and Linguistics) located at public universities in Austria. Topics covered included actual practices

regarding data handling (as opposed to ideal practices) as well as discipline specific perspectives on trust in data and data quality – specifically in the context of data re use.

This series was complemented by two further approaches. First, two iterations of a survey consisting of both open- and closed-ended questions amongst students and professionals of Data Science were launched. These focused on sharing and re-use practices of open-source software as well as on quality assessment and trust. Second, a series of workshops with researchers in the European Union, Japan, Malaysia and the Philippines were organised to explore quality facets and trust indicators of RIs.

We wish to present ideas and challenges identified, specifically with a focus on what kind of quality indicators can solidly be collected, incorporated in and communicated by RIs, that are robust and help researchers to determine the quality and trustworthiness of the entities they are interacting with to produce high-quality outputs that they also can plausibly accept accountability for. This matters because eventually trustworthy RIs help to manage complexity because researchers are able to rely on trust proxies rather than having to evaluate everything from scratch.

References

Goglio, V. (2016). One size fits all? A different perspective on university rankings, in Journal of Higher Education Policy 10.1080/1360080X.2016.1150553. and Management, 38(2): 212–226. doi: 10.1080/1360080X.2016.1150553.

Ibrahim, H., Liu, F., Zaki, Y. (2025). Citation manipulation through citation mills and pre-print servers, in Sci Rep 15, 5480. doi: 10.1038/s41598-025-88709-7

Macdonald, S. (2023). The gaming of citation and authorship in academic journals: a warning from medicine, 10.1177/05390184221142218 in Social Science Information, 61(4). doi: 10.1177/05390184221142218

Moustafa K. (2024). University rankings: Time to reconsider, in Bioimpacts, Apr 6, 15:30290. doi: 10.34172/bi.2024.30290.

Slota, S. C., Bowker, G. C. (2017). How Infrastructures Matter, in Felt, U., Fouché, R., Miller, C. A., Smith-Doerr, L. (Eds.), The Handbook of Science and Technology Studies, MIT Press: 529-554.

Smith, R. (2006). Peer review: a flawed process at the heart of science and journals, in J R Soc Med., Apr 99(4): 178-82. doi: 10.1177/014107680609900414.

From Principles to Practice: A Scoping Review of Tools for Ethical Health Data Access

Marine Jacquemin[1], Flora Lysen[2]

1: Department of Radiation Oncology (Maastro), GROW Research Institute for Oncology and Reproduction, Maastricht University Medical Centre+, Maastricht, The Netherlands; 2: Department of Society Studies, Faculty of Arts and Social Sciences, Maastricht University

Few would debate the importance of health research in our post-COVID pandemic, data-driven world. In Europe, the European Health Data Space (EHDS) is set to substantially increase cross-border health data sharing in the EU, charging Health Data Access Bodies (HDABs) with evaluating an unprecedented volume of data access requests, not only for legal compliance, but also for ethical acceptability. However, the concrete implementation of ethical evaluation exposes important challenges. Indeed, this process is often criticized as opaque, inconsistent, and difficult to operationalize and relying on lists of high-level principles with limited procedural guidance. Despite extensive literature on data ethics, a persistent ""ethics-practice gap" remains: ethical principles, though widely endorsed, remain difficult to implement in the design, governance and everyday operational practices of data infrastructures (Mittelstadt, 2019; Morley et al., 2021).

Similar problems are faced by smaller scale research projects involving distributed research and data-sharing infrastructures, such as STRONG-AYA – an EU initiative focused on improving health services, research and outcomes for Adolescents and Young Adults (AYA) with cancer. Once the technical infrastructure and data-sharing agreements set up, important ethical questions remain for the day-to-day management of health data access. Through an extensive scoping review, we identified 13 tools designed to bridge that gap by improving the transparency, consistency and scalability of ethical decision-making while fostering increased public trust in health data governance. In that pursuit, some of them employ quantification, often with the ultimate goal of automating of at least parts of the review process, employing for example scoring, risk categorization, or triage mechanisms that would help manage the growing volume of health data access requests.

Yet, our analysis reveals significant tensions. First, we highlight the risk of ethical reductionism: translating nuanced ethical principles into quantitative metrics may oversimplify complex trade-offs or create a false sense of precision (DiStefano & Krubiner, 2020). Second, we observe that there is a regrettable lack of public participation in the development of these tools, undermining the social legitimacy of governance processes intended to serve the public interest. This is also reflected in the limited understanding of transparency reflected in the reviewed literature. While disclosure of internal documentation, decision logs and audit trails are important, they do not necessarily equate to transparency for the public at large. Instead, meaningful ethical governance necessitates transparency mechanisms designed to support communication, contestation and engagement beyond expert communities. This is also indicative of a broader tension: the focus on scaling up efficiency risks sidelining efforts to improve ethical responsibility. For example, in STRONG-AYA, we observed that technical standards for FAIRness and operationalizable ethics are prioritized as feasible, while broader ethical commitments (e.g., patient participation or environmental impact assessments) are acknowledged but often deemed beyond the scope of the project.

Our findings demonstrate that ethical governance of health data cannot be solved through technofixes. While tools like quantification and automation improve efficiency, they risk

oversimplifying ethical dilemmas and sidelining public participation. The persistent "ethics practice gap" reflects deeper tensions: between scalability and inclusivity, standardization and contextual nuance, and institutional priorities and public trust.
For the EHDS and similar decentralized data-sharing infrastructures such as STRONG-AYA, ethical governance must move beyond performative ethics. This requires hybrid models that combine structured tools with spaces for deliberation, contestation, and accountability, ensuring that ethical principles are actively integrated into decision-making. Ultimately, the EHDS presents a unique opportunity to foster governance models that are both more efficient and ethically robust, a balance essential for the future of health data sharing in the EU.

Who Governs When Everyone Does? Community Organizations in Complex Infrastructures

Mathew Abrams

Karolinska Institutet, Sweden

Digital research infrastructures are increasingly characterized by complexity: distributed governance, shared agency across organizational and national boundaries, evolving technical standards, and persistent ethical and societal expectations. In such sociotechnical systems, sustainability is not simply a technical or financial challenge but an ongoing governance problem shaped by tensions that cannot be fully resolved, only navigated over time.
This contribution examines the role of community organizations as governance actors within complex digital research infrastructures. Rather than treating sustainability as a stable end state, the talk conceptualizes it as a reflexive and adaptive practice that emerges through collective coordination, learning, and negotiation. Drawing on experiences from international neuroscience infrastructures, it explores how community organizations engage with enduring governance tensions, including efficiency versus ethical responsibility, centralized standards versus local practices, and long-term stability versus adaptability under conditions of uncertainty.
The presentation highlights how community organizations contribute to governance by organizing distributed agency. They provide structured mechanisms for community input, support continuity across funding cycles and leadership changes, facilitate interoperability and shared practices, and foster legitimacy, trust, and accountability in decision-making processes. Through these activities, community organizations help infrastructures function across heterogeneous institutional, cultural, and regulatory contexts.
Importantly, these governance efforts do not eliminate the paradoxes inherent in complex infrastructures. Instead, they render tensions visible, discussable, and manageable over time. By creating spaces for deliberation and coordination, community organizations enable infrastructures to respond to change without collapsing into fragmentation or rigid standardization.
By foregrounding practical experiences from infrastructure coordination, this talk invites dialogue between science and technology studies researchers and practitioners on how governance arrangements can remain inclusive, transparent, and resilient in digitally mediated, multi-actor research environments. Rather than proposing prescriptive governance models, it

offers an empirically grounded perspective on how complexity itself becomes a driver of reflexive governance and organizational sustainability.

Important but Not Urgent: Feminist Research and the Temporal Politics of Ethical Deferral

Mónica Cano Abadía

University of Graz, Austria

In discussions of governing complex digital research infrastructures, tensions between efficiency and ethical responsibility are often framed as unfortunate but unavoidable trade-offs. This paper challenges that framing from a feminist STS and feminist philosophy of science perspective. This tension between efficiency and ethical responsibility functions as a governance mechanism that systematically delays, marginalizes, or neutralizes commitments to gender equality, sex- and gender-conscious research, and broader ethical concerns and commitments with justice.

Across large-scale, distributed, and digitalized research infrastructures (particularly in domains such as biomedical and health data) ethical considerations are routinely positioned as secondary to project timelines, interoperability requirements, and deliverable-driven metrics of success. Gender equality, sex- and gender-sensitive, and ethics-oriented research are acknowledged as important (e.g. by the European Commission in funding schemes such as Horizon Europe) yet persistently framed as non-urgent: issues to be addressed once platforms are stabilized, datasets completed, or infrastructures scaled. This postponement is not accidental, nor simply the result of complexity: it is a predictable effect of how infrastructures are designed, governed, and evaluated.

Digital research infrastructures stabilize epistemic and technical decisions early: data models, standards, categories, and governance procedures. These early closures privilege abstraction, standardization, and comparability (Crawford, 2021): core components of what counts as efficiency. By contrast, sex- and gender-sensitive and justice-oriented research insists on difference, contextuality, and variability. As a result, it is perceived as disruptive to efficiency rather than constitutive of research quality. Ethical responsibility thus becomes something to be retrofitted or externalized to ethics committees and individual researchers, rather than embedded in infrastructural design (McLennan et al., 2020; McLennan et al., 2022).

This contribution conceptualizes this process as ethical deferral by design. Appeals to box-ticking, urgency, and project completion operate as value-laden temporalities that protect efficiency while displacing ethical responsibility into an indefinite future. Crucially, the costs of this deferral are unevenly distributed. Marginalized populations bear the downstream harms of gender/sex blind or exclusionary data infrastructures (Criado Perez, 2019; D'Ignazio & Klein, 2020). Meanwhile, the structures that enable deferral remain largely unques oned, normalizing a governance logic in which ethical responsibility is perpetually postponed rather than ac vely integrated into decision-making.

This paper contributes to debates on reflexive and responsible governance in complex research environments. It argues that when gender equality and ethical responsibility are consistently treated as “important but not urgent,” urgency itself becomes a mechanism of

exclusion. The contribution invites critical reflection on how current governance practices actively reproduce this contradiction, and how complexity is mobilized to justify ethical delay rather than allowing space for ethical deliberation and its integration into governance.

References

Crawford, K. (2021). Atlas of AI: Power, Poli cs, and the Planetary Costs of Ar ficial Intelligence. Yale University Press. h ps://doi.org/10.12987/9780300252392

Criado Perez, C. (2019). Invisible women. Exposing data bias in a world designed for men. Random House.

D'Ignazio, C., & Klein, L. F. (2020). Data Feminism. MIT Press.

McLennan, S., Fiske, A., Celi, L. A., Müller, R., Harder, J., Ri , K., Haddadin, S., & Buyx, A. (2020). An embedded ethics approach for AI development. Nat Mach Intell, 488–490. h ps://doi.org/h ps://doi.org/10.1038/s42256-020-0214-1

McLennan, S., Fiske, A., Tigard, D., Müller, R., Haddadin, S., & Buyx, A. (2022). Embedded ethics: a proposal for integra ng ethics into the development of medical AI. BMC Medical Ethics, 23(1), 6.

Governing Research Data in the Age of Generative AI – Interdisciplinary Perspectives

Angelina Sophie Dähms[1], Felix Bach[2], Tobias Kerzenmacher[3], Christian Bonatto Minella[2], Linda Nierling[1], Lea Sophie Singson[2]

1: ITAS, KIT, Germany; 2: FIZ Karlsruhe, Germany; 3: IMKASF, KIT, Germany

Digital transformation processes have not only an increasing impact on research and scientific practices (Gomes et al. 2022, Fecher et al. 2023), but also a high relevance for the design, governance, and operation of research infrastructures (Bach et al. 2025, Hofmann et al. 2025, Jacyszyn et al. 2025). Already now, data management challenges arise in governing AI supported research infrastructures, among others, ensuring data provenance, traceability, and versioning of AI-processed datasets to maintain transparency and reproducibility (Wilkinson 2016). Still, digital research infrastructures are undergoing further changes as generative artificial intelligence (genAI) is integrated into research data practices (Hahnel 2023, Yang 2025). This paper focuses on how genAI impacts and reshapes governance modes in research infrastructures. It draws on empirical findings from the DiTraRe project (https://www.ditrare.de/de) and an interdisciplinary expert workshop (Dähms et al. 2025) conducted with scientists and data practitioners from KIT and FIZ Karlsruhe in June 2025, which brought together perspectives from sports science, chemistry, biomedical engineering, and meteorology and climate research, revealing relevant disciplinary differences but also joint challenges with regard to genAI.

We argue that the introduction of genAI into research data workflows constitutes not only a technical innovation but also impacts how research data are managed and governed. First, genAI has the potential to change the relationship between data producers and data

infrastructures by automating metadata generation, FAIRness assessment, and persistent identifier assignment – processes that previously required human and disciplinary judgment. This automation redefines 'data work' by shifting responsibilities from human curators to algorithmic systems, altering who is credited accountability, or even qualified to perform core data curation tasks. Second, incentive structures in academic research create divergent responses to AI-assisted data practices: disciplines with strong data-sharing traditions and established community norms (as observed in meteorological and climate research, where large-scale collaborative data platforms are long-standing) engage with genAI differently than fields where data openness is not wide-spread or legally or ethically restricted due to the involvement of sensitive personal or proprietary data (Novelli et al. 2024), e.g. sport sciences. Third, the delegation of data curation tasks to AI systems introduces new governance and legal challenges around accountability, liability, and compliance, particularly, who bears responsibility when algorithmic outputs compromise reproducibility, degrade data quality, or shift interpretative authority away from human experts.

This paper contributes to the debate on digital research infrastructures by arguing that genAI must be understood as a technology that reallocates responsibilities between human actors and technical systems. In meteorology and climate research, this shift requires balancing the need to work efficiently with the responsibility to manage research data ethically and with integrity. To govern research data workflows that incorporate genAI tools, modified quality assurance and validation procedures are necessary to verify AI-enhanced datasets and metadata. Responsibilities need to be defined for the accountability and compliance among all stakeholders, e.g. scientists, data stewards, involved in AI-assisted data workflows. A challenge in managing these responsibility demands is the fact that legal regulation suffers from a pacing problem in comparison to the fast technological development of genAI and the anticipatory governance of the AI Act therefore lacks in an all-encompassing regulation (Ahern 2025), leaving the AI Act's anticipatory governance approach short of fully comprehensive oversight. It also creates questions regarding legal compliance in case of errors or an infringement of rights of the genAI output. Interoperability standards are especially critical in interdisciplinary projects like DiTraRe, where data must be harmonized across AI systems, disciplinary ontologies, and institutional infrastructures. Finally, the development of skills, training, and support structures for researchers and data stewards are crucial components for responsibly integrating genAI into research data management.

References

Ahern, Deirdre. 2025. The New Anticipatory Governance Culture for Innovation: Regulatory Foresight, Regulatory Experimentation and Regulatory Learning. In European Business Organization Law Review 26, 241-283. https://doi.org/10.1007/s40804-025-00348-7

Bach, Felix, Linda Nierling, Christian Bonatto Minella, and Angelina Sophie Dähms. 2025. The Impact of Digitalisation on Science: Workflows, Outputs, and Trust. In E-Science-Tage 2025: Research Data Management: Challenges in a Changing World, Vincent Heuveline, Philipp Kling, Florian Heuschkel, Sophie G. Habinger, Cora F. Krömer (ed.), 365-385. Heidelberg: heiBOOKS. https://doi.org/10.11588/heibooks.1652.c23935

Dähms, Angelina Sophie, Linda Nierling, Constanze Scherz, and Ralf Schneider. 2025. Research Data: Incentive Structures in the Science System and the Use of Generative AI. DiTraRe Symposium on Digitalisation of Research, Karlsruhe. Zenodo. https://zenodo.org/records/17898606

Fecher, Benedikt, Marcel Hebing, Melissa Laufer, Jörg Pohle, and Fabian Sofsky. 2023. Friend or foe? Exploring the implications of large language models on the science system. In AI&SOCIETY 2023, 40, 447-459. https://doi.org/10.1007/s00146-023-01791-1

Gomes, Dylan G. E., Patrice Pottier, Robert Crystal-Ornelas, Emma J. Hudgins, Vivienne Foroughirad, Luna L. Sánchez-Reyes, Rachel Turba, Paula Andrea Martinez, David Moreau, Michael G. Bertram, Cooper A. Smout, and Kaitlyn M. Gaynor 2022. Why don't we share data and code? Perceived barriers and benefits to public archiving practices. Proceedings of the Royal Society B 289: 20221113. https://doi.org/10.1098/rspb.2022.1113

Hahnel, Mark, Graham Smith, Niki Scaplehorn, Henning Schoenenberger, and Laura Day. 2023. State of Open https://doi.org/10.6084/m9.figshare.24428194

Hofmann, Stefan, Kerstin Soltau, and Felix Bach. 2025. RADAR: Enhancing FAIR Research Data Management with AI Support. Open Science Conference 2025 (OSC2025), Hamburg. Zenodo. https://zenodo.org/records/17222396

Jacyszyn, Anna M., Mahsa Vafaie, Felix Bach, Tobias Kerzenmacher, Kerstin Soltau, and Stefan Hofmann. 2025. "Streamling Data Publication: Automatic Metadata and Large Datasets in the Age of AI." Discussion Session at Open Science Conference 2025. Open Science Conference 2025 (OSC2025), Hamburg. Zenodo. https://zenodo.org/records/17281939

Novelli, Claudio, Federico Casolari, Philipp Hacker, Giorgio Spedicato, and Luciano Floridi. 2024. Generative AI in EU law: Liability, privacy, intellectual property, and cybersecurity. In Computer Law & Security Review 55(106066) https://doi.org/10.1016/j.clsr.2024.106066

Tedersoo, Leho, Rainer Küngas, Ester Oras, Kajar Köster, Helen Eenmaa, Äli Leijen, Margus Pedaste, Marju Raju, Anastasiya Astapova, Heli Lukner, Karin Kogermann, and Tuul Sepp. 2021. Data sharing practices and data availability upon request differ across scientific disciplines. In Scientific Data 8: 192. https://doi.org/10.1038/s41597-021- 00981-0

Wilkinson, Mark D., Michel Dumontier, IJsbrand Jan Aalbersberg et al. 2016. The FAIR Guiding Principles for scientific data management and stewardship. In Scientific Data 3, 160018. https://doi.org/10.1038/sdata.2016.18

Yang, Wenli, Rui Fu, Muhammad Bilal Amin, and Byeong Kang. 2025. The Impact of Modern AI in Metadata Management. In Human-Centric Intelligent Systems 5, 323–350. https://doi.org/10.1007/s44230-025-00106-5

Governing for Inclusion: From Paradox to Practice in Complex Research Infrastructures

Karin Grasenick

convelop cooperative knowledge design gmbh, Austria

Digital and transnational research infrastructures (RIs) present a multitude of governance challenges. Not only are they highly distributed and interdisciplinary, they are also embedded in sociotechnical environments where competing values and institutional logics collide. In response to the STS Conference session “Governing Complex Digital Research Infrastructures,” this paper examines how governance frameworks can reconcile the dual imperatives of scientific efficiency and ethical responsibility, with a focus on Equality, Diversity, and Inclusion (EDI).

Drawing on the experience of two projects: the Human Brain Project (HBP) and EBRAINS 2.0, which were dedicated to further developing the EBRAINS research infrastructure, we developed a complexity-informed framework for inclusive governance. As a European Digital Infrastructure for Brain Research, EBRAINS engages a wide range of actors (researchers, technologists, institutions, and policy stakeholders) across national and disciplinary boundaries. Based on our research and the work of the HBP’s Diversity and Equal Opportunities Committee (DEOC), we applied five key tensions that manifest in large-scale RIs:

(1) The difference paradox (standardisation vs. contextual needs),
(2) The distance paradox (central control vs. local autonomy),
(3) The identity paradox (individual vs. institutional vs. project-based affiliations),
(4) The learning paradox (project-level insights vs. institutional change),
(5) The temporal paradox (short-term deliverables vs. long-term cultural shifts).

Rather than resolving these tensions, we argue that effective governance must embrace and continuously negotiate them. Our methods included participatory foresight, qualitative interviews, and iterative co-creation procedures. The DEOC’s outputs - such as a shared vision or well-defined leadership criteria - demonstrated that inclusive governance can function as ethical foundation for research legitimacy, internal cohesion, and innovation.

Importantly, the lessons learned from the HBP have directly shaped the governance framework of its successor project EBRAINS 2.0, which further improves the foundations for EBRAINS as RI for digital neuroscience and brain health. The EBRAINS Handbook on Good Governance explicitly integrates EDI (under the broader EEEDI framework: Ethics, Equality, Equity, Diversity, Inclusion) as a cross-cutting principle of governance across participation, accountability, openness, coherence, effectiveness, and representation. For instance, the Open Space for Collaborative Achievements (OSCA) was introduced to facilitate inclusive dialogue across disciplines and hierarchies.

By embedding EDI in both the formal (e.g., project charters, conflict-resolution mechanisms) and informal (e.g., peer mentoring, cultural practices) dimensions of governance, EBRAINS 2.0 reflects a shift from compliance-based to reflexive governance. We thus extend current STS debates on collaborative governance, showing how governance mechanisms can be simultaneously ethical, operational, and participatory without ignoring the complexity of research infrastructures.

References

Grasenick, K., Romero, P. F., & Salles, A. (2023). Complex Projects – Diverse Solutions?

EBRAINS 2.0 (2025). Handbook on Good Governance. D8.3. Horizon Europe

DeFillippi, R., & Sydow, J. (2016). “Project Networks: Governance Choices and Paradoxical Tensions.” PMJ, 47(5).

Cunha, M. P., & Putnam, L. L. (2019). “Paradox Theory and the Paradox of Success.” Strategic Organization, 17(1).

11: Workshop: Research Strategies and Hands-on Practices – AI in the Scientific Work Process

Session Chairs:

Ronald Staples, Friedrich-Alexander-University Erlangen-Nürnberg, Germany

Vincent Steinbach, Friedrich-Alexander-University Erlangen-Nürnberg, Germany

Session Abstract

Artificial intelligence now permeates the everyday research process – from literature research and data analysis to scientific writing. At the same time, European institutions (the EU Commission, research ministries, universities) have issued numerous guidelines on the "responsible" use of AI, but these often remain general and vague and fail to reflect actual research practice.
This is precisely where this workshop comes in: it focuses on the gap between institutional guidelines and practical research strategies. The focus is on how scientists (in STS) actually use AI tools, what strategies they develop, where they encounter dilemmas, and how they overcome them. The workshop understands AI use as a socio-technical practice that is worth exploring reflexively – central to science and technology studies.

Approach: Hands-on workshop in three phases
The 90-minute workshop combines reflective and practical elements to highlight different levels of experience as well as exploratory and established forms of use. Participants are invited to bring their own examples, experiences, questions or issues.

Phase 1 – Reflection: Gallery Walk
Participants explore typical AI usage scenarios presented as vignettes. They document their own experiences, alternative practices, and areas of tension. This highlights the diversity of approaches and possible applications for AI in research.

Phase 2 – Orientation: Impulse for the Workflow
An idealized workflow is presented that systematizes where AI is used in the research process and which decision points arise. This creates a common orientation without standardizing.

Phase 3 – Exchange of Experiences: Speed Geeking
This phase focuses on the immediate, hands-on exchange of concrete AI tools and practices. Participants share their own experiences in rotating groups: How do they use AI in their everyday research? Which tools do they use? What works, where do problems arise? This component is essential for moving from abstract knowledge to practical know-how and bringing different levels of experience into a productive dialogue. To this end, participants bring specific problems or experiences with different tools and maybe function as experts for these tools.

Objectives
The workshop aims to enable participants to:

- Reflectively understand the use of AI in research
- Learn about specific strategies that work elsewhere
- Provide each other with guidance beyond general guidelines
- Develop a sense of community awareness for common issues

12: Digital Criminology – Bridging Technologies, Human Practices and Environments

Session Chairs:

Piotr Siuda, Kazimierz Wielki University in Bydgoszcz, Poland

Meropi Tzanetakis, WU Vienna University of Economics and Business, Austria

Associations Between Power Dynamics and Technological Platform Features Across Darknet Drug Markets

Ákos Szigeti[1], Tibor Kiss[1], Gergely Koplányi[2], Richard Frank[3]

1: Ludovika University of Public Service, Hungary; 2: National Institute of Criminology, Hungary; 3: Simon Fraser University, Canada

Background: Previous research applied social figuration theory to understand the operation of darknet drug markets. These studies highlighted the trust-based interdependencies among operators, vendors, customers, and other (human) actors. However, actor-network theory, historical information on darknet drug markets, and recent studies imply that non-human actants should also be considered when describing these socio-technical systems. Thus, in our current study we focused on the associations between technological platform features (including authentication and encryption methods, escrow systems, cryptocurrency and mixing services, and reputation systems) and power dynamics across darknet drug markets.

Methods: We conducted deductive categorisation on the web pages (n = 800) of selected English-language marketplaces (n = 33), collected from October to November 2024. These platforms represent the “Western darknet market ecosystem”, which is estimated to account for 5 percent of global darknet market drug transactions. We used Atlas.ti qualitative data analysis software to analyse the co-occurrences of content related to power dynamics and authentication and encryption methods (49 co-occurrences), escrow systems (79); cryptocurrency and mixing services (28), and reputation systems (41).

Results: Operators provided private URL links to specific user groups and restricted sharing private contacts between vendors and customers. While PGP keys encrypted user communications on some markets, others employed custom encryption services as technical guarantees. Most markets established escrow systems to prevent scams by withholding funds until customers receive products, but operators often reserved the right to decide which vendors can sell without escrow. While some markets explicitly stated they do not offer centralised wallets due to the risk of exit scams, others embedded customised crypto-mixing services that make money flows untraceable. Reputation systems assured product quality based on user reviews, but some market operators introduced custom rules to highlight reputable vendors.

Conclusions: Market operators designed and managed platform features and introduced them as technical guarantees that substitute legal assurances. However, our findings imply that these features reinforced a hierarchical structure, placing operators at the top and customers at the bottom. Features were not only based on the trust of customers and vendors but also served as tools to foster trust among them. These findings indicate that the selection, design, management, and interpretation of platform features significantly affect the steady operation of darknet drug markets. Future research should incorporate customers' perspectives, expand to non-English platforms representing the global darknet drug market, and include other digitally mediated drug markets to provide a more universal understanding of the power dynamics of drug markets in our hybrid societies.

Platform Visibility, Obscurity, and Illicit Alcohol Markets on Social Media

Oscar Waldner

Malmö University, Sweden

Alcohol sold illicitly to minors in Sweden is increasingly facilitated through social media platforms. Yet the platforms themselves complicate our ability to gain insight into how such activities are organised and governed. In this study, I analyse illegal sales of alcohol on social media platforms as a case for understanding how offenders adjust their self-presentation in relation to platform visibility affordances.

In recent years, social media platforms have moved from easily accessible sources for big data to restricted spaces. Content generated via searching or browsing is highly dependent on algorithmic recommendation systems, which complicates outside access and researcher oversight. This reconfiguration of visibility constitutes a shift towards more opaque platform designs, enabling illicit markets to operate under reduced exposure. These conditions shape how illegal markets operate while complicating our ability to produce reliable quantitative insights into crime on social media.

In this study, I explore the accounts on Snapchat and Instagram used for illegally selling alcohol in Sweden, for descriptive analyses. The study analyses a dataset of approximately 500 screenshots of profile pages, collected across three waves. The collection focuses on usernames, follower-metrics, and other details shared openly through the profile pages. Additional variables are inferred from the choice of usernames. The dataset is fully anonymized and collected in accordance with ethical standards of online research.

From analysing usernames, several account strategies can be inferred, including geographic orientation and the use of slang versus conventional terms to signal sales, balancing risk of exposure to police with benefits of advertising to potential buyers. Through three collection waves over nine months, I record which accounts are recaptured, and which are confirmed deleted. This allows for an estimation of seller account life cycles, while differentiating between platform-induced (in)visibility and explicit deletion through platform bans or self-deletion. The comparison between Instagram and Snapchat examines how ephemeral versus permanent content shapes the persistence of illegal markets. I find that very few accounts on either platform are explicitly deleted. Especially on Snapchat, most accounts seem to disappear by

moving into obscurity through inactivity, suggesting that algorithmic visibility and platform affordances govern the markets more effectively than formal administrative enforcement.
The study contributes to digital criminology and STS by conceptualising platform mediated illicit markets as governed through algorithmic visibility rather than primarily through formal enforcement. It advances understanding of hybrid online–offline criminal economies by showing how infrastructural opacity and platform affordances shape market persistence, risk management, and informal regulation.

Exploring the Relationship Between Childhood Traumas and Hacking Behaviors

Thomas Holt, Julie Krupa, Cooper Maher

Michigan State University, United States of America

Many researchers have tested elements of traditional criminological theories, especially self control, to account for involvement in simple forms of computer hacking, or unauthorized use of computers and online resources. Few have explored the role of adverse childhood traumatic experiences in predicting involvement in both complex and simple forms of hacking among an adult sample. This study attempted to test these relationships using a large sample of U.S. adults, aged 18-45, regarding their involvement in five forms of computer hacking: two simple forms of hacking including password guessing behaviors and the use of DDoS attacks, and three more complex hacks including web defacement activities, the use of SQL-based hacks, and malware use. Using logistic regression with penalized likelihood estimation, preliminary results illustrate a significant relationship between experiencing childhood adversity and involvement in all five forms of hacking. Self control and substance use measures were also significant for select types of both simple and complex hacking. The findings suggest that early life adversity may be an important risk factor for engagement in hacking behaviors, warranting further exploration into the application of developmental perspective in understanding cyber offending. The implications of the study for both theory and practice will be discussed in detail.

Gendered Strategies in Hybrid Drug Markets

Meropi Tzanetakis[1], Alexandra Karden[2,3]

1: Institute for Sociology and Social Research, Department of Socioeconomics, WU Vienna University of Economics and Business, Austria; 2: checkit! - Suchthilfe Wien GmbH (Vienna Addiction Services); 3: Centre for Public Health, Department of Social and Preventive Medicine, Medical University of Vienna, Austria

Drug acquisition is increasingly taken place in hybrid socio-technical environments that cut across face-to-face interactions, messaging services, social media platforms, as well as clearnet and darknet markets. Rather than constituting discrete online or offline spheres, these environments form fluid assemblages in which digital infrastructures, material settings, and social relations are mutually constitutive. This paper examines how trust, secrecy, safety and informal governance are negotiated within such hybrid drug markets by women and gender-diverse people in Austria.

Drawing on 30-40 qualitative in-depth interviews recruited in cooperation with Addiction Services Vienna, this study analyses everyday drug-acquisition practices across offline settings and multiple digital platforms. Conceptually, it situates hybrid drug markets within digital criminology and science and technology studies, bringing to the fore platform affordances, visibility regimes, and data practices as central to the organisation of illicit exchange. Particular attention is paid to non commercial and semi-commercial practices such as social supply, sharing, and gifting, which complicate conventional understandings of illegal markets as purely transactional social arenas.

Empirically, the paper explores how gendered and intersectional positions shape access to information, perceptions of risk, and capacities to navigate conflict in the absence of formal regulation. It explores strategies such as selective visibility, reputational management, and careful platform choice through which participants seek to mitigate risks of violence, coercion, and exploitation. At the same time, it critically interrogates how digital infrastructures may reproduce or intensify existing power relations, including heightened exposure to surveillance, exclusion from trusted networks, or dependency on informal brokers and protective intermediaries.

Rather than focusing on overt confrontation, the analysis highlights indirect and displaced forms of conflict management, for instance through withdrawal, silence or reliance on trusted intermediaries within hybrid drug markets. By centring marginalised people and everyday practices, the paper contributes to debates on hybrid criminalities, informal governance, and socio-technical power in hybrid environments. It concludes by reflecting on implications for harm reduction and the development of gender-sensitive, low-threshold interventions within digitally embedded illicit economies.

Digital Ecosystems at the Margins: Visibility Labour, Informal Economies, and the Self-Representation of Camorra Clans on TikTok

Vincenzo Luise, David Melubo Kisotu

University of Naples Federico II, Italy

Social media platforms have become central arenas for the circulation of criminal imaginaries but little is known about how organised crime groups strategically inhabit second-generation platforms such as TikTok. While research on digital organised crime has focused primarily on first-generation platforms and on issues of recruitment or prevention, the communicative grammars and visibility practices through which criminal groups construct symbolic power online remain critically understudied. This article examines how Camorra clans use TikTok to perform visibility labour following two research questions: How do Camorra clans perform visibility labor on TikTok to construct criminal identities and gain symbolic legitimacy? How do TikTok's algorithmic logics and communicative affordances shape these practices? The study combines the category of cyber-assisted organised crime with the concepts of visibility labour, politics of visibility and regime of visibility to theorise criminal self-presentation within platformised environments. Empirically, it draws on a three-phase digital ethnography and a dataset of 1,150 TikTok videos collected through exploratory scraping, algorithmic simulation and collaboration with a key informant. Findings show that criminal visibility on TikTok is produced through performative, relational and infrastructural forms of visibility labour that articulate social consensus, alliances and rivalries, social commerce and cultural legitimacy. The article conceptualises Camorra visibility labour as a multi-level socio-technical practice in which criminal actors and platform infrastructures co-produce grammars of recognition and regimes of attention. These dynamics suggest that platform governance must confront distributed communicative ecologies rather than isolated posts.

Emerging Low-Tech Criminal Subcultures on Open Social Media Platforms: Developments in Digital Cultural Criminology

Jakob Johan Demant

University of Copenhagen, Department of Socioogy, Denmark

Cybercrime research has traditionally focused on technological competencies and expertise. More recent studies, however, emphasise the role of internet architectures and platform structures in facilitating criminal activity. At the same time, other strands of research highlight the localised and physically embedded nature of cybercrime, arguing that digital and offline elements are intertwined in hybrid forms of offending.
Drawing on our ongoing research on social media–related crimes (2017–present), we identify significant overlaps between illicit and prescription drug sales, the trade in stolen goods, and crime-as-a-service. These activities suggest that the emergence of criminal subcultures within social media spaces is closely entangled with the affordances of the platforms themselves. Across mainstream platforms such as Facebook and more closed environments such as

Telegram, we observe groups organised around criminal activities in which access typically requires minimal vetting. Within these spaces, practices include selling one's own identity information, accepting fines on behalf of others, and trading in stolen goods or illicit drugs. Buyers and sellers of illegal goods and services interact with few apparent constraints.
Beyond the public-facing areas of these groups, sustained interactions foster communities in which criminality is openly acknowledged and normalised. While slang is commonly used, there is little evidence of codified language designed to conceal activities. Hesitation is discouraged, and participation is expected to align with established norms. Crime is refracted through its shifting forms and through the large volume of seemingly low-level, everyday criminal practices.
We argue that these subcultures reflect long-standing lower-class traditions of criminal acceptance, in which participants share an implicit understanding of the purpose and legitimacy of such activities. Although these forms of crime are not new, digital environments enable marginalised individuals to recreate forms of community that have otherwise eroded. In doing so, these groups function as criminal convergence spaces, loosely connecting participants to more organised forms of crime.
The study draws on digital trace data from group interactions collected across previous and ongoing studies of crime on social media platforms.

"We Protect Our Motherland in the IT Sphere" - How Patriotic Hackers Neutralise Their Crimes

Sara Rubini, Brian Klaas, Paul Gill

University College London, United Kingdom

Hacktivism and patriotic hacking have become increasingly prominent forms of political action carried out by non-government groups and civil society. While hacktivists typically pursue global causes such as human rights and information freedom, patriotic hackers present themselves as irregular soldiers acting on behalf of their nation (Dahan, 2013). Motivated by nationalism and loyalty, they often frame their activities as extensions of state interests. Although cyber-dependent crimes by patriotic hackers are increasing, research has primarily concentrated on cyber-enabled crimes perpetrated by right-wing actors (Holt et al., 2021).

To address this gap, we conducted a qualitative content analysis of 16 open-source documents (12,783 words) produced by self-identified patriotic hackers, including the Syrian Electronic Army, the European Cyber Army, Iranian, Russian and Turkish hackers. The dataset includes Pastebin posts, which provide unfiltered plain-text communications, and publicly released interviews with individuals who openly claim the label of patriotic hacker. Documents were identified through systematic keyword searches and cross-verified through multiple OSINT sources. All texts were coded using a hybrid approach: deductive codes drawn from neutralisation theory and inductively generated subcodes developed during analysis. Codes were compared across groups to identify shared and divergent patterns. Neutralisation theory (Sykes & Matza, 1957) guided the analytical framework, hypothesising the use of techniques such as denial of victim, condemnation of condemners, appeals to higher loyalty,

appeals to moral principles, and defence of necessity. The analysis confirmed all five techniques across the sample and generated additional subcodes, including revenge, deterrence, and patriotism, that further clarified how these actors morally justify cyberattacks. We also examined operational patterns, identifying frequent use of Distributed Denial of Service attacks, data breaches, and email spam. Targets ranged widely across state and non-state entities. Unlike traditional offenders who typically avoid exposure, many patriotic hackers actively claim responsibility for attacks, using anonymity protections and English-language communication to amplify their message to international audiences.
Although this analysis is limited by the small amount of available data - largely due to the necessary reliance on open-source information - and although the findings cannot be generalised because of the restricted dataset, the primary aim of this work is to highlight the relevance and importance of nationalist hackers, a phenomenon that remains significantly underexplored in the existing literature. We intend to encourage further scholarly engagement with nationalist hacking and to promote a more holistic integration of politically motivated cyber-dependent crime into extremism and cybercrime research.

References

Dahan, M. (2013). Hacking for the homeland: Patriotic hackers versus hacktivists. 51-57.

Holt, T. J., Stonhouse, M., Freilich, J., & Chermak, S. M. (2021). Examining Ideologically Motivated Cyberattacks Performed by Far-Left Groups. Terrorism and Political Violence, 33(3), 527-548. https://doi.org/10.1080/09546553.2018.1551213

Sykes, G. M., & Matza, D. (1957). Techniques of neutralization: A theory of delinquency. American sociological review, 22(6), 664-670.

Platformization of Crime Control – On the Transformation of Regulating Harmful Content

Friederike Bahl

Leibniz University Hannover, Germany

This contribution explores the platformization of crime control and how the concept of platformization offers an important point of departure for digital criminology. In digitalized society crime control has become very much dependent on the socio-technical infrastructures of online platforms (Andrejevic 2013). Be it legal regulations such as copyright infringement or hate speech, administrating these offenses online is not done by judges and lawyers but by platform employees, especially for the case of Europe. One of the most intriguing examples of this phenomenon is the platform-based moderation of harmful content by social media platforms. Today, the task of tracing legal transgressions like the uploading of sexual violence or terrorist endeavours is less a matter of state court procedure but has officially become the day-to-day-business in the regulatory behaviour of online platforms, above all Meta or TikTok. They select and filter uploaded material, evaluate and block harmful content, and therefore take on tasks of crime control at the level of first instance courts.

For digital criminology this regulatory shift from state to platform raises several questions. Analysing crime and exploring the transformation of crime control have traditionally been captured as issues of public regulation. So what happens when platforms officially take over these tasks and start to monitor illegal behaviour, administer justice and handle duties of legal protection that before were almost exclusively in the hands of state agents? Do we see a privatization of regulation or how does this shift in regulatory responsibility change the practice of crime control and shape the analytical avenues of its theoretical conceptualization?

In this entry, I will argue that this shift is not a matter of privatization (Lomell 2025; Floridi 2020) but is a genuine process of platformization: more than a transfer of task we see a judicialization of platforms (cf. Brown 2015). Why does this conceptual differentiation matter? Because platform-based adjudication transforms public and private life alike and therefore describes a process that digital criminology needs to explore. While it is true that online platforms are owned by private companies, understanding and analysing this regulatory shift as privatization blurs two significant aspects of the phenomenon at hand. First, where platform-based content moderation has become the judge of legal transgressions, the task of crime control is not simply privatized, the task itself is changing: towards an over-generalization of legal enforcement. This is especially true where it is taken on by AI: instead of contextualizing sensitive content (e.g. differentiating between the depiction of a naked breast, that is shown in a video, in a case of breastfeeding, and sexual content, or even the case where the alleged breast actually turns out to be an orange) AI tends to block all three examples as transgression to the rule and will therefore expand and transform the meaning of illegal behaviour. Second, apart from the task this platform-based moderation also transforms the platform itself. Administrating harmful content at the level of first instant courts, we see not a privatization of legal protection but a judicialization of platforms: effectively understanding platforms not as a corporation alone but integrating them as adjudicators into the European judicial system.

To illustrate this line of thought, I will start by describing the shift towards digitized governance of harmful content. I will then explore what is meant by understanding this transformation as a matter of platformization and how this platformization eludes from fitting the analytical concept of privatization and its interrelation to a publicization. All examples given, stem from the first data of a qualitative project on platform regulation for the case of Germany and are to be understood as a first explorative venture into a new social constellation. The presented data mainly includes a triangulation of document analysis (e.g. regulatory state guidelines, platform Terms of Service, and relevant court cases for the two platforms Meta and TikTok) as well as first interview and observational data from the work of respective content moderators at TikTok.

