



ANALYSIS

How do citizens envision democratic participation for sustainable futures? A reflection on co-created innovations

Inês Campos^{a,*}, Doris Fuchs^b, Petteri Repo^c, Vanessa Buth^d, Kiat Ng^e, João Limão^e,
Erica Löfström^f, David Lamas^g, Christian Klöckner^f

^a ICS – Instituto de Ciências Sociais, Universidade de Lisboa; and cE3c, Centre for Ecology, Evolution and Environmental Changes, Faculdade de Ciências da Universidade de Lisboa, Portugal

^b University of Münster Institute for Political Science, and Research Institute for Sustainability - Helmholtz Centre Potsdam, Germany

^c Centre for Consumer Society Research, Helsinki Institute of Sustainability Science, University of Helsinki, Finland

^d University of Münster Institute for Political Science, Germany

^e cE3c, Centre for Ecology, Evolution and Environmental Changes & CHANGE - Global Change and Sustainability Institute, Faculdade de Ciências da Universidade de Lisboa, Portugal

^f NTNU – Norwegian University of Science and Technology, Department of Psychology, Edward Bulls veg 1, 7491, Trondheim, Norway

^g School of Digital Technologies, Tallinn University, Narva mnt 29, 10120 Tallinn, Estonia



ARTICLE INFO

Keywords:

Democratic Innovations
Sustainability
Co-Creation
Principles
Participation

ABSTRACT

As humanity fails to remain within the Earth's critical biophysical limits, a growing global consensus is emerging on the urgent need for a socio-ecological transformation towards a sustainable future. Citizens' democratic participation in shaping a sustainable future is widely recognised as essential; however, empirical studies exploring the role of democratic participation practices in sustainability transitions, and how citizens themselves envision their roles in such processes, remain limited. This study draws on insights from Democracy Labs, conducted in six European cities (Germany, Italy, Norway, Portugal, Slovenia, and Spain), which employed participatory and co-creative methods from a specially tailored design toolbox. Participants engaged in a series of structured exercises designed to generate novel democratic participation practices aligned with core democratic principles. Drawing on a thematic analysis of 31 envisioned democratic innovations, the study compares participants' conceptions of fundamental democratic principles and how these shape envisioned ecologies of democratic participation. This offers a unique insight into how citizens perceive the current state of democracy and how these perceptions intersect with their understanding of sustainability at both local and global scales. The findings reveal a dynamic and context-sensitive interplay between democratic innovation and concerns about sustainability, including innovation situated in post-growth futures. They include direct and delegative democracy processes, permanent citizen assemblies, supported by digital tools that facilitate in-person meetings and e-participation. The co-created innovations reflect diverse yet grounded visions of democratic renewal, offering a nuanced perspective on how participatory design can inform pathways towards more inclusive and sustainable futures across Europe.

1. Introduction

Is democratic participation – i.e., processes that enable citizens' voices to be heard and their interests considered – necessary to achieve sustainability goals? Research seems to agree that it is (Pickering et al., 2022). Democratic institutions, namely the norms, rules, agreements,

cultures, narratives and ideologies that translate private interests to collective ones, are then crucial to ensure citizens' influence on the balancing of economic, social and political life with environmental stewardship (Geczi, 2007; Ostrom, 1990). Nevertheless, despite the centrality of democratic participation for more sustainable futures, there is still limited research on the principles and conditions valued by

* Corresponding author.

E-mail addresses: ines.campos@ics.ulisboa.pt (I. Campos), doris.fuchs@uni-muenster.de (D. Fuchs), petteri.repo@helsinki.fi (P. Repo), vanessa.buth@uni-muenster.de (V. Buth), kiengng@ciencias.ulisboa.pt (K. Ng), jplimao@fc.ul.pt (J. Limão), erica.lofstrom@ntnu.no (E. Löfström), david.lamas@tlu.ee (D. Lamas), christian.klockner@ntnu.no (C. Klöckner).

<https://doi.org/10.1016/j.ecolecon.2026.108943>

Received 30 June 2025; Received in revised form 20 October 2025; Accepted 28 January 2026

Available online 17 February 2026

0921-8009/© 2026 The Author(s). Published by Elsevier B.V. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

citizens in participatory governance (Bingham et al., 2005; Kersting, 2021; Yang and Callahan, 2007).

Therefore, this study departs from the overarching question of how citizens envision democratic innovations (DIs) and their underlying principles in democratic sustainability governance. DIs are understood as processes or institutions aimed at rethinking and intensifying citizen involvement and influence in democratic life. These innovations “reimagine and deepen the role of citizens in governance processes by increasing opportunities for participation, deliberation, and influence” (Elstub and Escobar, 2019, p.14). Governance is here understood as decision-making, in which state and non-state actors (e.g. citizens and stakeholders) participate collectively, and in the case of sustainability governance, seek outcomes towards sustainability goals (Billi et al., 2021; Stupak et al., 2021). The increasing integration of DIs in local sustainability governance (Coleman and Cardoso Sampaio, 2017), at the national level, such as the French Citizens' Climate Assembly (Galván Labrador and Zografos, 2024), and even internationally (for instance, with the advent of the Conference on the Future of Europe), indicates that governments value citizens' participation to advance sustainability (Alemanno, 2020).

Sustainability encompasses the concept of (intra- and intergenerational) justice, which involves the preservation and restoration of the ecological foundations essential for human well-being (Folke, 2006; Kimmerer, 2017; Vogt and Weber, 2019). Sustainability, thus, involves meeting human needs in ways that respect ecological limits and foster social equity (Stupak et al., 2021). Yet, sustainability has not been realised as an encompassing societal goal. The planetary boundaries framework illustrates this failure, showing that humanity has exceeded critical biophysical limits of the Earth system required to maintain safe and healthy living conditions (Rockström et al., 2009). Currently, six out of the nine boundaries (such as climate change, land system change, and rate of biodiversity loss) have already been transgressed, underscoring the urgent need for a social-ecological transformation from the local to the global scale (Richardson et al., 2023; Rockström et al., 2024). Since society bears responsibility for driving such transformations, much of the literature considers democratic participation fundamental to co-constructing a sustainable future (Pickering et al., 2022). However, there is a lack of understanding of how citizens envision their role in this process and what principles and conditions they consider essential (Nicolaidis, 2024).

To address this research gap, this study asks inductively: How do citizens collectively envision democratic participation for a sustainable future? The work draws on an experimental co-creation approach – specifically, the Democracy Labs – to guide citizens in imagining DIs that stimulate democratic participation (Campos et al., 2024). The analysis seeks to understand the most valued principles for DIs in sustainability governance. Moreover, according to post-growth literature, citizens' collective visions for their democratic participation may entail adopting new economic and policy objectives beyond material growth (Büchs and Koch, 2019). Post-growth refers to a paradigm shift in which the primary goal moves from economic growth to enhancing human well-being within planetary boundaries (Kallis et al., 2025). Thus, this analysis also examines how a post-growth future imaginary is part of citizens' perspectives on sustainability, as depicted through their co-created DIs. This study was conducted with diverse groups of citizens, as well as representatives of civil society, policymakers and administrative staff, from six European cities and countries. It sets new directions for future social-ecological research and practice, focusing on innovative processes for civic participation in co-constructing democratic and sustainable societies.

Following this introduction, the background section explores the connection between sustainability and democratic participation. Section 3 presents the co-creation approach along with the methods and materials used. Results are then summarised in Section 4 and discussed in Section 5. Conclusions and avenues for future research are also outlined, acknowledging that citizens envisioned not only democratic innovations

but also new sustainability practices, thus arguing for their interlinkages.

2. Background – Sustainability and democratic participation

Democratic participation is considered central to cultivating desirable sustainability options for future generations, enabling societal adaptation and resilience to changes, as noted in a large share of the literature on sustainability transformations (Hammond, 2020; Kersting, 2021; Paunovic et al., 2023). In particular, the need for open, deliberative and democratic engagement and participation of the public becomes clear in the context of the challenging aspects of a sustainability transformation, such as the transition to a post-growth society, which a considerable number of scholars view as an essential condition of a sustainable future (Büchs and Koch, 2019; Kallis et al., 2025; Schneider et al., 2010). Others argue that strengthening democracies is crucial for breaking away from a growth-based and fossil fuel-dependent economic system (Nyberg and Wright, 2025).

