



Briefing note 7

Epistemic Justice and knowledge relations

If Just Transition centres on relations between society, nature and governance, then a key feature of research on Just Transitions is its attention to relations of knowledge production. Since the Second World War, doing research has become more ‘industrialised,’ geared towards the efficient generation of tangible results.¹ This is further exacerbated by the emergence of ‘triple helix’ models of innovation in research policy, where academic research is primarily intended to serve economic and social development, fostered through stronger relations with business and with government. Here, we draw from two frames – democratic Citizen Science,² and epistemic justice – to foreground what we propose are key dimensions of knowledge production for Just Transition.

‘Democratic Citizen Science’ (DCS) emerges from a recognition to reconsider how we do science in the current socio-political context of socio-economic inequality, political instability, and deep ecological threat. DCS takes the position that not only do we need accessible, trustworthy knowledge based on open enquiry, but that we now have even greater need for scientific knowledge for the public good, “that aims at a democratisation of [both] the process of [scientific] enquiry itself ... but also of the relationship between professional scientists and those who are affected by their work.”³

DCS recognises the key problem of ‘undone science’ – that important areas of enquiry are neglected because of lack of resources or low prominence in political agendas. Crucially, DCS also recognises that the drivers and parameters of the current academic research system are a contributor to this problem. As example, currently, the fixation on scholarly publication metrics by the academic research system are problematic in several ways, not least because they lead to risk avoidance and short-term optimisation of personal research output, to the detriment of community-level, long-term progress.⁴ Thus, though

1 Johannes Jaeger, Camille Masselot, Bastian Greshake Tzovaras, Enric Senabre Hidalgo, Mordechai (Muki) Haklay and Marc Santolini, “An epistemology for democratic Citizen Science,” (2023) 10 Royal Society for Open Science, 231100. Available [here](#).

2 Citizen Science can be seen as one element of a deliberative and participatory democracy. See Lisa Herzog & Robert Lepenies, “Citizen Science in Deliberative Systems: Participation, Epistemic Injustice, and Civic Empowerment,” (2022) 60(4) *Minerva* 489. Available [here](#).

3 *Supra*, at 2.

4 *Infra*, at 15.

the motivations and rationale for transdisciplinary⁵ approaches to Just Transitions research may be very clear,⁶ the institutional parameters and funding context of academic research continue to militate against it.

DCS has a distinct theory of knowledge - an epistemological approach - that focuses on 'science,' 'participants,' and 'socio-ecological context.' Below, we focus on how DCS shifts traditional thinking on what constitutes knowledge and the role of science.

- **Scientific outputs:** While traditional scientific outputs strongly focus on academic publishing products, DCS recognises other outputs as valid including enhanced relations between communities and scientists; greater trust in science; greater access by communities to scientific and academic resources; increased knowledge and capacity within communities leading to increased agency with other stakeholders; increased engagement of communities with knowledge bodies and research etc.
- **Participants:** Through a dedicated focus on enhancing participation, people gain new knowledge on issues of concern, on scientific methods for producing knowledge, and on how scientific knowledge can be relevant for areas like building community awareness, and influencing decision-making can be important impacts and outcomes of DCS.
- **Socio-ecological context:** As DCS is attuned to the generation of knowledge for community and societal purposes, its processes and outputs have impacts at individual, community and potentially societal level. DCS knowledge frequently contributes to community advocacy and public policy interventions aimed at enhancing public welfare.⁷

Many of the dimensions of DCS echo in the concept of 'epistemic justice,' that captures a range of injustices relating to knowledge, understanding and the role of information in society. These include when the existence of prejudice against a person (e.g., because of racism, sexism, accent and so on) means that their testimony of what they know, or of their 'truth,' is seen to lack credibility or weight; when, structurally, societal beliefs or dynamics make it hard for someone to articulate and make sense of their experiences (e.g., for older people to raise concerns about elder abuse from family members); or the unequal distribution of resources for knowledge and generating knowledge in society (e.g., the undone science that DCS is concerned with).⁸

5 Definitions of transdisciplinary research vary. Here we use Arnold's definition "Transdisciplinary research has four pivotal characteristics: it aims to resolve real world problems, such as sustainable development; it integrates various academic disciplines and actors, including non-academic. actors: it aims to facilitate cooperation and mutual learning of all actors; and, in this process, it produces new societal and scientific knowledge." Marlen Gabriele Arnold, "The challenging role of researchers coping with tensions, dilemmas and paradoxes in transdisciplinary settings," (2021) 30(2) Sustainable Development, 326, at 328. To this we add three further dimensions. First, we value a strong element of parity in participatory approaches to knowledge generation (knowledge co-production). Second, we think that a commitment to 'public purpose' values and academic integrity is important. See also NECTR, White Paper - Recognising and Fostering Quality in Transdisciplinary Collaborations for Confronting Societal Challenges (2025). Available [here](#). Finally, we recognise the significance of resource constraints and opportunity costs to societal partners of engaging in transdisciplinary research, and we seek to address these explicitly, early on and in a fair manner.