Top-Down, Bottom-Up, and Cross-Pollination Dynamics of Health Misinformation in Italian Telegram Channels

Federico Pilati, Selenia Anastasi, Anita Lavorgna

University of Bologna, Italy

This study, developed in the context of the broader FIS2-funded eDeTox project, investigates how health misinformation circulates within Telegram channels by distinguishing between two different structural diffusion models: a top-down “super spreader” model, and a bottom-up peer-driven model. Positioned at the intersection of Digital Criminology and STS, the analysis foregrounds how digitalization reshapes crime and social harm as hybrid sociotechnical phenomena. Rather than treating misinformation as a purely communicative or behavioural issue, we conceptualize it as a digitally mediated harm emerging from the entanglement of platform architectures, algorithmic amplification, and user practices. This perspective aligns with STS scholarship that highlights the complex ways in which science, technology, and society co-evolve and mutually shape one another.
society co-evolve and mutually shape one another. We monitored 10 major Italian Telegram channels dedicated to vaccination scepticism over a 12-month period. Using a topological approach, we reconstructed conversation threads as directed tree graphs to capture the structural dynamics of interaction. Hashed User IDs enabled privacy-preserving tracking of user mobility across groups, allowing us to identify participation patterns without compromising personal data. To differentiate diffusion models and detect cross-group coordination, we examined three analytical dimensions:

(1) Hierarchy: adapting the H-index to assess user popularity. In our case, the H-index was calculated for each user to ensure that the author had published at least H-posts, each of which had received at least H-replies or comments.
(2) Root Influence Ratio: comparing the toxicity of a new topic initial post with the average toxicity of subsequent replies and comments to assess whether harmful narratives originate from authority figures or emerge organically within the community.
(3) Cross Group Centrality: constructing a user–channel network to compute an Inter Group Activity Score to investigate if bridge users could function as cross-group vectors, facilitating the transfer and synchronization of conspiracy narratives between otherwise disconnected communities.

By mapping conversation structures and user flows, the study provides a method for classifying whether no-vax campaigns on Telegram operate as isolated echo chambers or as part of a coordinated misinformation hub and spoke network. This distinction is crucial for criminological understandings of digital harms: harmful practices online are not simply the product of deviant individuals but are embedded in socio-technical infrastructures that shape how narratives emerge, gain traction, and circulate. At the same time, the study advances STS debates by demonstrating how platform affordances and user agency co-produce new configurations of harm. The circulation of misinformation is shown to be a hybrid process in which technological systems and social behaviours are inseparable, continually reshaping one another. These insights support a shift in platform governance from reactive content moderation to the identification of socio-technical dynamics that systematically sustain harmful misinformation across the digital ecosystem.

The [Un]Expected Challenges of Digital Ethnography Within the Darknet

Tove Westberg

Lund University, Sweden

Within digital criminology, ongoing transformations in social and technological infrastructures continue to reshape how crime is organized, mediated, and studied. From a STS perspective, the internet, and the Darknet in particular, cannot be understood as separate from offline social worlds, but rather an extension, a socio-technical environment (see also McKay, 2026). These transformations have generated new methodological opportunities for researchers, most notably by enabling access to hard-to-reach populations, including stigmatized, marginalized, or socially withdrawn groups who may otherwise remain inaccessible to empirical inquiry (Šupa, 2025, p. 419).

Building on previous research on cryptoforums and illicit online communities, which has emphasized the importance of insider knowledge and the challenges when conducting digital fieldwork (Kaufmann and Tzanetakis, 2020; Fergusson, 2018; Barratt and Maddox, 2016), this paper examines the methodological challenges of conducting a multi-year digital ethnography of cryptoforums. Particular attention is paid to the socio-technical conditions that shape access, trust, and the production of ethnographic knowledge in highly distrustful and security conscious environments.

The paper highlights how anonymity-enabled methods made it possible to engage with a hidden community that would likely have remained inaccessible using alternative methods. At the same time, the reliance on such technologies also shaped the empirical material, as participation was limited to individuals already comfortable navigating these infrastructures. As in other studies of hard-to-reach populations (see Bakken, 2025, p. 66), these methodological trade-offs reveal how access itself is structured by socio-technical inequalities.

The empirical engagement primarily took place within two cryptoforums, complemented by extensive off-platform interactions through private chats where more synchronous exchanges occurred. Due to the ethos of anonymity in these spaces, identifying forum usernames have been removed to preserve anonymity. Nonetheless, the engagement remained highly social, involving ongoing dialogue and relationship-building across both public and private channels.

The paper presents three key findings. First, technical fluency emerged as a crucial marker of researcher credibility: demonstrating familiarity with participants' tools and practices, such as familiarity with Tor, XMPP, and PGP, significantly shaped levels of trust and willingness to engage. Second, norms of operational security were revealed to be situational rather than absolute; through fieldwork, I learned that excessive adherence to encryption norms could itself be interpreted as socially inappropriate, underscoring the importance of tacit, community specific knowledge. Hence, access to these spaces is mediated not only by technical competence, but also by social competence, including an understanding of encryption norms, reputation systems, and appropriate modes of information sharing. Third, the study highlights the challenges of conducting research in communities characterized by deep-seated distrust toward outsiders and researchers, which at times resulted in insults and verbal abuse.

Taken together, these findings contribute to methodological debates in digital criminology by demonstrating how ethnographic access, trust, and credibility are co-produced through socio technical practices, and by highlighting the epistemic consequences of conducting research in highly distrustful online environments.

References

Bakken, S., 2025. 6 App-based textual interviews. In In Kaufmann, M. and Lomell, H. M. (eds) De Gruyter Handbook of Digital Criminology. De Gruyter.

Barratt, M.J. and Maddox, A., 2016. Active engagement with stigmatised communities through digital ethnography. Qualitative research, 16(6), pp.701-719.

Ferguson, R.H., 2017. Offline 'stranger'and online lurker: methods for an ethnography of illicit transactions on the darknet. Qualitative research, 17(6), pp.683-698.

Kaufmann, M. and Tzanetakis, M., 2020. Doing Internet research with hard-to-reach communities: Methodological reflections on gaining meaningful access. Qualitative Research, 20(6), pp.927-944.

McKay, C., 2025. Digital Criminology, Vulnerability Theories and Digital Vulnerability. In Digital Vulnerability in Criminal Justice: Vulnerable People and Communication Technologies (pp. 23-43). Cham: Springer Nature Switzerland.

Šupa, M., 2025. Researching online forums. In Kaufmann, M. and Lomell, H. M. (eds) De Gruyter Handbook of Digital Criminology. De Gruyter

Cocaine Trafficking via Container Ships, Dynamics Between Corruption, and Inspections: A Neural Network Agent-Based Model

Maykol Rodriguez Prieto[1], Daniel Cardenas Sanchez[2]

1: Justus Liebig Universität Gießen, Germany; 2: Graz University of Technology, Austria

According to the United Nations Office on Drugs and Crime (UNODC, 2024), Europe has become an increasingly attractive market for drug traffickers. Between 2011 and 2023, cocaine consumption in Western, Central, and South-Eastern Europe surged by 80%. In 2021 alone, authorities recorded 407 drug-related incidents in European waters, resulting in the seizure of 576,411 kilograms of narcotics. Cocaine was the second most seized drug, accounting for 28% of the total, equivalent to 163,077 kilograms.

Traffickers exploit the vast scale of legal maritime trade to smuggle illicit goods into Europe, often concealing drugs within legitimate cargo. With over 80% of global trade transported by sea, the volume of containers arriving at European ports is immense, yet only 2% to 10% of these are physically inspected (Zaidi, 2007). This limited inspection capacity creates a substantial loophole for criminal networks. Further exacerbating the issue is widespread corruption1: traffickers often rely on bribery and collusion to access ports, retrieve illicit shipments, and operate with impunity. Organized crime has deeply infiltrated key ports in both South America and Europe, involving not only port workers but also high-ranking officials such as Coast Guard officers who may accept bribes to overlook smuggling operations (Sergi, 2020; Zaitch, 2002; Antonopoulos, 2008; Eski & Bujit, 2016; Kostakos & Antonopoulos, 2010). Ports, while serving as gateways for international trade and essential nodes within the global supply chain, also represent critical points of vulnerability (Pettit & Beresford, 2009; Liu et al., 2018).

They are complex systems where diverse public and private actors interact continuously to ensure the efficient and secure functioning of maritime commerce (Macário, 2014).
An Agent-Based Model integrated with Neural Networks (NN-ABM) is presented in this research (like the ones proposed in Mascioli et al. (2024) and Lamperti et al. (2018)) to contribute to the understanding and gain a clearer picture of containerized cocaine trafficking from South America to Europe. Criminal networks are hard to analyze given the hidden nature of their operations, that is why simulations are key to understand hidden patterns and test possible policy implementations (Duijn et. al, 2014). In this case, the NN are used to, based on actual data from each port (container flows, type of merchandise, the value of the transactions, time and network features and historical seizure rates), estimate hidden variables: the distribution of cocaine in the containers, the corruption at the port and the perceived inspection rates. These values from each port NN are then incorporated into the ABM architecture and the obtained seizure amounts is compared to the actual values reported by each of the ports, then the errors are backpropagated to the neural networks. This process is repeated until the system for each port converges.
In the end, the NN-ABM model can be used to simulate different policies and predict the outcome. For example, the effect that an increase in the inspections in one port will have on the amount of cocaine trafficked in others. Or the changes that come from an increase in the number of containers, like the one that is expected after the EU-Mercosur deal.

[1] While corruption is widespread and takes many forms, this analysis centers on traffickers' use of bribery and threats to move shipments.

References

Antonopoulos, G. A. (2008). The Balkans as a 'laboratory (for the study) of transnational criminality'. European Journal https://doi.org/10.1177/1477370808090830.

Duijn, P. A., Kashirin, V., & Sloot, P. M. (2014). The relative ineffectiveness of criminal network disruption. Scientific reports, 4, 4238. https://doi.org/10.1038/srep04238

Eski, Y., & Buijt, J. (2016). The 'invisible' security of the Port of Rotterdam. Trends in Organized Crime, 19(2), 196–214. https://doi.org/10.1007/s12117-016-9280-5.

Kostakos, P. A., & Antonopoulos, G. A. (2010). The 'good', the 'bad' and the 'Charlie': The business of cocaine smuggling in Greece. Global Crime, 11(1), 34–57. https://doi.org/10.1080/17440570903559143

Francesco Lamperti, Andrea Roventini, and Amir Sani. 2018. Agent-based model calibration using machine learning surrogates. Journal of Economic Dynamics and Control 90 (May 2018), 366–389. DOI:http://dx.doi.org/10.1016/j.jedc.2018.03.011

Liu, M., Toyoda, Y., Nabaa, M., & Yamada, T. (2018). Port choice by major shipping lines in South East Asia: A discrete choice model. Asian Journal of Shipping and Logistics, 34(2), 117 124. https://doi.org/10.1016/j.ajsl.2018.06.001

Macário, R. (2014). The complexity of port systems: Understanding value creation. In H. Meersman, E. Van de Voorde, & T. Vanelslander (Eds.), Port infrastructure finance (pp. 77 92). Informa Law.

Chris Mascioli, Anri Gu, Yongzhao Wang, Mithun Chakraborty, and Michael Wellman. 2024. A financial market simulation environment for trading agents using Deep Reinforcement Learning. Proceedings of the 5th ACM International Conference on AI in Finance (November 2024), 117–125. DOI:http://dx.doi.org/10.1145/3677052.3698639

Sergi, A. (2020). Ports, crime and security: Governing ports in a globalised world. Palgrave Macmillan.

UNCTAD (United Nations Conference on Trade and Development). (2024). Review of Maritime Transport 2024. https://unctad.org

Zaidi, L. (2007). Ports and drugs: Towards a comprehensive model of drug trafficking via commercial shipping. Trends in https://doi.org/10.1007/s12117-007-9013-9

Zaitch, D. (2002). Trafficking cocaine: Colombian drug entrepreneurs in the Netherlands. Kluwer Law International.

13: Feminist Critique in AI: Searching for the New Grounds

Session Chair:

Liliia Zemnukhova, Deutsches Museum, Germany

Feminist Perspectives on Artificial Intelligence and Power Dynamics in the Global South

Yamini Parashar, Dr. Vikas Kumar

Indian Institute of Information Technology Vadodara, India

As artificial intelligent technologies are increasingly integrated into social, economic, and political orders in the Global South, the dominant discourses of objectivity, impartiality, and universality mask the situated and power-infused character of these technologies. Artificial intelligent technologies are understood largely as “technical” objects, but feminist science and technology studies (STS) literatures highlight that technologies are produced “together” in social relations, embodying pre-existent orders of power, knowledge, and gender. This paper has provided a reading from the feminist STS approach to critically understand, from the perspective of gender power relations, how these artificial intelligent technologies are shaped by, as well as in turn shaping, the Global South, exclusively depending on secondary information sourced from scientific literature, policy texts, artificial intelligent ethics recommendations, and global, international organization reports. Specifically, this paper has three primary objectives: (i) Understand how the governance and ethics of artificial intelligent technologies in the Global South construct and/or challenge gender power relations. (ii) Investigate artificial intelligent applications in, for instance, health, financial, and other public-related domains, contextualizing their contribution and/or potential negative effects in a broader, socio-culturally founded, gender perspective. (iii) Investigate whether feminist STS offers potential inputs and/both reflections, as well as recommendations, to design more balanced, contextual artificial intelligent governance. Based on secondary data analysis available from various regions in the Global South, such as India, other countries in South America like Brazil, as well as various other countries in Africa, it has been identified that these artificial intelligent technologies tend to reproduce, as well as exacerbate, these pre-existent orders of inequalities by pre-embedding “normal” assumptions about gender roles and divisions of labour, as well as their socio-cultural value, which remain specifically situated in each socio-cultural order. It shows how AI is far from a neutral or strictly technological issue but a socio-technical system developed and enacted together in intricate social, cultural, and politically charged relationships. For example, AI systems for personnel selection decisions, social welfare allocation decisions, and healthcare decisions are many times based on biases embedded both in data sets, policies, and power structures, thereby, unintentionally and unnecessarily perpetrating past inequalities. It pointso out how most forms of AI ethics and governance policies, while heavily concentrating on general principles of fairness, objectivity, and transparency, neglect intersectional realities of marginalized social groups like women, poorer sections of a community, and excluded ethnic groups among others. It further

introduces a feminist lens from STS theories, therefore joining hands with ongoing critiques of AI ethics, governance, and policies, thereby promoting more inclusive, accountable, and socially sensitive technological futures. It thereby identifies the relevance of considering AI not just as a technology but as a set of practices embedded with power and social norms.

References

Birhane, A. (2025). Sustainable AI meets feminist African ethics. *AI and Ethics.* https://link.springer.com/article/10.1007/s43681-025-00705-9

Kumar, S., & Choudhury, S. (2022). Gender and feminist considerations in artificial intelligence from a developing-world perspective, with India as a case study. *Humanities and Social Sciences Communications, 9*(1), 1–10. https://www.nature.com/articles/s41599-022-01043-5

West, S. M. (2020). Redistribution and Recognition: A feminist critique of algorithmic fairness. *Catalyst: Feminism, Theory, Technoscience, 6*(1), 1–25. https://catalystjournal.org/index.php/catalyst/article/view/33043

UNESCO. (2021). *Recommendation on the ethics of artificial intelligence.* UNESCO. https://www.unesco.org/en/legal-affairs/recommendation-ethics-artificial-intelligence

UNESCO. (2025). *Global AI ethics and governance observatory.* UNESCO. https://www.unesco.org/ethics-ai/en

Kubes, T. (2025). *A critique of human-centred AI: A plea for a feminist AI framework (FAIF)*. *AI & Society*. https://doi.org/10.1007/s00146-025-02556-8

Situated Vulnerability and Algorithmic Care: Gender, Aging, and Feminist Critique

Mónica Cano Abadía

University of Graz, Austria

As AI-enabled assistive and care technologies (such as conversational companions and semi-autonomous monitoring systems) become embedded in healthcare, they carry the promise of autonomy, personalization, and safety while simultaneously reconfiguring relations of dependency, responsibility, and care. For older women[1], these technologies often intensify gendered ageism by mobilizing imaginaries that conflate vulnerability with fragility, cognitive decline, and diminished agency. This paper examines how such imaginaries are materialized through sociotechnical arrangements, including design decisions, data practices, and institutional framings of care. Drawing on feminist STS, ethics of care, and feminist epistemology, the paper conceptualizes vulnerability not as an individual deficit but as a relational and situated condition that is enacted through infrastructures and practices of AI-enabled care. Building on Haraway's notion of situated knowledges (Haraway, 1988) and Harding's standpoint theory (Harding, 1986), the paper foregrounds older women's lived and embodied experiences as a critical site for analyzing how care technologies come to define competence, risk, and responsibility. In the absence of such perspectives, health AI

development often relies on background assumptions (Longino, 1990) about health literacy, autonomy, and dependence, shaping what counts as good care and for whom.
These dynamics generate patterned forms of epistemic injustice (Fricker, 2007) in which older women's experiential and narrative knowledges are systematically devalued within the design, evaluation, and governance of AI-enabled care technologies. Rather than treating vulnerability as a condition to be mitigated or engineered away, the paper introduces situated vulnerability as an STS analytical tool for examining how vulnerability is distributed, stabilized, and made actionable through sociotechnical arrangements, revealing how agency and care are co-produced rather than opposed. Building on this, the paper contributes to feminist critique of AI in care by showing how narratives of vulnerability function as boundary-making devices: they organize assumptions about health literacy, responsibility, and dependence, and delimit who is positioned as a legitimate knower within algorithmic care systems. By bringing feminist epistemologies and ethics of care into conversation with STS analyses of sociotechnical imaginaries, the paper outlines data caring practices (Puig de La Bellacasa, 2017; Tronto, 1998) and data feminism tactics (D'Ignazio & Klein, 2020) as critical orientations for interrogating dominant configurations of algorithmic care and for re-centering older women as epistemic agents rather than merely risk-bearing subjects.

[1]"Women" refers inclusively to cis and trans women, acknowledging the diverse gendered experiences and embodiments that shape interactions with health technologies.

References

D'Ignazio, C., & Klein, L. F. (2020). Data Feminism. MIT Press.

Fricker, M. (2007). Epistemic injustice: Power and the ethics of knowing. Oxford university press.

Haraway, D. (1988). Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective. Feminist Studies, 14(3), 575–599. https://doi.org/10.2307/3178066

Harding, S. (1986). The science question in feminism. Cornell University Press.

Longino, H. E. (1990). Science as social knowledge: Values and objectivity in scientific inquiry. Princeton University Press.

Puig de La Bellacasa, M. (2017). Matters of care: Speculative ethics in more than human worlds (Vol. 41). U of Minnesota Press.

Tronto, J. (1998). An ethic of care. Generations: Journal of the American society on Aging, 22(3), 15-20.

The Modern Frankenstein: A Shelleyian Critique of Algorithms, Technology, and Capitalism

Proshant Chakraborty

Department of Science and Technology Studies, University of Vienna

Mary Shelley's Frankenstein; Or, the Modern Prometheus is considered not only one of the foundational texts of modern science-fiction, but also a feminist critique of the violence and alienation engendered by technological transformation and control over nature. In Shelley's original novel, it was Victor Frankenstein's hubris, and the subsequent horror over his creation, that eventually set the Creature on a path of violence and destruction—a lesson ethnographer Julian Orr (2000) applied to technology more broadly, arguing that it is the lack of care that renders technology monstrous. In the most recent adaptation of the novel, however, filmmaker Guillermo del Toro portrays Victor Frankenstein as a narcissistic parent, one who does not recoil at the sight of the Creature but attempts to mould him, and violently so, in Victor's own image.

Drawing on Shelley's original novel ([1818] 2017) as well as its annotated bicentennial edition (Guston et al. 2017) and del Toro's recent adaptation, this presentation crafts a feminist technoscientific critique of contemporary artificial intelligence and technological capitalism. In doing so, I offer the following key contributions to this panel's call for a feminist critique of AI. First, by engaging with the scholarly discussions around the novel and its adaptations, I argue that where Shelley inverts the Promethean myth (the modern Prometheus being a destroyer instead of a saviour), we too must invert Shelley's Frankensteinian mythos, and view modern-day Frankensteins as creators who revel in, rather than recoil at, the horror of their creations. Second, inspired by a materialist critique of technological capitalism (Sadowski 2025), I turn a critical lens to contemporary algorithms, and their founders, as distinctly monstrous technologies. In doing so, I attempt to offer analytically-driven narratives of the harms and violences inflicted by artificial intelligence technologies. Third, turning to feminist technosciences (Åsberg & Lykke 2010), care ethics (Tronto 1993), and social reproduction feminism (Fortuanti 2025), I contend with the moral and ethical questions surrounding AI—that is, whether to extend reparative care to AI, or let them perish?

References

Åsberg, Cecilia, and Nina Lykke. 2010. "Feminist Technoscience Studies." *European Journal of Women's Studies* 17(4) 299–305.

Guston, David H., Ed Finn and Jason Scott Robert. Eds. 2017. *Frankenstein: Annotated for Scientists, Engineers, and Creators of All Kinds*. The MIT Press.

Fortuanti, Leopoldina. 2025. *The Arcana of Reproduction: Housewives, Prostitutes, Workers and Capital*. Verso.

Orr, Julian E. 2000. "Lessons from Frankenstein on Technology and Society." PDC 2000: Proceedings of the Participatory Design Conference. T. Cherkasky, J. Greenbaum, P. Mambrey, J. K. Pors (eds), 148–155.

Sadowski, Jathan. 2025. *The Mechanic and the Luddite: A Ruthless Criticism of Technology and Capitalism*. University of California Press.

Shelley, Mary. (1818) 2017. *Frankenstein; Or, the Modern Prometheus*. The MIT Press.

Tronto, Joan. 1993. *Moral Boundaries: A Political Argument for an Ethic of Care*. Routledge.

15: Gender Equality Under Pressure: Current Challenges and Potential Ways Forward

Session Chairs:

Angela Wroblewski, Institute for Advanced Studies (IHS), Austria

Heather Laube, University of Michigan-Flint, United States of America

Pat O`Connor, University of Limerick, Ireland

Karin Grasenick, Convelop Cooperative Knowledge Design GmbH, Austria

Fragile Equilibrium: Navigating the Vulnerability of Gender Equality in Research Ecosystems

Karin Grasenick

convelop cooperative knowledge design gmbh, Austria

The introduction of Gender Equality Plans (GEPs) under Horizon Europe positioned gender equality as a formal eligibility criterion for research funding. While this signaled progress, recent developments, such as budget cuts, administrative simplification, political backlash, and institutional resistance highlight how precarious these gains can be. This contribution draws on experiences from the Human Brain Project (HBP) and its successor EBRAINS 2.0 to explore how gender equality structures and practices are affected by persistent tensions in publicly funded research environments.

Rather than focusing on static institutional frameworks, we examine gender equality as a dynamic, relational practice, vulnerable to disruption when collaboration across shifting boundaries, project timelines, and institutional mandates. Our work builds on a complexity-informed governance model developed within the HBP, which identified five paradoxical tensions (difference, distance, identity, learning, and temporality) that continually challenge collaborative structures. These paradoxes, while not unique to gender work, take on significance in the context of gender equality implementation, where informal norms, unequal power dynamics, and resistance to change intersect.

For example:

- The **difference paradox** (between standardised expectations and contextual needs) destabilises common indicators for gender equality when applied uniformly across diverse project settings.
- The **distance paradox** (between local practices and central project or institutional governance) creates disconnection between gender policies and implementation on the ground.

- The **identity paradox** affects gender experts and equality officers, who often navigate multiple allegiances—to their institution, the project, disciplinary norms, or funding frameworks—without structural support.
- The learning paradox emerges when knowledge gained in temporary projects fails to be transferred institutionally, or vice versa.
- The **temporal paradox** is particularly acute in research projects, where equality measures must prove impact within limited lifespans, even though cultural change requires long-term continuity.

These tensions can unbalance the fragile cooperation between gender expertise and institutional actors, making equality work susceptible to "downsourcing," tokenism, or rollback. In publicly funded research and innovation (R&I) projects, where staff frequently move between institutions and roles, sustaining gender equality structures becomes even more difficult. The assumption that equality responsibilities remain attached to institutions is challenged by the fluidity of project-based work and the transnational character of many RPOs.
Our findings, based on reflexive practitioner experience and empirical case work, suggest that gender equality work in R&I ecosystems is vulnerable especially when it relies on public funding, individual champions, or fragmented mandates. This vulnerability is compounded by political pressures and a growing emphasis on administrative “efficiency,” which frame equality work as burdensome or optional. This contribution aligns closely with the session’s call to examine how gender equality is being undermined, subtly and structurally. By foregrounding the complexity of gender equality in publicly funded research environments, this paper contributes to session call asking for potential ways forward to overcome the current challenges. Rather than offering a fixed solution, we argue for an approach that recognises and works with paradox and setbacks. Overcoming setbacks requires strategies that can bridge differences, retain knowledge, and re-balance cooperation as systems shift.

References

Grasenick, Karin; Romero, Pilar F.; Salles, Arleen (2023): Complex Projects – Diverse Solutions? Theoretical Reflection, Practical Experiences, and Recommendations on Enhancing Equality, Diversity, and Inclusion in Research Projects. Working Paper https://doi.org/10.5281/zenodo.7756892

Wroblewski, Angela; Grasenick, Karin (2025): Navigating Conflicting Interests: The Role of Gender Competent Management for Effective Gender Equality Plans. Social Inclusion, https://doi.org/10.17645/si.9992

Resistance by New Irish Technological Universities to Gender Equality Reflected in the Content of Gender Equality Plans

Pat O'Connor

University of Limerick, Ireland, Geary Institute, University College Dublin, Ireland

Despite the prioritisation of equality, particularly gender equality, by the UN (as a Sustainable Development Goal) and by the EU (in its focus on mainstreaming and Gender Equality Plans), institutional resistance by states and/or higher educational institutions (HEIs) is an increasingly topical reality. The concept of institutional resistance 'exposes the mechanisms through which power reproduces itself'. It recognises that those in power 'possess not only the material resources to resist change but also the epistemic authority to define legitimate knowledge' (Josefsson, 2025). Such resistance was defined by Agocs (1997: 918) as attempts by power holders to 'deny, reject, and refuse to implement, repress, or even dismantle gender equality change proposals and initiatives'. That definition is useful but it ignores performative 'genderwashing' i.e. appearing to respond positively to extern al pressures but focusing on superficial change while ignoring the structural and power imbalances which perpetuate gender inequality and a culture that legitimates it.

Gender Equality Plans (GEPs) are defined as 'a set of commitments and actions that aim to promote gender equality in an organisation through a process of structural change' (EC, 2021:11). They are required of applicants for European research funding, such as Horizon Europe 2021-2027 (EC, 2021) reflecting a longstanding EU commitment to gender equality. They are required to be publicly available and signed by top management; include dedicated resources and expertise; with mechanisms for data collection and monitoring by sex/gender and training on gender equality (EC, 2025: 208). Five thematic areas are recommended for inclusion: worklife balance and organisational culture; gender balance in leadership and decision making; gender equality in recruitment and career progression; integration of the gender dimension into research and teaching content and measures against genderbased violence.

In Ireland the Higher Educational Authority (HEA) requires all HEIs to have GEPs: Ireland leads with 100% having them (EC, 2025: 215). It has been assumed that GEPs are sufficient to create structural change; with a subsequent comment referring to: 'the growing recognition of the need to reform institutional culture through the introduction of policies that require the implementation of GEPs and quotas' (EC, 2025: 230). Difficulties around implementing GEPs been recognised (Vilarchao et al, 2025). However, the extent to which GEPs are sufficiently ambitious to create structural change has (with some notable exceptions such as Hodgins et al 2022; Clavero and Galligan, 2021; Castaño Collado et al., 2023) rarely been asked. This. presentation focuses on an analysis of the content of the GEPs in the five post 2019 Irish universities. Ireland is frequently seen as the 'golden girl' of gender equality (O'Connor, 2025a) and these HEIs are potentially untramelled by old traditions, with three of the five having women Presidents/Rectors. The paper will ask a) whether the content of these GEPs suggested a willingness to recognise inequality, and b) whether the HEI saw itself as creating or maintaining that inequality c) whether the content of the GEP suggests institutional resistance to the structural and cultural change that tackling gender inequality necessitates.

These GEPs are analysed using content analysis (as in the analysis of Athena SWAN applications: O'Connor, 2025b) with the coding scheme been based on a review of the literature. Thus, for example, it will look at the frequency of references to gender inequality and intersectional inequality; to the processes that reproduce that inequality such as

marginalisation and exclusion; to sites of inequality, such as recruitment and promotion; to various forms or types of inequality; to individual versus organisational solutions and to the specificity and ambition of the proposed actions.

References

Agocs, C. 1997. “Institutionalised Resistance to Organisational Change: Denial, Inaction and Repression.” Journal of Business Ethics 16, no. 9: 917–931.

Castaño Collado, C., and S. Vázquez-Cupeiro. 2023. “Resistance and Counter Resistance to Gender Equality Policies in Spanish Universities.” Revisita de Sociologia Papers 108, no. 2: e3105. https://doi.org/10.5565/ rev/papers.3105.

Clavero, S., and Y. Galligan. 2021. “Delivering Gender Justice in Academia Through Gender Equality Plans? Normative and
Practical Challenges.” Gender, Work and Organization 28, no. 3: 1115–1132

EC (European Commission) (2021) Horizon Europe guidance on gender equality plans . https://doi.org/10.2777/876509

EC (European Commission) (2025) *She figures 2024 – Gender in research and innovation – Statistics and indicators*,
Publications Office of the European Union, 2025,
https://data.europa.eu/doi/10.2777/6847557

Josefsson, C. (2025) ‘Resistance in Feminist Institutionalism’ paper presented at Feminist Institutionalism Workshop in Edinburgh, October

O’Connor, P. **(**2025a) ‘An overnight success? Ireland as the ‘golden girl’ of gender equality in higher education’, *Studies in*
Higher Education https://doi.org/10.1080/03075079.2025.2592110

O’Connor, P. **(**2025b) ‘Athena SWAN Silver Applications and Gender Equality Action Plans: A Driving Force in Irish Higher Education or Genderwashing?’ *Gender, Work & Organization,* 32 (6):2339-2352.

Vilarchao, M.E. Strid, S. Ipolyi, I. Tatsioka, Z and Vervedidou (2025) ‘Navigating Resistance: Analysing the complex dynamics of resistance in gender equality policy implementation in universities’, *Social Inclusion* https://doi.org/10.17645.si.9939

Hodgins, M., and P. O’Connor. 2021. “Progress, but at the Expense of Male Power? Institutional Resistance to Gender Equality in an Irish University.” Frontiers of Sociology 6. https://doi.org/10.3389/fsoc.2021. 696446.

Hodgins, M., P. O’Connor, and L.-A. Buckley. 2022. “Institutional Change and Organisational Resistance to Gender Equality in Higher Education: An Irish Case Study.” Administrative Science 12, no. 2: 59.
https://doi.org/10.3390/admsci12020059.

Is a Gender Impact Assessment Still an Effective Way to Promote Gender Equality?

Angela Wroblewski

Institute for Advanced Studies (IHS), Austria

Current challenges to gender equality in higher education raise the question if established tools in gender equality work, like the Gender Impact Assessment (GIA) are still up-to-date or need to be revised to adapt to a changing context.
The GIA is an established tool in gender equality work (EC 1998). It has been defined as an ex-ante evaluation, analysis or assessment of a law, policy or programme that makes it possible to identify, in a preventative way, the likelihood of a given decision having negative consequences for the state of equality between women and men. The procedure of GIA usually follows five steps: (1) definition of policy purpose, (2) checking gender relevance, (3) gender sensitive analysis, (4) weighting the gender impact, (5) recommendations for policy.
This procedure was developed for settings in which planned measures are reviewed in terms of their contribution to equality. However, in the current situation of budget restrictions, the focus is shifting from new measures to cuts or cancellations of programmes. This means that the described procedure lacks a starting point, and equality stakeholders lack a point at which they can demand involvement in the process. In the context of cuts or cancellations, GIA also requires different data to that required in established processes. For example, the role of equality stakeholders and the information to be made available to them is defined in the context of staff recruitment. However, comparable structures and processes are lacking in the case of staff reductions. The absence of defined structures and processes also hinders equality actors from conveying concerns or recommendations to decision-makers. Therefore, equality actors are called upon to adapt existing structures and processes, or establish new ones, to analyse the effects of developments on equality, make these effects visible, and put them up for discussion. Furthermore, they have to find new allies in times when the relevance of gender equality is questioned.
The paper provides a critical reflection of the assumptions of GIA given the current challenges for GE work and discusses possible adaptations and consequences.

References

European Commission (1998). A guide to gender impact assessment. Publication Office. Luxembourg.

Between Compliance and Resistance: Multi-Actor Dynamics of Inclusive Gendered Innovation

David William Walker, Helene Schiffbänker

JOANNEUMRESEARCH Forschungsgesellschaft mbH, Austria

Over the past decade, integrating gender and diversity dimensions into research and innovation (R&I) has increasingly been formalised through European (e.g. Horizon Europe) and national funding requirements (e.g. FFG). While these developments expanded the scope of gender equality (GE) work beyond representation (fixing the numbers) and organisational structures (fixing the institutions), they have also triggered new forms of resistance when attention shifts to "**fixing the content**" (Schiebinger & Schraudner, 2011), that is, when gender is expected to shape research and innovation practices.

This contribution focuses on resistances to inclusive gendered innovation (IGI), understood as the integration of gender and diversity dimensions into research design, innovation processes and outputs (Karaulova et al., 2023). Despite sustained policy efforts, the uptake of gender in R&I content remains limited (European Commission, 2025), making it crucial to understand and address resistances. We therefore ask on what grounds these resistances are based. Rather than treating resistance as a uniform phenomenon, the analysis differentiates between forms emerging at multiple levels of the R&I system. At the level of **researchers and innovators**, resistance to IGI often takes the form of uncertainty, strategic avoidance or the reduction of gender to team composition. Among **reviewers**, it frequently appears as claims of irrelevance, lack of expertise or discomfort with assessing gender in research content. At the level of **funders and programme managers**, resistance against the integration of gender in knowledge production is shaped by capacity constraints, accountability pressures and concerns about legitimacy (Dvořáčková, 2025). These dynamics are embedded in a **broader ecosystem** characterised by budget restrictions, politicised anti-gender discourses and increasing, sometimes competing, equality demands, in which gender and diversity are occasionally played out against each other. Across these levels, resistance is rarely articulated as open opposition; instead, it materialises through procedural inertia, symbolic compliance or the reframing of gender as ideological or peripheral to "hard" innovation.

Drawing on empirical material from the **INSPIRE project**, this contribution analyses how resistance to inclusive gendered innovation emerges across three case studies (Vinnova, FFG, Horizon 2020), complementing insights from the INSPIRE Community of Practice of Research Funding Organisations and a joint workshop on "Tackling Resistance and Sustaining Change: Exploring Pathways to IGI" held at the INSPIRE Knowledge Exchange Event in Kraków in October 2025.

Our contribution approaches resistance as analytically productive without romanticising it: we see it as a diagnostic lens that reveals misalignments between policy ambitions, institutional capacities and innovation practices. Building on this diagnosis, it identifies strategies and pathways to address resistance, including role-specific capacity building, alliance formation, clearer evaluation logics and reframing gender as a dimension of research quality. In doing so, our analysis reflects on the policy implications of sustaining IGI under conditions of pressure, contestation and gradual retrenchment.

Our findings point to limitations of established GE approaches that have primarily focused on formal compliance, organisational change or representation, while remaining less equipped to address resistance targeting research content, epistemic authority and innovation logics. We

argue that as GE work increasingly enters contested terrain, GE actors face new demands as translators between policy, evaluation and practice, often without sufficient time and capacities to detect subtle forms of resistance, retrenchment or reframing.
Against this backdrop, we reflect on how resistance to IGI is currently understood and addressed and where counterstrategies need to be adapted. We invite researchers and practitioners to discuss ways of working with resistance to IGI across different actor groups and respond to political pressure, overload, and backlash. By doing so, we position resistance not merely as an obstacle to implementation, but as a critical analytical entry point for understanding how IGI can be sustained under conditions of contestation.

References

Dvořáčková, J. (2025). Addressing resistances to policies promoting sex/gender and intersectionality in research funding organisations. GENDERACTIONplus project report.

European Commission, Directorate-General for Research and Innovation. (2025). She Figures 2024: Gender in research and innovation - Statistics and indicators. Publications Office of the European Union. https://data.europa.eu/doi/10.2777/6847557

Schiebinger, L., & Schraudner, M. (2011). Interdisciplinary approaches to achieving gendered innovations in science, medicine, and engineering. Interdisciplinary Science Reviews, 36(2), 154–167

Karaulova, M., Wienand, C., Walker, D., Bührer, S., Reidl, S., Yorulmaz, M. (2023). Gendered innovations (INSPIRE Deliverable D2.1e). INSPIRE project. https://doi.org/10.5281/zenodo.10033625

17: Capacity Building to Engage in Inclusive Sex and Gendered Research

Session Chair:

Anne-Sophie Godfroy, Université Paris Est Creteil, France

From Policy Requirement to Innovation Practice: INSPIRE's Support Package 5 as a Capacity-Building Model for Inclusive Gendered Innovation

Sybille Reidl[1], David William Walker[1], Helene Schiffbänker[1], Sarah Beranek[1], Julia Greithanner[1], Gerit Anders[1], Mei Araki[2], Carolina Wienand[2], Susanne Bührer[2]

1: JOANNEUMRESEARCH Forschungsgesellschaft mbH, Austria; 2: Fraunhofer ISI, Germany

Over the past decade, integrating sex, gender and intersectional perspectives into research and innovation has become a formal requirement in national and European funding programmes. However, empirical evidence shows that these requirements are still difficult to implement in practice, especially in innovation projects involving companies. Gender is often treated as a formal obligation or reduced to team composition, while its relevance for innovation processes, products and users remains poorly understood.

This paper draws on recent research from the INSPIRE project that analyses four inclusive gendered innovation (IGI) policies - Vinnova, FFG, Horizon 2020, FONRID - from the perspective of research funders (Schiffbänker et al. 2025) and business enterprise beneficiaries (Karaulova et al 2025). These studies identify a persistent gap between policy expectations, company practices and evaluation procedures. On the funder side, abstract requirements, limited assessment capacities and weak monitoring frameworks make it difficult to support the integration of the gender dimension in a meaningful way. On the company side, most applicants lack gender expertise, experience uncertainty about how to apply gender and intersectionality in innovation processes, and rarely see the topic as connected to their business goals. As a result, neither applicants nor funders have access to shared reference points for what "good" inclusive gendered innovation looks like in practice.

This highlights the need for **mutual learning spaces** that connect policy logics, evaluation practices and innovation rationales. We found that on the company side, consortia require structured support to make sense of the gender dimension in their specific innovation contexts and to translate it into concrete methods and solutions. On the funder side, programme managers and reviewers need practical examples, benchmarks and feedback mechanisms that allow them to select, guide, monitor and assess projects in a learning-oriented way rather than through oneoff compliance checks. Without such shared learning and support structures, funders and applicants tend to shift responsibility for implementation to each other, while neither side has the tools or knowledge needed to integrate gender and intersectionality in a meaningful way.

Based on these findings, we developed a tool serving both target groups: INSPIRE's **Support Package 5** (SPK5) on Inclusive Gendered Innovation is an evidence-based capacity-building

model that explicitly addresses the needs of *both* applicants/innovators and funders/reviewers through two interconnected learning tracks. For **applicants**, SPK5 offers a step-by-step pathway that shows how to design and implement a research or innovation project in an inclusive way - from problem framing and consortium building, through user analysis, design and data collection, to testing and communication. For **funders**, SPK5 provides a parallel pathway structured along the funding cycle, illustrating how inclusivity can be embedded at each stage, from call design and guidance to proposal assessment, monitoring, feedback and programme learning.
Building on the empirical evidence, SPK5 addresses the absence of shared capacities by providing a structured model that supports funders and applicants in jointly translating policy goals into innovation practice. It offers a model for evidence-based capacity building, while recognising that its uptake depends on the willingness of different actors in the R&I ecosystem to engage with the topic.

NEXT GENDER: Capacity Building for the Next Generation of Researchers and Evaluators to Engage in Inclusive Sex and Gendered Research

Anne-Sophie Godfroy[1], Anita Thaler[2], Katerina Pastra[3], Ola Thomson[4], Edna Falorca da Costa[5], Jennifer Dahmen-Atkins[6], Clemens Striebing[7], Gul Kurtoglu Eskisar[8], Margarita Zachariou[9], Jelena Grahovac[10], Maria Angeles Blanco-Ruiz[11], Anne Schneider[12]

1: Université Paris-Est Créteil, France; 2: Interdisciplinary Research Centre for Technology, Work and Culture (IFZ), Austria; 3: Athena Research Centre, Greece; 4: University of Bristol, Great Britain; 5: University of Minho, Portugal; 6: RWTH Aachen, Germany; 7: Fraunhofer IAO, Germany; 8: Dokuz Eylul University, Turkey; 9: Cyprus Institute of Neurology and Genetics, Cyprus; 10: Institute for Oncology and Radiology of Serbia, Serbia; 11: Universidad Rey Juan Carlos, Spain; 12: Université de Caen, France

Following the successful VOICES Training School, 'Breaking the Bias', in Athens in 2023, we observed that the young research investigators (YRIs) participating had received little to no prior training in sex- and gender-sensitive research. During the training, they discovered sex and gender methodologies, intersectionality, and practical ways to incorporate these approaches into their own research. Being exposed to experienced researchers who had already developed and applied such methodologies was essential, as it offered both practical guidance and inspiration. This peer-based learning environment helped participants to formulate innovative research questions and expand their methodological perspectives. Building on this experience, the NEXT-GENDER project aims to replicate and scale up the training school model for ERC and MSCA applicants first, as a pilot, before extending it progressively to the entire research community, including researchers, professors, evaluators, publishers and funders. Based on the results of the pilot, the project will create a comprehensive toolkit and make all training materials available online to reach a broader academic audience. In parallel, NEXT-GENDER launches communities of practice (CoPs) to support the long-term uptake and application of sex, gender and intersectionality (SGT) methodologies in research. This will start with the participants of the workshop before being extended progressively to other profiles.

Although several online resources exist to support the integration of gender into research, they often only address specific aspects of the issue or face limitations in terms of sustainability. Initiatives developed within individual disciplines often have limited impact due to their narrow scope, overly broad ambitions or short project lifespans.