However, efforts towards common global sustainability policies, such as the Paris Agreement (Gómez-Baggethun and Naredo, 2015) are hampered by populist and authoritarian leaders in politically powerful countries that include large emitters, such as the United States (MacNeil and Paterson, 2020), and countries with particular responsibility for protecting Earth's biophysical systems, such as the Amazon Forest (de Area Leão Pereira et al., 2020; Mendes Málaga and De Fátima Ramos Silveira, 2024). While hindering sustainability governance, populist governments prioritise economic growth (Bosetti et al., 2025), thus further compromising Earth's biophysical limits. Nevertheless, the outright denial of climate and environmental crises by populist governments (Wong-Parodi and Feygina, 2020) contrasts with calls for the urgency of addressing climate change and biodiversity loss (McHugh et al., 2021). In such political struggles, new democratic and participatory dynamics at local, national, and international levels become even more vital to advance sustainability agendas, democratising policies, and ensuring planetary boundaries are respected (Pickering and Persson, 2020).

Research also highlights the challenge of reconciling democratic processes with environmental sustainability (Pickering et al., 2020). There appears to be a critical tension between advancing democratic participation and achieving social-ecological sustainability rapidly. While democratic processes may not yield sustainability outcomes quickly, authoritarian processes compromise democratic legitimacy (Schlosberg et al., 2019). This challenge has led to proposals for ecological democracy, which consider the need for a radical transformation of the neoliberal state, towards a democracy that caters to ecological values, including the needs of future generations and the environment (Eckersley, 2020). Ecological democracy is itself an alternative vision that calls for localised participatory practices, which can incentivise citizens' participation and their acceptance of decarbonization and low-carbon policies (Grunwald, 2018).

However, research has not always aligned with the post-growth and social-ecological perspectives (Feola et al., 2021). Ideas of ‘green growth’ and eco-modernism that accentuate economic efficiency have been mainstream in both policy and research (Grunwald, 2018). For instance, smart city imaginaries are inherently embedded in a capitalist, growth-oriented economy (Feola, 2020). Eco-modernist approaches may overlook systemic injustices and even local unjust power relations, which further derail sustainability governance (Grunwald, 2018; Hagbert et al., 2020). Degrowth scholars, thus, oppose “green growth”, arguing that it fails to dematerialise the economy and to address societal problems, such as unsustainable consumption and structural inequalities (Campos et al., 2025a; Hickel and Kallis, 2020; Zhang et al., 2023).

Moreover, citizens are not always positive about sustainability and may have a limited interest in prioritising ecological action, especially when they are negatively affected by local policies (Pickering and Persson, 2020). This challenge is particularly evident in economically

lagging urban and rural regions, which are also more vulnerable to unwanted socioeconomic changes, such as job losses (Rodríguez-Pose and Bartalucci, 2024). Citizens in these regions may hold antagonistic views towards sustainability governance, as policies such as climate change adaptation are perceived to exacerbate pre-existing economic and territorial inequalities (Shi et al., 2016).

But how can participation take place in democratic and political life, and increase civic engagement in sustainability governance? Voting and referendums are one way, but novel practices such as citizen assemblies, participatory budgets and collaborative governance (Agger, 2021; King and Wilson, 2023) offer alternative mechanisms for citizens to engage with and influence sustainability policies (Kersting, 2021). To include both supporting and opposing views to sustainability governance, it is critical to adopt a diverse and inclusive representation, for instance, in citizen assemblies (Spada and Peixoto, 2025). Future democratic innovations should also integrate the possibility of dialogue with opposing and even conflictual positions on sustainability. Nevertheless, there is the risk of experts taking over the development of these processes, thus disempowering citizens' voices, with potentially undemocratic outcomes (Hysing, 2013). This risk is analysed in the study of Repo and Matschoss (2019), who show that experts took over a citizen engagement process, changing the outcomes of citizens' participation in the drafting of the European Union's Horizon 2020 programme. Thus, while DIs are increasingly recognised as central for sustainability policy, there is a need for inclusive and politically legitimate practices that effectively empower participants.

There are various perspectives on what constitutes influential and impactful citizen participation. (Callahan, 2007). Citizen control has been argued as a focal principle for democratic participation, and is central to the well-known 'ladder of participation', in which each step upwards represents an increasing degree of citizens' influence (Arnstein, 1969). Other aspects are also recognised as critical. Inclusive community participation, for instance, entails long-term engagement, which is flexible and adaptive to the needs and aspirations of diverse community members (Rosen and Painter, 2019). Furthermore, the impact of participation varies according to the type of practice. For instance, while deliberative forums and surveys promote the exchange of ideas and perspectives, participatory policy planning may offer more opportunities for citizens to influence policymaking effectively (Michels, 2011).

Nevertheless, democratic participation has declined over the past decades, as trust in the effectiveness of institutions and participation processes has eroded (Blühdorn and Butzlaff, 2020). A critical component of cultivating trust is dialogue, enabled through, for instance, public square meetings and new online forums (Christensen et al., 2016). Research has found that citizen dialogue programs can be caught between different and competing rationalities and interests, which leads, in practice, to ambiguous outcomes that may undermine citizens' trust in these processes (Soneryd and Lindh, 2019). There are increasing accounts of the role of citizen dialogues as processes intended to enhance democratic practices, which are co-opted by dominant political perspectives, leading to biased participation and a lack of follow-up in integrating citizens' input (Lund et al., 2022). These findings indicate there is much to be done in developing inclusive dialogue through participation practices, balancing the needs of diverse social actors and governments' need for democratic legitimisation.

The significance of transparency for open democratic decision-making is equally critical to counter corruption, enable informed participation and increase the acceptance of outcomes (Boehme-Neßler, 2020; Stephenson, 2023). Here, information technologies may allow for a better traceability of decisions in large-scale deliberative processes, as exemplified by the "Decidim" open democracy digital platform (Barandiaran et al., 2024). At the same time, there are challenges with ensuring the ethical and inclusive application of these technologies, not only due to security concerns, but also to widening digital divides (Asimakopoulos et al., 2025).

Thus, questions of citizen control, impact, inclusion, legitimacy,

dialogue and transparency are at the core of debates about citizen participation for sustainability. To this end, it is imperative to explore how citizens collectively envision democratic participation for a sustainable future in relation to these principles.

3. Methods and materials

To elicit citizens' collective ideas for innovations in democratic participation practices, this study draws on scholarly work on participatory and co-creation methods, framed by an overall approach, i.e., the Democracy Labs, developed by the authors (Campos et al., 2024). The Democracy Labs approach integrates a generative design method (Krish, 2011; Sanders and Stappers, 2012), involving separate stages of co-creation. The process starts with a recruitment stage (participants are recruited and the research is explained to them, following a set of established criteria and ethical requirements), followed by a sensitising stage (participants engage individually in getting familiar with the topics to be discussed in subsequent workshops). Next, participants come together in a two-day workshop, where they engage in sense-making activities (collectively making sense of their past experiences with democratic participation, through critical thinking), and in a collective dreaming process (participants co-create new ideas and innovations for inclusive participation practices in which they would like to take part). Lastly, a crosscutting evaluation stage enables participants to assess the process of engagement and the results (Campos et al., 2024).

The Democracy Labs were conducted between April 2024 and November 2024, in six cities in Germany, Italy, Norway, Portugal, Slovenia, and Spain. Cities are highly susceptible to sustainability challenges, including climate change, pollution, and environmental degradation, and also play a crucial role in addressing these issues (Agyeman and Evans, 2003; Voytenko et al., 2016). The selection of cities aimed to encompass examples from Southern, Central, Eastern, and Northern Europe, offering insights into how citizens perceive sustainability challenges and new democratic practices in countries with different socioeconomic contexts. A distinct political orientation was also sought, and at the time of the research, the cities' administrations included centre-right (Lisbon), centre-left (Barcelona, Ljubljana, Rome, Potsdam), and, in the case of Trondheim, the city was in transition to a right-wing conservative party following elections. Methods for recruiting participants included social media, local media, newsletters, and flyers in libraries and civic centres, reaching 2000 to 4000 residents in cities such as Barcelona, Rome, and Ljubljana. Stratified selection was employed through a local recruitment firm in Portugal, and invitations were sent to over 2000 contacts from the public register in Germany.