6 See contributions in Katrin Vohland, Anne Land-Zandstra, Luigi Ceccaroni, Rob Lemmens, Josep Perelló, Marisa Ponti, Roeland Samson, and Katherin Wagenknecht, *The Science of Citizen Science*, (Springer, 2024).

7 Teresa Schaefer, Barbara Kieslinger, Miriam Brandt and Vanessa van den Bogaert, "Evaluation in Citizen Science: The Art of Tracing a Moving Target," in Katrin Vohland, Anne Land-Zandstra, Luigi Ceccaroni, Rob Lemmens, Josep Perelló, Marisa Ponti, Roeland Samson & Katherin Wagenknecht, *The Science of Citizen Science*, (Springer, 2021). Available [here](#).

8 These dimensions are based on the well-known contributions of Miranda Fricker, *Epistemic Injustice: Power and the Ethics of Knowing*. (Oxford, Oxford University Press: 2007).

However, in considering engagement with law and governance for Just Transition, other dimensions of epistemic justice also emerge, including considering the interests of stakeholders affected by a governance decision (do they know about the decision?); do they possess relevant knowledge that is material for the decision-making process (can they share this knowledge and will this knowledge influence the decision?), in addition to more systemic injustice dimensions such as the ‘permissibility’ of the language and type of knowledge used (e.g., only English or the dominant language is used to communicate; non-Western knowledges, or non-‘scientific’ knowledges are perceived not to be valuable, and so on).⁹

Finally, an era of rapid, evolving¹⁰ and powerful (mainly privately owned) information technologies magnifies the significance and complexity of epistemic justice to considerations of the legal and governance dimensions of Just Transition. Arguably, already existing questions of how best to govern these technologies and their roles in different areas of social life have become even more pressing, as encounters between the ‘human + the natural,’ with ‘data + the technological’ have become increasingly sophisticated and intimate.¹¹ In this context, three further dimensions are worth keeping in mind. First, it is helpful and necessary to recognise and explore ‘alternative’ approaches to both software and hardware development, and to data generation, processing and use, that rethink and ‘hack’ responses to societal problems in ways that serve democracy and the public/common good.¹² This explicitly acknowledges the increasingly path dependent and ‘lock-in’ nature of technological development, and its negative consequences both for innovation and for our natural world.¹³ Secondly, the attraction and contemporary political salience of technocratic (data- and digital- and technology-centred) responses to societal challenges (including climate change) must be approached with caution for its risk of reinforcing human-centred responses, to the exclusion of ‘more-than-human’ concerns.¹⁴ Note that many of these dimensions of epistemic justice echo other dimensions of the Justice lens on law and governance discussed earlier (see below and footnote)¹⁵.

9 See for example, Sarah Cummings, Charles Dhewa, Gladys Kemboi & Stacey Young, “Doing epistemic justice in sustainable development: Applying the philosophical concept of epistemic injustice to the real world,” (2023) 31 *Sustainable Development*, 1965.

10 See for example, the rise in use of Large Language Models (LLMs) and Artificial Intelligence (AI) across so many spheres of social life, and its disruption to prior ways of perceiving and experiencing the world.

11 From a legal and governance perspective, the cumulative risks of use of LLMs pose particular governance challenges beyond those traditionally associated with consent, data ownership etc. See for example Sandra Wachter, Brent Mittelstadt & Chris Russell, “Do large language models have a legal duty to tell the truth?” (2024) 11(8) *Royal Society Open Science*, 240197. Available [here](#).

12 Captured in such concepts as, for example, open data (ecosystems), civic hacking, digital citizenship, open government etc. Note that the approach implied here is not always explicit in approaches to digital and ‘smart’ cities. Sung-Yeuh Perng, “Anticipating digital futures: ruins, entanglements and the possibilities of shared technology making,” (2019) 14(4) *Mobilities*, 418.

13 Shirin Elahi, “Cutting the Climate Change Gordian Knot and Addressing Lock-In,” (2025) 67(2) *Environment: Science and Policy for Sustainable Development*, 6.

14 Hira Sheikh, Peta Mitchell & Marcus Forth, “More-than-human smart urban governance: A research agenda,” (2023) 4 *Digital Geography and Society*, 100045. Available [here](#).

15 See Table 1 in Siobhán Airey, Yağız Eren Abanus, Hüseyincan Eryılmaz & Daniela Garcia-Caro Briceno, *Towards a Just Transition – Walking Practices & Legal possibilities*, (EUR & CSJ: 2025), at 27. Available [here](#).

Epistemic Justice and law and governance

Definition	Key questions
Emphasises the importance of knowledge and data to, and within, governance	Who knows about relevant initiatives? What knowledge is recognised as relevant and significant to decision-making? What role does knowledge and data (and technologies that generate, process and hold data) play in governance? How are democratic approaches to knowledge, data and Citizen Science addressed? Are risks and benefits of knowledge and data recognised and fairly addressed?

Excerpt from Siobhán Airey, Yağız Eren Abanus, Hüseyincan Eryılmaz & Daniela García-Caro Briceno, *Towards a Just Transition - Walking practices & Legal possibilities* (ESL-CSJ: 2025), 33. Report available [here](#).

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