Crucially, existing resources rarely address the diverse training needs of different stakeholders within the research ecosystem in terms of factors such as time constraints, available resources and institutional roles. This is the gap that NEXT-GENDER aims to fill. Adopting an interdisciplinary and co-creative framework combining capacity-building workshops, communities of practice and a dynamic web-based toolkit enhances the project's relevance and long-term sustainability. Continued maintenance and development of the toolkit will be supported through marketing customised content and face-to-face training activities, ensuring a lasting impact beyond the project's initial duration.

The paper presented at STS Graz focuses on the recent co-creative capacity-building workshop organised in Athens from 27 to 29 March 2026, and the launch of the communities of practice taking place in parallel. The workshop follows the research cycle, starting with the participants' own research to encourage reflection on their methodology, research topic, aims, and so on. Day 1 is dedicated to questioning the conceptual framework of the research in order to develop innovative hypotheses. Day 2 focuses on methodologies, and Day 3 focuses on the impact and communication of the research.

The CoPs were launched prior to the workshop and are open to all researchers. They will continue after the workshop. They are designed to facilitate scientific discussion and to provide a pool of potential experts and trainees from a variety of disciplines across Europe. The paper will show how they articulate to the workshop and organise themselves towards sustainability.

Following an introduction to the project as a whole and its innovative aspects, the paper will present examples of research questions discussed at the workshop and demonstrate how the workshop has transformed conceptual frameworks and methodologies to generate new, innovative research questions. We will reflect on the workshop's heuristic impact on participants and the initial outcomes of the communities of practice. Finally, we will announce our agenda for the coming years and our plans for further reflections on how to improve training.

From Metrics to Matters of Care: Situating Gender- and Intersectionality-Informed Research Assessment through CoARA Implementation

Nora Ruck[1], Anoel Alshuth[1], Jonas Hofmann[1,2], Marion Garaus[1], Dominik Drexel[1]

1: Sigmund Freud Private Universiy Vienna, Austria; 2: University of Vienna, Austria

Over the past decades, sex and gender have become recognized not only as crucial dimensions of research content but increasingly also as central concerns of research assessment. (Feminist) STS scholars have long argued that the assessment and evaluation of research are neither self-evident nor neutral practices. Rather, dominant metrics-based principles, processes, and instruments of research assessment systematically privilege the *productive* aspects of research, such as securing third-party funding or publishing in high-impact journals, while rendering the *reproductive* aspects of academic labor, which are indispensable preconditions for research production, both invisible and acutely undervalued.

This masculinist mode of valuation, sarcastically termed the *"Paperwinner's Model"* (Rajan, 2023), fails to acknowledge what can be described as *research-related care practices*. Drawing on Joan Tronto's (Tronto, 1995) conception of care, these practices encompass the often-invisible work through which researchers maintain, sustain, and repair their worlds: within their institutions, across international scientific communities, and in relation to society and broader socio-ecological contexts (Rajan, 2023). Feminist scholarship has repeatedly shown that such practices are unevenly distributed along lines of gender, race, and seniority, and that women of color, in particular, disproportionately carry the burden of care while simultaneously facing heightened expectations of providing it (Gaudet et al., 2022; Järvinen & Mik-Meyer, 2025; Ming Dariotis & Yoo, 2022).

Against this backdrop, we present an ongoing attempt to reform research assessment at our university that also aims at integrating gender and intersectionality. Building on STS analyses of *regimes of valuation* (Fochler et al., 2016) and feminist theories of care (de la Bellacasa, 2011, 2012), we seek to de-center narrow productivity-oriented indicators and instead re-center research assessment around practices informed by care. Prior work has conceptualized care as mutual support and collective resistance to individualizing excellence regimes in the neoliberal university (Sotiropoulou & Cranston, 2023), as care-ful data practices within an *academia otherwise* (Davies & Holmer, 2024), and as a renewed engagement with questions of relevance and specialization (Sigl & Fochler, 2025) rather than universalized notions of excellence.

The paper draws on a pilot project at the Faculty of Psychology of our university that aligns local research assessment practices with the principles of the Agreement on Reforming Research Assessment (ARRA). Funded as part of a Horizon Europe CoARA Boost Project (September 2025–August 2026), the project foregrounds participatory engagement, qualitative indicators, and peer review to account for diverse research cultures. Using methods from Critical Participatory Action Research (Torre et al., 2010), a diverse *CoARAverse* working group consisting of those who are assessed is currently reforming three assessment instruments at individual and faculty level: (1) the annual Research Report, restructured around qualitative key performance indicators; (2) the External Research Evaluation, piloted as a formative, peer-based process guided by qualitative questions rather than target values; and (3) the annual Development Interview, redesigned as a portfolio-based instrument explicitly aimed at making research-related care practices visible and value-able.

Methodologically, the paper reports on a first stage of collecting different types of

researchrelated care-work combining a university-wide survey with participatory contact zones (PCZs) with the CoARAverse working group. Analytically, we examine how normative commitments to careinformed, qualitative research assessment are translated, negotiated, and transformed in the situated design of assessment systems. We argue that such reforms are not merely technical adjustments but epistemic and political interventions into what counts as relevant knowledge and valued academic work. While our findings are preliminary, they offer STS-informed insights into the possibilities and frictions of embedding care, gender, and intersectionality into research assessment.

References

Davies, S. R., & Holmer, C. (2024). Care, collaboration, and service in academic data work: Biocuration as 'academia otherwise.' Information, Communication & Society, 27(4), 683–701. https://doi.org/10.1080/1369118X.2024.2315285 de la

Bellacasa, M. P. (2011). Matters of care in technoscience: Assembling neglected things. Social Studies of Science, 41(1), 85–106. https://doi.org/10.1177/0306312710380301 de la Bellacasa, M. P. (2012). 'Nothing Comes Without Its World': Thinking with Care. The Sociological Review, 60(2), 197–216. https://doi.org/10.1111/j.1467-954X.2012.02070.x

Fochler, M., Felt, U., & Müller, R. (2016). Unsustainable Growth, Hyper-Competition, and Worth in Life Science Research: Narrowing Evaluative Repertoires in Doctoral and Postdoctoral

Scientists' Work and Lives. Minerva, 54(2), 175–200. https://doi.org/10.1007/s11024-016-9292-y

Gaudet, S., Marchand, I., Bujaki, M., & Bourgeault, I. L. (2022). Women and gender equity in academia through the conceptual lens of care. Journal of Gender Studies, 31(1), 74–86. https://doi.org/10.1080/09589236.2021.1944848

Järvinen, M., & Mik-Meyer, N. (2025). Giving and receiving: Gendered service work in academia. Current Sociology, 73(3), 302–320. https://doi.org/10.1177/00113921231224754

Ming Dariotis, W., & Yoo, G. J. (2022). 10. Care Work: The Invisible Labor of Asian American Women in Academia. In K. L. C. Valverde & W. M. Dariotis (Eds.), Fight the Tower (pp. 300–324). Rutgers University Press. https://doi.org/10.36019/9781978806405-021

Rajan, S. V. (2023). The Paperwinner's Model in Academia and Undervaluation of Care Work. Journal of Academic Ethics, 21(3), 407–425. https://doi.org/10.1007/s10805-022-09460-6

Sigl, L., & Fochler, M. (2025). Towards a "Hinterland" for Doing Relevance. A Typology of Practices and Competencies to Guide the Development of more Relevant Research and Career Paths. Minerva, 63(2), 351–380. https://doi.org/10.1007/s11024-024-09569-5

Sotiropoulou, P. (Peny), & Cranston, S. (2023). Critical friendship: An alternative, ‘care-full’ way to play the academic game. Gender, Place & Culture, 30(8), 1104–1125. https://doi.org/10.1080/0966369X.2022.2069684

Torre, M. E., Fine, M., Alexander, N., Billups, A. B., Blanding, Y., Genao, E., Marboe, E., Salah, T., & Urdang, K. (2010). Participatory Action Research in the Contact Zone. In J. Cammarota & M. Fine (Eds.), Revolutionizing Education (0 ed.). Routledge. https://doi.org/10.4324/9780203932100

Tronto, J. C. (1995). Women and Caring: What Can Feminists Learn About Morality from Caring? [1989]. In V. Held, Justice and Care (1st ed., pp. 101–116). Routledge. https://doi.org/10.4324/9780429499463-10

18: Diversity as an Analytical Object: STS Perspectives on the Making of Human Difference

Session Chairs:

Nil Uzun, RWTH Aachen University, Germany

Torsten Henri Voigt, RWTH Aachen University, Germany

Ira Zöller, RWTH Aachen University, Germany

Diversity as Assemblage: Language, Power, and Epistemic Justice in AI

Paula Helm

University of Amsterdam

This paper aims to advance a conceptual framework for studying AI as a heterogeneous assemblage and assessing its effects on cultural diversity through language.
The meaning and value of cultural diversity are far from self-evident, yet “diversity” is routinely mobilized in scientific and technical practice as a moral–epistemic hybrid that is simultaneously descriptive and normative. This dual role becomes particularly fraught in AI language technologies (LT), where computational operationalizations of cultural diversity as an object of measurement are paired with implicit assumptions about its value as something to be protected. This paper argues that the conceptual vagueness of cultural diversity is not a minor definitional problem but a source of methodological and political confusion, especially under conditions of english-centric Language Modeling Bias (LMB). I develop a framework to render this vagueness analytically tractable through two strategies.
First, by shifting the object of inquiry from “cultural diversity” to linguistic diversity, using structural differences among languages, such as, culturally specific, community-bound, or untranslatable concepts. This enables to examine how state-of-the-art LT succeed or fail in representing cultural specificities. Treating diversity as an inherently relational category, I analyze how English has shaped the epistemic culture and infrastructural norms of AI, and how this shaping conditions the representation of other languages with implications for epistemic justice.
Second, I clarify cultural diversity as a value by distinguishing with feminist Sara Ahemd between performative from non-performative diversity and by drawing on anthroplogist Anna Tsing’s distinction between meaningful and scalable diversity. This lens differentiates initiatives that merely extend coverage to underrepresented languages from those that contest the epistemic dominance of English embedded in AI’s infrastructures, norms, and economies. Anchoring these analyses in the concept of epistemic (in)justice (Fricker; Spivak), I approach LMB not as a technical flaw but as a historically continuous manifestation of global epistemic inequalities.

Infrastructuring Multicultural Difference: Second-Generation Italians and Algorithmic Visibility on TikTok

Olga Abbiani

MA graduate, University of Padova

Algorithmic systems have become increasingly imbricated in practices of classification and knowledge ordering, and thus central sites where human difference is not only represented but actively produced, stabilized, and contested. Within STS, longstanding work on classification, infrastructures, and the co-production of knowledge has shown that identities and differences are never simply given, but emerge through technoscientific arrangements, valuation practices, and power relations. Building on these perspectives, this paper examines how "diversity" becomes an infrastructural accomplishment within TikTok's platform environment, rather than a pre-existing attribute of users or content.

The paper focuses on Italian second-generation users who engage with TikTok as a space of visibility, belonging, and cultural negotiation. In the Italian context, national identity remains strongly tied to ancestry and cultural homogeneity, making second-generation experiences shaped by everyday processes of racialization and contested recognition. Online spaces offer environments in which multiple identities can be performed, circulated, and rendered visible—yet through algorithmic infrastructures that classify and distribute attention.

Building on my earlier work on user–algorithm entanglements and multicultural visibility, I conceptualize "difference" not as a stable category but as a political resource, enacted through everyday (infrastructural) practices. Diversity on TikTok emerges through the entanglement of users' multiple positionings, the platform's affordances, and its recommendation algorithm. Importantly, diversity becomes analytically visible through the researcher's situated engagement with the field: it is by attending to what resonates with the multiple positionings of second-generation individuals – as being both Italian and, for instance, Chinese, Ghanaian, or Iranian – and to how this materializes through platform use, that such diversity ("multicultural") becomes traceable as an object of inquiry within interactions and feeds.

Drawing on STS approaches to information infrastructures as well as feminist and decolonial perspectives on situated power, the paper understands platforms and algorithms as sociotechnical devices that, while enabling emancipatory forms of articulation, remain entangled in extractive and asymmetric logics of visibility and control.

Empirically, the paper is based on multi-sited digital ethnography combining participant observation on TikTok, qualitative analysis of user interactions and traces, and semistructured interviews with second-generation creators. This methodological approach follows the platform's infrastructure "in action," attending to how users experiment with, narrate, and negotiate algorithmic processes in everyday practices of content production and circulation. Findings highlight how users engage in infrastructural learning, becoming visible within the feed through situated practices shaped by their experiences, goals, and resources, as well as by algorithmic classification and publics (both imagined and calculated). This sets the conditions under which multicultural difference is variously enacted: through what I call "multicultural infrastructuring", cultural difference may be rendered ordinary, strategically mobilized, or occasionally re-inscribed through exoticized imaginaries, depending on how diversity is valued within platform economies of attention and how users negotiate these patterns.

By approaching diversity as an analytical object co-produced within platformed infrastructures, this paper contributes to STS debates on classification, representation, and the making of

human difference in digital environments. It shows how platforms such as TikTok do not merely host diversity but participate in enacting specific forms of multicultural visibility, belonging, and inequality through socio-technical relations of power.

References

Gillespie, T. (2014). The relevance of algorithms. In T. Gillespie et al. (Eds.), *Media Technologies* (pp. 167–194). MIT Press.

Karasti, H., & Blomberg, J. (2018). Studying infrastructuring ethnographically. *CSCW, 27*(2), 233–265.

Milan, S., & Treré, E. (2019). Big data from the South(s). *Television & New Media, 20*(4), 319– 335.

Star, S. L., & Ruhleder, K. (1996). Steps toward an ecology of infrastructure. *Information Systems Research, 7*(1), 111–134.

Timeto, F. (2009). Per una teoria del cyberfemminismo oggi. *Studi Culturali, 6*(3), 453–478.

The Work of Being Seen: Diversity, Optimization, and Dating Platforms in India

Aparna Sharma, Amit Prakash

International Institute of Information Technology-Bangalore, India

Online dating platforms claim to solve a pervasive problem: finding the right person among a sea of potential matches. Within India's crowded matchmaking ecosystem, different platforms offer different solutions. While bazaar apps such as Tinder and Bumble function like large marketplaces, offering matches at scale, sorted algorithmically and pushing constant swiping, boutique platforms like Juleo and Eleven present themselves as more curated spaces, offering compatibility-based "intentional" matching shaped by human guidance and AI "genies."

These platforms do more than help people navigate diversity. They also produce it through filters, prompts, profile formats, and ranking systems. Platforms also shape how differences are seen, sorted, and understood. This technological innovation is also a reworking of matchmaking labour. Tasks once handled by families and intermediaries are now shifted to individuals, supported by coaches, profile consultants, and platform features that guide users in improving their "matchability" and "swipeability." In this sense, dating platforms become sites where diversity is actively made through classification systems, optimisation practices, and ongoing self-presentation.

This paper draws on 34 interviews with dating app users across Indian cities, participant observation in WhatsApp groups where people share profile optimisation tips and peer advice, and an analysis of platform interfaces and coaching services. Contemporary dating apps are read alongside matrimonial platforms such as BharatMatrimony, which bring arranged marriage practices online by embedding screening around caste, income, education, and social compatibility into filters and profile categories.

Apps like Tinder and Bumble present themselves as enabling romantic and sexual choice. Yet in a context where family involvement in partner selection remains significant, users often carry a double burden. They must optimise themselves for algorithmic visibility while also remaining legible to social and familial expectations.

Across both models, new kinds of intermediaries have emerged. Relationship coaches, for instance, advise users on what to show, what to say, and how to handle rejection. This work resembles older forms of mediation but has shifted in location. Instead of kin networks enforcing social boundaries, individuals are expected to manage their own visibility within algorithmic systems and broader cultural expectations.

Bazaar platforms operationalise diversity through scale and standardisation. Matrimonial apps make caste and community explicit filters, while dating apps translate similar distinctions into softer language, such as preferences. In both spaces, users draw on circulating advice about photos, bios, and performances of confidence and authenticity.

Platform features also become sites where differences are negotiated. Voice note introductions, for instance, flatten markers like class, caste, accent, education, and cultural capital into a short audio bio. Presented as tools for authenticity, they often act as informal filters, with users listening for signs of fluency, polish, and background. A simple feature can quietly reintroduce older social distinctions in new sensory forms.

Boutique platforms, both matrimonial and dating, bring back personalised mediation at a price. Curated apps and elite services offer hands-on coaching that echoes earlier guided matching.

AI-led platforms add another layer and sometimes reveal tensions within the promise of personalisation. In one instance, a platform disabled text chat after AI-generated messages became common, shifting to video calls, thereby preserving English fluency as a key class marker. Here, diversity is not expanded but carefully managed.

Across these models, matchmaking labour has not disappeared but changed form. Traditional rishta (matrimonial alliance) experts worked through kinship networks to maintain boundaries around caste and class. Platform systems now ask users to constantly refine themselves, to become more visible, compatible, and "swipable".

Familiar hierarchies persist, but they now manifest through the language of personal choice, authenticity, and optimisation, shaped by sociotechnical systems that influence how people come to see themselves and one another.

Autism Aesthetics: The Socio-Technical Construction of Autistic Sensory Difference

Leo Hosp

Johannes Kepler University, Austria

This contribution discusses diversity as an analytical object rather than a fixed category by examining how autistic sensory experience, understood as disabled experience, is coconstituted through technoscientific practices, infrastructures, and epistemic regimes. Dominant discourses on autism, sensory experience, and technology are predominantly design-interventionist, child-centred, and grounded in biomedical and ableist assumptions with eugenic traditions, framing autistic sensory experience as deficits to be fixed according to neurotypical standards. Within these framings, diversity is simultaneously invoked and constrained: Autistic sensory experience is rendered peculiar and problematic, yet reduced to linear and unified categories such as *overload*, into which technological solutions can be inserted in a cause-and-effect logic.

Drawing on a transdisciplinary PhD project, this contribution reframes autistic sensory experience not as a stable biomedical condition related to a fixed identity, but as something enacted through technoscience. It presents a qualitative case study of highmasking autistic adults' everyday sensory experiences with technology that combined artsbased methods with open conversational interviews. Grounded in cripistemologies (Johnson & McRuer, 2014, 2024), the study centres autistic adults as situated experts who actively rework, adapt, and repurpose technologies in intended and non-intended ways, foregrounding interdependence as a political technology that challenges individualizing and solutionist narratives of technological fixes.

This contribution combines multiple theoretical perspectives. Crip Theory and Crip Technoscience (Hamraie & Fritsch, 2019; McRuer, 2006) provide the theoretical tools to highlight how technologies, architectures, and infrastructures are shot through by ableism and reinforce it: They are designed and implemented based on neurotypical sensory perception, reinforcing it as compulsory and marginalizing sensory differences that matter but remain unacknowledged. Sensory experience is being understood as embedded in wider sociotechnical constellations, where agency is distributed across mutually constitutive human and nonhuman actors (Rammert & Schulz-Schaeffer, 2002; SchulzSchaeffer & Rammert, 2019). Perspectives on aesthetics and power (Strati, 2007, 2008) point to how sensory experience is entangled with processes of access, inclusion, and exclusion. Combining these perspectives allows for analyzing technology as an integral part of situated sensory experiences that are entangled with power and control.

This contribution demonstrates how autistic sensory difference is not a pre-given category that technologies simply accommodate or fail to accommodate. Instead, it is (un-)made through technoscientific practices that define what counts as a problem and what differences matter. Technologies, infrastructures, and design logics thus participate in producing particular versions of autistic sensory difference (e.g., *low-support-need*). Diversity is not a fixed attribute of bodies, but an object continuously enacted through science and technology, with material and political consequences.

References

Hamraie, A., & Fritsch, K. (2019). Crip Technoscience Manifesto. Catalyst: Feminism, Theory, Technoscience, 5(1), 1–33. https://doi.org/10.28968/cftt.v5i1.29607

Johnson, M. L., & McRuer, R. (2014). Cripistemologies: Introduction. Journal of Literary & Cultural Disability Studies, 8(2), 127–147. https://doi.org/doi:10.3828/jlcds.2014.12

Johnson, M. L., & McRuer, R. (2024). Cripistemologies Now (More than Ever!). Journal of Literary & Cultural Disability Studies, 18(2), 115–134.

https://doi.org/doi.org/10.3828/jlcds.2024

McRuer, R. (2006). Crip theory: Cultural signs of queerness and disability. New York University Press.

Rammert, W., & Schulz-Schaeffer, I. (2002). Technik und Handeln: Wenn soziales Handeln sich auf menschliches Verhalten und technische Artefakte verteilt. In W. Rammert & I. Schulz-Schaeffer (Eds.), Können Maschinen handeln? : Soziologische Beiträge zum Verhältnis von Mensch und Technik (pp. 11–64). Campus Verlag.

Schulz-Schaeffer, I., & Rammert, W. (2019). Technik, Handeln und Praxis. Das Konzept gradualisierten Handelns revisited. In C. Schubert & I. Schulz-Schaeffer (Eds.), Berliner Schlüssel zur Techniksoziologie (pp. 41–76). Springer.

Strati, A. (2007). Sensible Knowledge and Practice-based Learning. Management Learning,

38(1), 61–77. https://doi.org/10.1177/1350507607073023

Strati, A. (2008). Aesthetics in the Study of Organizational Life. In D. Barry & H. Hansen (Eds.), The Sage Handbook of New Approaches to Organization Studies (pp. 229– 240). SAGE Publications Ltd.

CRITICAL ACCESS. Intersectional Barriers, Technology and Transdisciplinarity in STEM Education

Raffaella Monia Calia[1], Mariella Nocenzi[2]

1: Sapienza University of Rome, Italy; 2: LUMSA of Rome, Italy

Despite the growing policies emphasise on the importance of the inclusion in Science, Technology, Engineering and Mathematics (STEM), access to education and careers in STEM fields remain deeply stratified, and closely intertwined with broader power structures, stereotypes, and socio-cultural processes that reproduce social exclusion.
From a Science and Technology Studies (STS) perspective, such inequality in access reflects the interplay of socio-technical arrangement, institutional practices and power relations in shaping opportunities within STEM education and employment, particularly for women and people with visual impairments.
Perceived difficulties in approaching STEM careers among people with visual impairment, together with a lack of institutional support and social biases around a presumed notion of “diversity”, specifically referring to women and people with disabilities, limit their participation in STEM knowledge-making processes and configure unequal technological engagement. This abstract draws on the STEMMA project (Science, Technology, Engineering and Math Motivation & Accessibility), a transdisciplinary and intersectional research initiative involving

four research units in different disciplines, coming from the CNR National Research Council (IT), Sapienza University of Rome (IT), Kore University of Enna (IT), University of Pisa (IT). Funded by the Next Generation EU program, STEMMA explores how gender and disability interact in shaping access to STEM pathways.

The project generates empirical findings and actionable guidelines grounded in the lived experiences of visually impaired individuals: they support the co-design of assistive technologies, digital tools, and apps, aimed to foster meaningful participation in STEM fields, informed by their differentiated and context-specific needs.

While technology plays a crucial role in supporting participation in STEM, the findings highlight how assistive tools alone are not sufficient to overcome persistent exclusion.

Digital technologies and AI, in fact, emerge as tools that extend bodily memory, reshape social interaction and redefine self-representation, generating “techno-corporeal practice” situated at the intersection of physical, digital, and social dimension. Bodies marked by gender and disability are not only spaces of asymmetry but also sites of potential social, cultural, and political transformation. Technologies shape experiences, relationships, and form of existence and their impact becomes truly emancipatory only when the asymmetries they may reproduce are acknowledged and critically addressed.

The STEMMA project engages with these challenges by highlighting how risks awareness, knowledge-sharing networks, inclusive digital resources, and transdisciplinary educational and codesign approach could mitigate systemic inequalities.

Building on the STEMMA project and its framework of “ecosystem of innovation and cultural practices of resistance”.

Based on the STEMMA project and its framework of the “ecosystem of innovation and cultural practices of resistance”, the intersectional and transdisciplinary approaches are linked to create a holistic and inclusive approach to addressing complex social issues: overcoming disciplinary boundaries (transdisciplinarity) allows us to analyse how different forms of inequality are intertwined (intersectionality), such as gender and disability.

Thanks to mixed-methods and comparative analysis, the access to STEM is examined across multiple levels: the socio-technical and digital, the multi-stakeholder, and the mobilization-linked, including territorial contexts and the association/university importance.

Overall, the findings reframe diversity not as a predefined set of human differences, but as an analytical object co-produced through socio-technical arrangements, institutional practices, and embodied interactions, showing how gender and disability are enacted, stabilized, and contested within STEM infrastructures.

20: Disambiguation of Guiding Key Terms and Concepts Within the Sustainability Transformation

Session Chairs:

Lasse Steffens, BOKU University, Austria

Bernd Moritz Giese, BOKU University, Austria

Taking the Metaphor Seriously: Twinning as a Generative Troublemaker

Cheshta Arora, Irmelin Gram-Hanssen

Western Norway Research Institute, Norway

The EU's 2022 policy framework, twin transition, foregrounded a need to twin the digital and green transitions. With this, the goal is to "ensure that the green and the digital transitions mutually reinforce each other" (Muench, S et al., 2022). The policy directive envisions that researchers will have a "combined insight into both digital and green aspects of the development of society" (Dæhlen, 2023).

In the context of the directive, twinning is deployed as a "ruling metaphor" to underscore a relationship of similarity, convergence, union, and identity between the digital and the green. While the framework is often discussed as a pragmatic coupling of digital and green agendas, with digital enabling green, it is also critiqued as a 'win-win' solution with no substance. While at the surface, the twin transition boasts of a mutual relationship between the two, a closer look makes apparent the unidirectionality, with "digitalisation" as the primary motif. Building on this primary motif, the narrative further identifies functions such as "monitoring and tracking, simulation and forecasting, virtualization" (Muench, S et al., 2022) that current digital technologies can offer to optimize operation and cope with increasing complexity, while the ecological agendas are subsumed under problems that current digital technologies can solve.

While the policy discourse limits the meaning of twinning to "so-called synergies" (Kovacic et al., 2024), the anthropological, STS and philosophical roots reveal other, more generative meanings where twinning emerges as a productive troublemaker, difficult to place but able to build metaphorical resonances across disparate entities, such as digital and green, without reducing them to the "violence of the identity" through forced synergies.

We argue that this generative reading of the metaphor can open space for experimental processes and dialogue among researchers towards more transformative digital and green agendas, which are otherwise foreclosed in the policy directive. The generative impulse being identified here is twofold. First, how the digital can itself be rescued from the overbearing narrative of technocracy. Second, if the metaphor can evoke any metaphorical resonance between technological and ecological without reducing one to the other. An exploration of these unruly roots to twinning can nuance how we choose to engage with or interpret the mandate of twinning and its material repercussions on our sociotechnical and ecological futures.

Rethinking the Use of Transformation Within Biodiversity Governance

Alyssa Delarosa

University of Graz, Austria

The World Wildlife Fund submitted to the ICJ a claim for recognition that biodiversity is both under threat and a solution to climate change (WWF, 2024). The ICJ advisory opinion upheld the request from the WWF and the submissions of other governing biodiversity bodies that States must develop mitigation strategies to prevent biodiversity loss (ICJ, 2025). However, there are existing challenges with biodiversity governance due to biodiversity loss mitigation due to contextual factors at local, regional, and global scales (Petersson & Stoett, 2022; Gupta et al., 2023).

These contextual factors at different scales also include the measurement of biodiversity. Biodiversity measurement is fraught with challenges such as geographic and species bias (Brown & Williams, 2016). Despite these challenges, there is a call for global biodiversity governance transformation that recognises these challenges whilst putting forth solutions that are able to address underlying issues (Visseren-Hamakers & Kok, 2022). I argue that responding to this call for global biodiversity governance requires critical reflection on how biodiversity is defined and what exactly is meant with the term within the context of transformation.

How do we "transform" global biodiversity governance with these circumstances? What is the term "transform" used for and why is it needed? The term "biodiversity" was coined by American biologist Edward Wilson. Ecologists were warning of a massive extinction event caused by humans and the need for conservation of these species (Visseren-Hamakers & Kok, 2022). In the United States particularly, the term biodiversity was used for conservation policies of particular species that were classified as endangered (Visseren-Hamakers & Kok, 2022).

Thus, there is an illustrated relationship between the scientific term and policy: scientists measured a loss of species, and developed a term that could illustrate the loss to policymakers for conservation policies. While the claim is that the answer to governing biodiversity at the global scale lies within the context of "transformation," the term "transformation" is also unclear within this context.

Within the biodiversity governance context, the term "transformation" can be defined as "a fundamental society-wide reorganisation across technological, economic and social factors, structures, including paradigms, goals and values" (Visseren-Hamakers & Kok, 2022). I argue that this definition is far too ambiguous and unclear within the biodiversity context. As discussed, the use of biodiversity as a term is already ambiguous and unclear.

How then, are we supposed to define and examine these listed corresponding factors and what they could mean as terms within biodiversity governance? One could say that the point of the term "transformation" is precisely to critically reflect and ask these types of questions. However, this argument does not address why then, the underlying need for such a concept as "transformation" without first having a critical discussion on biodiversity?

Thus, the purpose of this research will be to further examine the concept of transformation and its use within biodiversity governance. This paper will answer the research question: How is transformation conceptualised and used within biodiversity governance? To answer this question, I will use a discourse analysis to further explore: a) how biodiversity is defined within global governance, b) when transformation is used with biodiversity governance and c) the use of scale and how scale is defined within biodiversity governance and transformation.

Results will show that “transformation” is used with discussion on the need for clarification with biodiversity, not as a clear concept of itself. Conclusions that can be drawn will be a need for more careful reflection before attaching use of the term “transformation” to biodiversity governance.

References

Brown, E. D., & Williams, B. K. (2016). Ecological integrity assessment as a metric of biodiversity: are we measuring what we say we are?. *Biodiversity and Conservation*, *25*(6), 1011-1035

Gupta, J., Liverman, D., Prodani, K., Aldunce, P., Bai, X., Broadgate, W., ... & Verburg, P. H. (2023). Earth system justice needed to identify and live within Earth system boundaries. *Nature Sustainability*, *6*(6), 630-638.

ICJ, (23 July 2025). *Obligations of States in respect of Climate Change (Advisory Opinion)*
Petersson, Matilda, and Peter Stoett. "Lessons learnt in global biodiversity governance." *International Environmental Agreements: Politics, Law and Economics* 22, no. 2 (2022): 333-352.

Visseren-Hamakers, I. J., & Kok, M. T. (Eds.). (2022). *Transforming biodiversity governance*. Cambridge University Press

WWF, (16 July 2024). “International court of justice should enforce the protection of climatestabilising ecosystems and biodiversity.” https://www.wwf.eu/?14364941/icj-submission-climate-ruling

When We Hope for Breakthrough Innovation, What Do We Actually Want to Avoid?

Sven Linow[1], Ulrich Klüh[2]

1: Hochschule Darmstadt; 2: Hochschule Darmstadt, Zentrum für Nachhaltige Wirtschafts- und Unternehmenspolitik ZNWU Darmstadt

Economic growth and the increasing efficiency of energy technology are tightly entwined. Engineering progress was he major driver of technology and of expansion of the economy ever since the invention of the steam engine (in 1713, Smil, 2017). It was always well understood that engineering is an evolutionary process, which – through tinkering and the ingenious combination of new technologies – enabled new business models and the appearance of new technological toolsets. This combination no longer provides the expected next technologies and growth rates. Evolutionary development, incremental improvements under the constraint of ever better understood natural laws and technological limits does no longer provide the increasing growth rate expected. Today’s value of companies stocks does by far exceed any possible future earnings under historical rates of technology development. Planetary limits,

lack of resources, loss of predictable climate and biodiversity do not create stupendous new business opportunities.

But – alas (we are told) – salvation is at hand, because Breakthrough Innovation will overcome this.
Whereas disruptive innovation follows the well understood historical path of engineering progress (Christensen, 2008), this new paradigm of innovation transcends it. Breakthrough Innovation is no longer generated by engineers or tinkerers. It is no longer constrained by the thoughts and possibilities of engineering methods or approaches. Innovation is freed from the limitations coerced by STEM education. Breakthrough Innovation is innovation set free from any technological, biological, planetary or other limitation. Breakthrough Innovation will allow humanity to reach its full potential and inter alia allow overcoming the problems of today's sustainability crisis. It is brought into existence by the genius and will of entrepreneurs – or so the story goes.
The aim of the presentation is, to look deeper into the worldviews, the expectations, the beliefs connected to technological hope. It is argued, that Breakthrough Innovation is part of a continuum of beliefs where new technology is always around the corner and will (hopefully once and for all) not only solve our (sustainability) problems, but make us more wealthy as well. It seems we do not have any genuine examples of (historical) Breakthrough Innovation so far: If we connect rigorous analysis with relevant disciplinary perspectives, all claimed successes are (in the end) the result of tinkering, probing, engineering and knowledge generation over long periods.
Breakthrough Innovation provides (like all the tales of never ending technological progress) a mighty source of optimism and thus disables change. The core promise of narratives about technical innovations is, that we do not need to change our expectation for economic growth and material wealth. This avoids the need for the development of futures that are benign, humble and possible inside planetary boundaries.
In summary, the concept itself is based on a disregard of disciplinary experience – often outside the own discipline. We aim to illustrate needs for an interdisciplinary approach, to probe its significance and to assess its suggestions of simple futures.

References

Christensen, C. M. (2008). The innovator's dilemma: When new technologies cause great firms to fail. Harvard Business School Press.

Smil, V. (2017). Energy and civilization: A history (2nd ed). the MIT press.

21: In Search for the Desirable, Sustainable and Just Bioenergy

Session Chairs:

Jouni K. Juntunen, University of Vaasa, Finland

Shah Rukh Shakeel, University of Vaasa, Finland

Inês Peixoto, University of Vaasa, Finland

Stakeholder Tensions in Energy Transition: The case of GM Biofuels

Jouni K. Juntunen[1], Mehedi Hasan[2], Roji Karki[2]

1: University of Vaasa, Finland; 2: Wärtsilä Finland Oy

Sustainable energy transition requires that novel technologies gain market acceptance and are socially accepted by the public. Biofuels have been widely adopted as a carbon-efficient solution in transportation, and new technological advancements in biofuels are emerging. Genetically Modified (GM) crops for biofuels hold promise for increasing crop yields, reducing land use, and improving efficiency in converting biomass into fuel. However, GM crops have traditionally been contested due to concerns over human and environmental safety, the ethics of genetic modification, and socioeconomic issues such as centralized corporate control, potential harm to small farmers, and negative impacts on consumer choice.
In the context of GM biofuels, the number of studies examining public acceptance is limited, even though GM crops and biofuels have been widely explored as separate areas of research. Based on these two distinct streams of literature, it is evident that public acceptance of GM crops is complex due to technological controversies and diverse stakeholder opinions.

While eco-innovations such as GM biofuels are developed and promoted as solutions to reduce environmental harm, they can create tensions because of unintended consequences and competing sustainability goals. This study examines discourses constructed by different stakeholder groups within the emerging field of GM biofuels. The analytical focus is on both supportive and critical concerns, as well as the tensions that arise between them. We draw on management literature on tensions and empirical data from an extensive media corpus. The dataset, retrieved from the LexisNexis service and covering international sources published between 2005 and 2025, includes 416 news articles. The analysis identified key stakeholders and their concerns regarding GM biofuels. In addition to commonly examined stakeholders such as governments, farmers, and NGOs, this study identified external stakeholders, namely industries, financial institutions, and business federations, and critical stakeholders such as judicial and legal institutions, which have been underexplored in previous studies but exert substantial influence on public acceptance of GM biofuels.
Supportive discourses are characterized by frames of innovation, sustainability, and energy security, whereas critical discourses emphasize concerns about contamination, ethical

uncertainty, food security, and corporate control. The study also reveals growing tensions around GM biofuels, such as food versus fuel, innovation versus precaution, and trade competitiveness versus regulatory sovereignty, which have shaped public perceptions of the technology. Conclusively, public acceptance of GM biofuel technology cannot be viewed merely as a case of technological innovation but rather as a matter of building trust through integrity, policy, and communication.

Business Model Innovation in Genetically Modified Biofuels – Value Creation, Delivery, and Capture Mechanisms

Tuomas Huikkola, Shah Rukh Shakeel, Jouni Juntunen

University of Vaasa, Finland

Energy systems are facing profound challenges, among which a central concern is the need to increase energy supply to meet growing demand while minimising environmental harms associated with conventional energy sources. Different energy sources have been employed, each characterised by its distinct benefits and limitations. Genetically modified (GM) biofuels have emerged as a promising pathway for advancing sustainable energy systems due to their potential for efficient utilisation of resources, technological advancements, environmental impacts, and scalability. However, despite these advantages, their widespread acceptance remains constrained due to business model rigidities, ethical concerns, and path dependencies embedded in conventional energy and agricultural systems.

This study examines business model innovation in genetically modified biofuels by situating their value creation, value delivery, and value capture mechanisms relative to conventional biofuels and fossil fuels to identify opportunities, challenges, and adoption barriers. Building on the business model innovation literature, the study highlights that genetically modified biofuels enable distinctive value creation through higher yields, reduced land and water use, enhanced conversion efficiency, and the utilisation of non-food and waste-based feedstocks. Their value delivery relies on technologically advanced and monitored production processes, specialised biotechnology infrastructure, coordinated multi-actor ecosystems, and increasingly localised supply chains, while being strongly influenced by regulatory procedures, standardisation requirements, and ethical governance. When it comes to value capture, GM biofuel benefits from energy-driven cost efficiencies, premium pricing based on performance and sustainability attributes, intellectual property-based revenues, policy-driven incentives, and emerging low-carbon markets. However, commercialisation and widespread acceptance remained constrained by regulatory uncertainties and challenges to social acceptance.

The findings highlight that organically generated biofuels benefit from higher consumer acceptance, strong local embeddedness, and close linkages to circular economy practices and cooperative ownership models, whereas fossil fuels remain the dominant energy source through economies of scale, extensive infrastructure, established value chains, and stable profit formulas reinforced by deep sociotechnical and geopolitical lock-ins. By integrating ethical considerations associated with different fuel types, consumption and user aspects, ecosystem configurations, and coercive and normative institutional factors, the study contributes to the energy transitions by emphasising how different energy sources are

associated with different business model logics and transition trajectories, which in turn shape their prospects for long-term sustainability and market viability. Overall, the study identifies GM biofuels as a distinct pathway in the energy transition, whose widespread adoption depends on the complex interplay of technology, business models, ethical considerations, and social acceptance.

Standardization in GM Biofuels for Sustainable Aviation

Ines Peixoto

University of Vaasa, Finland

Aviation goes through a slow, steady transition towards decarbonization. Sustainable fuels are key to sustainable aviation strategies and policies. Advanced biofuels emerged as a sustainable solution to decarbonize which gathers strong policy support. These fuels are incentivized by sustainability criteria in renewable fuels regulation that promotes the uptake of bioenergy in transport fuels markets. By ensuring the sustainable production of bioenergy for aviation fuel, such standards qualify the acceptable types of biofuels and certify compliance with emissions reduction and other environmental impact criteria. Notwithstanding the existing support to decarbonize through sustainable fuels, a holistic picture of standardization is needed to understand the transition to decarbonization through use of biofuels.

Standards are a form of public or private regulation in product markets. A standard refers to a "rule for common and voluntary use, decided by one or several people or organizations" (Brunsson, Rasche, & Seidl, 2012: 616). Standardization renders things equivalent across industries and markets through "a process of constructing uniformities across time and space, through the generation of agreed-upon rules" (Bowker & Star, 1999: 71). Standards drive technical harmonization, enable compatibility between systems, ensure safety, support trust in processes, or establish and enforce normative principles. Complying with standards may even be necessary to access a standards-based market (Aspers, 2011). Furthermore, standards are crucial in technology innovation, but also to drive transitions by establishing sustainability principles.

Standardization research reflects a variety of conceptual lenses that stem from research fields including science and technology studies, organizational sociology, and beyond (Grillo et al, 2024).

Research has identified co-existence of multiple communities of practice involved in standardcreation (Timmermans & Epstein, 2010), competition between standards or rules (e.g., Reinecke, Manning & von Hagen, 2012), variations in standards as process or outcome and between technical (more uniform) and nontechnical (more fragmented) standards (Brunsson et al, 2012), and nesting of standards within other standards (Lampland & Star, 2009). In energy transition, research integrates technical and economic aspects but seems limited in its understanding of legitimacy, stakeholder representation, or power imbalances (Grillo et al, 2024). Moreover, it seems to fall short of providing insight on the outcomes of competing, conflicting, nested, or fragmented standards in empirical cases of energy transition.

In fuels innovation, actors must consider technical (e.g., safety) and non-technical standards

(e.g., sustainability) from an early stage of development and the co-existence of multiple standards has practical impact. Specifically, advanced biofuels for aviation meet stringent technical standards defined by industry and extensive sustainability criteria determined by policy-makers. While technical fuel standards regulate fuel quality for jet engine use, sustainability standards govern environmental aspects across the life cycle from raw material sourcing to fuel production. Moreover, the use of genetic modifications to produce energy crops with lower environmental impact or crop waste with energy value adds layers of complexity. It is unclear, however, how the standardization processes identified in the literature may play out in emerging GM crop biofuel value chains, and how that may shape technology development alternatives. Thus, the paper addresses: What standardization instruments, actors, and processes can be observed, and how do they shape actors' concerns and the emergence of GM energy crops for biofuels?

The paper, thus, identifies standards and standardization landscape in GM crop biofuel value chains for aviation focusing on the European Union and the United States. It draws on a qualitative research study using archival data on standards and standardization relevant for GM crop biofuels in aviation and data from interviews with science, legal, industry and standard-setting experts. Preliminary findings suggest a coexistence of technical and non-technical standards governing processes and products, varying standard-setting purposes, and arenas of conflicting interests.