The recruited participants included 102 citizens, 33 representatives from civil society organisations, and 26 policymakers or administrative staff. Research participants were selected based on their age, gender, educational background, and employment status. Individual political orientation was not a criterion; however, citizens were asked if they had participated in public consultations or other participatory processes. The selection of citizens aimed to include participants with varied experiences; they were not surveyed regarding their views on sustainability issues, such as climate change and environmental protection. These topics were only approached once engagement started. After their initial acceptance to participate, some citizens dropped out in Rome (2), Lisbon (4), Barcelona (3), and Ljubljana (5), and in some cases, they were replaced, resulting in a final number of 102 citizens. These dropouts were related to either health or work constraints, and there is no indication that the focus on sustainability motivated them to leave. Additionally, civil society representatives were invited from initiatives concerned with democratic and/or sustainability causes. Policymakers and local bureaucrats invited were from local city district administration bodies, with a focus on public participation and/or sustainability issues.

The characteristics of recruited participants are described in Table 1. On average, there were 26 participants per Democracy Lab from various

Table 1
Overview of recruited participants for the democracy lab experiments in six European cities.

| Participants | | Cities | | | | | |
|--------------|-----------------------|-----------|------|--------|---------|-----------|-----------|
| | | Trondheim | Rome | Lisbon | Potsdam | Barcelona | Ljubljana |
| Total | | 18 | 20 | 29 | 33 | 31 | 30 |
| Types | Citizens | 15 | 12 | 22 | 19 | 20 | 14 |
| | Civil Society | 2 | 6 | 3 | 7 | 7 | 8 |
| | Policymakers | 1 | 2 | 4 | 7 | 4 | 8 |
| Gender | Female | 11 | 11 | 16 | 16 | 25 | 17 |
| | Male | 7 | 9 | 13 | 16 | 5 | 12 |
| | Other | 0 | 0 | 0 | 1 | 1 | 1 |
| Employment | Full-time employed | 11 | 6 | 20 | 15 | 15 | 19 |
| | Part-time employed | 1 | 3 | 4 | 4 | 0 | 1 |
| | Student | 2 | 2 | 2 | 3 | 6 | 3 |
| | Retired | 4 | 1 | 2 | 5 | 0 | 1 |
| | Unemployed | 0 | 1 | 1 | 1 | 4 | 1 |
| | Householder/caretaker | 0 | 2 | 0 | 0 | 0 | 1 |
| | Other | 0 | 5 | 0 | 5 | 5 | 4 |

city districts. Trondheim, the pilot location, had the fewest participants (18), while Potsdam had the most (33). Across the cities, the median and mean age values were 42, with two 16-year-olds in the case of Potsdam and one in Trondheim. The maximum age was 75 (one person in Potsdam). Recruitment equally targeted vulnerable groups such as the unemployed, underprivileged minorities, and residents from disadvantaged neighbourhoods. There was a gender disparity with 97 women compared to 61 men and three who self-identified as 'other'. This gender disparity was particularly pronounced in Barcelona, where 26 out of 31 participants were women. Barcelona's recruitment methods, including advertisements in civic centres, which are more commonly used by women ("Dades de gènere i cultura", 2020), may have influenced this distribution, while Lisbon and Potsdam employed stratified sampling to balance the demographics.

Before attending the two-day workshop in each city, participants were engaged individually for a period of two weeks in activities aimed at encouraging their self-reflection on democracy (recalling their past participation experiences) and assessing their individual perceptions, imaginaries and experiences related to sustainability. Participants were provided with materials compiled into a booklet, which included games and questionnaires (Campos et al., 2024). After the sensitising phase, they were invited to participate in a two-day workshop.

On the first workshop day (i.e., the sense-making stage), participants reflected on core principles of democracy and identified practices that had influenced them. While this reflection had begun individually in the sensitising stage, the workshops added collective guidance. Participants received six "principle cards" describing inclusivity, citizen control, impact, dialogue, transparency, and legitimacy – principles widely recognised in democratic governance scholarship (Michels, 2011; Rosen and Painter, 2019; Soneryd and Lindh, 2019). In groups of four to six participants, they debated the principles, suggested amendments or new principles, and built a shared understanding of democratic principles. As the focus was on how DIs can support the policy design of solutions to complex sustainability problems, the research teams provided information on sustainability issues, such as land use, environmental protection, and climate change, as examples of complex problems that require civic participation. In one exercise, for instance, participants were guided in critically assessing best and worst practices in standard environmental assessment consultations. This sense-making stage prepared them for the second day – i.e., the collective dreaming process – by linking democratic principles to democratic participation practices and situating their ideas within the context of sustainability challenges.

On the second workshop day (i.e., the collective dreaming stage), participants were encouraged to envision the future in 2035, where democratic participation by citizens extends beyond traditional voting. Working in groups, they were then invited to co-create DIs that adhered to the principles of democracy most valued by their group. For example,

they were invited to ask themselves, "What would make this participatory practice more inclusive?", so that the envisioned practices would be an improvement when compared to the present. Participants were also asked to consider that their envisioned DIs could enable civic participation in the development and implementation of sustainability policies. This procedure resulted in 31 DIs collectively imagined in the six Democracy Labs.

4. Data analysis

The analysis of the text and visual data resulting from the workshops was implemented in three stages.

The first analysis sought to characterise each of the resulting 31 innovations, based on the principles most valued by participants. The principles associated with each DI, which citizens consider fundamental, were collected and visualised as a network with VOSviewer version 1.6.18 (van Eck and Waltman, 2007). The analysis followed a thematic approach (Braun & Clarke, 2012), reviewing all text extracts to identify common ideas, concepts, and perspectives (Blair, 2015). Using NVivo software for qualitative data analysis, the text was split into smaller units, with observed sections assigned codes (such as keywords or labels) based on their content. To confirm the names assigned by participants to each solution and the details of each idea, the visual representations produced by participants during the workshops were also analysed. These visuals were produced using designed templates provided, post-its, drawings made by participants, instant photographs taken with Polaroid cameras and a collage of images from old magazines.

A second-level analysis drew on the ecologies of participation framework (Campos et al., 2025b; Chilvers et al., 2018). The framework categorises participatory practices into three structural components: models of participation, subjects, and objects. Although the approach was originally developed to analyse energy-related participation practices, the framework can be applied to any domain of public participation. Here, it enabled understanding the ecologies of DIs. In this context, participation models encompass the processes or methods employed, such as citizen assemblies. Subjects are the engaged publics and stakeholders, while objects represent the focal point of the practice (e.g., fostering a sharing economy). Thus, participation practices can be analysed as relationships among various actors who are collectively engaging, collaborating, and devising new solutions for the future (Chilvers et al., 2018). Institutions, governance, and regulation are challenged through participation practices, which frame the different models, subjects, and objects of participation, thereby creating "systemic constitutional stabilities" (Chilvers et al., 2018, p. 202). These systemic elements, namely assumptions and/or imaginations about future systemic constitutional stabilities, were also examined. For

instance, did the innovation assume that ecological concerns would guide future post-growth production and consumption choices?

Lastly, the third-level analysis focused on understanding the relationships between the co-created DIs, seeking thematic commonalities and differences. Specifically, the analysis sought to capture (i) commonalities among the co-created decision-making process, its rules and structures (i.e., new models), the (ii) shared ideas about who participates (i.e., subjects); and (iii) shared concerns and themes for democratic deliberation (i.e., objects). This analytical framework (see Fig. 1) enabled a comparison of the envisioned DIs and interrelated sustainability concerns.