22: Emerging Socio-Technical Challenges in Advancing Sustainable Energy Transitions

Session Chairs:

Michael Ornetzeder, Austrian Academy of Sciences, Austria

Jürgen Suschek-Berger, Interdisciplinary Research Centre for Technology, Austria

Mineral Raw Materials and Justice Challenges in the Energy Transition

Marinella Passarella[1], Gülsüm Varol-Deniz[1], Sarah Kollnig[2]

1: Chair of Mining Engineering and Mineral Economics, Technical University of Leoben, Austria; 2: Institute for Sustainability, University of Applied Sciences Wiener Neustadt, Wieselburg, Austria

For advancing the sustainable energy transition, socio-technological challenges related to the raw materials used for building renewable energy technologies should be investigated. The demand of those minerals is predicted to increase sharply in the future: Aluminium (+16.8%), Solar-grade PolySilicon (+152%), Tellerium (+372.4%), Wang et al., (2023).
Social implications of the extraction and processing of mineral raw materials, for instance unequal distribution of benefits & costs, are nowadays exacerbated by geopolitical competition. Therefore, justice aspects are fundamental to enable a truly sustainable (and just) decarbonized energy transition (Kollnig et al., 2025).
The authors investigate the questions: Which concepts of justice related to mineral raw materials for the energy transition have been identified so far? Which innovative methods can be proposed to assess these justice aspects?
This research is based on a systematic literature review (SLR) conducted to identify and analyse justice aspects in the context of mineral raw materials for renewable energy technologies. Web of Science database was searched, raw results cleaned and the most relevant studies reviewed in detail (36 papers). A bibliometric analysis (with VoSviewer) was conducted, including a text corpus analysis of titles and abstracts to investigate and visualise terms co-occurrence and clustering.
The SLR results suggest that socio-technological challenges could be tackled by:

1) clarifying different aspects of justice (e.g. Social License to Operate SLO, environmental justice). Based upon environmental justice considerations (Da Silva et al., 2024) it is important to consider how different social groups are affected by the energy transition. Kügerl et al. (2023) investigate justice conceptualizations from the mining sector highlighting the SLO (an example of “Not in my Backyard (NIMBY)” phenomenon which can influence and inhibit the implementation of a mining operation). Many authors agree on distributional justice

as a central aspect (Murguía & Obaya, 2024), others find it essential to assess justice in its political and policy context (Ghorbani et al., 2024).

2) the identification of innovative methodologies. Life cycle assessment was highlighted as a key method in the sustainable energy transition context. However, only a limited number of papers was found to combine social life cycle assessment (SLCA) with justice aspects. This indicates a notable gap in literature. Furthermore, indicators should need to be socially and politically contextualized, in our case regarding mineral justice aspects.

For performing a holistic sustainability analysis of the impacts of renewable energy technologies, SLCA should be innovated to include external factors from the wider context in which the production process takes place as well as explicitly include justice aspects.

References

Da Silva Hyldmo, H., Rye, S. & Vela-Almeida, D. (2024). A globally just and inclusive transition? Questioning policy representations of the European Green Deal. Global Environmental Change 89, 102946

Ghorbani, Y., Zhang, S.E., Nwaila, G.T., Bourdeau, J.E. & Rose, D.H. (2024). Embracing a diverse approach to a globally inclusive green energy transition: Moving beyond decarbonisation and recognising realistic carbon reduction strategies. Journal of Cleaner Production, 434, 140414

Kainiemi, L., Laukkanen, M. & Levänen, J. (2025). Multi-sectoral interactions in energy transition: Unveiling tensions between sustainability and justice. Applied Energy 384

Kollnig, S., Varol-Deniz, G. & Passarella (2025). A review of justice considerations for mineral raw materials in Photovoltaic technologies. 2nd International Conference of the Hellenic Society for Circular Economy, Chania, Greece, September 17-19, 2025

Murguía, D. & Obaya, M. (2024). Exploring conditions for just lithium mining in South America. The case of the EU responsible sourcing strategy. Environmental Research Letters 19, 124098

Wang, S., Hausfather, Z., Davis, S., Lloyd, J., Olson, E. B., Liebermann, L., ... & McBride, J. (2023). Future demand for electricity generation materials under different climate mitigation scenarios. Joule, 7(2), 309-332.

Imagining Carbon Futures: A Comparative Analysis of Sociotechnical Imaginaries of Industrial Carbon Management Technologies in Germany

Merle-Marie Johannsen, Julia-Lena Reinermann, Hannah Müller

FernUniversität in Hagen, Germany

Climate neutrality is generally viewed as a central political objective to tackle climate change, shaping national and supranational climate strategies alike. In this context, so-called Industrial Carbon Management Technologies (ICMTs), including carbon capture (CC), storage (CCS) and utilisation (CCU), have gained increasing prominence in debates on net-zero pathways (European Commission 2024). Once primarily discussed as technical mitigation options, early public controversies indicate that ICMTs cannot be understood solely as technical solutions but that they are deeply embedded in social, political, and institutional contexts (Wesche u. a. 2023; Sitinjak u. a. 2023). This development highlights the need for social-scientific perspectives that go beyond assessments of technical feasibility and cost-effectiveness.

This paper approaches ICMTs through the lens of sociotechnical imaginaries (STIs). Following Jasanoff and Kims approach, STIs are understood as collectively held and institutionally stabilized visions of desirable futures, in which science, technology, and society are co-produced (Jasanoff und Kim 2009; 2015). The concept is particularly relevant for the study of emerging technologies such as ICMTs, whose development and implementation are often shaped by future-oriented narratives, expectations, and different socio-technical contexts.

While STIs have been more widely applied to other energy technologies such as nuclear or wind energy, their systematic application to ICMTs is only beginning to emerge. Existing studies point to different analytical foci within this nascent body of literature. First, a number of studies focus on the EU policy level (Brad und Schneider 2023), examining how ICMTs are embedded in European climate policy and net-zero strategies. Second, several studies analyse differences in STIs across actor groups; however, these analyses typically focus on a single technology (Hougaard und Christiansen 2025) rather than comparing different ICMTs. At the national level, existing empirical studies have primarily examined actor-specific STIs in Scandinavian countries (Lefstad u. a. 2024; Christiansen und Carton 2021) as well as in the United Kingdom (Longhurst und Chilvers 2019). Against this background, a lack of studies focusing on Germany that examine STIs across different actor groups and across multiple ICMTs, become apparent. This study addresses this gap by analysing STIs by different actors and of different ICMTs in the German context.

Empirically, the paper is based on a qualitative document analysis. Included in the analysis are actors who are actively involved in the stabilisation or contestation of dominant STIs of ICMTs in Germany. The temporal scope of the analysis begins with the publication of the European Union’s Industrial Carbon Management Strategy in February 2024, which was followed by the release of a corresponding German federal government key points paper, also in February 2024. This sequence marks a relevant temporal starting point for examining contemporary STIs of ICMTs in Germany.

Subsequently, the paper addresses three main research questions. First, it asks which STIs of ICMTs can be identified in the German context. Second, it examines to what extent these STIs differ between actor groups and between specific ICMTs such as CCS and CCU. Third, it explores how power asymmetries manifest within the discourse, particularly which STIs become dominant, marginalised, or institutionalised. By analysing ICMTs as sociotechnically embedded and discursively constructed technologies, this paper contributes to emerging social-scientific research on STIs and ICMTs. It provides a structured account of competing

future visions and societal positioning of ICMTs in Germany, thereby offering insights into the broader challenges of steering technological pathways towards climate neutrality.

References

Brad, Alina, und Etienne Schneider. 2023. „Carbon Dioxide Removal and Mitigation Deterrence in EU Climate Policy: Towards a Research Approach“. Environmental Science & Policy 150 (Dezember): 103591. https://doi.org/10.1016/j.envsci.2023.103591.

Christiansen, Kirstine Lund, und Wim Carton. 2021. „What ‘Climate Positive Future’? Emerging Sociotechnical Imaginaries of Negative Emissions in Sweden“. Energy Research & Social Science 76 (Juni): 102086. https://doi.org/10.1016/j.erss.2021.102086.

European Commission. 2024. „Towards an ambitious Industrial Carbon Management for the EU“. Februar 6.

Hougaard, Inge-Merete, und Kirstine Lund Christiansen. 2025. „Domesticating Technology: Sociotechnical Imaginaries of Carbon Capture and Storage in Denmark“. Energy Research & Social Science 125 (Juli): 104087. https://doi.org/10.1016/j.erss.2025.104087.

Jasanoff, Sheila, und Sang-Hyun Kim. 2009. „Containing the Atom: Sociotechnical Imaginaries and Nuclear Power in the United States and South Korea“. Minerva 47 (2): 119–46. https://doi.org/10.1007/s11024-009-9124-4.

Jasanoff, Sheila, und Sang-Hyun Kim. 2015. Dreamscapes of Modernity: Sociotechnical Imaginaries and the Fabrication of Power. University of Chicago Press. https://doi.org/10.7208/chicago/9780226276663.001.0001.

Lefstad, L., J. Allesson, H. Busch, und W. Carton. 2024. „Burying Problems? Imaginaries of Carbon Capture and Storage in Scandinavia“. Energy Research & Social Science 113 (Juli): 103564. https://doi.org/10.1016/j.erss.2024.103564.

Longhurst, Noel, und Jason Chilvers. 2019. „Mapping Diverse Visions of Energy Transitions: CoProducing Sociotechnical Imaginaries“. Sustainability Science 14 (4): 973–90. https://doi.org/10.1007/s11625-019-00702-y.

Sitinjak, Charli, Sitinjak Ebennezer, und Józef Ober. 2023. „Exploring Public Attitudes and Acceptance of CCUS Technologies in JABODETABEK: A Cross-Sectional Study“. Energies 16 (10): 4026. https://doi.org/10.3390/en16104026.

Wesche, Julius, Silvia Germán, Lila Gonçalves, u. a. 2023. „CCUS or No CCUS? Societal Support for Policy Frameworks and Stakeholder Perceptions in France, Spain, and Poland“.

Greenhouse Gases: Science and Technology 13 (1): 48–66. https://doi.org/10.1002/ghg.2195.

Investigating Changes in Household Appliance Equipment and Usage Patterns Due to Future Changes in Lifestyles

Felicitas Ortlieb, Clara Fuhrer, Annika Gillich

Universität Stuttgart, Germany

The residential sector significantly contributes to the overall energy demand and is becoming increasingly important in future energy systems due to its growing electricity demand resulting from electrification needed to achieve climate targets as well as its potential to provide flexibility services [1]. A key component affecting residential energy demand is a household's appliance equipment (e.g. washing machines, dryers, dish washers, TV) and their associated consumption behaviour. Nonetheless, energy system analysis has hardly focused on changes in household appliance equipment and associated consumption patterns and if so, with a techno-economic perspective neglecting societal factors [2,3]. However, not considering societal factors is problematic because future alterations in electricity demand are heavily influenced by them [4].

To address this, the study presents an approach for translating qualitative future societal trend scenarios identified in the GeNESE research project [5], into quantified changes in the level and profile of household appliance electricity demand. Following this aim, we developed a novel methodology which is based on three interlinked approaches. Firstly, we use a logistic regression model to estimate average future household appliance equipment. The regression is based on the approach developed by [6] and uses assumptions on average disposable income of households and average household size from the scenarios developed in the GeNESE project as inputs. Secondly, we quantify changes in household appliance utilisation hours due to alterations in lifestyles changes by incorporating quantifications from the literature in our research (e.g. [7,8]). From the changing household equipment and utilisation hours the changing level of future household electricity demand can be calculated. Societal changes resulting in behavioural changes do not only influence the level of future electricity demand but also when the demand occurs thus changing the demand profiles. Therefore, this study thirdly incorporates alterations due to changing behavioural patterns in occupancy and activity profiles for households derived from the German time of use survey [9].To model these alterations, we identify groups with similar occupancy patterns in the survey and map those to societal groups affected by future scenarios. The changing composition of the overall society allows for the calculation of average occupancy and activity profiles for the different scenarios thus enabling the quantification of the effects of societal changes on household appliance electricity consumption profiles.

The developed methodology is applied to the analysis of six varying societal trend scenarios from the GeNESE project. With regard to appliance ownership levels, the regression results show that disposable income and the size of households are significant determinants of future ownership levels of household appliances. An increase in one-person households is therefore associated with higher levels of household appliance ownership. Lifestyle changes resulting from trends in sufficiency and future of work show a variation of utilisation hours up to nearly 70% in comparison to the reference case. Sufficiencyoriented consumption patterns lead to a significant overall reduction in energy demand, though this effect is weakened by a growing prevalence of working from home. Occupancy profiles are flattened by a large percentage of remote work, activity profiles show an increase in computer usage during working hours as well as an increase in cooking around noon. Remote work in combination with work-lifeblending

also shows a slight increase in household chores such as doing laundry during the late morning and early afternoon. An increase in digitalized leisure activities leads to an increase in computer usage in the evening hours.

References

E.ON & Forschungsstelle für Energiewirtschaft (FfE). Flexibilitätscheck, 2025.

Trutnevyte, E. et al. Societal Transformations in Models for Energy and Climate Policy: The Ambitious Next Step. One Earth 1 (2019).

Prehofer, S., Ortlieb, F., Leger, M., Wassermann, S., Fahl, U. Complex influencing factors and variants of societal energy demand – quantified explorative scenarios as a tool for strategic planning. Energy Policy (forthcoming).

Brugger, H., Eichhammer, W., Mikova, N. & Dönitz, E. Energy Efficiency Vision 2050: How will new societal trends influence future energy demand in the European countries? Energy Policy 152, 1–15 (2021).

Institut für Energiewirtschaft und Rationelle Energieanwendung. GeNESE. Wirkungen des gesellschaftlichen Wandels auf Niveau und Profil der sektoralen Stromnachfrage und ihre Bedeutung bei der Kopplung von Energiemodellen mit unterschiedlicher zeitlicher Auflösung, 2026.

McNeil, M. A. & Letschert, V. E. Modeling diffusion of electrical appliances in the residential sector. Energy and Buildings 42, 783–790; 10.1016/j.enbuild.2009.11.015 (2010).

Brischke, L.-A., Lehmann, F., Leuser, L., Thomas, S. & Baedeker, C. Energy sufficiency in private households enabled by adequate appliances. eceee Summer Study Proceedings (2015).

L'OBSCO. L’OBSERVATOIRE DES PERSPECTIVES UTOPIQUES. Vague 1 – Octobre 2019 - Rapport d’analyse, 2019.

Statistisches Bundesamt. Zeitverwendungserhebung / Zeitbudgeterhebung 2022. Public Use File (PUF), 2025.

Energy System Integration: New Challenges for Technology Assessment

Michael Ornetzeder

Austrian Academy of Sciences, Austria

Sector integra1on is considered a key strategy for the energy transi1on as it connects the electricity, hea1ng, transport and industrial sectors. This enables decarbonisa1on across all areas. It increases the flexibility of the energy system by conver1ng surplus renewable electricity into heat, mobility or chemical energy carriers, such as hydrogen, thereby balancing out fluctua1ons. However, sector integra1on also presents a number of technical and infrastructural challenges. These include the significant expansion of electricity grids, storage facili1es and hydrogen infrastructure, as well as the need for increased flexibility within the electricity system. Risks include exacerba1ng exis1ng market distor1ons, increasing regulatory and ins1tu1onal complexity, and commiPng to individual technologies or energy sources too early. This can slow down innova1on and lead to subop1mal solu1ons. For technology assessment (TA), capturing complex, cross-sectoral system effects poses a par1cular challenge. Addi1onally, new infrastructures (e.g., hydrogen networks and powerto-X technologies) introduce new uncertain1es that pose risks to security of supply, grid stability, and social inequality. Finally, TA requires greater integra1on of governance, market and behavioural perspec1ves to iden1fy and address undesirable consequences such as market distor1ons, infrastructure boVlenecks and unequal cost distribu1on at an early stage.

Shared Cars, Flexible Charging: When Cost Savings Meet Additional Effort

Stephan Schwarzinger[1], Anna Sämisch[1], Michael Brenner-Fließer[1], Ruzica Luketina[1], Miha Valentinčič[2]

1: JOANNEUM Research Forschungsgesellschaft mbH, Austria; 2: Avant car, poslovni inženiring, d.o.o.

Flexible charging in electric car sharing is a vivid example of the social and acceptance-related challenges of sector integration in the sustainable energy transition. However, studies on the prospective acceptance of related business models by actual car sharing users are still rare. This paper investigates under which conditions car sharing users are willing to charge shared electric vehicles at home or on-the-go in dedicated timeslots (to leverage flexibility), with a particular focus on pricing schemes and incentive structures. Drawing on a survey among 955 electric car sharing users in Slovenia, the study empirically assesses the willingness to adapt the following two use cases: (I) flexible charging at home and (II) flexible charging on-the-go. The main results are the following:
(I) Flexible charging at home is perceived interesting when it reduces rental costs without requiring initial investment or imposing financial risks related to damages. In addition, the option to return the car next day when charging at home appears to be an effort-reducing option for some users.
(II) On-the-go charging is perceived as highly interesting if it combines cost savings with low

effort, meaning charging locations are close, fast, and easy to use. Exploratory results suggest that users open to home charging are likewise open to charging on-the-go, as long as effort remains low. At the same time, a few users are not open to any of the flexible charging models. They appreciate the comfort of not having to care about charging and would not trade comfort for price reductions. Applying ordinal rankings of push- and pull-factors in groups with different levels of willingness to use flexible charging models, we found that the assessment of cost savings in relation to additional effort dominates the acceptance of flexible charging practices in electric car sharing. Electric car sharing users show high willingness to accept additional charging effort in exchange for financial benefits.
Overall, the results show that a large majority of electric car sharing users are willing to use flexible charging tariffs when instrumental rationality aspects are met. While this has positive implications for the potential of flexible charging in electric car sharing, it comes with the need for further research and with challenges for implementation in business: Most importantly, push and pull factors and their relationships must be understood in more detail. Finally, concrete use cases address specific target groups, whose user experience will be essential to successfully link electric car sharing and flexibility.

Towards Integrated Research of Future Discourses in Transition Research

Filip Rozborski[1,2], Michael Kriechbaum[1,2]

1: Technische Universität Berlin, Germany; 2: Department of Society Studies, Maastricht University, The Netherlands

Earlier transition research predominantly focused on processes of sector reconfiguration and technological innovation as primary drivers of regime change dynamics (Köhler et al., 2019). While these perspectives have generated valuable insights into the early transition stages, the current acceleration of energy transition reveals significant challenges, necessitating a critical reassessment of the research agenda (Markard et al., 2023). In particular, scholars increasingly argue that transitions cannot be comprehensively understood or effectively managed by focusing predominantly on changes in “hard” and tangible technologies, infrastructures, and actor constellations. Instead, research needs to also address the transitions of the “soft,” more ephemeral discursive dimensions that shape how transitions are debated and enacted (Beck et al., 2021).
Within this discursive turn, transition research has predominantly conceptualized future discourses as dynamic outcomes of strategic future representation and legitimizing rhetoric. Only a limited number of contributions have examined the stabilizing forces that constrain discourses and provide legitimation. These studies often emphasize the role of imagination and imaginaries in the landscape of cognitive-cultural “straitjackets” (Sovacool et al., 2020, p. 19), binding both discourse and practice, invisibly narrowing the horizons of transitions
However, despite imaginaries’ analytical potential for addressing discursive constraints in transition research, they remain a rather vague concept. Lacking theoretical grounding and clear conceptual boundaries, they have been frequently employed as a one-term theory of discursive change, applied interchangeably with other established terms in transition research

on future discourses. This conceptual fuzziness not only leaves the empirical phenomenon of straitjackets insufficiently scrutinized but also undermines analytical precision and the translatability of the overall research on the discursive dimensions of transitions.
In this critical review paper, we systematically address the conceptual foundations in transition research on future discourses. We delineate the conceptual boundaries of concepts such as expectations and visions, as well as the ambiguities in the conceptualization of imaginaries. To move beyond the current impasse and to provide a robust analytical framework, we redefine and reoperationalize imaginaries, grounding them in social theory and tailoring them to research on future discourses in transitions. Finally, we demonstrate its empirical applicability through a multidimensional study of German hydrogen policymaking, illustrating how future discourses can be systematically analyzed in practice.

References

Beck, S., Jasanoff, S., Stirling, A., & Polzin, C. (2021). The governance of sociotechnical transformations to sustainability. Current Opinion in Environmental Sustainability, 49, 143–152. https://doi.org/10.1016/j.cosust.2021.04.010

Köhler, J., Geels, F. W., Kern, F., Markard, J., Onsongo, E., Wieczorek, A., Alkemade, F., Avelino, F., Bergek, A., Boons, F., Fünfschilling, L., Hess, D., Holtz, G., Hyysalo, S., Jenkins, K., Kivimaa, P., Martiskainen, M., McMeekin, A., Mühlemeier, M. S., . . . Wells, P. (2019). An agenda for sustainability transitions research: State of the art and future directions. Environmental Innovation and Societal Transitions, 31, 1–32. https://doi.org/10.1016/j.eist.2019.01.004

Markard, J., Wells, P., Yap, X.-S., & van Lente, H. (2023). Unsustainabilities: A study on SUVs and Space Tourism and a research agenda for transition studies. Energy Research & Social Science, 106, 103302. https://doi.org/10.1016/j.erss.2023.103302

Sovacool, B. K., Hess, D. J., Amir, S., Geels, F. W., Hirsh, R., Rodriguez Medina, L., Miller, C., Alvial Palavicino, C., Phadke, R., Ryghaug, M., Schot, J., Silvast, A., Stephens, J., Stirling, A., Turnheim, B., van der Vleuten, E., van Lente, H., & Yearley, S. (2020). Sociotechnical agendas: Reviewing future directions for energy and climate research. Energy Research & Social Science, 70, 101617. https://doi.org/10.1016/j.erss.2020.101617

23: Green Hydrogen Energy Transitions in the Global South: Pathways, Potentials, and Challenges

Session Chairs:

Sanoj Sanoj, Independent Researcher, India

Dwarkeshwar Dutt, School of Public Policy, India

Green Hydrogen Transitions in the Global South: Socio Economic, Environmental and Technological Challenges in South Africa and India

Phumudzo Mudau[1], Juhi Chatterjee[2]

1: DZI NDAU CONSULTING, Mining and Environmental Geology, South Africa; 2: Tata Institute for Social Sciences Mumbai, India

Green hydrogen has become an important energy carrier in global decarbonization strategies and has been positioned as a solution in sectors such as steel, chemicals, and transport. While much of the current green energy agenda is driven by Global North perspectives, the Global South occupies a paradoxical position: it is rich in renewable energy resources and critical minerals, yet constrained by deep-seated structural socio-economic inequalities, environmental vulnerabilities, and uneven technological capacities. This paper critically examines the socio-economic, environmental, and technological challenges shaping green hydrogen transitions in the Global South through a comparative case study of South Africa and India.

Both countries have announced ambitious green hydrogen initiatives driven by energy security concerns, industrial competitiveness, and commitments to national climate action plans. However, their transition pathways reveal distinct yet interconnected challenges. Socio-economically, green hydrogen development risks reinforcing existing economic constraints if supply and value chains remain externally oriented. In South Africa, hydrogen initiatives are closely linked to exportdriven models and mineral beneficiation (notably platinum group metals (PGMs)), raising concerns regarding local job creation, skills mismatches, and the inclusion of communities in historically marginalized and impoverished regions. In India, large-scale hydrogen deployment is embedded within a state-led industrial policy framework and the expansion of manufacturing sectors; yet questions persist regarding labour precarity, the exclusion of informal workers, and regional inequalities in infrastructure access.

Environmental challenges further complicate hydrogen transitions. While green hydrogen promises reduced greenhouse gas emissions and air pollutants, its production is resource intensive, particularly in terms of water and land use. In South Africa, where water scarcity and climate variability are already acute, the scaling of electrolysis presents trade-offs with agricultural and community water needs, underscoring the necessity for integrated water–energy governance and coherent legislative frameworks. In India, environmental impacts primarily arise from land acquisition for renewable energy hubs, biodiversity loss, and uneven

enforcement of environmental regulations. These cases illustrate that "green" energy technologies are not environmentally neutral and must be assessed in relation to local ecological limits and governance capacities.

Technologically, both countries face constraints related to infrastructure readiness, grid stability, and innovation ecosystems. High production costs, limited hydrogen storage and transport infrastructure, and constrained domestic manufacturing capacity for electrolysers and fuel cells remain significant barriers. South Africa's ageing electricity grid and continued reliance on coalfired power complicate the integration of renewable energy required for genuinely green hydrogen, while technological lock-ins risk delaying transition benefits. India, despite rapid renewable capacity expansion, faces challenges related to scaling electrolyser manufacturing, standardization, calibration, and system integration across diverse regional contexts. In both cases, continued dependence on imported technologies raises critical questions about technological sovereignty, governance, and long-term economic resilience.

Drawing on science and technology studies (STS) perspectives, this paper argues that green hydrogen transitions in the Global South are not merely technological substitutions, but deeply political socio-technical transformations shaped by power relations, governance structures, legal frameworks, and historical inequalities. The comparative analysis highlights the need for contextsensitive transition pathways that prioritize social justice, environmental integrity, and inclusive innovation. The paper concludes by proposing policy and governance principles for just hydrogen transitions, emphasizing participatory planning with affected stakeholders, site-specific value creation, and cross-sectoral coordination across mining, transport, and agriculture. By foregrounding the cases of South Africa and India, this study reframes green hydrogen not as a universal solution, but as a contested and negotiated transition shaped by Global South realities.

Generating Green Hydrogen from Biomass: Opportunities and Challenges for an Underdeveloped Pathway of Renewable Energy Transition in India

Abhinav Tyagi

Institute of Public Health Bengaluru, India

India has expressed its strong commitment to harnessing green hydrogen through the National Green Hydrogen Mission for the clean energy transition. In 2023, it committed 190,000 crores to green hydrogen projects, which is projected to increase to 8 lakh crores by 2030. India has invested in developing a diverse portfolio of green hydrogen applications, ranging from fuel cells for mobility vehicles to energy generation and storage units, as well as other derivatives. For example, the NTPC mobility project in Ladakh is a pilot that demonstrates fuel cell vehicles and fueling stations in one of the most challenging terrains in the world. Similarly, IOCL is experimenting with wind energy to power the alkaline electrolysers, which will eventually help meet the refinery's energy needs. Currently, there are few major pathways to produce green hydrogen in India: solar and wind electrolysis, hybrid (solar and wind) electrolysis, biomass gasification, and green hydrogen from Biogas.

Among these pathways, green hydrogen from Biogas or bio-CNG is an underutilised and underdeveloped route for green hydrogen production in India. Among all grid-connected

energy resources, biomass energy, including waste-to-energy, accounts for only 2.26 per cent of the total installed power capacity of all energy sources. The contribution improves to 5 per cent when compared with all renewable energy sources, according to Niti Aayog, Nov 2025 data. India has vast untapped biomass energy, offering a massive opportunity for green hydrogen production.

This paper underscores the trajectory of one such bio-CNG project, developed by the Indore Municipal Corporation (IMC) in collaboration with Indo Enviro Integrated Solutions Ltd. (IEISL), which uses municipal waste for bio-CNG production in Indore.

IMC-IEISL evolved by adopting a bottom-up approach to community participation and local governance innovations to establish decentralised bio-CNG generation. This bio-CNG plant also has significant potential to develop into a decentralised regional green hydrogen production unit. The Biogas produced at the plant is raw methane, which is further enriched through multiple processes of desulfurisation, membrane filtration, and compression to develop into a superior biofuel, bio-CNG. Currently, IMC purchases 8-9 TPD, half of its total plant capacity (18 TPD), to run its 400 municipal vehicles, including the state's intercity and intracity bus networks. The PPP model ensured risk-sharing, operational efficiency, and financial sustainability, making it a standout case in India's municipal energy space and representing a next-generation WtE model.

This paper emphasises that the IMC-IEISL bio-CNG project has significant potential to serve as an exemplar of WtE due to its bottom-up approach across various municipal corporations. It further demonstrates substantial potential for municipal corporations to unlock in establishing a production unit for decentralised green hydrogen. The project is an outcome of infrastructural pragmatism, social inclusion (ragpickers integrated into formal systems), and Indore's smart city ambition. The bio-CNG unit symbolises circular urbanism, blending cleanliness, energy security, and municipal governance. The paper applies the STS concepts of techno-scientific imaginaries and the Multi-Level Perspective (MLP) of the energy transition to investigate how these dynamics will play out for decentralised green hydrogen projects in a nonWestern context.

Indore's bioenergy plant, supported by the Indian Ministry of Urban Development and operated through a PPP model with IEISL, is in a regime-hybridisation space within the framework of niche-regime interplay. Understanding the green hydrogen energy transition will require more than technical assessments. It demands attention to the cultural, political, institutional, and material environments that shape technologies. This further attempt to address the technological, economic, social, and policy features contributes to shaping the strengths and limitations of the decentralised green hydrogen energy transition in India.

Imagining Green Futures: Green Hydrogen and Ecological Frictions in Patagonia

Camila Albornoz

Ludwig-Maximilians-Universität München, Rachel Carson Center.

The strong and persistent winds of Patagonia have begun to be read as an energy promise. From the Global South, Chile has joined the global boom in green energies through public policies and national strategies oriented toward energy transition, within which Patagonia has emerged as a territory strategically imagined for the development of green hydrogen valleys. Wind, land, and access to seawater are mobilized discursively as signs of abundance and opportunity, placing the region at the center of new narratives of green development and planetary energy transition.

Yet these promises are embedded in a long history of extractivist development, through which the region has been integrated into the global economy primarily as a provider of natural resources, energy, and territories for external accumulation (Alimonda, 2011; Gudynas, 2017; Svampa, 2019). Critical scholarship has shown that energy transitions do not necessarily entail a rupture with extractivist logics, but often rearticulate them through discourses of decarbonization and green modernization (Dorn, 2022; Andreucci et al., 2023; Dunlap et al., 2024). In this context, the expansion of green hydrogen has generated growing concerns that Patagonia may be transformed into a new green sacrifice zone, where the environmental and territorial costs of transition are unevenly distributed in the name of global climate goals (Dunlap, 2018; Riofrancos, 2019).

Drawing on interviews with local actors in Chilean Patagonia, this paper shows that green hydrogen expansion does not revolve around a single horizon of the future, but instead gives rise to the coexistence—and friction—of multiple sociotechnical imaginaries of what constitutes a desirable energy future (Jasanoff & Kim, 2015). While institutional and corporate imaginaries frame Patagonia as a strategic platform for planetary decarbonization and green growth, civic imaginaries articulate alternative futures centered on territorial protection and the refusal of new sacrifice zones. By foregrounding imaginaries rather than technologies, the paper contributes to STS debates on energy transitions in the Global South by showing how green hydrogen futures are politically and socially negotiated long before infrastructures are built (Boyer, 2019).

Comparative Case Study of Media Discourses Over Hydrogen Developments in Chile and the UK

Paula De Pablos Sanz[1], Michael Kriechbaum[2]

1: Graz University of Technology, Austria; 2: University of Graz, Austria

Socio-technical futures around a hydrogen economy are currently reaching unprecedented levels of innovation and political actions. Currently, more than 60 countries have published official hydrogen strategies. Nevertheless, big uncertainties and controversies exist not only in relation to the different hydrogen energy systems but also around their broad symbolic meanings [1]. For instance, questions like how to produce, supply, and use hydrogen remain open; subject to different interests and influenced by country specificities. Hereof, scholars are warning about problematic path-dependencies with the fossil fuel industry: as its main producer and consumer, the fossil fuel industry also poses the material, institutional and discursive resources to develop 'sustainable' hydrogen [2]. Similarly, scholars are stressing asymmetrical global power relations and uneven epistemic geographies producing knowledge on hydrogen; risking the reproduction of colonial path-dependencies and extractivist practices [3]. In this context, the UK and Chile are positioning themselves as hydrogen pioneers: the UK as a leader in manufacturing low-carbon hydrogen technologies together with developing domestic production and consumption of this energy carrier, while Chile aspires to become the cheapest exporter of green hydrogen while greening its mining sector by incorporating hydrogen technologies. However, both strategies remain controversial. The UK's bid on lowcarbon hydrogen is closely connected to its domestic fossil fuel industry. In Chile, the commodification of its renewable energies and the large-scale projects necessary for exporting hydrogen are presented as forms of green colonialism [4].

The construction of sociotechnical futures is inherently political, and media play an important role. Media is a key public arena where stakeholders compete for visibility and support [5], where the how (and the whom) of topics discussed influence policy-making processes [6], and where public perceptions may influence the (un)successful acceptance of innovations [7]. However, despite the above-mentioned risks, there is few work on hydrogen media coverage [7]. The purpose of this paper is to compare how the media framing, the underlying actor networks, and the linkages to broader societal goals differ between the UK and Chile. We use Discourse Network Analysis [6]: we selected all the articles containing the word hydrogen either in the title or the subtitle published in the five main newspapers from each country in the last ten years. We reveal the evolution of hydrogen discourse overtime, the different discourse coalitions, and the link to broader societal goals. By using CDA, we identify the main actors driving hydrogen discourse and the main frames attach to it. By comparing Global South and Global North countries we not only aim to expand on hydrogen media coverage but to also investigate the dynamics of hydrogen developments in relation to fossil fuel and colonial pathdependencies.

References

Sovacool, B. K.; Brossmann, B. (2010): Symbolic convergence and the hydrogen economy. Energy Policy. 38(4): 1999-2012.

Vezzoni, R. (2024): How "clean" is the hydrogen economy? Tracing the connections between hydrogen and fossil fuels. Environmental Innovation and Societal Transitions, 50:100817.

Müller, F.; Tunn, J.; Kalt, T. (2022): Hydrogen Justice. Environmental Research Letters 17: 115006.

Gudynas, E. (2015): *Extractivismos. Ecología, economía y política de un modo de entender el desarrollo y la Naturaleza*. Cochabamba: CEDIB/CLAES.

Arlt, D.; Becker, M.; Wolling, J. (2025): Stability, change, formation: Insights into the media's role in shaping attitudes toward green hydrogen in Germany. International Journal of Hydrogen Energy. 97: 328-337.

Ohlendorf, N.; Löhr, M.; Markard, J. (2023): Actors in multi-sector transitions - discourse analysis on hydrogen in Germany. Environmental Innovation and Societal Transitions. 47, 100692.

Ali, M.; Hagen, L. (2025): Understanding the framing of hydrogen technology: a crossnational content analysis of newspaper coverage in Germany, Saudi Arabia, UAE, and Egypt. Frontiers in Communication. 10.

Finance and the Evolving Governance Architecture of South Africa’s Green Hydrogen Niche

Amanda-Leigh O'Connell

University of Johannesburg, South Africa

For many developing and emerging countries, green hydrogen ostensibly o7ers muchneeded pathways to decarbonisation, industrialisation and sustainable economic development. Realising these pathways will depend on coordination and integration across sectors and institutions spanning multiple governance levels, while navigating resource and financial constraints, country-specific institutional contexts and contemporary energy geopolitics (Klagge et al., 2025; Lentschig et al., 2025; Van De Graaf et al., 2020). However, limited scholarly attention has been paid to green hydrogen governance, including how its governance structures are evolving to support its role in the global energy transition (Gale et al., 2024).

This paper responds to this gap through an empirical analysis of South Africa’s green hydrogen niche. Green hydrogen is a flagship technology in South Africa’s energy transition, central to an industrial policy that positions the country as an export node in the global green hydrogen economy. Vested interests are shaping the agenda through research and development funding, investment partnerships, and promises of o7take agreements (O’Connell, 2024). Competing visions for green hydrogen further expose struggles between state agencies, industries, unions, communities and stakeholders over preferred technologies and development priorities—with critical implications for governance (Kalt et al., 2023). Drawing on concepts from strategic niche management and transitions management, this paper first maps the evolution of South Africa’s green hydrogen governance architecture over time. It then examines the role of finance in shaping the configuration and reconfiguration of this architecture at critical junctures of rule negotiation. The research adopts a case study design and draws on primary and secondary data, including semi-structured interviews with policymakers, innovators, and financiers.

The findings show that South Africa’s green hydrogen governance has evolved through a

discernible sequence, led by investor needs, global markets and anticipated demand. The need to align with international standards has rendered South Africa a rule-taker within the global hydrogen economy, with well-resourced actors dominating the setting of governance priorities and the selection of pathways.
The paper presents a morphology of South Africa's green hydrogen governance, o7ering insights into power dynamics and leverage points for intervention. It also o7ers a method for systematically constructing governance architectures for niche technologies that can support comparative analyses and generalisability. Consequently, it may be useful for both researchers and practitioners working on hydrogen governance in energy transitions.

References

Gale, F., Goodwin, D., Lovell, H., Murphy-Gregory, H., Beasy, K., Schoen, M., 2024. Renewable hydrogen standards, certifications, and labels: A state-of-the-art review from a sustainability systems governance perspective. International Journal of Hydrogen Energy 59, 654–667.

https://doi.org/10.1016/j.ijhydene.2024.02.038

Kalt, T., Simon, J., Tunn, J., Hennig, J., 2023. Between green extractivism and energy justice: competing strategies in South Africa's hydrogen transition in the context of climate crisis. Review of African Political Economy 50.

https://doi.org/10.1080/03056244.2023.2260206

Klagge, B., Walker, B., Kalvelage, L., Greiner, C., 2025. Governance of future-making:

Green hydrogen in Namibia and South Africa. Geoforum 161, 104244. https://doi.org/10.1016/j.geoforum.2025.104244

Lentschig, H., Patonia, A., Quitzow, R., 2025. Multilateral governance in a global hydrogen economy: An overview of main actors and institutions, key challenges and future pathways. International Journal of Hydrogen Energy 97, 76–87.

https://doi.org/10.1016/j.ijhydene.2024.11.393

O'Connell, A.-L., 2024. The financing dynamics of niche innovation in energy transitions: A South African perspective. Energy Research & Social Science 111,

103478. https://doi.org/10.1016/j.erss.2024.103478

Van De Graaf, T., Overland, I., Scholten, D., Westphal, K., 2020. The new oil? The geopolitics and international governance of hydrogen. Energy Research & Social Science 70, 101667. https://doi.org/10.1016/j.erss.2020.101667

Expecting Hydrogen: Green Energy Futures and the Politics of Anticipation in the Global South

Anjali Lakum

Parul University, India

Green hydrogen has rapidly emerged as a central pillar of national energy transition strategies across the Global South, promoted as a solution to decarbonisation, industrial competitiveness, and geopolitical energy security. Framed as a “future fuel,” green hydrogen is increasingly mobilised through ambitious policy roadmaps, investment commitments, and international partnerships, despite its limited current deployment and unresolved infrastructural, ecological, and socio-economic challenges. This paper examines green hydrogen not primarily as a technical energy solution, but as an expectational regime, a future-oriented sociotechnical promise that structures governance, investment, and policy priorities in the present.

Drawing on the sociology of expectations and STS scholarship on sociotechnical imaginaries, the paper analyses how green hydrogen futures are constructed, stabilised, and legitimised within Global South policy contexts, with particular attention to India. Through qualitative analysis of policy documents, mission statements, and international energy narratives, the study traces how hydrogen is positioned as an inevitable transition pathway, often insulated from sustained critical scrutiny by its alignment with climate imperatives and development aspirations. These expectations perform essential political and economic work: they attract capital, coordinate actors, and justify large-scale infrastructural commitments in advance of demonstrated feasibility or social embedding.

The paper argues that this expectational framing carries significant risks of misalignment and disappointment. First, hydrogen strategies frequently presume centralised infrastructures, abundant renewable electricity, water availability, and advanced industrial capacities that remain uneven or contested across Global South contexts. Second, the temporal politics of hydrogen, in which future decarbonisation benefits are invoked to govern present-day decisionmaking, can marginalise alternative transition pathways and foreclose debate on decentralised or socially embedded energy solutions. Third, the global circulation of hydrogen imaginaries risks reproducing technological dependence, as electrolysers, standards, finance, and expertise remain largely concentrated among actors in the Global North, raising concerns about energy sovereignty and equity.

Rather than predicting failure, the paper adopts an anticipatory STS stance, highlighting how historical patterns of over-promising in large-scale technological transitions can inform more reflexive governance. By conceptualising green hydrogen as an expectational regime, the analysis shifts attention from whether hydrogen “will work” to how expectations shape policy trajectories, distribute risks, and privilege certain actors and futures over others. The paper contributes to STS debates on energy transitions by foregrounding the politics of anticipation in Global South contexts and calls for governance approaches that remain attentive to uncertainty, social inclusion, and infrastructural diversity in the pursuit of sustainable energy futures.

24: Science as a Compass and a Catalyst: Guiding Behavior Change in an Age of Transformation

Session Chairs:

Kay Kohaupt-Cepera, Technical University Dortmund, Germany

Marlon Philipp, Technical University Dortmund, Germany

How Psychological Distance Shapes Climate-Risk Perception: Evidence from Slovenian Households

Ana Slavec[1,2], Nežka Sajinčič[1,3], Lea Primožič[2], Una Vuletić[1,2]

1: Faculty of mathematics, natural sciences and information technologies, University of Primorska, Slovenia; 2: InnoRenew CoE, Institute Andrej Marusic, University of Primorska, Slovenia; 3: Institute of criminology at the Faculty of Law Ljubljana, Slovenia

Awareness of how everyday lifestyles contribute to climate change has been increasing, yet substantial variation remains in how different demographic groups perceive and respond to climate-related risks. These disparities are partly shaped by well-documented psychological mechanisms. Research shows, for instance, that environmental optimism can supress pro-environmental behaviour (Hatfield & Job, 2001), while a large 18-country study found that temporal pessimism and spatial optimism can reduce people's willingness to help address environmental problems (Gifford et al., 2009). These findings align with Construal Level Theory (CLT), which conceptualizes how individuals interpret distant versus proximal environmental phenomena across temporal, spatial, social, and hypothetical dimensions.