5. Results

Working in groups of four to six participants in each of the six Democracy Labs, participants collaboratively imagined 31 DIs for more inclusive civic participation, engagement and deliberation in democratic life. The DIs are principle-led, as their characteristics aim to enable the implementation of the principles considered most important by each group. For instance, the group developing the Local Citizen Assemblies DI (Bn2) prioritised participation, dialogue, and impact. Their DI entails the *participation* of citizens through permanent local citizen assemblies (a place of *dialogue*), with decision-making being binding at the neighbourhood level, and *impacting* local policy directly. A detailed description of each original idea is provided in the Supplementary Materials and summarised in Table 2. This section begins with a synthesis of the most valued principles, followed by a comparative account of the ecologies of DIs, including models, subjects, and their core concerns regarding democratic sustainability governance.

5.1. Principles

While presenting the innovations, participants referred to the overarching principles guiding their ideas. The principles and their connections are presented in Fig. 2. This network visualisation depicts connections between the principles by observing their co-occurrences in each of the DI. When combined, these co-occurrences form a network that further consists of sub-clusters (each identified by a different colour), showing how sets of principles were more often guiding the development of the innovations. The size of the node of each principle reflects its frequency in the data, and the thickness of the connecting lines reflects the frequency of the co-occurrence of two connected nodes.

The analysis of the co-occurrences of the principles shows a central cluster that revolves around “inclusivity”, “dialogue”, “legitimacy” and “citizen control”. Three smaller clusters connect to it, and in turn highlight the principles of “transparency”, “impact” and “solidarity”. For instance, groups that valued the principle of “inclusivity” were closely connected to “legitimacy”, “dialogue”, “citizen control”, and “efficiency”, as well as the more distinct principles of “transparency” and “impact”. “Efficiency” is co-occurring with “innovation”, “mutual

assistance” and “accessibility”. “Efficiency” (mentioned by six groups) is noteworthy as it is a principle that was not suggested in the cards used to support the ideation process. “Solidarity”, “effectiveness” and “communication” are also co-occurring. “Inclusivity” is equally linked to principles such as “respect”, “freedom”, and a “willingness to compromise” (in the figure, abbreviated as “compromise” and not mentioned in the cards). “Transparency”, on the other hand, is linked to “diversity”, “impact”, “trust”, and “equity”. “Local knowledge” appears only once, together with transparency. The “recognition of every sentient being as such” (in the figure, abbreviated as “recognition” – also not mentioned in the provided cards to participants), a relevant principle for environmental sustainability, appears once, together with “inclusivity” and “transparency”.

Overall, the comparison of the various DIs shows that “inclusivity”, “dialogue” and “transparency” take a central role, each prioritised more than 20 times across the cases. Moreover, participants also considered “legitimacy”, “citizen control”, “impact” and “efficiency” as essential principles for democratic participation practices. These four principles focus on the quality of outcomes from participation, a critical aspect for sustainability policy. The relevance of “impact” is also crucial for sustainability governance and its potential to lead to actual societal transformations. Nevertheless, “efficiency” may be connected to techno-economic solutions to sustainability, which diverge from post-growth imaginaries.

5.2. Ecologies of democratic innovations

Drawing on a comparison of the DIs, their ecologies of participation are summarised in Table 2 and described in detail in this section. Some innovations entail a post-growth imaginary. For instance, they entail collective agreements for managing local resources, assuming society that values sufficiency and the exchange of goods and services over excessive consumption. The envisioned DIs thus demonstrate a relationship between democratic participation and progress towards a more equal society that prioritises sustainable outcomes.

The DIs express several shared themes and processes that cut across national contexts. In Barcelona, participants proposed DIs that would address their concerns regarding food management, local ecology, and social well-being, while highlighting education, care, and access to time as critical resources for meaningful democratic participation. Concerns with the wider societal context are also cross-cutting to the ideas. For instance, in Bn2, the group considered that:

“To ensure the capacity and possibility for everyone to participate in these spaces, we identified three key elements here. The first is education: education in democratic values, participation, and active citizenship. The second is care: taking into account the balance of family, personal, and other responsibilities (...). The third is time (...) How do we create time and space for everyone to participate in these assemblies?” (Bn2, spokesperson).

Lisbon, in contrast, produced a more diverse set of innovations. Lisbon’s proposals had very few commonalities, with two solutions emphasising education for citizenship and recognising the importance of engaging youth. Lisbon’s participants also showed concerns with systemic conditions to support the proposed innovations. For instance, in Ln2, new rules are explicitly foreseen to ensure a higher accountability of politicians:

“We idealise that all politicians, be they the smallest local [representatives] up to the President of the Republic, (...) would know (...) there would be a penalty if they didn’t comply with their promised policies.” (Ln2 spokesperson).

In Ljubljana, citizens responded to ongoing environmental and economic crises by proposing DIs that would address their concerns about global development, fair representation, alternative forms of community living, and the potential of the sharing economy. Ljubljana’s innovations have three common threads: two involve a system of delegates as a form of representation, two suggest alternative community living ideas, and three highlight practices rooted in the sharing economy, thus anchored

Framework for analysing 31 envisioned democratic innovations

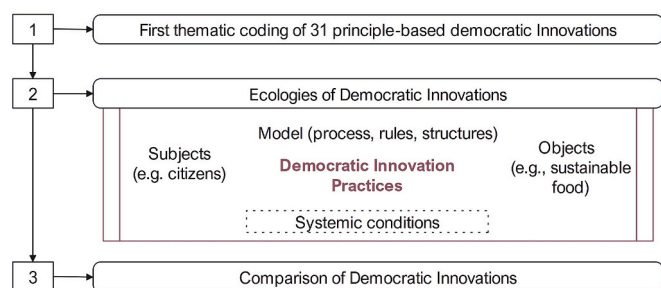


Fig. 1. Analytical framework for a comparative analysis of the imagined democratic participation practices.

Table 2

DIs: key models, subjects, and their sustainability objects (* refers to DIs related to a post-growth imaginary).

| Democratic Innovations (group code) | Summary | Models for democratic participation | Objects: sustainability and democratic governance |
|---|---|---|---|
| Barcelona - main subjects: citizens, youth, farmers, cooperatives, policymakers (local, national) | | | |
| Ecological and Resilient Territory (Bn1) * | Initiative for ecological food supply; includes "gleaning" (harvesting products left behind after crops), and feasts to engage citizens | Self-organised alternative communities and networks | Ecological food system |
| Local Citizen Assemblies (Bn2) | Permanent local citizen assemblies: decision-making is binding and immediate at the neighbourhood level | Permanent citizen-led decision-making bodies | Sustainable urban environments Education for citizenship Direct democracy |
| Digital Identity (Bn3) | Universal internet access and digital identity, with complete traceability of decisions and transparency. | E-participation platforms, including the use of AI | Participatory democracy |
| Self-managed Food System (Bn4) * | Cooperatives at the centre of food production/consumption; educate citizens, who are responsible for managing their food, on healthy food production/consumption. | Self-organised alternative communities and networks | Sustainable food Environmental and citizenship education |
| Food Waste Network (Bn5) * | Platform: citizens monitor real-time food production/consumption; Local solutions to food waste through working with civil society networks. | Self-organised alternative communities and networks | Sustainable food Environmental protection |
| Lisbon - main subjects: citizens, youth, policymakers (local and national), volunteers | | | |
| Digital Participation Key (Ln1) | Unique code (key) to participate in local, regional and national decision-making levels; includes a general assembly (decisions are legitimate and bounding); and the sharing of accessible services and products. | E-participation platforms, including the use of AI | Sharing services and products Participatory democracy |
| I-Participate Movement (Ln2) | New movement to engage people in voting, to create a new culture of participation, backed by new laws requiring elected politicians to keep up with their campaign promises. Promotes education for citizenship. | Networks for citizenship and learning | Education for citizenship Accountability of policymakers |
| Goodbye Dollar (Ln3) * | A social experiment and intentional community; open to anyone who wishes to join. Sharing and exchange of products and services substitute for money. | Self-organised alternative communities and networks | Sharing economy Direct democracy |
| Democracy Laboratories (Ln4) | National network of local spaces at the municipal level. People gather to learn about critical issues for the municipality and provide their opinions. | Networks for citizenship and learning | Education for citizenship Participatory democracy |
| Believe in Yourself (Ln5) | Mental health is linked to healthy democracies. Volunteer psychologists and other mental health professionals offer free support. | Self-organised alternative communities and networks | Volunteer services for mental health |
| Houses of Citizenship (Ln6) | Network of interconnected houses of citizenship; Intermediaries between citizens' concerns and local, regional and national democratic institutions; to address grassroots needs. | Neighbourhood-level participation and decision-making spaces | Address grassroots needs (intermediary) |
| Ljubljana - main subjects: citizens, youth, delegates, local policymakers | | | |
| Digital Civic Platform (Ljn1) * | Sharing economy model supported by a digital platform, complemented by offices in the municipality and its neighbourhoods. The platform is designed to foster reduced consumption and waste. | Neighbourhood-level participation and decision-making spaces | Sharing economy |
| System of Community Aid (Ljn2) * | Pool resources for the collective benefit of the community. A system of aid based on a direct democracy model, with delegates. Address key areas: food distribution, housing, healthcare, childcare and education, financial aid, monetary loans, microcredit, legal assistance, transportation, technological and digital support, and mental and emotional support. | Neighbourhood-level participation and decision-making spaces | Ecological community initiatives Direct democracy, with delegates |
| Community Living (Ljn3) * | Small-scale community living experience based on a shared economy, focusing on developing skills for democratic processes. | Self-organised alternative communities and networks | Sharing economy Participatory democracy |
| Circle Settlement (Ljn4) * | New sustainable settlement; houses form a circle, symbolising flowing energy and dialogue. An experimental community shares resources in a direct exchange model. | Self-organised alternative communities and networks | Sharing economy Reduce consumption Self-sufficiency |
| Participatory Budget and Assemblies (Ljn5) | Transparent participatory budget process, supported by citizen assemblies. A board representing the demographic groups of the neighbourhood oversees the assemblies' work. | Permanent citizen-led decision-making bodies | Sustainable urban environments Participatory democracy Direct democracy, with delegates |
| Incubator of Democracy (Ljn6) * | Platform supported by a system of delegates combined with in-person activities, including educational activities; Decisions based on direct and equal participation, valuing consensus, and avoiding co-option by large corporations. | Self-organised alternative communities and networks | Education for citizenship Community services |
| Potsdam - main subjects: citizens, policymakers (local, national, international bodies), AI developers | | | |
| Potsdamer Traffic Concept (Pn1) | City planners lead traffic management, involving randomly selected citizens via assemblies and an AI-powered app. Politicians, experts and administrators are also involved. | New multilevel and multi-stakeholder consultations | Sustainable urban mobility Consultation |
| Neighbourhood House (Pn2) | A network of neighbourhood houses across the country offering a place to exchange ideas at the neighbourhood level. Includes an assembly where members make decisions. | Neighbourhood-level participation and decision-making spaces | Participatory democracy |
| Community Day (Pn3) | People are allocated time and resources to participate in community affairs. Monthly, citizens have the legal, voluntary right to a day off dedicated to the community. A salary is paid by the state on the community day. | Democratic allowances (special paid day dedicated to democracy) | Participatory democracy |
| Worldwide Voting Platform (Pn4) | Only international innovation that can be scaled down to the European, national or even local level. Multilingual platform based on an AI application; Supports information sharing and simplifies complex legal concepts and policies for users. | E-participation platforms, including the use of AI | Participatory democracy Universal access to education |
| AI Pilot (Pn5) | An AI-based system diagnoses potential community problems.; Helps initiate a participatory process. Works at the local, regional and national level. | E-participation platforms, including the use of AI | Sustainable urban mobility Consultation |
| Democracy Day (Pn6) | Citizens have the right to a democratic allowance; they can take a day off (democracy day) to participate in democratic decision-making. | Democratic allowances | Participatory democracy |
| Rome - main subjects: citizens, youth, policymakers (local, national, international bodies) | | | |
| Food Transition Plan (Rn1) | Detailed citizen consultation process. Citizen groups are represented as citizen committees. Diverse activities to receive feedback and moments for discussion | New multilevel and multi-stakeholder consultations | Ecological food system Rights of Nature and animal |

(continued on next page)

Table 2 (continued)

| Democratic Innovations (group code) | Summary | Models for democratic participation | Objects: sustainability and democratic governance |
|---|---|--|---|
| Sustainable Island (Rn2) * | Imagines a world without capitalism; building ecologically and socially sustainable societies. In this world, the sustainable island uses renewable energy (waves, sun, wind) and produces organic food. <i>Re-imagines a global society as a web of interconnected communities.</i> | Neighbourhood-level participation and decision-making spaces | well-being Consultation Ecologically and socially sustainable society Education for citizenship Participatory democracy |
| Global Community Network (Rn3) * | Communities are governed by a framework of agreements, with elected state leaders as guarantors. There is complete freedom of movement between communities. | Self-organised alternative communities and networks | Respect planetary boundaries Universal Basic Income Community-led governance |
| Neighbourhood Reception (Rn4) | Neighbourhood space serves as an intermediary between citizens and democratic institutions at the municipal, regional, and national levels, harnessing local resources, including volunteers, to address grassroots issues. | Neighbourhood-level participation and decision-making spaces | Address grassroots needs (intermediary) |
| Trondheim - main subjects: citizens, youth, policymakers (local, national) | | | |
| Dream Dome (Tn1) * | Sustainable co-housing construction project; concern with the protection of nature and non-humans. Reuses existing materials, involving diverse groups, and anchored by sustainability principles. | Self-organised alternative communities and networks | Sustainable co-housing Shared economy Direct democracy |
| Citizen-inclusive Neighbourhoods (Tn2) * | Neighbourhood secretariats, replicable across the country, are spaces to foster well-being and happiness. Universal basic services are provided. Residents share views in regular public meetings. | Neighbourhood-level participation and decision-making spaces | Reduce consumption Universal Basic Services Participatory democracy |
| Neighbourhood Boards and Citizen Council (Tn3) | Two interconnected citizen-led bodies with decision-making powers for local planning: The neighbourhood board – a random number of selected citizens; The citizen council – residents from all neighbourhoods. | Permanent citizen-led decision-making bodies | Direct democracy, with delegates |
| | A hybrid neighbourhood space, where people access and exchange information. Legal framework to encourage community members to influence local politics, fostering a feeling of ownership. | Neighbourhood-level participation and decision-making spaces | Participatory democracy Protect nature Environmental education |

on a post-growth imaginary. Participants are concerned with how environmental and societal pressures affect social well-being. For instance, as stated by Ljn1 group:

“As life is now becoming more and more expensive for ordinary people, and as the environmental crisis forces us to cut unnecessary spending, we could co-use our resources.” (Ljn1 spokesperson).

Participants in Potsdam tended to adopt a more technocratic and positivistic approach, focusing on structures, timing, and regulatory conditions to enable effective participation. Two innovations focused on dedicating a specific day and budget to community engagement as a strategy for more inclusive democratic practices, five incorporated AI applications, one had an international focus, and three had a national focus, with the possibility for local implementation. Potsdam's participants were also concerned with the regulatory conditions for the application of the envisioned models of participation. For instance, regarding the use of AI in the Pn4, the group spokesperson observed that:

“We took the topic of AI as a focus again (...). However, AI is not supposed to decide anything. It can work with content and present us with the next steps to a certain extent and should (...).” (Pn4 spokesperson).

In Rome, the proposed DIs would address sustainability issues such as ecological sustainability, organic food production, and the collective management of resources, framed by a strong global vision. Two of Rome's DIs aim to incentivise organic food production, while three emphasise a future centred on well-being and ecological sustainability rather than mere economic growth. These solutions shared a commitment to sustainability rooted in the collective management of resources and a dedication to caring for people and nature while also engaging young people and citizens in co-designing these futures. Wellbeing concerns were specifically central to one proposal that entailed a systemic global change, namely Rn3:

“What could be a world in which, in any case, a good quality of life is guaranteed to everyone?” - so we are talking about a, let's say, global vision.” (Rn3 spokesperson).