Building on this theoretical foundation, the present study examines how psychological distance shapes climate-risk perception and sustainable consumption decisions among Slovenian adults. The research draws on a nationally representative online survey that explores how generational and demographic differences influence perceptions of climate threats, emotional responses, and beliefs about the efficacy of individual actions. Prior studies have shown that greater psychological distance is associated with lower willingness to reduce energy consumption (Spence et al., 2011) and that people tend to view climate change as a more serious threat at the global level than in their own local context (Schultz et al., 2014). Our work extends these findings by linking psychological distance not only to abstract climate attitudes but also to concrete household behaviours with long-term environmental implications. Specifically, we focus on decisions related to home renovation and furnishing. We analyse how strongly Slovenian consumers value environmental friendliness as a decision criterion, how psychological distance shapes the importance of climate impacts in this domain, and under what circumstances environmental motives are overridden by cost or convenience. The results indicate that individuals who perceive climate change as temporally and spatially proximal express greater concern and demonstrate stronger willingness to engage in actions that reduce their carbon footprint.

These insights have practical implications for both communication and policy. The study suggests that interventions aiming to promote sustainable consumption must consider how psychological distance influences motivation and behaviour. Messages that reduce perceived distance by highlighting local impacts and visible consequences may prove more effective in encouraging environmentally responsible choices. Furthermore, our findings stress the importance of adapting communication approaches to concerns of specific demographic groups.
Overall, the study contributes to an improved understanding of the value–action gap in climate-related behaviour. It demonstrates that addressing psychological distance is essential for designing communication strategies and policy tools capable of motivating sustainable consumption across diverse segments of the population.

References

Gifford, R., Scannell, L., Kormos, C., Biel, A., Boncu, S., & Kaiser, F. G., et al. (2009). *Temporal pessimism and spatial optimism in environmental assessments: An 18-nation study*. *Journal of Environmental Psychology, 29*(1), 1–12. https://doi.org/10.1016/j.jenvp.2008.06.001

Hatfield, J., & Job, R. F. S. (2001). *Optimism bias about environmental degradation: The role of the range of impact of precautions*. *Journal of Environmental Psychology, 21*(1), 17–30. https://doi.org/10.1006/jevp.2000.0190

Schultz, P. W., Milfont, T. L., Chance, R. C., Tronu, G., Luís, S., Ando, K., Rasool, F., Roose, P. L., Ogunbode, C. A., Castro, J., & Gouveia, V. V. (2014). *Cross-cultural evidence for spatial bias in beliefs about the severity of environmental problems*. *Environment and Behavior, 46*(3), 267– 302. https://doi.org/10.1177/001391651245857

Spence, A., Poortinga, W., Butler, C., & Pidgeon, N. F. (2011). *Perceptions of climate change and willingness to save energy related to flood experience*. *Nature Climate Change, 1*(1), 46–49. https://doi.org/10.1038/nclimate1059

Between Trust and Suspicion: How Citizens Experience AI-Supported Contextualization of Political Information

Aaron Zilt, Sebastian Hoffmann, Paula Luzie Kamrad

TU Dortmund University, Germany

Contemporary digital publics are shaped by an unprecedented density of information flows and a growing uncertainty about what counts as credible knowledge [1, 2]. While artificial intelligence (AI) promises to support informed civic discourse through contextualization and verification of online content [3, 4], its integration into everyday opinion-forming reveals deeper social tensions. This paper presents findings from 39 qualitative, guided interviews conducted as part of the German research project KonCheck, which is developing a LLM-based (LargeLanguage-Model) tool for the ad hoc contextualization of political information on social media. As sociological accompanying research, the study explores how citizens interact with

political information online, how they evaluate LLM-generated interpretations, and how trust, skepticism, and perceived manipulation shape their political information behavior.
The interviews engaged four groups identified as particularly vulnerable in digital environments [5, 6] - people with cognitive impairments, younger adults (ages 17-25), older adults (ages 60+), and people with migration backgrounds - and covered three thematic blocks: (1) political interest, media use, and experiences of/with misinformation; (2) a confrontation with a genuine social-media post followed by an LLM-generated contextualization of the same; (3) perceptions of AI technology and its societal implications. Across all groups, participants expressed widespread uncertainty about distinguishing truth from falsehoods (mentioned by 75 %), overstrain due to information overload (69 %), and mistrust toward both traditional media and algorithmic systems (82 %). Strategies of contextualization ranged from quick “Google checks” or comment reading to complex multi-source comparisons across national news outlets. Yet many reported fatigue or frustration - an unwillingness or inability to “check every single thing” - which points to structural limits in individual verification practices.
This ties in with the current sociological discourse on fake news and polarization [7, 8]: Citizens are not merely unsure whether a statement is true but whether any mechanism for establishing truth can still be trusted. The resulting communicative condition transforms factual disagreement into meta-disagreement about epistemic authority, a phenomenon Kumkar describes as “communicative denial” [9: 277]. From this perspective, misinformation functions less as belief in falsehoods than as a pragmatic way of deferring engagement with uncomfortable realities. The interviewees’ ambivalence towards LLMs reflects precisely this dynamic: while they appreciate its neutral tone and clarity (“it explains things calmly”), they simultaneously fear manipulation through hidden biases or opaque data sources (“you never know who stands behind it”). Thus, technological mediation becomes both remedy and symptom of broader distrust. Empirically, the study highlights how polarization today operates less through diverging opinions than through the contradictions of modern democratic society- a finding that echoes Kumkar’s later work on polarization as a necessary yet distorted mode of democratic self-observation [7].
The paper argues that effective interventions against misinformation must address this second-order layer - how people negotiate credibility itself - rather than only correcting facts. Designing AI tools for political contexts therefore requires more than technical accuracy: it demands sensitivity to / understanding of users’ moral economies of trust, their desire for clarity without paternalism, and their fatigue under constant epistemic vigilance. Integrating contemporary sociological polarization and fake news theories into human-computer interaction provides a sociological compass for translating descriptive insights into empirically grounded incentives for behavioral changes, helping societies move beyond collective uncertainties and towards sustainable forms of shared understanding.

References

Yang Q, Wu Z, Yang X, Jiang S, Wu D, Oliffe JL. Associations Between Uncertainty Stress, Life Stress and Internet Addiction Among Medical Students. Front Public Health 2021; 9:1–6.

Chen Y. Navigating the digital mirror: The role of information-seeking orientation and uncertainty tolerance in social media-driven body image anxiety. Computers in Human Behavior Reports 2025; 18:1–11.

Shin D, Perlmutter DD, Lim JS, Jitkajornwanich K. Fact-Checking as Epistemic Infrastructure: From Journalistic Gatekeeping to Platform Governance. Emerging Media 2025; 3(2):183–202.

Argyle LP, Bail CA, Busby EC, Gubler JR, Howe T, Rytting C et al. Leveraging AI for democratic discourse: Chat interventions can improve online political conversations at scale. Proceedings of the National Academy of Sciences 2023; 120(41):1-8.

Rudolph S. Digitale Medien, Partizipation und Ungleichheit: Eine Studie zum sozialen Gebrauch des Internets. Wiesbaden: Springer; 2019.

Peng D, Yu Z. A Literature Review of Digital Literacy over Two Decades. Education Research International 2022; 2022:1–8.

Kumkar NC. Polarisierung. Frankfurt am Main: Suhrkamp; 2025.

Mau S, Lux T, Westheuser L. Triggerpunkte: Konsens und Konflikt in der Gegenwartsgesellschaft. Frankfurt am Main: Suhrkamp; 2023.

Kumkar NC. Alternative Fakten. Frankfurt am Main: Suhrkamp; 2022.

Fictional Narratives and the Cultural Dynamics of Behavioral Change

Yvonne Völkl, Elisabeth Hobisch

TU Graz, Austria

This paper examines contemporary “Corona Fictions” (Research Group Pandemic Fiction 2020) as cultural archives that illuminate how behavioral change unfolds, is negotiated and becomes socially meaningful during moments of crisis. While research in Science and Technology Studies has long emphasized that behavioral adaptation cannot be reduced to the transmission of scientific facts, the Covid-19 pandemic offered a rare, real-time laboratory for observing how new bodily practices — social distancing, mask-wearing, hand hygiene — were introduced, normalized, resisted and symbolically charged. Existing STS scholarship on socio-technical transitions, cognitive biases and the value-action gap (Gifford 2011; Sovacool et al. 2020) highlights that behavioral change is shaped not only by incentives and communication strategies but also by cultural imaginaries and affective orientations. This contribution extends that line of inquiry by demonstrating how fictional narratives function as epistemic resources for understanding these dynamics.

Drawing on a corpus of francophone literary and cinematic works from Quebec, the analysis investigates how fictional representations of the pandemic stage the emergence, appropriation and contestation of prescribed bodily practices. Methodologically, the paper combines close textual analysis with a cultural-STS perspective, treating fictional narratives as situated reflections on socio-technical transformations. In this context, socio-technical transformations refer to the reconfiguration of bodies, spaces and social norms that occurs when scientific guidance becomes entangled with infrastructures, governance and cultural meaning-making. This approach aligns with recent calls in STS and medical humanities to consider narrative media as sites where public perceptions of science, risk and collective responsibility are articulated and negotiated.

The selected fictions reveal how the practice of social distancing reconfigures the boundaries between private and public space and how these boundaries are continually renegotiated through everyday gestures. They foreground the shifting perception of intimacy, the materiality and vulnerability of bodies under conditions of heightened surveillance and the emergence of

new dispositifs of governmentality. By dramatizing tensions between compliance, resistance and care, these works make visible the affective and normative dimensions of behavioral change that often remain implicit in policy discourse.

The results suggest that fictional narratives operate as “epistemological fictions”: they do not merely mirror social reality but actively probe the frictions between scientific recommendations, lived experience and collective imaginaries. They offer insight into why certain practices become durable while others remain fragile and how social norms crystallize around embodied routines. In doing so, they complement empirical behavioral research by revealing the symbolic, emotional and ethical layers through which individuals and communities make sense of mandated change.

The paper concludes that integrating narrative analysis into STS research on behavioral change enriches our understanding of how scientific guidance is culturally mediated. Fictional narratives can serve as diagnostic tools for identifying barriers to behavioral adaptation, tracing the circulation of social norms and understanding the affective infrastructures that support or hinder collective action. In an era where rapid behavioral transformation is essential for addressing ecological and socio-technical challenges, attending to cultural imaginaries is not ancillary but indispensable. This contribution thus argues for a more sustained interdisciplinary dialogue between literary studies, behavioral science and STS to develop holistic, human-centered approaches to societal transitions.

References

Gifford, Robert (2011) “The dragons of inaction: psychological barriers that limit climate change mitigation and adaptation.” *The American psychologist*, vol. 66, nº 4, p. 290–302.

Research Group Pandemic Fiction* (2020) “From Pandemic to Corona Fictions: Narratives in Times of Crises.” *PhiN-Beiheft,* vol. 24, p. 321–344. [*Y. Völkl, A. Göschl, E. Hobisch, J. Obermayr]

Sovacool, Benjamin K., et al. (2020) “Sociotechnical agendas: Reviewing future directions for energy and climate research.” *Energy Research & Social Science*, vol. 70.

25: Sufficiency in Practice: Theories, Discourses, and Experiments for Sustainable Futures

Session Chairs:

Vanja Djinlev, Empa, Swiss Sufficiency Lab, Switzerland

Mashael Yazdanie, Empa, Swiss Sufficiency Lab, Switzerland

Redefining Business as a Sufficiency Practice: Socio-Technical Experiments in Organizational Transformation

Adina-Iuliana Deacu

Tianmei World Academy, China, People's Republic of

While sustainability transitions research increasingly recognizes the limits of efficiency- and growth-oriented paradigms, operationalizing sufficiency within organizational and entrepreneurial practice remains a persistent challenge. Existing scholarship has explored sufficiency as a normative principle of “enoughness” (Jungell-Michelsson & Heikkurinen, 2022), as well as sufficiency-oriented business model archetypes aimed at reducing demand and extending product lifetimes (Bocken et al., 2014). Empirical studies, however, highlight psychosocial, cultural, and institutional barriers that hinder sufficiency-oriented action, including entrenched success metrics, scarcity mindsets, and path dependencies embedded in organizational infrastructures (Gaspar et al., 2017). As a result, sufficiency often remains confined to consumption practices or policy discourse, rather than being embedded in the everyday governance of organizations.

This paper examines how redefining “business” itself can function as a practical sociotechnical intervention for advancing sufficiency in organizational contexts. Instead of framing business primarily as profit-maximization, the study explores a working definition of business as an entity that solves social issues and creates social value in a financially sustainable way. This redefinition is treated as an operational device that reshapes decision-making, valuation practices, stakeholder relations, and organizational learning processes, and not merely as a conceptual shift.

Methodologically, the research adopts a qualitative, practice-based approach combining longitudinal participatory observation, reflective workshops with entrepreneurs, semistructured interviews, and analysis of design artefacts generated during collective business model experimentation. These empirical settings function as living laboratories in which participants iteratively prototype alternative organizational logics, negotiate tensions between financial viability and social purpose, and surface inherited assumptions about growth, competition, time, and value. Analytical attention is given to how these assumptions are materially and discursively stabilized within organizational routines and how they can be reconfigured through deliberate experimentation.

Preliminary findings suggest three interrelated dynamics. First, redefining business operates

as a governance mechanism that reorients strategic priorities away from expansion and extraction toward sufficiency, care, and long-term relational value. Second, psychosocial factors, such as internalized scarcity, fear of instability, and normative success imaginaries, significantly shape entrepreneurs' capacity to enact sufficiency, often more strongly than technical or financial constraints. Third, collective experimentation creates reflexive spaces in which participants learn to negotiate uncertainty, recalibrate performance indicators, and design organizational structures compatible with sufficiency without reproducing precarity or burnout.

From an STS perspective, the paper contributes to understanding sufficiency as a sociotechnical accomplishment rather than a purely behavioral or moral choice. It extends STS work on performativity, socio-technical imaginaries, and experimentation by showing how organizational definitions and valuation regimes actively configure sustainability trajectories. The study also highlights the importance of attending to affective, cultural, and infrastructural dimensions of economic practice when designing sustainability interventions.

By foregrounding organizational experimentation as a site of sufficiency transition, the paper offers empirically grounded insights into how alternative economic imaginaries can be stabilized in practice, contributing to ongoing debates on sustainable futures, post-growth organizing, and the governance of socio-technical change.

References

Bocken, N. M. P., Short, S. W., Rana, P., & Evans, S. (2014). A literature and practice review to develop sustainable business model archetypes. Journal of Cleaner Production, 65, 42–56. https://doi.org/10.1016/j.jclepro.2013.11.039

Gaspar, R., Antunes, D., Faria, A., & Meiszner, A. (2017). Sufficiency before efficiency: Consumers' profiling and barriers/facilitators of energy efficient behaviours. Journal of Cleaner Production, 165, 134–142. https://doi.org/10.1016/j.jclepro.2017.07.075

Jungell-Michelsson, J., & Heikkurinen, P. (2022). Sufficiency: A systematic literature review. Ecological Economics, 195, 107380. https://doi.org/10.1016/j.ecolecon.2022.107380

Advancing Sufficiency in Switzerland: A Case Study - Beyond Techno-Economic Aspects in Energy Systems Models

Manon Ratinaud

Empa, Switzerland

Considering energy as a finite resource raises a fundamental question: how much energy is sufficient to meet societal needs and well being? Excessive consumption is unsustainable within planetary boundaries, making sufficiency a core sustainability strategy alongside efficiency and consistency.[1][2][3]
This Master thesis case study focuses on reducing residential energy demand in four municipalities in the Sisslerfeld area, Switzerland. The objective is to propose policy measures and a framework to integrate them into energy system modelling. Environmental impacts are assessed through CO_2 emissions in the context of achieving net zero by 2040. A Multi Criteria Decision Analysis, MCDA, identifies suitable measures for the local context, evaluated against fifteen criteria based on local data**. Most selected measures involve a reduction in living space. However, the results indicate that no single policy instrument dominates, highlighting the need for a mix of interventions**. The potential effects of demand reduction are evaluated using a simplified version of the optimisation model employed as a digital twin. The case study shows that current residential energy demand is well above levels required for decent living energy [4], mainly due to large living space per capita, **revealing significant unexploited potential**. The findings indicate that while sufficiency would only moderately reduce CO_2 emissions under current conditions, it can substantially reduce investment needs for the transition to net zero heat generation, particularly by lowering required heating capacity and limiting future cooling demand. Although sufficiency alone cannot achieve net zero targets, it plays a crucial role in reducing transition costs and should be integrated alongside efficiency and consistency strategies in energy system models to capture the full potential of a sustainable transition.
Attempting to integrate sufficiency into modelling practice raises several challenges. Isolating policies and measures that target sufficiency alone is difficult, as many policies simultaneously address efficiency, and reductions in consumption are rarely independent of efficiency improvements. Sufficiency is inherently interdisciplinary, involving philosophical and social dimensions, making it difficult in practice to define clear thresholds between sufficient and insufficient consumption. Models must be sufficiently detailed to account for multiple planetary boundaries beyond climate change, which is not the case for many existing optimisation models. Linear and mixed integer linear programming frameworks further limit the representation of system dynamics. Cost based approaches also show intrinsic limitations, as sufficiency requires perspectives beyond conventional cost benefit analysis. Integrating sufficiency endogenously, rather than through exogenous scenario assumptions, requires representing realistic competition between technologies, adoption barriers, and qualitative factors such as user acceptance. Assigning an appropriate cost to demand reduction is particularly challenging, as it may bias the model either in favour of or against sufficiency compared to technological solutions. Finally, defining and assessing well being within quantitative techno economic models remains an open methodological challenge. My current PhD project is at an early stage and focuses on the integration of social and societal aspects into energy systems models. The work aims at improving the representation of social dimensions, with a particular application to energy communities at the district and building levels. This research explores how interactions between energy systems and people can be

formalised within modelling frameworks, as a first step toward identifying effective levers of action. Depending on the state of the project at the time, initial research directions may be presented.[5]

References

C. Zell-Ziegler et al. Sufficiency: a scoping paper. In: Öko-Institut Working Paper (2019). url: https://www.oeko.de/fileadmin/oekodoc/03-WP-Sufficiency-Scoping.pdf.

L. Fanning and K. Raworth. Doughnut of social and planetary boundaries monitors a world out of balance. In: Nature 646 (2025), pp. 47–56. doi: 10.1038/s41586-025-09385-1. url: https://doi.org/10.1038/s41586025-09385-1.

M. J. Burke. Energy sufficiency for a just transition: a systematic review. In: Energies 13.10 (2020). doi: 10.3390/en13102444. url: https://doi.org/10.3390/en13102444.

J. Millward-Hopkins et al. Energy requirements for securing wellbeing in Switzerland and the space for affluence and inequality. In: Nature Communications 16 (2025), article 4066. doi: 10.1038/s41467-02559276-2. url: https://doi.org/10.1038/s41467-025-59276-2.

A. Krumm, D. Süsser, P. Blechinger. Modelling social aspects of the energy transition: what is the current representation of social factors in energy models? In: Energy 239 (2022), article 121706. doi: 10.1016/j.energy.2021.121706.
url: https://doi.org/10.1016/j.energy.2021.121706.

Sufficiency in Abundance – Exploring Chances for Sustainability on Board of Cruise Ships in a Co-Design Process

Mareike Tippe[1], Janne Kiencke[1], Henning Wigger[1], Kamila Szwejk[2], Christina Apel[2], Katrin Lenz[3]

1: German Aerospace Center (DLR) - Institute of Networked Energy Systems, Carl-von-Ossietzky-Str. 15, 26129 Oldenburg, Germany; 2: Leuphana Universität Lüneburg, Universitätsallee 1, 21335 Lüneburg, Germany; 3: Fraunhofer-Institut für Bauphysik IBP, Nobelstraße 12, 70569 Stuttgart, Germany

As the maritime sector accounts for about 3% of the worldwide greenhouse gas emissions[1], the International Maritime Organization (IMO) announced the goal of a climate neutral shipping industry by 2050[2]. Whilst cruise ships are a comparably small contributor to the sector's overall emissions, they have been strongly criticized over the last years for their environmental impacts that are considerably higher compared to other forms of travelling. Since travelling and going on a cruise holiday can be considered a human desire and luxury, not a necessity, for the critics, cruises therefore seem to depict the opposite of sustainability, and by this means also of sufficiency. Independent of media discourses centered around the environment, raising

passenger numbers and the growing popularity of this form of travel necessitate pragmatic and solution-oriented approaches to achieve the IMO's goals within the cruise shipping industry. Therefore, cruise tourism represents a paradigmatic case for sufficiency research, as it combines luxury, consumption, high resource intensity, and strong user expectations of comfort.

The hoteling, so the passengers' usage of their cabins, accounts for about 25-30% of a ship's overall energy usage, making it one of the main energy-consuming compartments[3]. This large share predestines the cabins as well as their usage for the introduction of (energy) efficiency and sufficiency concepts. The research project *ReCab* which is funded by the German *Federal Ministry for Economic Affairs and Energy* (BMWE) contributes to this task, by applying a mixed-method approach and STS concepts for the development and implementation of sufficiency and more sustainable technologies on board. Whilst many projects so far focused solely on the propulsion systems of ships, *ReCab* understands sufficiency as the deliberate reduction of resource use through changes in practices, expectations, and design, rather than technological optimization alone. The project aims to introduce efficient technologies such as smart air conditioning, the integration of renewable energies, displays for energy usage feedback, as well as cradle-to-cradle (C2C) materials and products for the cabin hulls and interiors. *ReCab* also focuses strongly on encouraging behaviors inspired by the concept of sufficiency. This can include promoting a conscious usage of energy and water resources, rewarding considerate consumption and raising awareness. Therefore, it is necessary to explore concepts that enable and promote behaviors of the passengers that reduce resource usage during the passengers stay. In addition, technical feasibility, the C2C concept and "sufficiency by design" ideas need to be explored, by applying a co-design approach that includes semi-structured qualitative interviews on board with guests, crew members, workers and developers as well as participatory observations at the shipbuilding and recycling yards. The development is accompanied by a multidimensional and multicriterial sustainability assessment. In this regard, sufficiency and technological measures are compared in terms of their environmental impacts by conducting a life cycle assessment (LCA), that also focusses on the behavioral aspects of the cabin usage.

The conference contribution will provide insights on the conceptualization of sufficiency within a co-design and sustainability assessment framework. The research design, that iteratively combines the effective quantification of sufficiency measures based on the LCA with the codesign process and interview studies, will be highlighted. The focus will be put on assessing which sufficiency measures can potentially contribute to the overall sustainability of cruise ships (cabins) and how these measures can be adapted and implemented within the interviewbased co-design process.

[1] European Parliament (2019): Emissions from planes and ships; https://www.europarl.europa.eu/topics/en/article/20191129STO67756/emissions-from-planes-and-ships-factsand-figures-infographic, accessed 27.01.2027.

[2] International Maritime Organization (2025): IMO approves net-zero regulations for global shipping; https://www.imo.org/en/mediacentre/pressbriefings/pages/imo-approves-netzero-regulations.aspx, accessed 27.01.2027

[3] Marzi, J. & Broglia, R, (2018): Hydrodynamic Tools in Ship Design; In: Papanikolaou, A. (eds) A Holistic
Approach to Ship Design. Springer, Cham. https://doi.org/10.1007/978-3-030-02810-7_6

Interfacing Sufficiency: Tools for an Urban Energy Commons

Madeleine Hykes

Zurich University of the Arts, Switzerland

Waste systems, transit networks, energy grids, water pipes — public infrastructure is the spine of our cities and a contributor to the degradation of our planet. Utilities need to run efficiently and be available to us whenever we need them, without the impact of our usage being part of our interaction with them: an 'out of sight, out of mind' paradigm. For the general public, these infrastructures are a black box (Bennet 2005). One could argue that we become tuned in to these systems and our reliance on them when they are no longer accessible, malfunction, or stop working entirely; complexities and inequities of a system become even more apparent in these moments, prompting rapid response to ensure well-being of all individuals and inviting genuine human connection or understanding often lost in a system. The shift towards smoothing and hiding complexity in the built environment is just as present in society and technology: knobs or dials digitised and tucked behind scratch-resistant glass and formerly diverse neighbourhoods segmented into socio-economic homogeneity (Boer 2023; Rosen 2025). Design works as a mediator or translator of large-scale systemic change into tangible everyday objects, interactions, and tools. However, the meaning and ritualisation of objects is shaped through cultures and societies (Bell 2010; Smith et al. 2020). What does this mean for sufficiency? How does this shape relations between infrastructure, technology, social structures, and designed objects?

Geographically, this design research is situated within Zürich, Switzerland and a Swiss-specific material culture of energy (Trentmann 2023). I reference material cultures of energy elsewhere, such as the push-button's role in shifting the public's relationship to electricity North America (Plotnick 2012). I build on the history of specific cultural artefacts and the existing relationship between Swiss people, public infrastructure, and services. My *in progress* design transfer aims to translate complex systems and social relations into the material realm, such as through a singular tool, system, and interface, for an urban energy commons.

Working within a sufficiency paradigm, my research builds the concept and aesthetics of an urban energy commons through the lens of human geography and urban systems. In this research, a commons is situated as a bottom-up philosophy that complements the systemic nature of sufficiency, facilitating complex urban systems to be digestible and known by urban residents. Commons are present today in cities (Polko 2024; Gielen 2024), energy systems (Bauwens & Wade 2025), culture (Glen 2024) and design (Armstrong 2023) but little research has explored a synthesis of these elements in theory or practice nor considered how sufficiency as a sensory experience. My design research bridges this gap.

This paper focuses on transdisciplinary conceptual frameworks and design methodologies for envisioning sufficiency-led presents and futures (Latour 2005; Groß and Mandir 2024; Sheller 2018) It connects the materials and technologies that are part of our everyday lives to sufficiency through the commoning process. Finally, it contributes it critical interdisciplinary discourses on sufficiency within STS and to contribute new perspectives for navigating between design and non-design disciplines. I aim to, on the one hand, contribute to critical cross-disciplinary discourse on sufficiency is tangible in our daily lives, and on the other, highlight my reflexive process for navigating between design and non-design disciplines with a focus on how this shapes paradigms for thinking and making.

References

Bauwens, T., & Wade, R. (2025). *Unpacking the energy commons*.

Bell, C. M. (2010). Ritual theory, ritual practice. Oxford University Press.

Bennett, J. (2005). The Agency of Assemblages and the North American Blackout. *Public Culture*, 17(3),

445-466. https://doi.org/10.1215/08992363-17-3-445
Boer, R. (2023). *Smooth city : Against urban perfection, towards collective alternatives.* Valiz.
Gielen, P. (avec Beumer, K.). (2024). *Trust : Building on the cultural commons*. Valiz.

Groß, B., & Mandir, E. (2024). *Designing Futures: Speculation, Critique, Innovation: a guide to exploring, visualizing and negotiating future scenarios*. Laurence King Publishing.
Latour, B. (2005). *Reassembling the Social : An Introduction to Actor-Network-Theory*. Oxford University
Press. https://doi.org/10.1093/oso/9780199256044.001.0001
Plotnick, R. (2012). At the Interface : The Case of the Electric Push Button, 1880–1923. *Technology and*

Culture, *53*(4), 815-845. https://doi.org/10.1353/tech.2012.0138
Polko, A. (2024). Governing the urban commons : Lessons from Ostrom's work and commoning practice in cities. *Cities*, *155*, 105476.
https://doi.org/10.1016/j.cities.2024.105476

Rosen, C. (2025). Extinction of Experience : Being human in a disembodied world. W W NORTON.
Sheller, M. (2018). *Mobility justice: The politics of movement in the age of extremes*. Verso.
Smith, R. C., Vangkilde, K. T., Kjærsgaard, M. G., Otto, T., Halse, J., & Binder, T. (Éds.). (2020). *Design*

Anthropological Futures (1re éd.). Routledge. https://doi.org/10.4324/9781003085188
Trentmann, F. (2023). Getting to grips with energy : Fuel, materiality and daily life. *Science Museum Group Journal*, *9*(9). https://doi.org/10.15180/180901

Amplify Sufficiency Through Food Partnerships in Inner London Boroughs, UK

Shun Hei Lee[1], Johanna Jacobi[1], Steven McGreevy[2]

1: Department of Environmental Systems Science, ETH Zürich, Zürich, Switzerland; 2: Department of Governance and Technology for Sustainability, University of Twente, Enschede, The Netherlands

In a world of geopolitical turmoil, frequent extreme weather and crises, the most vulnerable in our communities are exposed to the risk of food insecurity in a fragile food system. Sufficiency is one of the concepts that may enable safe and just food provisioning systems by shaping food-related limits, but can sufficiency be operationalised and serve as a guiding principle for a more sustainable food support landscape in the United Kingdom and beyond? How might this principle be amplified using amplification processes, as defined by Lam et al. (2020) , to shape the norms of urban food governance?

This research studied how food partnerships—coalitions of local food actors—in six selected Inner London boroughs in the United Kingdom amplify sufficiency-related measures to meet the needs of their residents within planetary limits using MaxNeef's fundamental human needs. The objectives of this study were to 1) classify sufficiency measures in food partnerships, 2) explore amplification processes mobilised via food partnerships, and 3) identify the barriers to amplifying sufficiency.

The research first conducted a document analysis on strategic plans of food partnerships to classify sufficiency measures. To support the process, a classification scheme of sufficiency measures was adapted from Iten et al. (2024) to identify co-occurrences of sufficiency dimensions. The analysis was then complemented by 13 semi-structured interviews with food partnership actors to understand the identified sufficiency measures, amplification processes and barriers faced in food partnerships.

The study identified 73 complete and 79 partial sufficiency measures from the strategic plans of selected food partnerships. Many partial sufficiency measures were those without an ecological dimension. It reflected many food partnerships' founding objective of tackling food poverty, as some began to diversify and include ecological well-being in their strategic objectives. Food partnerships amplified sufficiency with amplification processes that were less commonly applied by individual food initiatives in existing literature, such as "spreading", "scaling up", and "speeding up". Food partnerships created diverse arrangements to continue developing near-term actions and speed up the implementation of sufficiency measures. However, food partnerships faced constraints to amplify sufficiency due to various barriers, which can be generalised into three key themes: Little to no control over food sourced by voluntary and community sector (VCS) organisations, ineffective cross-departmental and stakeholder engagement with food partnerships by local councils, and insufficient incentives for VCS organisations and food businesses to engage voluntarily with their food partnerships. The interviewees perceived sporadic and limited funding from the council and non-governmental sources as an underlying factor that influenced the engagement of food actors with food partnerships and limited their potential in amplifying sufficiency.

The results showed that reducing food waste was one of the most common sufficiency measures implemented by food partnerships. It revealed a contradiction in the existing notions of sufficiency: While directing surplus food to VCS organisations has been increasingly portrayed as a "win-win" solution by tackling both food waste and feeding communities, the reliance on surplus food was also perceived as a key factor of food partnerships having no control over defining limits—what is "enough" for people in need of food support. Expanding

the use of surplus food might further stabilise food partnership activities within the current food system, which continuously treats food as a commodity before it is unsold and discarded. This phenomenon may contradict the sufficiency notion of decommodifying food as a basic need and food provisioning as an essential public service. Future research on sufficiency may further refine the conceptualisation and operationalisation of sufficiency measures and study how the operationalisation of sufficiency may reinforce lock-ins or justify the involvement of corporate-dominated food systems in the United Kingdom and beyond.

[1] Lam, D. P., Martín-López, B., Wiek, A., Bennett, E. M., Frantzeskaki, N., Horcea-Milcu, A. I., & Lang, D. J. (2020). Scaling the impact of sustainability initiatives: a typology of amplification processes. *Urban Transformations*, *2*(1), 3.https://doi.org/10.1186/s42854-020-00007-9

[2] Iten, T., Seidl, I., & Pütz, M. (2024). Sufficiency policy: a definition, conceptual framework, and application to municipalities. *Sustainability Science*, *19*(5), 17091734.https://doi.org/10.1007/s11625-024-01534-1

Is Sufficiency in IT Still Efficiency-Based? – Sufficiency as a Way of Accessing Rationality

Leon Pezzica

Hochschule Darmstadt, Germany

In view of the advancing megatrend of digitalisation new challenges are emerging in the field of technology assessment. As part of this, sustainability assessment is particularly relevant – scarce resources, from which physical ICT systems are made, and enormously high energy consumption highlight its urgency.

Current approaches towards sustainable IT are mostly efficiency-based as policymakers, researchers and IT enterprises call for improvements in cooling, hardware and power usage efficiency. Efficiency can not only be understood as a particular sustainability strategy, but also as criterion for a certain way of accessing rationality – that is called economic rationality. Within this rationality an action is deemed to be rational only if it is efficient, that is, if its objectives are achieved in a manner that optimises inputoutput-ratios, which has to be further operationalised depending on the specific action and its context.

In the same vein, sufficiency can as well be characterised as a way of accessing rationality. In this sense, an action is rational if it satisfies the criterion of being sufficient. The meanings associated with sufficiency are varied and diffuse and hence the need for contextualisation and concretisation is even more prevalent than in regards to efficiency. Furthermore, due to this semantic underdetermination, acts of interpretation are necessary in order to meaningfully use the concept of sufficiency as such a criterion. Projects, policies and theories that make use of the concept of sufficiency can hence be understood as hermeneutical processes that offer different meanings as to what sufficiency is. Building on this, a concept of sufficiency as a criterion for a way of accessing rationality is developed by examining such concretisations.

Beyond the dominant efficiency-based conceptualisations of sustainable development in IT, some approaches towards “digital suffiency” do exist. However, upon further examination of how sufficiency is interpreted and which meanings are associated with it, it becomes apparent

that these approaches still operate within a framework of rationality that is based on optmising input-output-ratios by deeming actions rational that fulfill a certain goal in a way that is optimised in regards of its total sustainability effects. This is then contrasted with how meanings of sufficiency are constructed within a wider discourse around sufficiency in sustainability, especially from the perspective of sufficiency as a way of accessing rationality. After a critical analysis of these approaches towards sufficient IT, measures which are grounded in the previously developed sufficiency-based way of accessing rationality are explored.

From Knowing to Doing: Energy Auditors' Take on Energy Sufficiency

Imane Fouiteh, Daniel Cabrera, Martin Patel

University of Geneva, Switzerland

Energy sufficiency (ES) measures are essential for achieving climate targets, yet their integration into energy policy remains limited. Energy audits represent a promising instrument for mainstreaming ES in organizations, but little is known about how auditors actually integrate ES measures in practice. This study examines energy auditors' role in ES integration through mixed-methods analysis combining questionnaire-based clustering (n=69) with semi-structured interviews (n=10). We find significant heterogeneity in auditor practices related to ES that cannot be explained by professional experience but rather reflects disparities in capacity to navigate multi-level barriers (individual, organizational, institutional, societal). Through clustering analysis and CIMO framework, we identify three profiles of auditors and four mechanisms explaining ES implementation outcomes: financial, legitimacy, psychological, and normative, each with specific activation requirements.

While our findings reveal what individual agency can achieve, they also suggest that ES integration requires coordinated intervention at multiple levels rather than simply improved auditor training. We identify priority interventions across individual (formalized training, mentorship), organizational (tool redesign, audit scope expansion), institutional (split incentive solutions, policy legitimation), and societal levels (challenging comfort norms and service expectation levels).

26: Infrastructures, Genomics and AI: How can Stakeholder Engagement for One Health Be Meaningful in a Globalized World?

Session Chairs:

Mónica Cano Abadía, BBMRI-ERIC, Austria

Melanie Goisauf, BBMRI-ERIC, Austria

Kaya Akyüz, BBMRI-ERIC, Austria

Digital Health in Transition: User Engagement, Institutional Challenges, and the Need for Contextual Design

Shailja Jhaldiyal

Central Universisty of Gujarat, India

User-centred digital healthcare (UCDH) is an approach that focuses on user needs and expectations throughout the design and implementation of healthcare technology. It involves users' active engagement in managing their health. User-centred digital healthcare and user engagement with technology and services are concepts that have not been adequately studied in healthcare innovation. The concepts' lack of clarity and ambiguity has resulted in poor application and limited acceptance in the technological development process.
STS studies have focused on studying digital health as a socio-technical system shaped by governance, institutional power, and technological imaginaries. However, limited attention has been paid to how users- patients, healthcare providers engage, adopt, or reject digital technologies in their day-to-day realities. This study adopts the UCDH lens to understand how these technologies impact user experiences and outcomes. It emphasises the importance of involving users in the design and evaluation of digital healthcare technologies and focuses on understanding user preferences and values, as well as their social and political contexts, which are crucial determinants of their digital health “engagement.” Often, digital health usage is measured in terms of application usage, memberships, and registrations, while actual user engagement in terms of their emotional and cognitive involvement is often ignored. Often, Users are identified as homogeneous entities without identifying the diversity in engagement practices, such as the elderly, gender-based usage, income groups, professional identities, etc. This study shifts the focus from infrastructure and access towards user engagement driven by social, emotional, and cognitive factors. It studies why, despite easy access to digital health tools and services, users still either reject or lack motivation to continue using these services. It adopts an interdisciplinary framework, i.e., the UCDH framework, which builds on multiple theories of user engagement and technology design and development, emphasising sociocultural contexts and behavioural patterns, user engagement, feedback, and involvement, and moving beyond the technology-centric models prevalently used to study digital healthcare. This framework integrates insights from information system research, agile methodology,

behavioural theory, and techno-geography to capture engagement through micro and macro levels of healthcare delivery. It draws from STS concepts of “co-production " and” coevolvement, to study digital health implementation within public and private hospital settings in India, focusing on an in-depth study of user behaviour, attitude, and experiences.
The study employs a qualitative, multi-sited case study methodology, combining in-depth interviews, participant observation in hospital environments, and analysis of digital health platforms and policy documents. It captures specific digital health engagement patterns across diverse stakeholder groups- diversity in digital engagement among the elderly, women, income groups, healthcare workers, and remote populations and adapts UCDH principles to suit the unique socio-cultural and geographical field settings. Field studies conducted help capture a diverse data set on digital health usage in real-world settings and the ground-level challenges users face. The findings reveal that digital health adoption is not a linear process; rather, it is shaped by the different contextual realities of its users, reshaping technologies through their everyday interactions. It highlights how technology is co-constructed by selective engagement and episodic usage patterns. The UCDH framework provides a lens through which digital health initiatives are accessed and examined, and proposes novel ways to redesign them based on user input. The study contributes to STS studies on digital healthcare and technology adoption by extending the focus beyond the failure of these technologies and providing solutions and strategies for improving the engagement and acceptance rates of digital health interventions and implementing these solutions within the socio-technical complex settings.

Treading a Fine Line: Stakeholder Imaginaries in the GenomeIndia Project (GIP)

Himadri Brahma

Indian Institute of Technology Bombay, India

Large-scale genomic infrastructures worldwide increasingly operate at the intersection of public science and commercial innovation. Initiatives such as the UK Biobank and the European Health Data Space (EHDS) have institutionalised structured mechanisms through which pharmaceutical companies, biotech firms, and data-intensive industries can access public genomic and health datasets under regulated conditions. In contrast, the GenomeIndia Project (GIP) presents a strikingly different configuration. Despite its ambition to create a national reference genome and enable precision medicine in India, GenomeIndia has been constituted almost entirely as a state-funded, academic consortium, with no formal commercial partners embedded in its core governance structure. A cursory glance at the GIP's website will prove this.
This absence of commercial actors at the level of formal partnership is not merely an administrative detail. It actively shapes how genomic data are imagined, governed, and positioned within India’s broader political economy of biotechnology. Rather than being organised from the outset as a public–private infrastructure, GenomeIndia is framed as a project of sovereign public science: a national resource intended to serve public health, scientific capacity-building, and indigenous innovation. The governance architecture anchored in the Department of Biotechnology (DBT) and a network of public research institutions reflects a deliberate attempt to maintain state control over genomic data as a strategic national asset.

Framed as a stakeholder imaginary (Sheila Jasanoff), I posit that GenomeIndia positions genomic data not as commodities but as a national infrastructure curated for developmental ends. Drawing on Kaushik Sunder Rajan's Biocapital, I argue that genomic data are produced as "deferred capital", whose commercial value is strategically suspended and timed by the state through formal exclusion of private partners. Simultaneously, the absence of formal commercial actors does not imply the absence of commercialisation altogether. Instead, it produces a specific temporal sequencing of public and private roles. Commercial engagement is deferred to downstream stages: diagnostics, pharmacogenomics, test development, and personalised health services. Startups and biotech firms are positioned not as co-governors of the infrastructure, but as potential secondary users of its outputs. This creates a layered governance model in which the state curates the upstream data commons, while the market primarily operates in translation and application. This separation shapes both data access and value formation. Unlike UK Biobank, which accommodates academic and industry users through structured governance, GenomeIndia routes access through state-controlled platforms such as the FeED (Framework for Exchange of Data) and BIOTECH-PRIDE (Promotion of Research and Innovation through Data Exchange), enabling discretionary, case-by-case commercialisation. Value is thus framed less as immediate market return and more as public capacity-building and national relevance, aligning precision medicine with developmental imaginaries rather than private luxury markets.

However, this configuration also generates tensions. Without early integration of commercial actors, pathways for translation may remain underdeveloped, fragmented, or informally negotiated. Moreover, the lack of transparent frameworks for future public–private engagement raises questions about how benefits will eventually be distributed, who will gain preferential access, and how public data will be protected from enclosure once commercial demand intensifies, a downside that such massive government data extraction project already finds themselves embroiled in.

In this sense, GenomeIndia exemplifies a distinct governance experiment: a large-scale genomic infrastructure that seeks to postpone commercialisation to assert public control, while simultaneously relying on the promise of future market translation to justify present investment. Analysing this absence of formal commercial partners thus reveals not a lack, but a deliberate strategy—one that reorganises the temporal, political, and ethical relations between state, science, and market in the making of genomic futures in India.