Finally, in Trondheim, participants proposed locally rooted solutions for citizen engagement, combating a perceived problem with “nepotism”, that were explicitly designed to be replicable across the country while maintaining a focus on global sustainability. All proposals valued

local neighbourhood spaces and community engagement in policy decisions. Additionally, ensuring space for nature, which is considered intrinsic to local histories, remained a key concern. As with the other city groups, Trondheim's participants considered a wider systemic change when envisioning their solutions. For instance, in the case of Tn2, participants stated:

“We have a big overarching goal, which is that we must have a global, national, and local framework based on the planet's capacity to withstand pressure” (Tn2 spokesperson).

5.2.1. Models of participation

The models distilled from the 31 DIs are summarised in Fig. 3. Ten proposals envisioned local self-organised democratic communities and represent the most common model. These communities are striving for self-sufficiency, sustainable housing projects, sustainable living and the management of resources, including land use and energy (Bn4, Bn5, Ln3, Ln5, Ljn1, Ljn3, Ljn4, Rn2, Rn3 and Tn1).

Neighbourhood-level participation and decision-making spaces are the second most common model of participation, with eight proposed innovations. These spaces entail collecting ideas, suggestions and proposals from residents on local issues to inform decision-makers, who must implement citizens' proposals (i.e., Ln4, Pn2, Ln6, Tn2, Tn4 and Rn4). These spaces are also envisioned as spaces for learning, with specific activities dedicated to education for citizens, involving youth and children in local activities, creating an early sense of ownership and engagement within the community (i.e., Bn2, Rn4, Tn3 and Tn4).

Although most ideas have a digital dimension (i.e., a platform or app is used to support information sharing or participation processes), four ideas are explicitly centred on e-participation (i.e., Bn3, Ln1, Pn4, and Pn5). These ideas also cater to a wide-ranging participation, as citizens can vote and deliberate on decisions through a digital profile (i.e. Bn3, Pn4 and Pn5) or a general assembly (i.e., Ln1). Overall, the use of AI and digital applications has a more central role in Potsdam's innovations.

Local-level participation and decision-making spaces also include permanent decision-making bodies, such as permanent citizen-led decision-making bodies in Bn2, Ljn5 and Tn3. Another model is explicitly aimed at producing new networks dedicated to learning and citizenship education (Ln2 and Ln4). Two solutions are novel multilevel and multi-

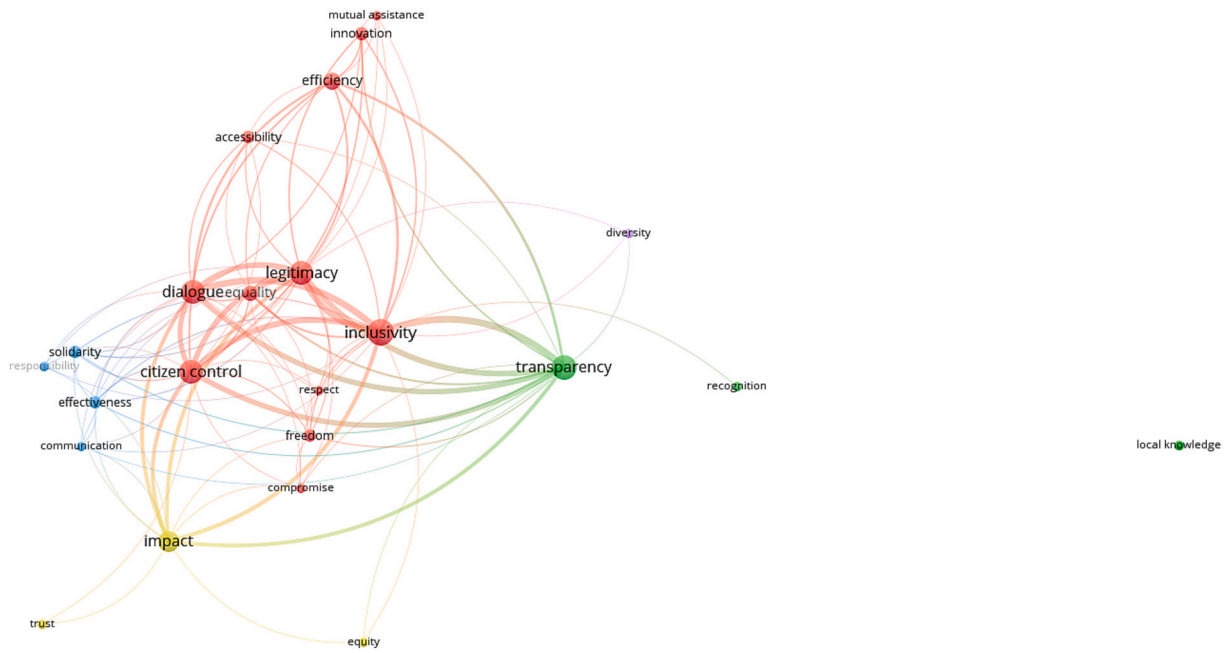


Fig. 2. Network representation of key principles, frequencies and co-occurrences guiding the envisioned DIs.

stakeholder consultation processes that could be applied to diverse sustainability topics (Pn1 and Rn1).

The notion that democratic participation practices require resources (time, funding, dedicated spaces) is prevalent, as all solutions refer to the conditions necessary for their implementation. Resources include direct public funding or funding through community contributions. They also include physical and/or virtual meeting spaces, and supporting services (e.g., babysitting, support for the elderly, translation services), communication structures (e.g., a local newspaper, billboards, or app), volunteers and/or paid staff, regulatory support to ensure the political legitimacy of the ideas, and strategies to reach a wide and diverse population (e.g., feasts, new communication tools). Two DIs cover most of these resources and are centred on the possibility of an institutionalised democratic allowance (i.e., Pn3 and Pn6).

Lastly, there are characteristics that different models share. Despite the attention to local-level processes, some DIs (i.e., Ln4, Ln6, Ljn1, Pn2, Pn5, Tn2, and Tn3) are interrelated governance networks of the proposed new spaces, such as regional and national networks of “Houses of Citizenship” or “Neighbourhood Boards and Citizen Councils”. Only two innovations have a predominantly European and/or global focus (i.e., Pn4 and Rn3) and propose new governance models. In the case of Pn4, a multilingual platform (part of the *E*-participation model) supports the participatory development of international policy through the participation of citizens worldwide or in a region, exemplified by the development of a European Constitution. In Rn3 (a self-organised community), a utopian vision of the world order is based on interconnected local communities, with local ownership and governance rules, in which elected leaders have a role as guarantors of the agreements made.

5.2.2. Subjects of participation

The majority of ideas privileges citizens' as subjects directly participating in the process, either through citizens-led processes (i.e., Bn1, Bn4, Bn5, Ln6, Ljn2, Ljn3, Ljn4, Ljn6, Pn2, Tn1 and Tn3), or through local and/or national or international institutions in which citizens are engaged in new governance and decision-making mechanisms (i.e., 20 DIs). While most of these did not explicitly state how they conceptualise citizens, except for their right to vote on ideas, six innovations conceptualise citizens to include residents, non-residents,

migrants, and visitors (Bn2, Bn3, Ln3, Rn2, Rn3, Tn2). Key concerns include ensuring fair and equal representation of diverse groups, such as children and youth, as well as those working in job sectors (e.g., shift workers) that restrict regular and consistent participation. Eight DIs highlight the central role of children and youth in offering novel and inspiring ideas (Bn2, Ln2, Ln4, Ln5, Rn2, Rn4, Tn3 and Tn4). Overall, the envisioned innovations shift decision-making towards citizens who become central protagonists, especially at the local level.

Local and national governments and policymakers are also subjects of participation. Proposed innovations emphasise novel roles for politicians, who are to ensure that the results of civic participation become politically legitimate. In this sense, participants argued that politicians should equally be accountable for their promises and responsibilities. Additionally, policymakers are expected to enable the implementation of the proposed innovations. This includes new legislation, funding, technology and new spaces. Moreover, they have responsibilities in communicating policy plans and in monitoring implementation.

Lastly, business stakeholders are mentioned as intermediaries (Bn1, Bn4), namely, food distribution companies. Cooperatives are also mentioned in five innovations (Ln3, Bn4, Bn5, Ljn3, and Ljn6) as essential options to create more sustainable production and consumption patterns. Nevertheless, the role of business stakeholders is piecemeal in the envisioned innovations, possibly indicating a challenge for participants in viewing markets as a space for societal change.

5.2.3. Objects and systemic changes

5.2.3.1. Democracy. Regarding the objects of democratic participation, new local-level processes aim to facilitate the development of targeted policies for grassroots needs, considered to be overlooked by local and national governments. Democratic institutions are expected to work together with new bottom-up ideas and processes, providing essential resources to support their functioning. Direct democracy (i.e. policies are decided by all those eligible through majority vote) is presented as a characteristic of at least six local-level processes. Delegative democracy, through a system of delegates for equal and inclusive representation of local communities in direct democracy processes, is proposed in three innovations. An “ombudsman” (i.e., a person who acts on behalf of others) is proposed in Tn4. Nevertheless, to enable these innovations,

citizens rely on the institutional and legitimate support of politicians and institutions that help implement their proposals.

5.2.3.2. Sustainability. Ten DIs focused on social and democratic issues (i.e., Bn3, Ln2, Ln4, Ln5, Ln6, Pn2, Pn3, Pn5, Pn6, and Rn4), and although sustainability concerns may have been present, they were not explicitly referred to. The remaining 21 participating groups framed their DIs as mechanisms to address sustainability concerns. These include sustainable food production and consumption (i.e., Bn1, Bn4, Bn5, Rn1), sustainable urban mobility (Pn1, Pn5), sustainable housing (i.e., Ljn3, Ljn4, Tn1), management of environmental resources and protection of biodiversity and nature (i.e., Bn1, Bn5, Rn1, Rn2, Tn1 and Tn4), low-carbon systems (Rn1, Rn2), and improvement of urban environments (Pn1, Tn4). Thirteen innovations reflected ideas framed by a post-growth and post-capitalist future. These innovations highlighted the need for alternatives to current patterns of production and consumption and the imperative to protect natural resources and respect the natural world. These include solutions concerned with reducing consumption and fostering self-producing and self-consumption practices (i.e., prosumers) (Bn1, Bn4, Bn5, Ln3, Ljn1, Ljn2, Ljn3, Ljn4, Ljn6, Rn2, Tn1 and Tn2); and solutions with a focus on circular economy models and a sharing ethos (Bn4, Bn5, Ln3, Ljn1, Ljn2, Ljn3, Ljn4, Ljn6, Tn1 and Tn2).

5.2.3.3. Wider societal changes. Some innovations entail a radical societal transformation in their concept of the future. These ideas involve new forms of governance, including a new European Constitution (Pn4) and a new form of global governance that questions the frontiers of countries (Rn3). More utopian ideas envisioned societies that have undergone transformative changes in their modes of production and consumption, in which capitalism has ended (Ljn6, Rn2 and Rn3), a new global governance model exists (Pn4, Rn3), there is access to universal basic services (Pn4, Tn2), and to a universal basic income (Rn3).

6. Discussion

The range of co-created democratic innovations resulting from Democracy Labs held in six European countries offers a rich comparative landscape of democratic imaginaries (Machin, 2022). By analysing participants' views on the core principles of democracy, their relationships to existing rules and institutional structures, and the concerns they prioritised, valuable insights emerge into how citizens perceive the current state of democracy at both local and national levels. These perceptions are deeply interlinked with notions of sustainability, framed within both local contexts and global challenges (Pickering et al., 2022).

The DIs range from direct and delegative democracy processes (Gastil and Richards, 2013) to permanent citizen assemblies, supported by digital tools that facilitate in-person meetings and e-participation

(Barandiaran et al., 2024). The centrality of citizens in these processes is innovative. Governments and institutions are expected to enable citizen implementation through resources, policy support, and legitimacy. This also connects to the importance of community ownership, as well as involving youth and strengthening citizenship education, which has been a focus in scholarly research (Keating and Janmaat, 2016). The centrality of youth across diverse DIs may also be inspired by the rise of youth-led environmental activism (Bergmann and Ossewaarde, 2020). Time was equally emphasised as relevant, including two ideas suggesting the institution of a special day for democratic participation. Similar to the literature, time is thus perceived as a scarce resource (Holand and Ellingsen, 2024) and asymmetrically distributed, which can bias participation (Frantzeskaki and Rok, 2018).

Innovative is also the combination of processes and tools within the different models, combining citizen assemblies with new local platforms, and diverse activities, including education for citizenship, and models of decision-making targeting different subjects and objects of participation. New governance models also emerge, including multilevel consultation mechanisms. Thus, striving to design innovations in line with their prioritised principles, participants built the innovations on systems of interrelated practices, each committing to fulfil a specific principle – i.e. a technology platform to ensure transparency, citizen assemblies to encourage dialogue (Chilvers, 2013; Fouché and Light, 2011). Hence, DIs are not perceived as simple monolithic structures, but are circular and complex processes, responding to diverse needs, through adaptive and co-created processes (Ansell et al., 2024). This perspective is contrary to current democratic innovation practices, such as one-time citizen assemblies, based on a single model (i.e., mini-publics), and involving a selected group of participants with a specific purpose (Alemanno, 2020; Galván Labrador and Zografos, 2024).

While some DIs focus more on democratic inclusion than on sustainability, most clearly incorporate sustainability goals, including sharing economy principles and low-carbon living. Overall, participants in Democracy Labs perceived sustainability practices as being interlinked to principles of democratic participation, reinforcing arguments for the relationship between democracy and sustainability (Pickering et al., 2020; Vogt and Weber, 2019). Here, challenges arise from the alignment between principles known from the literature. For instance, citizens' emphasis on efficiency indicates they expect that DIs will lead to concrete outcomes and advance sustainability governance (Blühdorn, 2013). The pursuit of efficiency, however, as literature has shown, may clash with calls for inclusivity and diversity (Hendriks, 2008), and indicate a green growth development perspective (Hickel and Kallis, 2020).

DIs with characteristics related to post-growth imaginaries reflect specific expectations regarding a more sustainable future, such as recognising the unsustainability of affluent consumption, and the alignment between alternative ways of living, based on cooperativism,

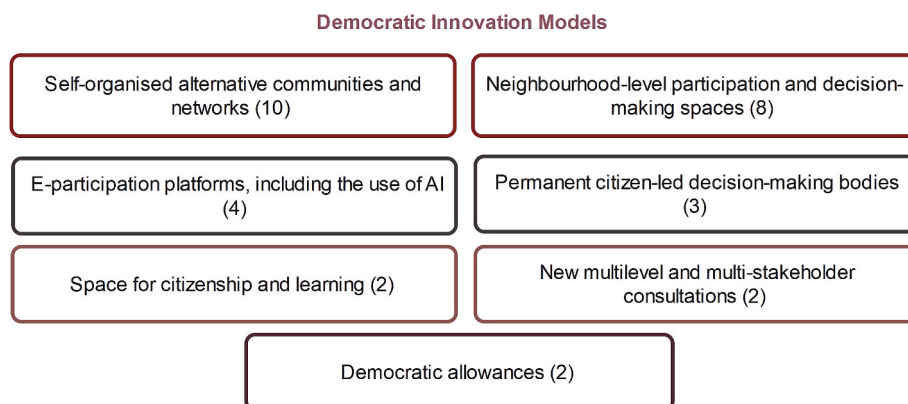


Fig. 3. Summary of Models of Participation (proposal frequency in parenthesis).

sufficiency and frugality, and social justice and ecological boundaries (Alexander and Gleeson, 2022). These expectations contradict imaginaries for the future, relying more on techno-politics and smart technologies as the centrepiece for social and environmental sustainability, i. e. with what the academic literature has come to consider ecomodernist perspectives (Miller, 2020). Instead, these expectations challenge existing social norms and structures, fostering more radical representations of possible future states of economic and sociopolitical systems (Moore and Milkoreit, 2020).