Governing Potential: Infrastructures, Stakeholders and OneHealth

Michaela Th. Mayrhofer

mtm, Austria

The development of research infrastructures within healthcare systems raises complex ethical, social, and organizational challenges, particularly as genomics becomes increasingly embedded in routine clinical practice. These infrastructures bring together heterogeneous stakeholders

This presentation examines governance arrangements during the emergence of research infrastructures in the health domain. Drawing on semi-structured qualitative interviews and ethnographic observations, it explores how stakeholders negotiate potential risks, anticipated benefits, and competing priorities in the context of infrastructural growth. The analysis understands governance not as a fixed or purely formal structure, but as an ongoing, relational process that takes shape through everyday practices, negotiations, and future-oriented expectations. Clinical actors balance patient care with the integration of novel genomic technologies; researchers pursue scientific innovation while navigating ethical, legal, and regulatory constraints; and technical and administrative personnel emphasize data quality, system reliability, and long-term sustainability and aim to make sense in lack or accordance with national strategies

A central analytical lens is potentiality—the ways in which imagined future capabilities of genetic technologies and datasets influence present-day decisions, risk assessments, and power relations. Anticipated future uses of data, including secondary research, data sharing, and integration with broader health and research infrastructures, play a critical role in shaping governance choices at early stages. Lessons from other large-scale research infrastructures demonstrate that early governance decisions can lock in particular trajectories, affecting inclusivity, flexibility, and public legitimacy over time.

The presentation also engages with insights from One Health approaches, highlighting how genetic research infrastructures increasingly intersect human health, population health, and broader socio-environmental concerns. This perspective underscores the need for governance frameworks that can accommodate cross-sectoral collaboration, uncertainty, and diverse forms of expertise

Importantly, the analysis foregrounds voices that are often marginalized in infrastructural governance. particularly patients and research participants. Rather than passive data sources, these actors actively co-produce the meaning, legitimacy, and future direction of the infrastructure through their expectations, concerns, and forms of engagement. By situating findings within broader debates on research infrastructure governance and One Health, the study offers transferable lessons for designing governance arrangements that are anticipatory, inclusive, and responsive to evolving scientific and societal contexts.

27: Community Food – Food Community: Travelling Between Niche and Mainstream

Session Chairs:

Sandra Karner, IFZ, Austria

David Steinwender, IFZ, Austria

Staging Rural Experiences for Urban Communities in London City Farms

Jens Lachmund, Alexandra Supper

Maastricht University, The Netherlands

So-called city farms, as they have emerged in London and other British cities since the 1970s, are spaces of food production in urban areas, but they are also spaces in which urban communities are forged, and relations between city and countryside are negotiated. The term “city farm” refers to community-based projects, which make use of neglected or abandoned spaces within the city and seek to bring urban dwellers into contact with agricultural practices and farm animals. As such, they share some common features with practices of urban food production and community gardening (see, e.g., Atkins 2003; Lawson 2005; Tornaghi and Certoma, 2019; Viljoen and Wiskerke, 2012). However, while food production is an important part of their mission, these city farms differ significantly from commercial farms, as they offer farming as a service to the urban 'community', for example, by providing a space for weekend outings, children's play, volunteering, or therapeutic and educational activities. In doing so, these initiatives simultaneously promise to reconfigure urban spaces, urban communities, and practices of food production. Thus, as we want to show here, they function as spaces in which practices of food production become a medium for reworking urban-rural relations, and indeed for negotiating the very categories of “the city” and “the countryside” that underpin them.

We present a historical-sociological study that traces the emergence of London’s city farms as a historically situated process of practice formation. In doing so, we draw on recent practiceoriented theorizing (e.g. Schatzki et. al., 2001; Nicolini, 2013, 2017; Gherardi, 2018) to consider practices of food production and community-building as situationally performed and reproducible sets of activities, which build the texture of everyday and organized social life. Focusing especially on the period of the 1970s to the 1990s, which saw the emergence and consolidation of several city farm projects in London, we draw on archival materials and oral history interviews with key actors related to specific city farm projects and the broader city farm ‘movement’ that connects these disparate local practices. Against this backdrop, we seek to understand in our presentation how authentic experiences of a “countryside atmosphere” are cultivated and choregraphed in these city farm projects, for the benefit of local urban publics. In doing so, we ask how practices of food production can become a medium for constructing notions of cities and countrysides, of urban communities and rural experiences, of a “good childhood” and a “good life” in the city.

References

Atkins, P.J. (2003) “Is it urban? The relationship between food production and urban space in Britain, 1800-1950,” in M. Hietala and T. Vahtikari (eds.) The Landscape of Food. The Relationship of Town and Country in Modern Times, Helsinki: Finnish Literature Society. Helsinki: Finnish Literature Society, pp. 133–144.

Gherardi, S. (2018) “Practices and knowledges,” Teoria e Prática em Administração, 8(2), pp. 33– 59.

Lawson, L.J. (2005) City Bountiful: A Century of Community Gardening in America. Univ of California Press.

Nicolini (2013) Practice Theory, Work, and Organization. Oxford University Press.

Nicolini, D. (2017) “Practice theory as a package of theory, method and vocabulary: Affordances and limitations,” in M. Jonas, B. Littig, and A. Wroblewski (eds.) Methodological Reflections on Practice Oriented Theories. Cham: Springer International Publishing, pp. 19–34.

Schatzki, T.R., Knorr-Cetina, K. and von Savigni, E. (eds.) (2001) The Practice Turn in Contemporary Theory. London/New York: Routledge.

Tornaghi, C. and Certoma, C. (eds.) (2019) Urban gardening as Politics. London/New York: Routledge.

Viljoen, A. and Wiskerke, J. S.C (2012) Sustainable Food Planning: Evolving Theory and Practice. Wageningen: Wageningen Academic Publishers.

Compliance as Control: Corporate Traceability Systems and Governmental Power in EU Deforestation Governance

Pedro Trus Mendes, Piotr Stankiewicz

Nicolaus Copernicus University in Torun, Poland

Corporate concentration in global agrifood systems has reached unprecedented levels, with a small number of transnational firms maintaining a strong hold in these systems (Clapp, 2021). In the soya sector, four trading companies, the so called ABCD–ADM, Bunge, Cargill, and Louis Dreyfus—dominate exports from major producing regions. This model, characterised by concentration, raises important questions regarding market dynamics, and particularly concerning how sustainability governance is conceived and implemented. When regulatory frameworks require verification infrastructure that only highly concentrated actors can provide, compliance mechanisms may reinforce, rather than challenge, existing power configurations. The EU Deforestation Regulation (EUDR) seeks to protect EU consumers from products directly associated with deforestation. It requires operators to demonstrate that products placed on the EU market are “deforestation-free” through geolocation data and due diligence

systems. Compliance thus depends on satellite monitoring and algorithmic risk assessment to verify sustainability claims. This research examines how corporate traceability platforms function as sociotechnical devices through which regulatory knowledge and market practice are coproduced asymmetrically, with incumbent actors as primary knowledge producers. Situated within transitions scholarship, the paper integrates two analytical resources. Coproduction (Jasanoff, 2004), the premise that producing knowledge and organising society are not separate processes, provides the mechanism for analysing how corporate compliance infrastructure simultaneously produces knowledge and structures market access. The multilevel perspective (Geels, 2014) offers the framework for understanding why this matters for sustainability transitions, specifically how regime actors maintain stability through lock-in. Coproduction directs attention to the epistemic dimension, showing that corporations do not merely enforce compliance but define the knowledge categories through which compliance is assessed. Large soya traders translate regulatory requirements into operational criteria through proprietary monitoring methodologies, thus producing the knowledge that determines market access. Traceability systems structure how compliance is achieved, rendering producers visible, auditable, and dependent on corporate verification. Knowledge and practice constitute one another, as corporate platforms actively construct the meaning of sustainability and, in doing so, embed themselves as mandatory intermediaries in market organisation. The paper assesses whether EUDR's compliance architecture displays the lock-in mechanisms through which regimes maintain stability despite pressure for transformation

This research is part of a larger project examining power dynamics in the Brazil-Poland soya supply chain. This specific paper employs discourse analysis of corporate platform documentation, ESG reports from the last five reported years, and regulatory texts and implementation debates. The paper argues that EUDR's compliance architecture transforms regime actors from regulated subjects into infrastructural authorities who mediate supply chain access.

The paper contributes to transitions scholarship by demonstrating how sustainability governance consolidates rather than transforms regime power. When compliance requires conformity to corporate knowledge systems, traceability infrastructure generates lock-in that strengthens incumbent dominance under the legitimising frame of environmental protection.

References

Clapp, J. (2021). The problem with growing corporate concentration and power in the global food system. Nature Food, 2(6), 404–408. doi:10.1038/s43016-021-00297-7

Geels, F. W. (2014). Regime resistance against low-carbon transitions: Introducing politics and power into the multi-level perspective. Theory, Culture & Society, 31(5), 21–40. doi:10.1177/0263276414531627

Jasanoff, S. (2004). The idiom of co-production. In S. Jasanoff (Ed.), States of Knowledge: The Co-production of Science and Social Order (pp. 1-12). Routledge.

Sowing Stability, Cultivating Continuity: Understanding Food Insecurities through Bedouin Cultivation of Heritage Seeds Under Climate and Political Uncertainty

Miri Lavi-Neeman

Arava Institute for Environmental Studies, Israel

Scientific research shows that the Negev Desert Highlands, despite their aridity, historically supported thriving agricultural communities through runoff-based irrigation systems and the cultivation of resilient local species since premodern times. These traditional infrastructures and practices—including terraces, water-harvesting systems, heritage species, and land-use practices—are of global significance, offering models of food production in dryland environments. In addition to their historical and cultural value, these systems enhance the ecological carrying capacity of desert environments, help delay soil erosion and desertification, and support sustainable food systems.

Yet while these historical practices have long endured, in recent decades they have become acutely threatened by the combined pressures of climate change and state-driven political and ethnic processes. Although rainfed agriculture in the Negev Highlands has been studied for over seventy years, there has been negligible collaboration with nearby Bedouin communities. Research efforts have largely prioritised modern agricultural technologies, sidelining the knowledge embedded in traditional systems and replacing local landraces with modern varieties, resulting in poor yields and high sensitivity to climatic variability. Thus, despite growing global interest in heirloom and wild varieties, this research rarely translates into field-based partnerships with Indigenous or marginalised communities.

Over the past two years, under conditions of armed conflict, escalating ethnic violence, and heightened political and climatic instability—including prolonged droughts, floods, and ongoing threats of house and crop demolitions— Bedouins from Unrecognized Villages in the Negev have persistently, if precariously, attempted to grow food locally. Men sow heritage wheat and barley, while women cultivate vegetables and desert herbs, sustaining everyday practices of food production under extreme uncertainty.

This study explores prospects for enhanced food security by examining revitalised Bedouin social–agroecologies and the longevity of traditional agrisystems and species as both an empirical and theoretical response to ecological and political precarity. Empirically, based on ethnographic research with Bedouin communities, we take these tenacious efforts to grow food as windows into how food insecurity is understood, and how security is calculated, practiced, and planned—even speculatively—within community settings.

Theoretically, we propose the framework of **critical heritage agroecologies** to challenge the dominance of laboratory-based agricultural research and technoscientific “climate solutions.”

This framework brings together Indigenous, field-based knowledge with scientific expertise to interrogate how agricultural knowledge, infrastructures, and authority are produced, scaled, and governed. Drawing on three bodies of literature—Indigenous food sovereignty and decolonial land relations; experimental ecological approaches in political ecology to climate adaptation in real-world settings; and plant science research on the resilience of heirloom varieties under contemporary climate stress—we show how community-based heritage practices move between marginalised past “niche” positions to present (and future) mainstream research, policy, and market based regimes and offer the potential of exploring in situ, practices of land improvement and the use of local varieties of wheat and barley .

By foregrounding political agroecology not only as critique and as a site of intervention, but

also as a contribution to recent writing on the Anthropocene, the paper emphasises the role of food communities and more-than-human environments in addressing sustainability, historical dispossession, and ongoing struggles over recognition, power, and sovereignty.

Seasoning: Tasting Climate Change Through the Diasporic Circulation of Olive Oil

Massilia Ourabah

UGent, Belgium; TU Graz, Austria

Climate change is a paradoxical phenomenon. It is at once concrete, a material reality, and utterly elusive. Though the scientific evidence of global warming – as well as other dimensions of environmental destruction – is indisputable, the scale and ubiquity of those phenomena make them hard to grasp, especially for Western European publics sheltered from their most dramatic effects. In other words, while we might know that an environmental poly-catastrophe is ongoing, it rarely feels catastrophic. This paper thus wonders: what does climate change feel like? It does so not by examining its most vivid occurrences such as floods or megafires, but its banality, the elusiveness of its daily materiality. More specifically, it wonders: what does climate change taste like? Through the case of the circulation of olive oil by the French Kabyle diaspora, this exploratory paper seeks to 'bridge the distance of abstraction' (Neimanis and Walker, 2014: 559) characteristic of environmental problems in order to understand their experiential reality.

Olive oil makes a rich case for examining change and continuity. As a good traditionally home-produced by women in Kabylia, an indigenous region of Northern Algeria, and imported in France through migrant commodity circuits which bypass formal markets, it is emblematic of a diasporic practice of sustenance of bodies, communities, and histories. Through the passing of olive oil from land, to suitcases, to plates, diasporic ties are made and sustained. However, global warming is affecting olive oil production in Algeria and elsewhere, decreasing volumes, rendering it vulnerable market co-optation and, non-incidentally, altering its taste. This paper is informed by the anthropological and feminist traditions within STS, as well as the environmental humanities, and proposes a 'filed philosophy' approach (Despret, 2018), at once empirical and speculative. It suggests to adopt a situated, embodied, and intersectional perspective put forth by feminist STS in order to probe what there is to learn not only about, but also from the ways diasporic communities apprehend – in the sense of make prehensible, graspable – continuity and change, climatic and otherwise. Diasporic communities have expertise in the practical knowledge of materialising absence: through food, a history and geography are known. How can this knowledge inform the case of materialising climate change, a 'hyperobject' in Timothy Morton's sense, meaning a 'thing . . . massively distributed in time and space relative to humans' (2013: 1)? And how is climate change affecting diasporic epistemic practices? Pursuing feminist STS efforts to decentre techno-scientific approaches that still dominate environmental knowledge production and policy intervention, this project seeks to understand climate change not as a supra-historical phenomenon managed through technoscience, but as one intertwined in historical legacies crafted mundanely. It interrogates how climate change affects not only the sustainability of food systems, but also the sustenance of histories. In other words, this paper examines climate change not only as a phenomenon

that shapes how futures are being made, but also how pasts are being made.

Connecting Single Community Food Initiatives in Graz Through Food Neighbourhoods

David Steinwender, Sandra Karner

IFZ Graz, Austria

In Graz, Austria, a wide range of community-based food initiatives has emerged, such as community gardens, community-supported agriculture, food sharing initiatives, and collective cooking in neighbourhood centres. Beyond food provisioning, these initiatives fulfil additional functions within local communities to varying degrees, including fostering social networks and cohesion as well as providing educational spaces. While some initiatives primarily operate as consumer or prosumer projects, others explicitly position themselves as political interventions addressing food sovereignty, food justice, or alternative trajectories of urban development. Despite this diversity, most initiatives remain weakly embedded in urban governance structures: responsibilities for food-related issues are fragmented across policy fields, coordination between administrative departments is limited, and sustained institutional interfaces to community-based initiatives are largely absent. Crucially, these coordination deficits are not merely institutional but socio-technical in nature, involving mismatches between policy rationalities, organisational routines, temporalities of project funding, and the everyday practices through which initiatives sustain themselves. This leaves initiatives operating either in close alignment with dominant food regimes or as relatively isolated niches, pointing to the absence of meso-level arrangements capable of linking grassroots experimentation, neighbourhoodbased practices, and urban food governance in a more durable way. Consequently, their overall influence on transforming food environments remains limited (Djojosoeparto et al., 2021).

Drawing on our previous research, we identify several interrelated dynamics through which these sociotechnical coordination gaps are reproduced in practice. This limits their capacity to stabilise practices, scale activities, or engage in sustained cooperation beyond their immediate organisational boundaries. Second, even where public support exists, it is typically organised in a fragmented and temporary manner, lacking a clear societal mandate that would anchor community food initiatives within urban governance fields such as neighbourhood development, social work, or environmental policy (Steinwender & Karner, 2026). Third, from the perspective of the initiatives, decision-makers in politics and public administration often lack awareness of both the potentials and the challenges of community-based food initiatives, resulting in limited cross-sectoral coordination and weak institutional learning. Finally, networking among initiatives themselves remains sporadic and project-based, constraining their ability to articulate shared concerns, mobilise collective resources, or establish durable interfaces with urban governance. Together, these dynamics help explain why community food initiatives remain socially selective and unevenly accessible, predominantly attracting higher-income or more highly educated groups (Steinwender et al., 2023), and why their transformative capacity at the level of urban food environments remains constrained.

Against this backdrop, the presentation elaborates the *food neighbourhood* as a meso-level socio-technical coordination device that seeks to connect diverse community food initiatives with neighbourhood-based practices and actors from public administration and civil society. Rather than proposing a fixed model, the Food Neighbourhood is explored as a relational and situated arrangement through which notions of 'community' are negotiated, coordination across initiatives is enabled, and interfaces with urban governance are stabilised. The presentation invites discussion on how such meso-level arrangements can support learning across initiatives, address tensions between inclusiveness and selectivity, and facilitate movement between niche experimentation and more mainstream food environments, without dissolving the critical orientations that motivate community-based food practices in the first place.

References

Djojosoeparto, S., Kamphuis, C., Vandevijvere, S., Harrington, J., & Poelman, M. (2021). *The Healthy Food Environment Policy Index (Food-EPI): European Union: An assessment of EU-level policies influencing food environments and priority actions to create healthy food environments in the EU*. INFORMAS.

Steinwender, D., Exner, A., Karner, S., Raith, D., & Fitzka, L. (2023). Social inclusion through a 'SuperCoop'?
Addressing exclusion by organisational innovation in alternative food provision schemes. In *Conference Proceedings of the STS Conference Graz 2023* (p. 510).

Steinwender, D., & Karner, S. (2026). Gemeinschaftsorientierte Ernährungsbildung in der Grazer Stadtteilarbeit. *HiBiFo – Haushalt in Bildung & Forschung*, 1/2026.

28: Smart Cities in the Making: Leveraging GIS and Remote Sensing for Sustainable Urban Futures

Session Chair:

Aram Gevorgyan, Yerevan State University, Armenia

Making Urban Safety Legible: Youth-Led Participatory Mapping and the Politics of Data in Smart City Governance

Elena Tropinova[1], Aziza Talaspayeva[2]

1: inDrive, Cyprus; 2: Abylkas Saginov Karaganda Technical University

This paper analyses the Safe Way to School initiative implemented within the Beginit program between 2023 and 2025 as a case of bottom-up data production that challenges dominant smart city approaches to urban safety governance. Drawing on Science and Technology Studies (STS), the paper examines how youth-led participatory mapping interacts with GIS-based urban planning practices and reconfigures power/knowledge relations in the making of “smart” and sustainable cities in Central Asia.

Smart city initiatives typically rely on expert-driven data infrastructures such as remote sensing, traffic monitoring systems, and standardized GIS indicators to identify risks and guide interventions. While these systems are often presented as objective and comprehensive, they frequently fail to capture the everyday mobility experiences of children and adolescents, particularly in semi-formal urban environments. As a result, safety risks encountered on daily school routes remain underrepresented or invisible within official datasets, despite their relevance for sustainable urban futures.

The Safe Way to School initiative engages adolescents as producers of spatial knowledge by involving them in participatory mapping of safety risks within a 500-meter radius of their daily routes to school. Implemented across 80 localities in Kazakhstan and 9 in Kyrgyzstan, the initiative reached an estimated 310,000 residents in both countries. Participants documented hazardous crossings, poorly lit streets, informal traffic flows, and locations associated with harassment or violence. Through collective analysis and the use of simplified GIS-compatible representations, experiential and affective knowledge was translated into spatial data formats that could interact with existing urban planning tools.

Empirically, the paper draws on qualitative material from multiple implementation sites, including participatory maps, youth-generated spatial datasets, and observations of interactions between participants and municipal stakeholders. Analytically, it mobilizes STS perspectives on data politics, socio-technical infrastructures, and the co-production of knowledge and governance. The analysis focuses on three dimensions: (1) how participatory mapping extends the epistemic boundaries of smart city data infrastructures; (2) the role of GIS as a mediating technology that renders local knowledge policy-legible; and (3) the frictions that emerge when citizen-generated data encounters established expert systems and municipal agendas.

The findings indicate that youth-led mapping produces hybrid data forms that partially bridge the gap between lived experience and urban governance. Across the implementation sites, 18% of the recommendations generated through participatory mapping were formally adopted by local authorities, with concrete infrastructural or organizational interventions carried out in response to 63 specific recommendations. These outcomes demonstrate that citizen-generated spatial data can influence urban policy processes, even in the absence of formal participatory mandates.

At the same time, the paper foregrounds structural constraints that limit the transformative potential of participatory smart city practices. These include misalignment between youth-generated proposals and municipal policy agendas, persistent distrust toward children as agents of change, the absence of a shared negotiation language between young participants and local authorities, and the weakness of local deliberative institutions capable of mediating such interactions. These challenges point to a broader deficit in the “culture of dialogue” with children within urban governance systems.

The paper argues that sustainable smart cities cannot be understood solely as outcomes of advanced sensing technologies and algorithmic governance. Instead, they are assembled through contested negotiations between heterogeneous data sources, institutional priorities, and social actors. By foregrounding participatory mapping as a socio-technical practice, the study contributes to STS debates on how smart cities are made, constrained, and recalibrated through the partial and fragile inclusion of local young voices in urban data infrastructures.

Operationalizing Care Ethics in Transport Planning: A GIS-Based Methodology

Marek Sierts[2], Nora Schönherr[1], Prof. Dr. Tobia Lakes[2], Prof. Dr. Sabine Ammon[1]

1: Technische Universität Berlin, Germany; 2: Humboldt Universität Berlin, Germany

Smart cities, smart mobility seem to promise better, more e icient, sustainable, just urban life. The work on this paper is embedded in a research project aiming at influencing the development of an autonomous vehicle through the transdisciplinary design of a vision for just mobility. In the broader field of equitable (smart) cities, we focus on just mobility and how a GIS based methodology could help to identify (in)justices in urban mobility.

Despite the growing number of publications on transport justice, scientifically sound, normatively oriented multidimensional metrics of mobility justice are still rare. Profound theoretical considerations of justice and other ethical questions have not been adequately addressed in transport research to date and are underdeveloped in contemporary studies (Humberto 2023). This leads to a discrepancy between theoretical reflections on the one hand and the operationalizations of good mobility used in transport science literature on the other. To our knowledge, most contemporary work on the assessment of transport and mobility equity does not have su icient tools to adequately capture the complexity of assessing equity in transport-related issues. Existing GIS-based approaches predominantly rely on conventional distributive frameworks and inequality metrics (Gini coe icient, Theil index, Palma ratio) that lack grounding in care ethics principles.

We want to address this inconsistency by applying care ethics approaches to mobility. Our research approach aims at elucidating how care ethics can inform measurements of transport inequality and poverty. We will first explore what good mobility looks like in terms of care ethics to then operationalize these findings into a GIS framework. Ideally, this will enable mobility justice to be evaluated in specific locations and cities according to care ethics approaches. Potential operationalizations might include assessing accessibility to childcare, healthcare, and social support networks specifically for caregivers managing multiple dependencies, rather than measuring general accessibility through standard isochrones. Similarly, tra ic safety could be evaluated with focus on children's independent mobility rather than population-wide statistics. However, whether such approaches adequately capture the relational dimensions central to care ethics requires critical examination of how care-based considerations can be meaningfully represented through spatial analysis methods.

Previous research on transport justice has relied on traditional theories of justice, which have been criticized by various care ethics approaches. Instead of focusing primarily on rights and the equitable distribution of transport resources, a care ethics approach emphasizes responsiveness to the specific needs, dependencies and vulnerabilities of di erent communities and individuals (Held 2005). This recognizes that transport systems are not just technical infrastructures but are embedded in complex networks of social relationships and power structures. Our research aims to explore how these relationships shape mobility experiences and how transport policy can either support or undermine caring relationships within communities.

Making care ethics perspectives on transport justice legible through GIS-based spatial analysis may be crucial for translating normative claims about mobility injustice into forms that can gain traction in policy processes. Quantitative spatial evidence and cartographic representations often carry particular political weight in urban planning contexts, potentially enabling care-oriented justice concerns to be heard alongside dominant technical and economic e iciency metrics. The integration of care ethics perspectives thus represents an important step toward more human-centered and responsive mobility systems that support the full range of sociotechnical relations rather than prioritizing narrow economic or technical e iciency measures.

References

Held, Virginia. 2005. ‘Justice, Utility and Care - Chapter 4’. In The Ethics of Care: Personal, Political, and Global, 1st edn. Oxford University PressNew York. https://doi.org/10.1093/0195180992.001.0001.

Humberto, Mateus. 2023. ‘How to Translate Justice Theory into Urban Transport Metrics? Synchronic Assessment of Latin American Cities Based on Equality, Priority and Su iciency’. Journal of Transport Geography 110 (June): 103630. https://doi.org/10.1016/j.jtrangeo.2023.103630.

29: Diffracting STS and the Classroom: Teaching and Transforming STS between Epistemic Traditions, Institutional Structures, and Artifical Intelligence

Session Chairs:

Magdalena Eitenberger, University of Vienna, Austria

Carsten Horn, University of Vienna, Austria

Lisa Lehner, University of Vienna, Austria

Anastasia Nesbitt, University of Vienna, Austria

From Philosophy of Science to Everyday Translation Work: Techno-Anthropology Graduates as Carriers of STS into Organizations

Tom Børsen, Joana Filipa Da Silva Isaúl, Guodong Chen

Aalborg University, Denmark

This paper examines how philosophy of science (PoS) and ethics teaching in a technoanthropology programme travels beyond the classroom and resurfaces in graduates' professional practices. We focus on how students learn to navigate and translate between epistemic traditions, organizational structures, and AI-mediated technologies, and how this reflects back on the classroom as a key site where STS is stabilized and transformed. Empirically, the paper draws on semi-structured interviews with graduates from a Danish university's techno-anthropology programme, clustered by graduation year. All respondents had taken courses in philosophy of science and/or ethics and now work across diverse sectors, including software, biopharma, utilities, consulting, and academia. The interviews explored what PoS and ethics content they remembered, how it was taught, and how, if at all, it is used in their professional lives.

Across cases, respondents do not describe philosophy of science as a vocabulary to be cited, but as a way of seeing and working. They use PoS as a background lens for detecting epistemic differences—for instance, when engineers, managers, and operators disagree not only about solutions, but about what counts as a problem, valid evidence, or relevant expertise. In such situations, graduates mobilize notions of paradigms, ontology, epistemology, methodology, and epistemic cultures to diagnose why people talk past one another and to rephrase issues so that different groups can recognize them as meaningful. Philosophy of science thus becomes a translation tool across disciplinary and organizational boundaries.

Philosophy of science also functions as a validity check between different working approaches. Graduates use it to question untested assumptions, argue for empirical grounding (e.g. user research), and make explicit standards of proof used in different parts of an organization. Rather than treating disagreement as personality or resistance, they frame it

as a clash of validity criteria and negotiate shared standards for what counts as “good enough” knowledge to act on.
Ethics appears in a similar practical “lens” mode and is tightly coupled to this validity work. Rather than applying a single framework, graduates describe ethics as a habit of pausing to ask: why are we doing this, for whom, and with what consequences? These questions include indirect effects such as workforce changes, exclusion, intensified surveillance, and organizational side effects. This is particularly visible in AI-related work, where graduates bring questions of fairness, equity, and responsible use into discussions of data, model behavior, and deployment decisions. Here, philosophy of science and ethics together underpin a more attentive ethical design practice, in which technical solutions are checked against their social and organizational effects.
The data also reflect back on teaching. Graduates valued philosophy of science and ethics most when tightly coupled to project work and experimental pedagogies such as codesign, workshops, and recurring case exercises that helped them build a reusable toolkit. At the same time, they critiqued early PoS courses as overly abstract and text-heavy, and proposed more scaffolded and participatory formats, including debate-based enactments of paradigms, concept-based ethics around terms such as privacy or justice, and casebased work with AI and digital systems.
We read these accounts as examples of how STS-inflected teaching infrastructures produce particular kinds of professionals: graduates who act as quiet STS practitioners inside software firms, biopharma plants, utilities, and AI companies. In the session, we discuss (1) how philosophy of science and ethics teaching equips students to translate across epistemic traditions and organizational hierarchies; (2) how philosophy of science operates as a validity check between ways of working; (3) how philosophy of science and ethics together support attentive ethical design, especially in AI-related contexts; and (4) how philosophy of science and ethics might be better fostered in higher education.

Facilitating the In-Between to Foster Cross-Disciplinary Practices in Teaching

Fabian Fischer[1], Schaffar Andrea[2], Balcinovic Adnan[3], Chevandier Aurianne[4]

1: Austrian Academy of Sciences, Austria; 2: JKU Johannes Kepler Universität Linz; 3: Universität für Angewandte Kunst Wien; 4: Technische Universität München

Complex societal challenges increasingly call for inter- and transdisciplinary approaches. Sometimes this is also reflected in higher education curricula, despite university structures largely remaining entrenched in disciplinary silos. We provide insights from the CrossDisciplinary Strategies (CDS) study programme at the University of Applied Arts Vienna, which deliberately brings together three disciplinary pillars – artistic strategies and approaches to art; science & technology; and economy & politics. We address the question of what happens when field typologies and field dynamics intersect and directs attention to the in-between – spaces in which disciplinary, epistemic, and organizational logics are negotiated. The CDS curriculum is anchored by a "*Lab*" that functions as a negotiated space for students to develop projects that span the three fields. It is a mandatory 2-semester course in semesters 3-7 of the 8 semester programme. Students cycle through an iterative process: they first

generate a mock-up – a physical or digital artefact serving as boundary object – then iteratively refine it, culminating in a presentation that invites critique from peers and faculty alike. This artifact is in conversation with research and writing. Annual themes (e.g., “Energy,” “Measuring Nature”) provide a shared frame while allowing individual projects to diverge. In the *Lab*, students are expected to bring together knowledge from different courses related to this annual theme.

We show that the in-between is best understood as a negotiation space between different fields, not as a field of its own. Its dynamics emerge not only from institutional structures but from practices of collaboration, negotiation, and mutual socialization – challenging and being challenged by established institutional structures.

Conceptually, we draw on the field concepts of Lewin (2012) and Bourdieu (1997), STS concepts such as boundary work (Gieryn, 1995), boundary object (Star & Griesemer, 1989) and epistemic cultures (Knorr Cetina, 1999) (Wenger, 1998). Facilitation functions as a method of social transformation that enables communication and self-organization, while the concept of “Communities of Practice” (Wenger, 1998) provides the framework for collective learning and developmental processes.

Key findings show that the in-between is a socially and group-dynamically shaped space where openness, reflexivity, and equality are cultivated through facilitation. Boundary objects enable translation across epistemic cultures; Communities of Practice sustain learning despite hierarchical pressures. Institutional structures – standardised assessment models, rigid departmental boundaries – both constrain and are reshaped by emergent practices such as self-assessment and co-teaching. The *Lab*’s iterative cycles and critique sessions serve as mechanisms for continuous negotiation and reflexivity.

Our findings highlight the necessity of facilitation capacity for faculty, flexible assessment frameworks that recognise process over product, and institutional support and awareness that acknowledge the fluidity of cross-disciplinary practice. The CDS *Lab* demonstrates that facilitation can transform institutional constraints into opportunities for collective learning, offering model for fostering genuine cross-disciplinary practice in higher education teaching.

Acknowledgements:
The presented *Lab* concept would not have been possible without the contributions of our colleagues Aurianne Chevandier, Sarah Hager and Astrid Wagner.

References

Bourdieu, P. (1997). Die Regeln der Kunst. Genese und Struktur des literarischen Feldes. Frankfurt/Main: Suhrkamp.

Gieryn, T. (1995). Boundaries of Science. In S. Jasanoff, G. Markle, J. Peterson, & T. Pinch , Handbook of science and technology studies (pp. 393–443). Thousand Oaks: Sage.

Knorr Cetina, K. (1999). Epistemic Cultures: How the Sciences Make Knowledge. Cambridge:

Harvard University Press.

Lewin, K. (2012). Feldtheorie in den Sozialwissenschaften. Bern: Verlag Hans Huber.

Star, S., & Griesemer, J. (1989). Institutional Ecology, „Translations“ and Boundary Objects: Amateurs and Professionals in Berkeley’s Museum of Vertebrate Zoology. Social Studies of Science, 19(3), 387–420.

Wenger, E. (1998). Communities of Practice: Learning, Meaning, and Identity. Cambridge: Cambridge University Press.

Navigating Interdisciplinarity in Teaching STS at a Technical University

Michael Nitschmann

Technical University of Munich

At the intersection of technology and society, the Technical University of Munich is committed to research and innovation that are society-centered. This goal not only combines natural sciences and engineering with social sciences for research purposes but also creates teaching opportunities across disciplines. Besides teaching in STS-specific master’s programs, I also had the opportunity to ‘export’ STS courses into STEM programs or to co-teach with lecturers from other fields. However, these teaching opportunities not only open up ways to introduce STS ideas into various curricula but also pose challenges for teaching in interdisciplinary environments and for accommodating to different academic backgrounds. Moreover, the institutional setting as an entrepreneurial and technical university shapes the design of courses and the expectations of students and lecturers regarding classes and content. These entanglements raise questions about how STS ideas can be transferred to different classrooms, how STS knowledge is transformed in diverse contexts, and how teaching relates to the institutional setting.

In my contribution, I will briefly share teaching examples to illustrate how STS (teaching) itself is coproduced in the context of a technical university, and how classes function as sites for navigating diverse disciplinary backgrounds and expectations. The teaching format of the so-called ‘Project Week’ is particularly interesting, as it involves both lecturers and students from different disciplinary backgrounds. As outlined by the university, the ‘Project Week’ aims for innovative solutions to pressing issues of our time that transcend disciplinary boundaries. Before the start of the seminar, we, as lecturers, had to navigate our own expectations for the class’s methods and goals, as well as our own understandings of the problems and solutions. The navigation process continued during the seminars and with the students. In the end, both students and lecturers worked towards a shared understanding of issues and solutions, which opened up new and relational perspectives for everyone involved.

This particular example of teaching in dynamic interdisciplinary environments encourages us to reflect on how our ideas may be reinterpreted or even transformed into “alien good” (Wynne, 2007), as well as on the assumptions we bring to teaching STS that may limit shared understanding.

Extending the Toolbox – Experimental Methods and Experiences in Teaching a Student-Led Seminar

Michal Nodzynski, Wanda Melina Perner, Fabian Seiser, Jonas Hofmann

University of Vienna

Which methods do recent theoretical developments in- and outside of STS demand? And how could a seminar look like that centers around exploring this question through practice? In offering a student-led seminar (SLS) for fellow (STS) students to learn about and try out experimental methods, we hoped to 'extend the toolbox' not only in terms of research tools, but also with regards to student engagement in our department. This project was located at a major Austrian university in the context of our STS master program in the winter term 2025/2026.

Self-organized seminars and lectures that imagine a different university are part of the standard repertoire of student protest movements and their later institutionalized manifestations. And SLSs at our home university themselves are not new per se, even though many students pass up on the opportunity to organize. Such student initiatives are oftentimes critical of the status quo, provocative or utopian, in terms of both format and content. In that light, we as students would like to reflect on a) enabling circumstances b) for what learning experiences we wanted to open space and c) what we wanted to contribute to our master program.

Thinking about the enabling circumstances at our department, we figure that our SLS grew out of vibrant student engagement, mutual trust and an active process within the department aimed at a more open and participatory culture. While we experienced our STS program as being taught in a highly participatory and engaging style that takes diverse backgrounds of its students seriously, this culture has recently become more prominent in the politics around the department and the university, as well as in academic and cultural events.

Content-wise, the four of us initially had very diverse motivations and design ideas but we found common ground in thinking about methods both of researching and teaching. Firstly, the line between theories and methods within our field can sometimes become (deliberately) blurry, other times theories and methods are discussed completely separately, leaving students confused on how to do their research methodically. Secondly, we felt that our curriculum touched on relevant theoretical insights (e.g., more-than-human research) but left us with little guidance in terms of methods to put these insights into the center of research projects. This situation means students miss out on understanding ethics, epistemologies, ontologies and politics of methods. With our seminar we wanted to work that gap by learning about experimental methods and considering their politics. The notion of theory-methods packages proved helpful, guiding us and the other students to consider how phenomena, theories and methods need to align to make research possible.

Our seminar asks what it is that we find when we move into this gap. The project itself was an experiment to collectively think about methods via trying them. Therefore, we tried to organize our seminar in a care-ful way, opening up the space for all the students (us and the other participants) to claim. An open-work(shop) approach allowed students to pursue their own projects and support each other however necessary. To share experiences, we also introduced more standard seminar sessions on theory, ethics and methods by us and the other students. Our seminar consisted of three different session-types: method Cafés, group work sessions and sharing experience sessions. Following this approach, assessment was of minor importance for the seminar as was our role as the official 'lectures'.

At the roundtable we would like to shed more light on these tentative reflections, in particular

to discuss how learning (in) STS can help overcome today's teaching principles of discipline and control to imagine a different university.

30: Between Openness and Commodification – Underrepresented Facets of Knowledge Transfer

Session Chairs:

Nathalie Schwichtenberg, German Centre for Higher Education Research and Science Studies, Germany

Judith Hartstein, German Centre for Higher Education Research and Science Studies, Germany

Rethinking Knowledge Transfer in Repair Cafés

Öykü Kurt Özkara, Arsev Umur Aydınoğlu

Middle East Technical University

Repair work relies heavily on tacit knowledge, the deeply embodied, hard-to-codify know-how of experienced practitioners. Collins (2010) and Polanyi (1966) emphasize that much skilled know-how cannot be fully articulated in rules or instructions. In Repair Cafés, volunteers repeatedly demonstrate that diagnostic reasoning and repair techniques are learned through hands-on experience and social interaction, not formal manuals. Indeed, observational studies report volunteers “rely heavily on implicit knowledge, informal training, and hands-on approaches rather than formal instructions,” sharing know-how by conversation and demonstration Jain, P. (2025).

A recurring finding in the literature is that Repair Cafés act as informal learning hubs where experienced repairers deliberately teach participants. Existing studies have extensively documented how knowledge circulates within individual Repair Cafés, particularly through interactions between volunteer repairers and participants. However, the cross-site movement of knowledge remains underexplored. While a few studies touch upon documentation sharing or inter-café networking, there is a lack of systematic, field-based analysis of such flows.

This study draws on the preliminary findings of one of the author’s master thesis’ qualitative fieldwork, conducted across five Repair Cafés in Bavaria, Germany. The empirical material consists of ten semi-structured interviews with both repairers and participants with five sessions of participant and naturalistic observation. During the thesis data collection, an unexpected pattern emerged: different Repair Cafés often addressed similar repair problems using distinct methods, yet remained unaware of each other’s approaches. In some cases, even within a single café, volunteers used divergent techniques without knowing about their peers’ practices. As this realization surfaced, the interviews evolved to explore these knowledge gaps more systematically, leading to the identification of a surprising dynamic: The researcher inadvertently became a conduit for tacit knowledge, not only between Repair Cafés, but also within a single one, relaying insights from one volunteer to another.

This led us to reconsider not only what forms of knowledge are transferred, but also who facilitates their movement. As the researcher moved across and within cafés, they unintentionally functioned as a conduit of tacit knowledge by sharing techniques, stories, and heuristics between people and places. This reflexive insight informed our central aim: to interrogate how knowledge asymmetries persist in Repair Cafés and to question what kinds of mediating agents and infrastructures remain (in)visible in current knowledge transfer frameworks. While most studies focus on volunteers and participants as the primary actors in repair knowledge circulation, our findings suggest that other actors may also play an active role in shaping how knowledge flows within and across repair communities. Our preliminary findings suggest that even "passive" fieldwork participation can generate mutual learning. By foregrounding the researcher as a knowledge actor, we challenge metric-focused models of knowledge transfer that overlook such informal, relational flows. This contribution invites STS scholars to reconsider the infrastructures of knowledge transfer beyond institutionalized and codified metrics.

References

Collins, H. (2010). Tacit and Explicit Knowledge. University of Chicago Press.

Polanyi, M. (1966): The Tacit Dimension. University of Chicago Press.

Jain, P. (2025). Designing Socio-Technical Systems to Capture Tacit Knowledge and Support Sustainable Repair Practices. In Proceedings of the 23rd European Conference on ComputerSupported Cooperative Work (Doctoral Colloquium).

From Availability to Usability – The Role of Field-Specific Trust in Decisions on Scientific Knowledge Use

Nathalie Schwichtenberg

DZHW, Germany

This study examines the role of trust in the reception of epistemic resources. For this purpose, an ethnographic field study was conducted in two scientific communities Invasion Biology and Solar Physics.
In the theoretical groundwork, scientific trust is defined as a social interpretation pattern, which guided both data collection and data analysis to identify and reconstruct such patterns.
The study included the conduct of nearly 100 discursive interviews and the application of a combination of interpretation pattern analysis and qualitative content analysis to evaluate the transcripts. During the course of the analysis, 131 cases of trust were identified and reconstructed. In addition to a comparative description of the scientific communities of invasion biology and solar physics with regard to their epistemic practices, resources, and conditions, eight types of trust were identified: Trust/distrust in the production context, trust/distrust in the usage context, trust/distrust in the field and trust/distrust in non-scientific production contexts. By reconstructing these cases, causal relationships could be established between the epistemic conditions of the cases and the identified types of trust.

The description of these relationships took the form of a theory of middle range of scientific trust in the reception of epistemic resources. At its core, this theory conceptualizes trust in science as a social interpretation pattern that activates interpretive orientations in typical situations of information scarcity, thus maintaining actors' capacity to act. The typical situations examined in this study are reception situations. In these contexts, trust in science bridges the inherent situational deficit and guides decisions about the use of the available epistemic resources.

Learning by Doing: Deep Learning from STS Graz

Judith Hartstein

German Centre for Higher Education Research and Science Studies (DZHW), Germany

Since almost two years, scholarly toolboxes have been populated (or polluted?) with ‚artificial intelligence' tools. But not only do, like anybody else, researchers and students increasingly experience the world's knowlege through interfaces based on large language models (LLMs), but much of this ‚knowledge' is created from statistical conformity derived with deep learning (DL). Therefrom, questions arise concerning epistemic trust as well as impartiality and bias. But how do methods of deep learning affect or shape scientific reasoning? By applying some procedures of deep learning to public data from the last four years of STS Graz, I will illustrate which kind of reasoning is encouraged or hindered by this methodological approach. By narrating my experiment to the audience, I hope to inspire considerations on ‚artificial intelligence' as part of our epistemic toolboxes.

Obstacles in Sustaining Infrastructures for Open Science and Knowledge Transfer: Perspectives from a Non-Commercial Provider Organization

Stella Maria Köchling

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

Within the digital transformation as well as normative and institutional endeavors of fostering Open Science, new formats for scientific knowledge transfer have emerged (Neuberger et al., 2021). Various infrastructures expand possibilities for scholars to promote their research online but also to explore extensive amounts of data resulting in research information and evaluation as well as analytics services. These are provided by commercial and noncommercial organizations addressing scholars, research institutions, funders, and small and medium enterprises (SMEs) while using and generating aggregated (meta)data to identify impacts or return on investments (Köchling & Krüger, forthcoming). These provider organizations actively contribute to the economization of research, while intensifying existing tensions between

scientific norms and economic value creation. This contribution focuses on how one non-commercial provider organization deals with this entanglement.
Drawing on a constantly growing debate on who should own research data and infrastructures (Barcelona Declaration on Open Research Information et al., 2024), noncommercial organizations have emerged that seek to oppose the increasing commercialization in academia by offering open databases and infrastructures advocating for open access to research information (Velez-Estevez et al., 2023). However, these noncommercial providers collaborate with different commercial organizations, such as publishers for data exchange or SMEs for service innovation and develop new use cases to transform data into assets (Birch et al., 2021). To stay financially sustainable, the noncommercial providers introduce subscription fees for certain services and assert that “open is not free” when it comes to research information and evaluation.
This raises questions about how these organizations position themselves in this field, how they deal with tensions between science and economy and the implications for the provision of infrastructures for Open Science and knowledge transfer. To gain insights into this, one non-commercial provider organization has been investigated. In a four-week ethnographic fieldwork, empirical data based on participant observation, documents, informal conversations, and interviews both in person and online made it possible to gain valuable information on organizational structures, communication channels, and decision-making processes which are foundational for the infrastructures.
By considering this organizational perspective, the study reveals obstacles of sustaining infrastructures for Open Science and knowledge transfer, showing how the organization negotiates the tensions between science and economy through strategic self-presentation. This becomes visible within different ways of communicating to their users, and also by reaching for a constant innovation of their services to create more ways of knowledge transfer while considering industry needs.

Closed Yet Open: Knowledge Transfer in Socialist Research Towns

Ekaterina Lapina-Kratasiuk

Leibniz-Institut für Länderkunde e.V., Germany

This research examines underrepresented forms of knowledge transfer by investigating science production and social practices in specialized research towns of the Soviet Union and East Germany. While Science and Technology Studies (STS) has traditionally conceptualized knowledge transfer through linear, professionalized models, this project explores an alternative regime: scientific settlements that operated as authoritarian "heterotopias" where international collaboration coexisted with stringent political control and territorial restrictions. These Soviet Akademgorodki and their East German counterparts represent a distinctive model where knowledge production was neither fully commodified nor freely circulated, offering critical perspectives on contemporary debates about scientific autonomy, political economy, and the spatial organization of innovation.
Drawing on scholarship emphasizing post-socialist contexts' underrepresentation in urban and science studies (Müller 2020; Trubina et al. 2020), this research asks: How did spatial

restrictions and political constraints shape distinctive patterns of knowledge circulation? What forms of informal knowledge transfer emerged within formally controlled environments? How do memories of these alternative transfer regimes inform contemporary scientists' responses to political and commodification pressures?
The research employs mixed methodology combining archival analysis, oral history, and visual/discourse analysis of institutional publications and personal collections. Comparative case studies examine Soviet biological (Pushchino) and physics (Protvino) research towns alongside East German counterparts (Berlin-Buch, Dresden-Rossendorf), enabling systematic analysis across national contexts, scientific disciplines, and post-socialist transformation trajectories.
Relevance to Panel Themes:

1. Physical architecture and territorial restrictions shaped informal networks, grassroots educational initiatives, and samizdat-style knowledge sharing—forms rarely captured in conventional transfer metrics or contemporary discussions of open science platforms.
2. Socialist research towns produced strategic knowledge without patent incentives or commercialization pressures, yet developed alternative recognition systems and international collaboration patterns that challenge assumptions about innovation's necessary economic conditions.
3. Post-socialist émigré scientists maintain transnational epistemic communities through digital platforms, demonstrating how historical knowledge transfer regimes continue shaping contemporary practices—a temporal dimension largely absent from current STS discussions of social media's role in science communication.

These settlements simultaneously restricted physical mobility while enabling access to international scientific literature and collaboration, revealing that "openness" operates along multiple, sometimes contradictory dimensions beyond simple public access or commodification binaries.

Contribution to STS:
By foregrounding a model that resists both pure commodification and idealized openness, this historical comparative approach illuminates how political-economic contexts fundamentally shape not merely knowledge transfer outcomes but the very categories through which we conceptualize circulation, value, and access. This perspective proves particularly relevant as authoritarian regimes increasingly shape global science systems, and as debates about open science confront new forms of platform capitalism and knowledge monetization.

References

Müller, M. (2020). In Search of the Global East: Thinking between North and South. *Geopolitics*, 25(3), 734–755.

Trubina, E., et al. (2020). A part of the world or apart from the world? The postsocialist Global East in the geopolitics of knowledge. *Eurasian Geography and Economics*, 61(6), 636–662.

Useful Underdetermination of Scientific Conferences: A Condition for Knowledge Transfer?

Max Braun

Universität Hamburg, Germany

Across a range of scientific fields, conferences are seen an essential part of scholarly life. They achieve a number of tasks for individual scientists, scientific communities and actors with an interest or a stake in science. Conferences are frequently used as strategic access sites to study practices of knowledge production, as well as academic socialisation and community building. Moreover, scholars have pointed to the role of conferences in knowledge transfer. This is conceptualised variously as, for instance, the 'impact of academic events' (Hansen & Pedersen, 2018), i.e. the result of transferrelated conference activity, or as a process that positions knowledge production at conferences around the transfer demands of external actors through 'valuation regimes' (Koch & Tetley, 2023). An underlying concern in conceptualisations of knowledge transfer at scientific conferences is the question of what constitutes scientific conferences. Conferences achieve a number of at times contradictory tasks for a variety of interested parties. A question that arises in this context is: what holds scientific conferences together? In this contribution, I offer a conceptualisation of scientific conferences as social occasions (Wynn, 2017) which sees them as spatially bounded and temporally bracketed events that are characterised by useful underdetermination. This conceptualisation builds on the theoretical figure of underdetermination as a positive and enabling quality that makes certain forms of communication possible. Conference-specific underdetermination refers to the absence of organisational imperatives of decision making and an openness in terms of formats and content of conference activity. Drawing on interviews with researchers from the fields of machine learning, climate science, and contemporary history, as well as participant observation at conferences, I argue that underdetermination is not to be seen as an absence of rules or an indiscriminate openness. Rather, it can be seen as a specific quality of scientific conferences as social occasions that is used by conference participants as a resource and that in certain conditions can be lost or over-stretched. From this, I draw out implications for studying scientific conferences as sites of knowledge transfer. At the centre of this is the field-specificity of scientific conferences as multifunctional formats held together by useful underdetermination. This relates to (1) formal aspects, such the prevalence of traditional presentation-discussion sessions vis-à-vis poster sessions. Moreover, (2) this relates to fields' different interfaces to and transfer relations with other relevant social worlds. For instance, machine learning is closely linked to a tech industry, where much of its research takes places. Likewise, knowledge production in contemporary history is deeply relevant to policy and education, whereas climate science is at an interface with both policy and industry.

References

Hansen, T. T., & Pedersen, D. B. (2018). The impact of academic events—A literature review. *Research Evaluation, 27*(4), 358–366. https://doi.org/10.1093/reseval/rvy025

Koch, S., & Tetley, C. (2023). What ‘counts’ in international forest policy research? A conference ethnography of valuation practice and habitus in an interdisciplinary social science field. *Forest Policy and Economics, 154*, 103034. https://doi.org/10.1016/j.forpol.2023.103034

Wynn, J. R. (2016). On the Sociology of Occasions. *Sociological Theory, 34*(3), 276–286. https://doi.org/10.1177/0735275116664554

32: Innovation and Intervention for Equitable Nature-Society Transformations

Session Chairs:

Alex Franklin, Coventry University, United Kingdom

Agnes Zolyomi, Green Formation, Hungary

Sandra Karner, IFZ, Austria

Anita Thaler, IFZ, Austria

Infrastructural Sovereignty in Practice: Built Environment, Care, and Intervention in Remote Canada

Philipp Budka

University of Vienna, Austria

This paper develops an anthropological and ethnographic analysis of infrastructural sovereignty in practice, contributing to Science and Technology Studies from the border of anthropology and STS. Drawing on long-term ethnographic research with First Nations and local communities in northwestern Ontario and northern Manitoba, the paper examines how infrastructures are lived, governed, and reworked in everyday contexts shaped by colonial neglect and uneven state–market dependencies. Building on STS research that conceptualizes infrastructure as relational, political, and embedded in everyday practice, the paper extends these insights through sustained ethnographic engagement in northern contexts.

Rather than approaching infrastructure as a technical background condition, the analysis treats it ethnographically as a relational, temporal, and political formation—one that materializes power relations, responsibilities, and struggles over autonomy across the built environment. From this perspective, infrastructural sovereignty provides a conceptual lens for examining multiple dimensions of infrastructural life, including ownership, governance, dependency, temporality, and responsibility. The purpose of the paper is to show how care and intervention emerge as particularly salient practices through which infrastructural sovereignty is enacted in everyday life.

Based on participant observation, interviews, archival research, collaborative scenario workshops, and sustained engagement over time, the paper analyzes two complementary infrastructural interventions. The cases are not comparative but complementary: together they demonstrate how infrastructural sovereignty operates across heterogeneous infrastructures, while allowing care-based intervention to be traced as a situated mode of infrastructural practice grounded in relational accountability and collective governance.

The first case centers on KO-KNET's MyKnet.org (1998–2019), a community-owned platform embedded in First Nations–controlled broadband infrastructures in northwestern Ontario.

Ethnographically, MyKnet.org emerges as a relational infrastructure of care, sustaining kinship networks, everyday storytelling, memorial practices, family histories, and cultural expression across vast distances. Through ongoing socio-technical relations between users, content, and infrastructural arrangements, the platform enacted communication sovereignty, enabling Indigenous control over mediated social relations. Recent discussions about reactivating MyKnet.org—often articulated in relation to growing fatigue with commercial social media—point to the platform's ongoing afterlives as a remembered and partially recoverable infrastructure, through which relational practices and ethics of care continue to matter despite its shutdown.

The second case examines the Arctic Gateway Group's Indigenous-led reclamation of the Hudson Bay Railway, the Port of Churchill, and an associated marine tank farm, acquired as an integrated infrastructural bundle by 41 Indigenous and northern communities. From an ethnographic perspective, this intervention reveals how large-scale transport and logistics infrastructures are shaped by intersecting concerns of care, power, and responsibility, securing Arctic access and regional connectivity while navigating extractive industry dependencies through collective ownership and Indigenous governance. Moments of breakdown and repair render visible how infrastructure mediates social reproduction, environmental relations, and the politics of mobility in northern life.

The analysis shows that infrastructural sovereignty emerges not as a fixed condition but as an ongoing, situated achievement grounded in everyday practices of maintenance, coordination, and collective responsibility. Across both cases, care-based intervention stabilizes infrastructures while simultaneously opening spaces for reworking power relations, temporal horizons, and nature– society relations. The paper concludes that infrastructural sovereignty offers a productive analytical lens for examining innovation and intervention as relational, care-centered processes in struggles for equitable nature–society transformations.

A Tree in the Desert: The Coproduction of Environmental Care and Construction Innovation in Germany and Chile

Jenny Colleen Graner

Technical University of Munich, Germany

The construction industry contributes substantially to today's environmental woes: it is one of the largest contributors to climate change, mostly through the creation of steel and cement, accounting for 37 percent of the global carbon dioxide emissions (UNEP, 2023.1; Churkina et al., 2020). This figure follows the industry around, poking its shoulder, demanding attention. The industry response so far has been, reduce CO2 emissions with innovative technologies. One of those innovations is additive manufacturing of concrete (otherwise known as 3D printing), the focal technology of this research. CO2 reduction through additive manufacturing has become a central tagline and ambition of both industry and national academic research agendas in the field of construction. It also appears as a care-oriented motivation for researchers and workers of this innovation. This environmental care appearance in corporate taglines, national research headlines, and personal care motivations indicates its coproduction within these social contexts.

As in most industries, rhetoric in support for a cause – environmental, in this case – is an important first step; it requires individual and collective buy-in, agreement to behave towards a certain end-goal. The second step is just as important, the practical, the application of the collective agreement within the technical. Additive manufacturing of concrete is an extremely complex technology: the robot itself – the arm, the base, the pump, the sensors – all need to work perfectly in sync with the concrete mix that has to be carefully measured and mixed to remain both liquid enough, yet simultaneously adhesive to both stick to the previous layer, dry some, and remain moist enough to fuse to the layer that is to come; it cannot be pumped to fast or too slow, as seconds in either direction results in errors and failure. The design also must be both programmed and calibrated to allow the structure to remain free standing. This process wildly varies from lab to lab, country to country. Within this technical context, the environmental and sustainability ambitions to lower CO2 remain hidden.
The double vision of care (Haraway, 1988; Martin et al., 2015; Lindén and Lydahl, 2021) within the technosciences (Puig de la Bellacasa, 2017), asks who cares, how, and to what extent does this or can this care make an impact? At this point, the use and application of environmental care is both personal and political and its emergence within the webs of power can best be explained through the lens of coproduction (Jasanoff, 2004; Pfotenhauer and Jasanoff, 2017). These analytical views capture the care practiced and applied, its inclusions, exclusions, and boundaries, and how these are then coproduced within the wider scale of both the construction and national scales in Germany and Chile. Data from both locations was collected through ethnographic participant observations, semi-structured interviews, and image and document analysis. Join me in exploring whether this care can exist in the harsh conditions that is the construction industry, or whether it is another attempt to plant a tree where it cannot survive.

The Geometry of Misplaced Care: Burden Displacement in Youth Climate Activism

Gerardus Bukkems, Thomas van der Steen

Center for Community Emergence and Regeneration, The Netherlands

Since 2018, youth climate activism, most prominently Fridays For Future (FFF), has become a highly visible force in contemporary climate governance and is often celebrated as an innovative driver of socio-ecological transformation. Within Science and Technology Studies (STS), such movements have been analysed through frameworks of participation, co-production, and civic engagement. However, existing work has largely focused either on activist mobilization or on institutional design, leaving underexplored how care, responsibility, and labour are redistributed across governance arrangements in practice.
This paper argues that current climate governance operates through a systematic misplacement of care, in which institutions rhetorically embrace youth participation while externalizing the epistemic, emotional, and relational labour of transformation onto youth climate activists themselves. Drawing on feminist care theory and STS scholarship on participation and co-production, we conceptualize this process as burden displacement. Rather than transforming their own modes of relating to socioecological crisis, institutions stabilize existing arrangements by shifting the work of urgency, translation, and hope onto

those with the least structural power.
The paper presents a co-laborative, transdisciplinary inquiry, jointly authored by an STS researcher and a founding member of a national Fridays For Future chapter. This collaboration functions as a methodological intervention in itself, disrupting conventional separations between researcher, activist, and object of study that have long been problematized within STS. Empirically, the analysis draws on six years of situated activist practice, reflexive positional accounts, and qualitative analysis of participatory governance formats such as advisory councils, youth tables, and consultation processes.
Rather than introducing a formal model, we experiment with visual and narrative situated mapping practices, inspired by relational and topological approaches in STS, to make visible how care, responsibility, and vulnerability are unevenly distributed across governance arrangements. These mappings are not intended to quantify relations, but to support reflexive analysis of where activist practices are stretched, compressed, or forced to absorb institutional inertia. We refer to this analytic approach as a form of 'lived geometry,' emphasizing how governance is experienced relationally and aPectively rather than only procedurally.
Through this lens, the paper identifies three interrelated burdens displaced onto youth climate activists. First, epistemic care work, in which activists translate the urgency of biodiversity loss and climate breakdown into technocratic policy language. Second, processual care, whereby participatory formats extract legitimacy and energy while containing disruptive potential. Third, aPective care, as activists are expected to sustain hope, civility, and emotional coherence in the face of ongoing ecological degradation and institutional delay.
The paper concludes that such burden displacement undermines not only activist sustainability but also the prospects for equitable nature–society transformations. By exhausting the agents of socio-ecological change, current governance arrangements enact a form of ecological negligence, withdrawing care from more-than-human worlds precisely where it is most needed. For STS, the paper contributes a care-theoretical and methodological intervention that reframes participation not as inclusion per se, but as a contested redistribution of responsibility, vulnerability, and labour within nature–society governance.

References

Haraway, D. J. (2016). *Staying with the trouble: Making kin in the Chthulucene*. Duke University Press.

JasanoP, S. (Ed.). (2004). *States of knowledge: The co-production of science and social order*. London: Routledge.

Marres, N. (2012). *Material participation: Technology, the environment and everyday publics*. Palgrave Macmillan.

Mol, A. (2008). *The logic of care: Health and the problem of patient choice*. Routledge.

Puig de la Bellacasa, M. (2017). *Matters of care: Speculative ethics in more than human worlds*. University of Minnesota Press.

Naturalised Architectures of Absence: How Relational Perspectives are Systematically Excluded in Knowledge and Innovation Systems.

Reinhard Rebernig, Efrat Gommeh, Eduardo Urias

Vrije Universiteit Amsterdam, Athena Institute

Epistemic exclusion in knowledge and innovation systems is not a single barrier but a systemic outcome of interlocking mechanisms across ideological, institutional and interactional levels. Relational perspectives that offer the potential for deep transformations are especially affected. In this paper, we answer the call for an improved understanding of the role Human-Nature relationships (HNRs) play in knowledge and innovation systems by exploring their relation to epistemic exclusion (IPBES 2019, Fazey et al., 2020, Turnhout 2024). Drawing on an innovative configurative literature approach that integrates critical interpretive synthesis (Dixon-Woods et al., 2006) and critical realist synthesis (Pawson et al., 2005) we explore a systemic understanding how relational and care-oriented approaches are systematically marginalised in knowledge and innovation systems through a theorized “architecture of absence”: At the ideological level, scientistic norms and ontological gatekeeping privilege positivist, technocratic framings. They materialise through structural mechanisms – such as valuation infrastructures and epistemic colonialism that embed exclusion in funding, publishing and academic governance routines. Interactional mechanisms like biased validation reproduce asymmetries in co-production spaces. Human-Nature Relationships emerge as onto-epistemic backgrounds which act as modulators across levels and pre-structure what counts as real or credible knowledge. We argue that these backgrounds are overlooked factors and identify patterns that reinforce dominant instrumental HNRs through feedback loops that link macro-level ideologies to micro-level practices, creating resilient exclusionary dynamics based on accepted framings. The findings suggest that prevailing “additive” inclusion models that simply add marginalized voices into existing structures are inadequate. Instead, transformative changes to the underlying knowledge system architectures are needed to achieve epistemic justice in nature-society transformations. The contribution discusses how relational perspectives face these barriers but that their introduction can act as transformative intervention that enables a paradigmatic shift in knowledge and innovation systems.

33: Disrupting the Narrative: Regional Innovation Cultures and it's Continuities

Session Chairs:

Cindy Rentrop, Technical University of Munich, Germany

Nadine Osbild, Technical University of Munich, Germany

Narratives of Disruption in the German *Mittelstand*, Creative Districts, and Regional Innovation Cultures

Cindy Rentrop, Nadine Osbild

Technical University of Munich, Germany

The call for disruptive technologies, heralded as engines of economic growth or harbingers of profound breakthroughs for humanity, remains ever-present. Yet, so-called disruptive technologies rarely truly produce ruptures that reshape existing structures and surrounding sociotechnical power dynamics.

This contribution anchors the panel *"Disrupting the Narrative: Regional Innovation Cultures and its Continuities"* by exploring narratives of disruption as a performative element to stabilize, reconfigure, and legitimize regional orders of innovation. Building on insights from research on German *Mittelstand* regions as well as ostensibly subversive innovation in Munich's creative districts, it theorizes the work of disruption in respect to Pfotenhauer et al.'s (2023) framework of regional innovation cultures. As innovation initiatives and technological developments emerge, claims of novelty and transformation become regionally and locally articulated, mobilized and enacted vis-à-vis existing identities and political cultures.

Our contribution interrogates how disruption narratives contribute to stabilizing existing institutional arrangements while simultaneously enabling selective reconfigurations by foregrounding three dimensions: (1) the political work of disruption in legitimizing particular governance models and innovation strategies; (2) the epistemic work of framing innovation trajectories and rendering certain forms of knowledge visible while obscuring others; and (3) the normative work of shaping expectations about desirable futures and regional development paths.

By situating these dynamics within specific regional innovation cultures, the presentation argues that disruption often functions less as a force of rupture than as a narrative resource that reconciles continuity with claims of transformation. In this sense, it contributes to a broader critique of the disruption paradigm by demonstrating how its performative power lies precisely in its ambiguity – seemingly promising change while reproducing established structures.

The presentation opens the stage for the subsequent contributions and panel discussion by raising a set of guiding questions: Where and how does disruption appear across empirical cases, and which roles does it fulfill? Through which mechanisms does it acquire its particular narrative force? Which regional orders remain stable, and which are selectively reconfigured? Finally, the panel invites reflection on whether – and under what conditions – these narratives

might be unsettled: how disruption could be opened up to greater normative contestation, enabling more explicit political negotiation and, ultimately, a re-politicization of innovation initiatives and technological development.

Emphasizing the Local-Global: Domesticating the Innovation Systems for New Path Development

Morgan Oesterling, Bradley Loewen, Thomas Berker

The Norwegian University of Science and Technology, NTNU

The discourse of “disruptive innovation” often casts new technologies as heroic forces capable of overturning entrenched systems. However, the diffusion of renewable energy technologies and systems points to a more complex and incremental development rather than a decisive “David and Goliath” story. Instead, a geographically situated process of continuous co-production, translation, and local meaning-making incrementally structures sociotechnological changes. This paper investigates the narrative of disruption by examining how the innovation system for tidal current turbines expands and becomes embedded in diverse regional contexts. Rather than reducing technological adoption to a rational response to external pressures, the article argues that incorporation is mediated through socially situated negotiations and translations.

While Global Innovation System (GIS) literature highlights the multi-scalar dynamics of knowledge production, market access, financial investment, and technology legitimacy (Binz and Truffer, 2017; Jeannerat and Kebir, 2016), it offers limited insight into how technologies are rendered meaningful and valuable for a given community or stakeholders. The valuation subsystem is directly connected to multilevel policy change and analyzes how regulatory and market construction regimes shape path development (Eadson and Van Veelen, 2023, p. 221). This overlap highlights the importance of new socio-technical imaginaries for the expansion of the innovation system. Additionally, the intersection emphasizes interactions between institutions, networks, and actors across levels.

In this paper, domestication theory is used to explore how innovation ecosystems are socially situated from an STS perspective, resulting in a framework for studying local/global interactions in GIS. The concept of domestication has been extended to an institutional level to describe the process of emerging isomorphic policy patterns among nation states (Alasuutari 2013; 2016). This work takes a similar institutional perspective on the embedding of technologies as a process of translation, appropriation, and recontextualization, in which models of the sociotechnological system are adapted to local norms, expectations, and development trajectories. Rather than rupturing existing structures, emerging technologies often reinforce or subtly recalibrate them through iterative alignment between global innovation narratives and local development logics.

By employing domestication theory, the paper seeks to bridge the gap between regional path development and innovation studies. The paper employs a mixed-methods approach of comparative policy document analysis with supporting expert interviews from the various stakeholder groups within the sector to act as an illustrative case study of the concept. The methodology emphasizes the variety of meanings of the technology that emerge and the

importance of regional geographies in the process.
The authors discuss how valuation subsystems, regulatory regimes, and socio-technical imaginaries co-produce the conditions under which niche renewable energy technologies become legitimate and actionable. The paper also examines how clusters of domesticated models circulate back into global arenas, contributing to the stabilization of the innovation system and to its further expansions. This approach reveals the incremental, negotiated, and often hidden mechanisms that underpin the expansion of innovative systems, challenging the notion of disruption and offering a more grounded account of how technologies actually take root.

References

Alasuutari, P., 2013. Spreading global models and enhancing banal localism: the case of local government cultural policy development. International Journal of Cultural Policy 19, 103–119. https://doi.org/10.1080/10286632.2011.625418

Alasuutari, P., 2016. The Synchronization of National Policies: Ethnography of the global tribe of moderns, 1st ed, Routledge Advances in Sociology. Routledge, New York, NY. https://doi.org/10.4324/9780203597729

Binz, C., Truffer, B., 2017. Global Innovation Systems—A conceptual framework for innovation dynamics in transnational contexts. Research Policy 46, 1284–1298. https://doi.org/10.1016/j.respol.2017.05.012

Eadson, W., Van Veelen, B., 2023. Green and just regional path development. Regional Studies, Regional Science 10, 218–233. https://doi.org/10.1080/21681376.2023.2174043

Jeannerat, H., and Kebir, L., 2016. Knowledge, Resources and Markets: What Economic System of Valuation? Regional Studies 50, 274–288. https://doi.org/10.1080/00343404.2014.986718

Discovering the Treasure in the Underground - The Making of Deep Geothermal Energy Futures in Bavaria

Michael Nitschmann, Silke Beck

Technical University of Munich, Germany

In response to ambitions for the energy transition, the role of internal heat stored in Earth's depths is receiving increasing attention. Deep geothermal energy promises a constant, year-round energy supply, regardless of weather conditions. The heat stored in the Earth's crust has been discovered as a *treasure in the ground,* serving as a basis for envisioning desirable energy futures. Yet, while the promises are high, the potential remains largely untapped so far. The paper explores how and why a broad range of Bavarian actors have started to discover the *treasure in the ground* and seek to turn Bavaria into a hotspot and pioneer of deep geothermal energy in Germany and beyond. Using a co-productionist perspective, we seek to understand how visions of geothermal energy futures articulate and encompass divergent understandings of the common good and the governance needed or desired to distribute their

risks and benefits, as well as the responsibilities for and ownership of those risks. We use the concept of storylines to focus on how the metaphor of the *treasure in the ground* helps to connect different domains, and allows to create shared meaning, build coalitions, and mobilize policy support. Combining both interpretative approaches, we reconstruct how problems are defined and translated into collective spaces for action, thereby enabling or limiting the scope of political action for societal transition. The framework is applied to a longitudinal discourse analysis spanning 1995 to 2025 and combines 648 newspaper articles, interviews with 20 actors, and additional document data.

Our longitudinal analysis reveals four phases in which geothermal energy, as the *treasure in the ground*, is used to project desirable futures for the region. The phases culminate in a *public treasure vision* that redefines public good with respect to deep geothermal energy. After discovering the underground heat reservoir, a 'gold rush' on the resource opened up the question of who should benefit from the 'liquid gold' in the underground. The vision of an independent and climate-neutral energy system positioned the treasure as a municipally owned resource. Municipal ownership gained credibility by drawing on the Bavarian sense of self-sufficiency and distinctiveness. However, minor earthquakes associated with deep geothermal energy posed potential risks to the unearthing of the treasure. Building on the trajectory from earlier phases, actors envisioned deep geothermal energy as a public good. Understanding the treasure as a public good aligned administrative, scientific, and public authorities to joint responsibility and transparent monitoring. This increasingly shared vision ultimately mobilized collective action across municipalities to exploit the public treasure. Therewith, the public treasure vision shifted responsibility for the heat transition to local public authorities and co-constituted promises of DGE.

Our longitudinal comparison seeks to contribute to STS scholarship on future-making and regional innovation cultures by discovering the emergence and enactment of visions of desirable energy futures as research objects in their own right. By reconstructing how various storylines of geothermal energy are made and enacted by diverse coalitions of actors in different contexts over time, the study illustrates how geothermal energy imagined as *public treasure* is used to connect both, tradition and innovation, the Bavarian past and future, in a specific way: it is built upon and embedded in collective memory of a Bavarian distinctiveness and self-sufficiency and enables diverse, oscillating visions of desirable futures such as autarchy and domestic energy supply.

34: Identifying Gaps in Social and Ethical Foresight Methodology for Nano-Enabled Advanced Technologies

Session Chairs:

Ineke Malsch, Malsch TechnoValuation, The Netherlands

Carlos E. Gómez-Camacho, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland

Fernand Doridot, ICAM of Lille, Center for Ethics, Technology and Society, France

Andreas Falk, BNN, Austria

Negotiating "Good Chemicals" through Safe and Sustainable by Design

Jesse De Pagter

Centre for Social Innovation, Austria

Intensified scrutiny of 'forever chemicals' such as PFAS has sharpened the demand for alternatives that are not only less toxic but also socially legitimate and governable at scale. The Safe and Sustainable by Design (SSbD) framework is increasingly positioned as a way to operationalise such transitions, promising earlier and more systematic alignment of molecular innovation with public health and environmental objectives (Joint Research Centre, 2022). Apart from understanding SSbD as an interesting way of implementing new kinds of normative design, the contribution also presents it as a socio-technical programme through which "good" chemicals and materials become negotiated. In that regard, SSbD can be read as the latest iteration of a historical trajectory of chemical anticipation, seeking to reconfigure the timing of governance by shifting what must be known, demonstrated, and documented before chemicals and materials stabilise as products and infrastructures.

In light of this, the contribution asks how SSbD's anticipatory orientation becomes enacted in practice through methods, metrics, and standards, and how this anticipatory work reconfigures what counts as evidence, which futures remain plausible, and which concerns are likely to become consequential. Doing so, the contribution draws on STS scholarship on late industrialism and chemical worlds and is inspired by the call for "socio-molecular studies" and "knowledge after progress" (Murphy, 2006; Niewöhner, 2025). In this context, it treats chemical innovation as a site where progress narratives are both reproduced and unsettled.

Empirically, the contribution builds on qualitative insights from BIO-SUSHY, an EU-funded project developing bio-based alternatives to PFAS-based coatings, to examine how SSbD is translated into everyday R&D decisions. It traces how topics like economic feasibility, ecological resilience, public health protection, regulatory feasibility, reputational risk are coordinated through concrete devices like test protocols, sustainability indicators, performance benchmarks, and documentation practices. It also examines how practitioners draw on

situated, often tacit understandings of manufacturing constraints, customer expectations, and lived experiences of exposure and risk.
The contribution closes by arguing that SSbD's political potential depends on whether its anticipatory practices can remain open to dissent, distributional questions, and scale effects. Rather than arguing for a narrow set of indicators that travel well across institutions, it proposes treating SSbD implementation as a site for building interactional expertise and collaborations with chemistry, materials science, industry, and regulation, so that questions of justice, scaling, and alternative futures can remain present in the design of chemicals and materials (Shapiro, 2015).

Acknowledgments
Insights for this contribution were gathered through participation in the ongoing BIO-SUSHY project, funded by the EU under the Grant Agreement no.101091464.

References

Joint Research Centre. (2022). Safe and sustainable by design chemicals and materials: Review of safety and sustainability dimensions, aspects, methods, indicators, and tools. Publications Office. https://data.europa.eu/doi/10.2760/879069 Murphy, M. (2006). Sick building syndrome and the problem of uncertainty:

Environmental politics, technoscience, and women workers. Duke University Press.

Niewöhner, J. (2025). Science after Progress. Reflexive Methodology in Computational Modelling and Sustainable Chemistry. Historical Social Research/Historische Sozialforschung, 50(2), 53–73.

Shapiro, N. (2015). Attuning to the chemosphere: Domestic formaldehyde, bodily reasoning, and the chemical sublime. Cultural Anthropology, 30(3), 368–393.

Societal Impact of the Unique Advanced Materials Ecosystem

Andreas Falk, Johanna Scheper

BioNanoNet Forschungsgesellschaft mbH (BNN), Austria, www.bnn.at

Advanced materials (AdMa)—encompassing e.g., nanomaterials, smart polymers, metamaterials, quantum materials, and bio-engineered composites[1]—are increasingly positioned as foundational enablers of technological progress. Their rapid development promises transformative benefits across sectors, so that the EC has set R&I priorities in strategic areas such as energy, mobility, construction and electronics[2]. Yet these innovations also raise complex societal questions that extend far beyond their technical performance and gain the need of collaboration amongst different stakeholders.

In this sphere for the sake of collaboration, the EU-funded project InnoMatSyn[3] establishes an integrated European research and innovation framework for AdMa by systematically harmonizing fragmented regional, national and EU-level initiatives. It develops an AI-driven dynamic repository to consolidate research outputs, competencies, funding landscapes and materials-related data, thereby enabling evidence-based coordination of R&D activities. The project further advances methodologies for assessing and mitigating technology-leakage risks, supporting strategic sovereignty in critical materials. Through joint funding mechanisms and structured cross-stakeholder collaboration, InnoMatSyn strengthens Europe's capability to accelerate the safe, sustainable and industrially scalable development of next-generation materials.

This intervention offers a critical reflection on the challenge of creating such an ecosystem, including the defragmentation, reducing barriers, as well as the tension between cooperation and differentiation. Hence, InnoMatSyn's broader implications on the societal impact of AdMa, emphasizing their ethical, economic, environmental, and geopolitical dimensions, will be discussed. Ultimately, critically reflecting on the societal impact of AdMa means recognizing that material innovation is not value-neutral. Decisions about which materials to develop, how to deploy them, and who benefits from them are shaped by social priorities, political interests, and cultural expectations. Integrating ethical foresight, inclusive governance, and sustainability principles into materials research is essential to ensuring that AdMa contribute to a more equitable and resilient future.

[1] OECD (2023), Advanced Materials: Working Description, OECD Series on the Safety of Manufactured Nanomaterials and other Advanced Materials, OECD Publishing, Paris, https://doi.org/10.1787/4b5ba38d-en [2] EC-Communication COM(2024) 98 final, Advanced Materials for Industrial Leadership. https://research-andinnovation.ec.europa.eu/document/download/0fcf06ea-c242-44a6-b2cbdaed39584996_en?filename=com_2024_98_1_en_act_part1.pdf [3] www.innomatsyn.eu

Engaging Young Researchers in Ethical Impact Assessment of Nanomedicine

Ineke Malsch

Malsch TechnoValuation, The Netherlands

In this presentation, experiences will be shared in engaging young researchers in ethical impact assessment of nanomedicine in the VISION course on ethics of biomedical research (17 March 2022): http://vision.sav.sk/index.html, and in the workshop on ethics and RRI of nanomedicine in the MELOMANES MSCA doctoral network: https://melomanes.eu/
Methodological weaknesses and opportunities for improvement of the methodology will be highlighted, as well as its relevance to real-world impacts of advanced materials and technologies. Feedback from the audience will be explicitly invited. This presentation targets the aims and scope of the session 127 co-organised by the author.

From Social Indicators to Decision-Making: Overcoming the Integration Gap Through MCDA and Monetization in Safe and Sustainable by Design (SSbD)

Carlos E. Gómez-Camacho, Roland Hischier

Technology and Society Laboratory (TSL), Swiss Federal Laboratories for Materials Science and Technology (Empa), Lerchenfeldstrasse 5, 9014 St. Gallen, Switzerland

Safe and Sustainable by Design (SSbD) seeks to integrate environmental, social, and economic considerations at early stages of technology development. While environmental assessment methodologies are comparatively mature, the integration of the social pillar remains methodologically challenging, particularly in foresight and design-oriented decision-making contexts. Current social life cycle approaches rely on heterogeneous indicators and partially established databases, which limit comparability and reduce their practical usability within SSbD implementation.
Building on recent work in integrated life cycle sustainability assessment, this contribution examines how structured decision-making approaches, notably Multi-Criteria Decision Analysis (MCDA), and impact monetization can support the translation of social indicators into actionable decisions under SSbD. In explicit reflection on the revised SSbD framework, which emphasizes early-stage assessment, transparency, and iterative decision support rather than full quantification, MCDA is discussed as a tool to coherently integrate social, environmental, and economic evidence while making stakeholder preferences and value trade-offs explicit. Monetization is considered a complementary aggregation and communication tool, particularly relevant for policy and industrial stakeholders, rather than a comprehensive or definitive measure of sustainability.
Building upon results from case studies in the energy and nano-enabled technology sectors, the contribution illustrates both the current limitations of social databases and the potential of decision-oriented frameworks to strengthen social foresights within SSbD-oriented innovation and governance.

From Safe and Sustainable by Design to Safe, Sustainable and Responsible by Design: Bridging Sustainability and Ethics in the Governance of Nanotechnologies

Fernand Doridot

ICAM of Lille, France

Nanotechnologies and nano-enabled advanced materials play a central role in contemporary innovation agendas, promising significant benefits in areas such as health, energy, environmental remediation and industrial performance. At the same time, they raise persistent questions regarding safety, environmental impact, ethical acceptability and public trust. In response, European research and innovation policy has progressively promoted the paradigm of Safe and Sustainable by Design (SSbD), which aims to integrate safety and life-cycle sustainability considerations from the earliest stages of research and development.

SSbD constitutes an important advance compared to approaches focused exclusively on downstream risk management. In particular, its reliance on life-cycle sustainability assessment seeks to balance environmental, economic and social dimensions of innovation. However, this contribution argues that, in the context of nanotechnologies and other converging technologies, the “social” pillar of sustainability—while necessary—is not sufficient to address the full range of ethical and governance-related challenges that arise. Life-cycle social assessments typically focus on socio-economic impacts, such as labour conditions, social acceptability, or distributional effects, but they tend to leave aside broader questions of responsibility, including the purposes of innovation, issues of autonomy and consent, data governance, power asymmetries, long-term societal implications, and the legitimacy of technological choices.

In parallel, Europe has seen the development of a distinct set of initiatives and frameworks under the umbrella of Ethics by Design and responsible innovation. These approaches have contributed valuable tools for ethical reflection, stakeholder engagement and anticipatory governance. Yet, they often evolve separately from SSbD and sustainability-oriented innovation policies, with limited operational integration into design and engineering practices. As a result, safety, sustainability and ethical responsibility risk being addressed through partially disconnected frameworks, each with its own vocabulary, methods and communities of practice.

Building on this double observation, this paper proposes the notion of Safe, Sustainable and Responsible by Design (SSRbD) as an integrative and pragmatic framework for the governance of nanotechnologies. SSRbD does not seek to replace SSbD, nor to dilute its achievements. Rather, it aims to complement it by explicitly introducing responsibility as a core design dimension, alongside safety and sustainability. Responsibility is understood here in a broad but operational sense, encompassing ethical reflection, governance arrangements, stakeholder involvement and societal expectations, and encouraging their consideration early in innovation processes.

By fostering greater complementarity and harmonisation between sustainability-oriented design and ethics-by-design approaches, SSRbD offers a unifying lens that can be mobilised by both social scientists and innovation practitioners. It is presented not as a theoretical framework reserved for STS scholarship, but as a practical orientation capable of supporting innovation, reducing governance frictions, and enhancing the robustness and legitimacy of nano-enabled technologies. In this sense, integrating responsibility into design is framed not as an additional constraint, but as a condition for socially sustainable and trustworthy innovation.

35: Towards a Joint Transdisciplinary Research Agenda of Engaged Science and Technology Studies and Relational Ethics of Technology

Session Chairs:

Christian Herzog, University of Lübeck, Germany

Jason Branford, Hamburg University, Germany

Stefan Böschen, RWTH Aachen, Germany

Beyond Risk Mitigation. Investigating the Transformation Potentials of AI Ethics

Paula Helm

Goethe University Frankfurt, Germany

The contribution engages with the transformative potential of contemporary AI ethics research. The mainstream of AI ethics (Artificial Intelligence) is strongly shaped by principle-driven frameworks and, as a result, fails to account for the situated realities of the various communities affected by AI. Critics argue that AI ethics often serves corporate interests and thus functions more as an instrument of public relations than as a means of preventing harm or advancing the common good (Aradau and Blanke 2022; Bietti 2019; Clouser and Gert 1990; Mager et al. 2025; Phan et al. 2022; Powell et al. 2022; van Maanen 2022).

In response, this paper adopts a Science and Technology Studies (STS) perspective to critically interrogate the field of AI ethics. In doing so, it applies the same analytical tools that STS has long directed at disciplines such as biology, medicine, and statistics to ethics itself. This perspective reveals a central tension: between vertical (topdown, principle-based) and horizontal (risk-mitigating, implementation-oriented) approaches to ethical practice.

By tracing how these models have shaped the discourse, it becomes clear that both approaches fail to adequately address the complexity of AI as a socio-technical assemblage, embedded in practice and entangled with power. To move beyond these limitations, I propose a threefold reorientation of AI ethics. This reorientation departs from integrative approaches that is, the idea of aligning social-scientific and ethical perspectives as closely as possible with existing technical regimes. Instead, it is grounded in an agonistic model of interdisciplinary research (Barry et al. 2008).

This approach deliberately leverages disciplinary frictions. It does not aim to harmonize contradictions, but to mobilize them for knowledge production, with the goal of enabling productive interventions beyond disciplinary paradigms. Building on such an agonistic model, the three proposed reconfigurations of the field of AI ethics are:

1. A shift in foundations: from top-down ethical abstraction toward empirical grounding.
2. A call for pluralization: beyond Western-centric frameworks toward a multiplicity of ontoepistemic perspectives.

3. A reorientation of practice: away from narrow paradigms of risk mitigation toward “technologies of hope.”

Relationality as a Conceptual Foundation for Transdisciplinary Research on Sustainable and Ethical Innovation — Learning from Sustainability Science and Ethics

Christian Herzog

University of Lübeck, Germany

In this contribution, I suggest that relational thinking can integrate two core domains of innovation with greater conceptual clarity: the ethics of technology and sustainability science/ethics**.** I further suggest that the fitting methodological basis for investigating the complexities of socio-technical relations to understand the human condition in our technologically mediated world (cf. Smuha, 2021) lies within science and technology studies (STS).

Relational perspectives in sustainability science introduce conceptual rigor (Walsh et al., 2021; West et al., 2020, 2024), starting by calling into question the systems perspective trifecta of economic, environmental, and social sustainability in innovation (cf., e.g., Cillo et al., 2019; Purvis et al., 2019; Redclift, 2005) on a definitional level. Further, they make visible the close relationships between these ‘pillars’ both on a systemic, but also on an individual scale, and concern human connectedness in various ways that matter—subjectively and objectively. This is rarely captured by more individualistic principle-based approaches in applied ethics, such as the ethics of technology and AI.

The methodological apparatus for achieving this is not new, however. Relational thinking has its roots in highly diverse philosophical traditions and has long been ‘operationalized’ by approaches such as actor-network theory (Latour, 2005) and assemblage theory (Deleuze & Guattari, 1989), which remain core concepts in STS. However, the adoption of these relational approaches in, e.g., the ethics of technology, is scarce likely because it imposes conceptual overhead. The sometimes scolded but ultimately agile approach to the ethics of technology—and AI, in particular—rests on delivering concrete assessments and arguments on current topics to strive for ameliorative impact rather than conceptual aesthetics. However, we should make greater efforts to coordinate STS with ethics to understand individual life worlds and complex relations, evaluated by an ethics that is not tied to principle-based framings but rather assesses and constructively suggests, with a view to structural conditions and agencies.

Such coordination may draw on experiences in sustainability interventions (cf., e.g., West et al., 2019), which take relationality to demand inclusion and transdisciplinarity, and in which knowledge is collaboratively produced rather than applied. Ethics in these settings then responds to **r**elational values derived from the relationships that stakeholders seek to maintain, extend, and create. By avoiding a substantialist approach, in which entities are treated as static and rigidly categorical, a relational grounding reminds scholars that processes continually unfold and lays the basis for co-determination rather than merely balancing interests.

References

Cillo, V., Petruzzelli, A. M., Ardito, L., & Del Giudice, M. (2019). Understanding sustainable innovation: A systematic literature review. Corporate Social Responsibility and Environmental Management, 26(5), 1012–1025. https://doi.org/10.1002/csr.1783

Deleuze, G., & Guattari, F. (1989). A Thousand Plateaus: Capitalism and Schizophrenia (B. Massumi, Trans.). Journal of Interdisciplinary History, 19(4), 657. https://doi.org/10.2307/203963

Latour, B. (2005). Reassembling the Social – An Introduction to Actor-Network-Theory (Vol. 43, Issue 3). Oxford University Press. http://revistas.ucm.es/index.php/POSO/article/viewFile/POSO0606330127A/22487

Purvis, B., Mao, Y., & Robinson, D. (2019). Three pillars of sustainability: In search of conceptual origins. Sustainability Science, 14(3), 681–695. https://doi.org/10.1007/s11625-018-0627-5

Redclift, M. (2005). Sustainable development (1987–2005): An oxymoron comes of age. Sustainable Development, 13(4), 212–227. https://doi.org/10.1002/sd.281

Smuha, N. A. (2021). The Human Condition in an Algorithmized World: A Critique through the Lens of 20th-Century Jewish Thinkers and the Concepts of Rationality, Alterity and History. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.4093683

Walsh, Z., Böhme, J., & Wamsler, C. (2021). Towards a relational paradigm in sustainability research, practice, and education. Ambio, 50(1), 74–84. https://doi.org/10.1007/s13280-020-01322-y

West, S., Haider, L. J., Hertz, T., Mancilla Garcia, M., & Moore, M.-L. (2024). Relational approaches to sustainability transformations: Walking together in a world of many worlds. Ecosystems and People, 20(1), 2370539. https://doi.org/10.1080/26395916.2024.2370539

West, S., Haider, L. J., Stålhammar, S., & Woroniecki, S. (2020). A relational turn for sustainability science? Relational thinking, leverage points and transformations. Ecosystems and People, 16(1), 304–325. https://doi.org/10.1080/26395916.2020.1814417

West, S., Van Kerkhoff, L., & Wagenaar, H. (2019). Beyond “linking knowledge and action”: Towards a practice-based approach to transdisciplinary sustainability interventions. Policy Studies, 40(5), 534–555. https://doi.org/10.1080/01442872.2019.1618810

Whereto Pragmatist Ethics of Technology?

Jason Branford

University of Hamburg, Germany

Relational ethics of technology has emerged as a bottom-up approach to ethical inquiry that centres lived experience, socio-technical embedding, power relations, and structural conditions in assessing the moral significance of emerging technologies. The version I have been developing is heavily inspired by the pragmatist moral inquiry of John Dewey, on one hand, and feminist standpoint epistemology, on the other. Christian Herzog and I recently argued, using Dewey's method of inquiry as a framework, that relational ethics is especially strong in identifying and richly characterising ethically problematic situations, yet remains underdeveloped in translating these insights into forward-looking, action-guiding, and pre-emptive forms of moral intervention (Branford & Herzog, 2025).

Herein, however, lies an issue that troubles me deeply: while the sentiment captured by this approach would, I believe, have met with approval from Dewey it is lacking (although not entirely) in precisely they ways Dewey was critical of much of philosophy. Indeed, the point has been bluntly put to me on more than one occasion when expressing my Deweyan commitments: "So are you doing empirical research?", they ask. I, of course, respond that my work both builds on empirical research and also seeks to direct it, but that I remain a philosopher in the business of theorising. I am increasingly unsatisfied with this answer. Engaged STS promises a way out. Many of the methodological commitments of relational ethics—attention to lived experience, socio-technical co-constitution, and structural harm—resemble long-standing features within this area, which has for decades produced detailed empirical accounts of how technologies shape and are shaped by social relations, institutions, and power, often with explicit commitments to justice and democratic accountability. Indeed, Dewey has been an explicit inspiration for some such scholars (cf. Latour, 2005; Marres, 2012). Should I simply redirect my energies? This may be too quick, as it is also clear that relational ethics and engaged STS are not synonymous, with the former offering much (valuable in my mind) philosophical articulation not only of the insights already well developed in STS but beyond them.

With my contribution I seek to reflect openly on this overlap and ask what distinctive role, if any, relational ethics can play alongside engaged STS. What, if anything, can relational ethics and engaged STS learn from one another about, say, inclusive inquiry, structural intervention, and the practical limits of critique? In my view, it is insufficient to merely state that they appear to occupy different but mutually necessary positions within a Deweyan model of experimental moral inquiry. Rather, as the session title suggests, there appears to be a rather intuitive need to spell out a transdisciplinary research agenda. Yet can this be meaningfully done without collapsing one into the other or leaving both unsatisfied in substantive ways?

References

Branford, J & Herzog, C (2025) Relational AI Ethics: Strengths, Challenges, and Future Perspectives, *SSRN*. doi: 10.2139/ssrn.5218304.

Marres, N. (2012). *Material Participation: Technology, the Environment and Everyday Publics*. Basingstoke, UK: Palgrave.

Latour, B. (2005). From Realpolitik to Dingpolitik. In B. Latour & P. Weibel (eds.) *Making things Public:*
Atmospheres of Democracy (pp. 14-44). Cambridge, MA: MIT Press.

From Lived Experience to Moral Imagination: Bridging Relational Ethics and STS to Consider AI

Gernot Rieder

University of Bergen, Norway

In a recent article, Branford and Herzog (2025) propose relational ethics as a promising "bottom-up" approach for understanding and addressing AI's ethical challenges by focusing on the "lived experiences and social dynamics" (ibid.: 1) that emerge from the proliferation of such technologies. Drawing on John Dewey's (1938/2008) iterative model of moral inquiry to highlight the strengths and weaknesses of relational ethics, they argue that while relational ethics excels in the first two phases of Dewey's model – problem identification and description – its potential remains underdeveloped in the latter three: the construction, examination, and testing of solutions.

Building on Branford and Herzog's reflections and in response to the aforementioned limitations of relational ethics, this contribution suggests the need for a broadening of the analytical lens from the current emphasis on lived experiences toward a stronger methodological focus on forms of *individual and social imagination*, and on how such imaginative processes are tied to moral judgments as well as perceptions of moral order. While not necessarily offering clear-cut solutions, such a gradual shift from (mainly) documenting instances of technology-inflicted harm to (also) exploring the moral imaginaries involved may enable an even deeper appreciation of both the problems at hand and questions of desirability. A better understanding of personal and social desirability, in turn, can be used to inform engineering processes, from suggesting minor design tweaks to the need for more fundamental revisions to the conclusion that a particular application – of, e.g., AI – is simply not aligned with the prevailing perceptions of moral order. Furthermore, the activation of imaginative capacities may open the path to previously unrecognized alternatives, thereby breaking with the sense of inevitability that is all too often promulgated by political and industry actors.

While important notes on the nature and value of imagination can already be found in Dewey's (1922: 189-198) account of "deliberation as imaginative rehearsal" (see also Rommetveit et al., 2013), the field of Science and Technology Studies (STS) offers an abundant corpus of literature examining both personal and large-scale social imaginaries, with particular regard to new and emerging technologies (see Jasanoff and Kim, 2015; Rieder, 2018). In addition, the discipline provides detailed methodological accounts on how to elicit and analyze such imaginaries in practice (see Felt et al., 2014). The aim of this contribution is thus twofold: (a) to discuss how an additional focus on imagination can enrich the kind of relational ethics proposed by Branford and Herzog while (b) paying particular attention to the role existing STS research can play in facilitating such a research endeavor.

References

Branford, J., & Herzog, C. (2025). Relational AI Ethics: Strengths, Challenges, and Future Perspectives. Available at *SSRN*: http://dx.doi.org/10.2139/ssrn.5218304

Dewey, J. (2008). Logic: The Theory of Inquiry. In Boydston, J. A. (Ed.) *John Dewey: The Later Works, 1925-1953*. Volume 12: 1938. Southern Illinois University Press.

Dewey, J. (1922). *Human Nature and Conduct. An Introduction to Social Psychology*. Henry Hold and Company.

Jasanoff, S., & Kim, S.-H. (2015). *Dreamscapes of Modernity: Sociotechnical Imaginaries and the Fabrication of Power*. University of Chicago Press. https://doi.org/10.7208/chicago/9780226276663.001.0001

Felt, U., Schumann, S., Schwarz, C., & Strassnig, M. (2014). Technology of Imagination. A Card-based

Public Engagement Method for Debating Emerging Technologies. *Qualitative Research*, 14(2), 233-

251. https://doi.org/10.1177/1468794112468468

Rieder, G. (2018). Tracing Big Data Imaginaries Through Public Policy. In Sætnan, A. R., Schneider, I., & N. Green (Eds.) *The Politics and Policies of Big Data: Big Data, Big Brother?* (pp. 89-109). Routledge. https://doi.org/10.4324/9781315231938

Rommetveit, K., Scully, J. L., & Porz, R. (2013). The Role of Moral Imagination in Patients' Decision-

Making. *Journal of Medicine and Philosophy*, 38, 160-172. https://doi.org/10.1093/jmp/jht006

Relational Ethics Entails Relational Identities

Margarita Boenig-Liptsin

ETH Zurich, Switzerland

STS scholarship has established that the primary concerns of ethics, such as normativity, values, conceptions of good life and just actions, are constructed alongside and through the production of facts and artefacts within situated political and material cultures. From the STS perspective, it is normal to think of ethics in relational terms—where what is considered "ethical" in a given time and place is dynamically formed in the process of lived social relationships that involve dimensions of power, institutions, and historical trajectories. What STS can therefore try to explain, just like it tries to explain how socially constructed facts and artefacts can appear at times to be unmediated mirrors of 'nature,' is how ethics in some situations and for some social actors can appear *a*social or non-relational. In this talk, I use AI ethics as an example with which to examine how the tendency of technology leaders (corporate as well as academic) to see ethics as asocial is related to how they tend to sharply and narrowly demarcate the boundary between human and machine. When conceptions of social identities become more fluid, incomplete, and allow for the configurations of identity with computing, then interpretive approaches to ethics, like that practiced by STS, can become more the norm. This, in turn, can support the development of better projects of knowing and acting together, so necessary for today's ailing democratic societies.

38: STS Perspectives in Society: Health – Ethics – Sociotechnical Change

Session Chair:

Bernhard Wieser, Graz University of Technology, Austria

Beliefs and Interests of Stakeholders During Participatory Development of AI-Based Digital Health Technologies for People in Low SEP

Renate Baumgartner

Vrije Universiteit Amsterdam, The Netherlands

AI-based digital health technologies (DHTs) can be used to monitor illnesses and supporting a healthy lifestyle. This is is particularly important for people with illnesses such as chronic obstructive pulmonary disease (COPD) which are strongly related to lifestyle. Yet, developing DHT for patients and particularly for patients living in low socio economic position (SEP) with low digital literacy and low health literacy, is a challenge. Participatory design can be a valuable tool to take into account not just developers knowledge and ideas but co-create DHTs toghether with and for patients making sure the developed tool is helpful for them. As in all development processes, norms, values, beliefs and interests of the involved stakeholders are highly relevant as they shape the design of the developed DHT.
The *Developing A digital COPD companion for Improving Lifestyle* (DACIL) project is a multidisciplinary project which uses participatory design to co-create a digital companion *with and for* COPD patients living in low socioeconomic positions (SEP). Based on interviews and participatory observations with key team members from different disciplines, this study examines how stakeholder beliefs, interests, and ethical principles align with, or complicate, sociotechnical aspirations for inclusive development.
Stakeholders articulated shared ethical principles of justice, inclusivity, and trustworthiness as central to the project's mandate and success. Autonomy and privacy emerged as more disciplinespecific concerns: clinicians and ethicists emphasized informed choice, data minimization, and consent granularity, while technical teams foregrounded privacy-by-design and pragmatic data requirements for functionality. Patient-centeredness is very important to the stakeholders, they were motivated by working with patients, aligning personal and professional interests with participatory methods and the multidisciplinary collaboration. Perceived opportunities concentrated on tailoring lifestyle support to patients' lived contexts, strengthening self-management, and building trust through ongoing engagement. Challenges can be shown around structural constraints—notably funding stability, procurement pathways, integration with existing clinical workflows, and compatibility with heterogeneous digital infrastructures. Stakeholders also identified tensions between inclusivity ambitions and practical decisions that could inadvertently produce exclusion or burden.
In the current early development stage, stakeholder commitments to justice, inclusivity, and trustworthiness are clearly visible. However, discipline-specific interpretations of autonomy and privacy, combined with structural integration barriers, may pose foreseeable risks to equitable

implementation. Without explicit deliberation, these divergences risk surfacing late, where design lock-in and implementation constraints make course correction costly. We recommend continuous, structured reflexivity that (1) makes value trade-offs explicit, (2) iteratively tests inclusivity claims with patients in low SEP. Future comparative research should revisit stakeholders over time to track how beliefs, interests, and ethical priorities evolve and how these changes shape the technology's pathway to practice.

AI Development for Tele-Emergency Medicine and Ethical Concerns Through a Socio-Technical Lens

Ana Lucía Cortés Maya

Institute for History, Theory and Ethics of Medicine, Uniklinik RWTH Aachen, Germany

AI technologies are being introduced in healthcare services to address societal challenges. Within Emergency Medical Services (EMS), the adoption of AI systems has been seen as an extension of digitalization processes such as tele-emergency medicine. However, this implementation introduces concerns that need to be further examined.

This contribution is framed within a research project on the development of an AI decision support system for tele-emergency medicine. In the corresponding sub-project, an analysis of the ethical and social concerns around AI in healthcare was conducted through an embedded ethics approach. As such, the contribution draws on insights from the recently completed research, and is oriented towards the discussion of the "ethicization of science and technology" and its impact on interdisciplinary collaboration. The purpose is to elaborate on specific findings from the sub-project approached from an STS perspective.

This work builds on previous research of the broadly discussed issues and challenges of implementing AI technologies in healthcare contexts, highlighting that are no established systemic methods to address such concerns in concrete processes of technology development (McLennan et al., 2022). Diverse AI ethical guidelines, impact assessment approaches, and more holistic frameworks have been proposed, but a gap between principles and practice remains (Munn, 2023). The embeddedness of AI applications in diverse contexts suggests that principle-based approaches are insufficient to address normatively relevant challenges (Heuser, Steil & Salloch, 2025). Then, an approach that integrates a broad sociotechnical perspective is better suited to highlight the interactions between technology and the complexities of the implementation context (Noorman & Swierstra, 2023). Thus, AI should not be understood as a standalone product, but as a complex sociotechnical system (Morley et al., 2025) that can transform existing practices, values, and organizational arrangements (Dobbe & Wolters, 2024).

Methodologically, the research draws on participant observation from an embedded researcher position, literature review, stakeholder analysis and ethical risk assessment methods from applied ethics and STS. These empirical ethics and social science methods were used to analyze the epistemic and social processes unfolding within the project (Willem et al., 2025). The analysis was meant to identify the ethical and normative requirements that should be embedded in the AI system throughout different stages of the development process. As such, it involved the mapping of ethical issues across the AI lifecycle and identifying the

issues that arise during development.

A key insight is the need to introduce STS perspectives, adding analytical depth to ethical assessments. This made possible the distinction between epistemic and normative issues taking into account that ethical issues could not have be addressed in abstraction, but required a sociotechnical perspective that considered the broader landscape of actors and context.

The work further reflects on the ethicization of science and technology by addressing structural and interdisciplinary challenges. On one side, it has been observed that AI systems disrupt environments and work practices, and their integration could potentially exacerbate organizational problems if these are not addressed beforehand (Karpathakis et al., 2024). On the other side, interdisciplinary collaboration evidenced the need for embedded researchers to stimulate reflection on ethical dimensions and as mediators between different forms of expertise (Willem et al., 2025).

The contribution exemplifies different aspects of STS perspectives contributing to embedded ethics in healthcare AI development and vice versa. It is relevant to discuss the normative implications of technical choices and design elements as decisions made during technology development, while observed through a socio-technical perspective, show that values shape the design and implementation of AI systems (Dobbe & Wolters, 2024).

References

Dobbe, R., & Wolters, A. (2024). Toward Sociotechnical AI: Mapping Vulnerabilities for Machine

Learning in Context. Minds and Machines, 34(2), 12. https://doi.org/10.1007/s11023-024-09668-y

Heuser, S., Steil, J. & Salloch, S. (2025). AI Ethics beyond Principles: Strengthening the Life-world

Perspective. Science and Engineering Ethics, 31(7). https://doi.org/10.1007/s11948-025-00530-7

Karpathakis, K., Morley, J., & Floridi, L. (2024). A Justifiable Investment in AI for Healthcare: Aligning

Ambition with Reality. Minds and Machines, 34(4), 38. https://doi.org/10.1007/s11023-02409692-y

McLennan, S., Fiske, A., Tigard, D., Müller, R., Haddadin, S., & Buyx, A. (2022). Embedded ethics: A proposal for integrating ethics into the development of medical AI. BMC Medical Ethics, 23(1), 6. https://doi.org/10.1186/s12910-022-00746-3

Morley, J., Hine, E., Roberts, H., Sirbu, R., Ashrafian, H., Blease, C., Boyd, M., Chen, J. L., Filho, A. C.,

Coiera, E., Cohen, G. I., Fiske, A., Jayakumar, N., Kerasidou, A., Mandreoli, F., McCradden, M. D., Namuganza, S., Nsoesie, E. O., Parikh, R. B., … Floridi, L. (2025). Global Health in the Age of AI: Charting a Course for Ethical Implementation and Societal Benefit. Minds and Machines, 35(3), 31. https://doi.org/10.1007/s11023-025-09730-3

Munn, L. (2023). The uselessness of AI ethics. AI and Ethics, 3(3), 869–877. https://doi.org/10.1007/s43681-022-00209-w

Noorman, M., & Swierstra, T. (2023). Democratizing AI from a Sociotechnical Perspective. Minds and

Machines, 33(4), 563–586. https://doi.org/10.1007/s11023-023-09651-z

Willem, T., Fritzsche, M.-C., Zimmermann, B. M., Sierawska, A., Breuer, S., Braun, M., Ruess, A. K., Bak, M., Schönweitz, F. B., Meier, L. J., Fiske, A., Tigard, D., Müller, R., McLennan, S., & Buyx, A. (2025). Embedded ethics in practice: A toolbox for integrating the analysis of ethical and social issues into healthcare AI research. Science and Engineering Ethics, 31(1), Article 3. https://doi.org/10.1007/s11948-024-00523-y

PCOS-Time: Enacting Imposed Temporalities of Care Through Improvised Theatre

Júlia Karpova, Henry Larsen, Vibeke Østergaard Steenfeldt, Franciska Fellegi, Agata Hoffmann

University of Southern Denmark, Denmark

Polycystic ovary syndrome (PCOS) is a multifactorial condition affecting between 5% and 25% of people assigned female at birth. Characterised by heterogeneous symptoms, prolonged diagnostic trajectories, and limited evidence-based treatment options, PCOS provides a compelling case for examining how time and temporality are enacted in healthcare. In this paper, we introduce the concept of **"PCOS-time"** to describe the multiple, often conflicting temporal rhythms through which PCOS is lived, diagnosed, and managed. These include prolonged waiting and diagnostic delay, repetitive clinical encounters, daily rhythms of self-management, and futureoriented temporal pressures related to fertility and long-term health. Drawing inspiration from Williams et al.'s notion of "endo-time," we extend STS discussions of illness temporalities by foregrounding how time in PCOS care functions both as a mechanism of constraint and as a potential site of emancipation.

Grounded in STS perspectives that conceptualise disease and care as enacted in practice rather than pre-defined (Mol 2002; Gardner et al. 2011), we created a theatre workshop based on earlier interview-based fieldwork with people living with PCOS, followed by design game experiments. The aim was to to explore patient-doctor interactions and the power dynamics embedded in clinical encounters. Three fictive doctor–patient consultations, developed from interview material, were enacted using methods inspired by Augusto Boal's forum theatre and Keith Johnstone's improvisation practices. These enactments foregrounded tensions experienced by PCOS patients, including a lack of recognition of the illness, limited empathy for lived experiences, and repeated disappointment at the absence of effective treatment options.

A central insight from the improvised work concerned the medical professionals' scepticism about the effectiveness of dietary supplements in treating PCOS. This scepticism produced a distinctive temporal dynamic in which both patient and doctor became caught in what we conceptualise as **temporal collision**: an unspoken suspension of articulation and action that

both the doctor and the patient contribute to co-creating. The doctor would refuse to discuss the use of dietary supplements to maintain their professional authority, while the patient would choose silent disappointment from not being heard or recognised. This dynamic exemplifies how imposed temporalities in health care can function as mechanisms of oppression, limiting patients' autonomy over their own time and future trajectories. At the same time, the improvisations also revealed the doctor's experience of helplessness within institutional and epistemic constraints, for example, when a patient exhibited the need for psychological or psychiatric counselling.

Following the theatre workshop, participants engaged in a design game inspired by object theatre, narrating medical encounters from the perspectives of both human and non-human actors (e.g. information leaflets, ultrasound probes). These enactments further revealed how PCOS-time is distributed across objects and infrastructures, materialising as deferred advice, latent expectations, and institutional rhythms extending beyond the consultation.

We argue that theatre and design-based methods function here not only as methodological tools, but as **temporal devices** that allow imposed rhythms of health care to be slowed down, reflected upon, and reconfigured. By making temporal dynamics experientially and affectively available through the use of improvised theatre, this work contributes to STS debates on time, rhythm, and care, and demonstrates how embodied, participatory methods can open emancipatory possibilities for rethinking temporalities in underresearched and gendered health conditions.

References

Mol, Annemarie. 2002. The Body Multiple: Ontology in Medical Practice. Science and Cultural Theory. Durham: Duke University Press.

Gardner, John, Kevin Dew, Maria Stubbe, Tony Dowell, and Lindsay Macdonald. 2011. 'Patchwork Diagnoses: The Production of Coherence, Uncertainty, and Manageable Bodies'. Social Science & Medicine (1982) 73(6):843–50. doi:10.1016/j.socscimed.2010.12.010

Establishing Infrastructures Through Data Disruptions: The Role of (Meta)Data on Research and Provider Organizations

Stella Maria Köchling

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

Big Data has reshaped various fields in contemporary societies by making it possible to analyze, aggregate, and monetize enormous amounts of digital trace data (boyd & Crawford, 2012). The academic field has been no exception to this, as the digital transformation of academic publishing (Weingart & Taubert, 2017) offers a great volume of (open) data. In these terms, the datafication (van Dijck, 2014) of research and advances in data processing have immensely expanded the possibilities to create more accurate and elaborate metadata on research practice and performance. Based on this metadata, different infrastructures have been established by commercial and non-commercial organizations providing databases and dashboards, research information systems, evaluation tools, and analytics services for the scientific community and beyond. Thus, research data is not transferred directly and in raw form to users, but rather processed through an elaborate procedure of aggregating, generating, and analyzing data. In this process, non-commercial organizations often rely on data from commercial ones and vice versa. The provider organizations actively affect what kind of information is produced and, hence, which characteristics and qualities of research practice and performance are promoted as central (Köchling & Krüger, forthcoming).

Yet, so far, little is known about the organizational background of the provision of research information and evaluation. While previous studies on research information mainly depict the infrastructural dimension (Fecher et al., 2024; Ma, 2023; Piromalli, 2019) or investigate the utilization by different user groups, such as libraries, research administration or funders (Krüger & Petersohn, 2023; Lim, 2021; McCoy & Rosenbaum, 2019; Plantin & Thomer, 2023), research focusing on the organizations that produce and provide metadata and create services remains scarce. This contribution focuses on how such organizations make data disruptions productive for establishing, maintaining, and sustaining infrastructures for research information and evaluation. Moreover, it considers the role of collaborations between commercial and non-commercial organizations in the process of data disruptions.

Methodologically, ethnographic fieldwork was conducted in one non-commercial provider organization. Empirical data based on participant observation, informal conversations, and interviews both in person and online made it possible to gain valuable insights into organizational structures, communication channels, and decision-making processes which are foundational to the infrastructures. The organization investigated offers a wide range of services that rely on metadata while collaborating with different (commercial) organizations for data exchange and service innovation. Moreover, the organization faces challenges concerning financial sustainability and tensions between scientific and economic objectives. By depicting metadata generation and service provision as processes in which data disruptions concurrently occur, the study shows how infrastructures are maintained and legitimized, and how tensions between scientific norms and economic interests are negotiated within this organization. This sheds light on the making of infrastructures based on (open) data and respective implications for the work and self-presentation of provider organizations.

Strengthening the Levees: Fostering Responsible AI Use in Sustainability Research

Peter Darch, Kyra Abrams

University of Illinois at Urbana-Champaign, United States of America

AI is increasingly embedded in research workflows, raising ethical challenges such as transparency and accountability, bias, and privacy. Addressing these challenges is urgent but difficult. What is a better approach: promoting cultural change and reshaping how researchers approach their research, or meeting researchers where they are and making incremental improvements that cause them minimal disruption?

We explore this tension through a longitudinal, qualitative study, including participant observation and interviews, of the Institute for Geospatial Understanding through an Integrative Discovery Environment (I-GUIDE) project, which is building an AI platform to support sustainability research. Over three years, we have been embedded as active I-GUIDE members, developing strategies and a toolkit to supportresponsible research using the platform.

While platform users recognize the importance of ethics, they are constrained by institutional pressures and structural challenges. Funding deadlines and publication expectations often incentivize immediate research goals over reflection and change to work practices. Disciplinary divides, hierarchical structures, separation from downstream impacts of work, and separation from sites of production of models and datasets used in research also also pose barriers to reflection and change.

The tension between deep cultural change and incremental, low-disruption improvements manifested in multiple ways. Should we prioritize a top-down approach, establishing principles and policies, or a bottom-up approach, integrating practical tools into workflows? Should we promote deep ethical deliberation among platform users, or provide automated tools that require minimal reflection? Does cultural and mindset change even matter if automated interventions mitigate ethical harms arising from research involving AI? This paper evaluates these trade-offs and suggests pathways toward deeper shifts in AI research culture.

AI for Diplomacy and Diplomacy for AI: Disentangling the Sociotechnical Logics of AI Diplomacy

Pedro Maia, Barbara Ribeiro

Skema Business School, France

This paper examines the connections between AI, diplomacy and expert knowledge. Through a structured literature review, this work foregrounds the co-production of artificial intelligence and diplomatic practice. The authors identify how existing scholarship conflates AI's dual socialmateriality as both a governance object - Diplomacy for AI (D4A) - and as an actor reconfiguring governance itself - AI for Diplomacy (AI4D). Drawing on STS scholarship on expertise, infrastructures, and boundary work, the analysis reveals AI diplomacy's

Ouroboroslike reflexivity: diplomatic actors simultaneously deploy and regulate. In this scenario, expert knowledge is a central element in what we call the AI Science Diplomacy. Which is understood as situated, practice-based knowing produced across heterogeneous sites. The paper traces how epistemic authority is mobilized, contested, and legitimized across three entangled scales: micro-level practices (everyday diplomatic work), meso-level arrangements (standards and regulatory frameworks), and macro-level formations (innovation ecosystems and geopolitical power relations). The authors theorize AI Science Diplomacy as infrastructuring diplomacy. An ongoing, performative process through which heterogeneous actors, technologies, and knowledge practices mutually constitute each other. This framework advances AI science diplomacy as transnational assemblages where expert knowledge is produced, circulated, and negotiated, foregrounding the political and normative commitments embedded in seemingly technical governance arrangements. By centering co-production, materiality, and the politics of expertise, the paper moves beyond state-centric, instrumentalist accounts to reveal how AI development, diplomatic practice, and international order are enacted through distributed sociotechnical networks, with implications for understanding contemporary technopolitical governance.

Theaetetus' Snubness: Towards a New Form of Face Recognition

Asaf Hazan

Bar Ilan University, Israel

This contribution proposes a novel approach to face recognition (FR) by rethinking it through the lens of dream interpretation. Recent advances in FR technology have seemingly closed the gap between human and machine recognition, rendering the face fully calculable and reproducible. Situating these advances within surveillance capitalism, the contribution argues that this technical success comes at the cost of undermining the ontological status of reality itself. The "reality principle" of the model, thus functions not as an anchor of certainty but as a model of hallucination.

The proposal first examines why the face constitutes the ultimate pattern to be recognized and how this challenge is inherently a machine problem, formalized as an abstract process by Deleuze and Guattari and operationalized historically from Bledsoe to DeepFace. It then identifies two persistent flaws in algorithmic FR, both directly tied to the ontological status of the model: problems of resolution and interpretability, which are collectively understood here as forms of hallucination. Drawing on Plato's *Theaetetus* and Freud's theory of dreams, the lecture distinguishes between dreaming and hallucinating as competing epistemic models of recognition. Whereas algorithmic data relies on hallucination, human face recognition operates more like dream interpretation, transforming contingency into meaningful, shared understanding. The conclusion is that reclaiming this interpretive capacity is essential for preserving communal reality and human subjectivity in an AI-governed world.

Poster Session

Session Chair:

Günter Getzinger, Graz University of Technology, Austria

Exploring How Facebook Neighbourhood Group Culture Affects Crime Prevention

Marika Lopez

Simon Fraser University, Canada

The Metro Vancouver Regional District is home to many Facebook Neighbourhood Groups (FNGs). The FNG research field is young and rather limited, with most of the research focusing on the effectiveness of the FNG and the community programs borne out of the FNG. The research aims to understand how each perspective affects the crime prevention aspect of the group, adding to the limited body of research. The research also seeks to understand the complex digital environment which may mirror the in-person community environment and how the two environments affect each other.

This research was conducted in three phases to understand how residents, the administration team members and active posters/engaged members perceive the group along with its purposes. Participants were recruited via posters being posted in the FNGs, through a convenient and purposive sampling approach. The first phase consisted of interviewing 11 general residents. The second phase consisted of interviewing 4 FNG administration team members while concurrently conducting a qualitative content analysis. The final phase of the project was completed by interviewing 3 active posters and engaged users. Interviews were conducted online. Data was analyzed through a community criminology lens, specifically, collective efficacy theory (Sampson et al., 1997) and broken windows theory (Wilson & Kelling, 1982).

The first key finding is learning just how much the community context matters and how that can shape how little or big the crime prevention impact of FNGs is, along with the strength of community foundation. The second key finding was finding that FNG culture is composed of multiple layers, which, while similar, were quite unique in their perceptions of the community and crime prevention aspect. The last key finding is learning how important Granovetter's (1973) work on social ties is to understand FNGs.

This research contributes to the FNG field by helping us understand how these groups operate, so that we can learn how to integrate them into crime prevention programs, something which has not been researched yet. Potential policy implications include police informing residents to post their file numbers, share their stories of crime and disorder online to foster a culture of helping a fellow resident out; reflecting on their crime prevention measures, and helping the police close files in a timely manner.

Sufficiency and Inequalities in Bolivian Food Practices

Sarah Kollnig[1], Rodrigo Alvaro Quispe Condori[2]

1: University of Applied Sciences Wiener Neustadt, Austria; 2: Universidad Mayor de San Simón, Cochabamba, Bolivia

Sufficiency has become a salient concept in the academic debate on sustainability, particularly when it comes to the analysis of everyday practices. The paper at hand aims at contributing to this debate at a theoretical and an empirical level. The authors contribute with a focus on the Global South as well as with a perspective that brings attention to social inequalities in everyday practices.

Since overconsumption and overproduction take place worldwide, it is important to analyse a diversity of geographical and political-economic contexts. Such a diversity of perspectives allows for finding robust pathways towards sufficiency in everyday practices. Additionally, bringing attention to the structural embeddedness of social practices means contextualizing them in historically grown patterns. This allows to bring out particularly the role of social inequalities in pathways towards sufficiency.

The authors of this paper focus on the everyday food practices of the privileged middle class of Cochabamba city, Bolivia. As a point of comparison, practices of the less privileged population in the same context are also taken into account. While the privileged population identifies as White and Western and lives in neighbourhoods with modern infrastructure, the less privileged population is indigenous and lacks access to the most basic infrastructure. Studying the privileged allows for insights into practices that take up global trends of overconsumption. It also allows to study how the privileged population benefits from postcolonial political-economic patterns, which put them into a privileged social position in the first place.

Methodologically, the paper combines insights from ethnographic fieldwork amongst the privileged population of Cochabamba city (conducted in 2015-2016) with semi-structured interviews conducted in 2024 amongst the more as well as the less privileged population in Cochabamba. The analysis builds upon a critical realist ontology, Bourdieusian practice theory and post- and de-colonial theories. This combination of perspectives brings out how everyday food practices are shaped in this specific geographical context.

The main results show that practices such as over-eating, hoarding of food and the selective consumption of organic food products are established in a context that is politically rather volatile and economically focused on the industrialization of food production. The analytical focus on privilege also brings out the relevance of social inequalities when transitioning towards a food system that provides sufficient and sustainably produced food for everyone. In this transition, it is essential that the situation of different social groups and different cultural and political-economic contexts is taken into account.

An Ethnographic Study of Drone Technology, Embodied Labour and Farmer's Knowledge in Agrarian India

Bharti Varun

Indian Institute of Technology Delhi, India

In this paper, I explore how discussions around the promotion of drone technology have emerged in India, examining the claims made about its potential and how the country's agrarian future is imagined in the policy decisions of the state. The central question I investigate is the intersection of technology, embodied labour, and farmers' knowledge, and how these are mediated, reconfigured, and transformed through the promotion and use of agricultural drones. The fundamental objective is to analyse how technology interacts with and reshapes the material, physical, and embodied dimensions of gendered and caste-marked labour. The study contributes to broader discussions on technology, caste, and the labouring body, theorising the complex dynamics of displacement, devaluation, and transformation in agrarian India. It further focuses on the economic logic of agriculture centred on efficiency, productivity, and profitability, and how this intersects with the social and political logic of farming, skills, and knowledge, especially when tools and equipment become sites of social control.

Drawing on Science and Technology Studies (STS), this ethnographic enquiry examines how labour and its cultural and symbolic embeddedness are disrupted and transformed through drone technology. Following Madeleine Akrich's (1992) argument that technical objects and people co-produce meaning, the paper analyses how different users, including Drone Didis, farmers, and agricultural labourers, assign meaning to drones, while technology simultaneously reconfigures knowledge, labour practices, and social relations. Building on Arnold Pacey's (1983) notion of "halfway technology," the paper argues that drones appear revolutionary by enabling data-driven decision-making yet operate with only a partial understanding of complex agrarian realities. This framing reinforces a divide between the expert sphere of agricultural scientists, drone manufacturers, and fertiliser corporations, and the user sphere of farmers, labourers, and Drone Didis, marginalising local knowledge and diverse agro-climatic practices. Drawing on Langdon Winner's (1990) argument on the politics of artefacts, the paper interprets agrarian drones as inherently political and not merely tools designed for precision; inequality is embedded in their design, determining who can access, control, and benefit from them and who is excluded.

A multi-sited ethnographic approach conducted in two phases across districts of Telangana and Haryana. About 95% of spraying in both states is on seasonal crops. Haryana ranks third and Telangana fourth in registered Custom Hiring Centres (CHCs), Haryana also ranks fourth and Telangana sixth among states where nano-fertilizers are increasingly applied using drone technology. The latest Government data for 2023–24 show Haryana fourth and Telangana sixth in drones distributed to women's self-help groups by lead fertilizer companies, with SHG members receiving pilot training. These patterns reflect active promotion of drone agriculture by state agencies and private actors. My fieldwork will be conducted in two phases. Phase I (July–December 2026), the main spraying season, will involve participant observation and semi-structured interviews, with three months of fieldwork in each state documenting spraying practices, labour processes, and interactions between farmers, labourers, and drone operators. Phase II (January–June 2027), the non-spraying season, will involve ethnographic fieldwork with Drone Didis, drone entrepreneurs, women's self-help groups, leaders of Farmer Producer Organizations, and actors at Custom Hiring Centres, Cluster Level Federations, and state agricultural universities.

The promotion of drones reconfigures relationships between farmers, labourers, the state, and agricultural knowledge by shifting authority away from embodied, experiential understandings of farming toward technologically mediated, data-driven decision-making systems. In this way, the state's centralised agricultural modernisation agenda advances expert-led, technocratic control over farming, potentially marginalising local, experiential knowledge systems. Therefore, my ethnography will be deeply imbricated in both conceptual and empirical approaches, ensuring that theoretical insights and field realities are developed in sustained dialogue with each other.

Revisiting Mechanisms to Support Trust in Research Practices

Katharina Flicker, Andreas Rauber, Peter Knees

TU Wien, Austria

Purpose

Research findings are intended to shape political decisions and society as a whole, presenting themselves as evidence-based foundations. At the same time, science is increasingly under scrutiny because of the complexity of scientific insights mis-matching a desire for simple explanations. However, apart from potentially manipulative views of science, the increasing complexity of digital scientific processes, their dependency on data integrated from diverse sources, processed using complex software codes or hard-to-evaluate AI models makes it difficult even for the researchers themselves to fully trust and accept accountability for the results they produce.

2025

In 2025 we therefore introduced our research on the identification of mechanisms to support trust in research practices & the trustworthiness of infrastructures. Back then we presented results based on two methods. Initially, we launched a survey consisting of both closed- and open-ended questions among Data Scientists to identify factors impacting trust in as well as the perception of trustworthiness of data (quality) with an emphasis on open-source sharing and re-use practices. By now, three iterations of the (revised) survey have been conducted. We also conducted a series of semi-structured interviews with researchers across scientific disciplines focussing on research practices and trust in data (quality). Findings suggested that, first, trust strongly relates to quality management and reputation (e.g. well-established institutions, peer-reviewed journals) and that, second, there is a gap between research ideals and actual practices regarding quality assessment prior to re-use: while many stated quality assessment is crucial before re-use, roughly two thirds of the survey participants did not conduct any additional quality checks. Instead they would rather trust quality indicators such as documentation and tutorials, the number of downloads, or comments in the forum (Flicker et al., 2025).

2026

Within the last year, we analyzed the survey's second iteration quantitatively using Cramer's V, the Spearman correlation and the correlation ratio. In 2026, we wish to present and

discuss our new findings including e.g. a difference between sharing and reuse practices regarding the willingness to conduct quality checks; the reliance on perceived quality indicators; the importance of documentation as a key quality indicator (although it remains unclear what ‘good’ documentation is) and that trust appears to be shaped by knowledge, skills, and the availability of factual information, while also being influenced by complexity, transparency, and reputation.

References

Flicker, K., Reichmann, S., Blumesberger, S., Czuray, M., Rey Mazon, M., Saurugger, B., Rauber, A. (2025). Trust in Research Practices & Infrastructures. Proceedings of STS Conference Graz, 5-7 May 2025.