Thus, certain DIs call for transformative shifts in prevailing patterns of production and consumption, particularly in sectors such as food systems (Hebinck et al., 2018). Such shifts resonate with post-growth scholarship, which emphasises the necessity of curbing excess consumption and advancing alternative economic models grounded in circularity, resource sharing, and systems of reuse. These ideas highlight deeper societal reorientations towards sufficiency, resilience, and equity, as integral to achieving sustainable futures. (Ertz et al., 2024; Hamari et al., 2016; Hickel, 2019; Kallis et al., 2025). The envisioned DIs can, thus, also be considered sustainability innovations, similarly to those identified in the literature (Adams et al., 2016; Schaltegger and Wagner, 2010). They entail new ways of organising and doing, based on new established cultures and practices framed by sustainability values and the reimagining of civic agency and capacity to influence sustainability outcomes. Such sustainability and democratic innovations, as envisioned by citizens, equally raise the question of the extent to which a post-growth society, centred on goals for inclusive wellbeing, is present in collective expectations for the future (Bazzani, 2023). For instance, Trondheim's "Citizen-inclusive Neighbourhoods" envisions a society that follows agreed-upon rules for reducing excess consumption and assumes a global agreement on the need to limit economic activities within planetary boundaries. Thus, participants envisioned future DIs through which they enact their ecosystem citizenship, confirming arguments for the transformative potential of these practices in sustainability governance (Pickering et al., 2022).

The emergence of place-bound sustainability issues is also linked to local policy concerns. For instance, sustainable food governance has been an important topic in Rome and Barcelona (Cavallo and Olivieri, 2022; Herrero and Moragues-Faus, 2025). Potsdam has been considered a climate-pioneer city with progressive mobility and urban planning policies (Haupt et al., 2024). Thus, the emphasis on specific issues in these cities may reproduce local policy discourses. Nevertheless, in most cases, these issues are examples of the storylines participants used to illustrate their ideas, as the envisioned DIs could also be applied to other themes. Even so, sustainability emerged less prominently in the cases of Lisbon and Potsdam, a tendency that may reflect the aspirations and interests of participants. In Lisbon, for instance, workshop discussions revealed limited concern with ecological challenges when compared to a stronger emphasis on issues of social justice. As highlighted in previous research, the outcomes of participatory processes are often shaped by place-based problems and the visions participants hold for their futures, underscoring the situated nature of collective engagement (Suitner et al., 2025). Furthermore, as DIs address specific problems such as housing, traffic, or food, they emphasise local, sociopolitical, and social-ecological contexts and their city-specific priorities. This finding aligns with other research in urban and regional sustainability, which emphasises the importance of local variability in the spatial dimension of sustainability governance (Hendriks and Wesche, 2025). Such findings equally highlight the tension in urban and regional sustainability policies between global, systemic challenges and how these interconnect with local sustainability issues in everyday life. Emerging from collective imaginaries for sustainability governance and democratic practices, DIs can bridge this gap by supporting both place-based and translocal approaches simultaneously. Overall, all DIs demonstrate a keen critical awareness of social and ecological problems among citizens, coupled with a willingness to address these issues collectively through the exchange of opinions in co-creative processes.

7. Conclusion

This study has departed from the question of how citizens envision democratic innovations (DIs) and their underlying principles in democratic sustainability governance. The co-created DIs reveal that citizens themselves view democratic participation as integral to a sustainable future, with a strong emphasis on local-level engagement. They also recognise the importance of linking decision-making across multiple levels – local, regional, national, and even global – to address broad sustainability challenges effectively. Many proposals focus on local areas, envisioning spaces and services that support community engagement and local decision-making. Others address wider societal issues using alternative mechanisms, including digital platforms and temporary events such as Democracy Days. Some proposals may not always be entirely well-structured and may lack feasibility conditions, for instance, envisioning utopian community organisations. Nevertheless, they are still valued in that they represent citizens' ideas based on their valued principles for democratic and sustainable practices.

Citizens' co-created DIs identify specific guiding principles as central to their understanding of meaningful participation. This is crucial for the design of participation practices by governmental actors or other stakeholders. Importantly, citizens often view processes that fail to meet these principles as inauthentic forms of participation, which risk deepening rather than alleviating disenchantment with democracy. Guided by these principles, which are also highly relevant to sustainability governance, participants envisioned diverse sustainability futures.

Some envisioned futures were more radical, calling for new systems of production and consumption based on sharing, sufficiency, and fulfilling collective needs through empathy and inclusive decision-making. Significantly, although sustainability was introduced as the context for the DIs, participants were not provided with specific information on post-growth ideas. Thus, the presence of these ideas in some envisioned futures may indicate that post-growth perspectives are more common in citizens' imaginaries for the future than expected. DIs that fostered such transformative visions emphasised novel civic spaces and participatory processes grounded in inclusivity. Notably, AI was not perceived as playing a major role in post-growth futures. Instead, these imaginaries emphasised community engagement and the creation of new systems of exchange built on collective agreements and alternative modes of provisioning. Other DIs, by contrast, signalled more incremental pathways, reflecting ecomodernist approaches as depicted in academia, where technological innovation, including AI, was seen as central.

Given its experimental approach, this study has some limitations. The research has a limited geographical scope, covering six European cities and a limited number of recruited participants. Additionally, the role of the researchers cannot be ignored, as each team has experienced facilitators with slight variations in their guiding styles to help participants through the activities. Therefore, the findings cannot be easily generalised. Potential biases may stem from participants' political orientations, local interests, and visions for the future, which can play a more prominent role in smaller participation formats. Local realities will likely affect the solutions proposed, the envisioned innovations and the democratic and sustainability concerns driving them. Despite these limitations, there is a notable overlap between the groups in terms of focus on a selected set of principles that they view as essential for democratic participation. Still, future studies should carefully consider the role of participants' political leanings, climate- and sustainability-related perceptions and concerns, and the interplay between local issues and broader translocal perspectives. Further research should also test the ability of DIs to both respond to local community needs and address wider national and global social-ecological challenges.

More fundamentally, the findings underscore the importance of fostering closer dialogue between democracy studies and sustainability research. This is even more pertinent in times of democratic backsliding and populist backlash against sustainability governance. Taking citizens' visions for democratic innovations and specifically the principles

guiding them into account when trying to enhance participation in the pursuit of sustainability transformations will be crucial for compelling and democratically legitimate (multi-level) governance of the Earth's biophysical systems.

Use of AI

The authors declare that AI was not used to support the writing of the article.

CRediT authorship contribution statement

Inês Campos: Writing – original draft, Visualization, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Conceptualization. **Doris Fuchs:** Writing – review & editing, Validation, Project administration, Methodology, Conceptualization. **Petteri Repo:** Writing – review & editing, Visualization, Validation, Investigation. **Vanessa Buth:** Writing – review & editing, Methodology, Investigation, Data curation. **Kiat Ng:** Writing – review & editing, Validation, Methodology, Conceptualization. **João Limão:** Writing – review & editing, Methodology, Investigation, Data curation. **Erica Löfström:** Writing – review & editing, Investigation, Data curation. **David Lamas:** Writing – review & editing, Resources, Project administration, Methodology, Conceptualization. **Christian Klöckner:** Writing – review & editing, Methodology.

Funding

Funding for the research was primarily provided by the European Research Executive Agency (i.e., REA) through the Horizon European Programme (project INCITE-DEM, grant agreement 101094258). Views and opinions expressed are, however, those of the author(s) only and do not necessarily reflect those of the European Union or of the European Research Executive Agency (REA). Neither the European Union nor the granting authority (REA) can be held responsible for them. In addition, funding was also provided by the Fundação para a Ciência e Tecnologia (FCT) through the first author's contract 2023.14666.TENURE.020/CP00017/CT00017.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgements

The authors thank all Democracy Lab participants who participated in the research in Germany, Italy, Norway, Portugal, Slovenia, and Spain. The authors also thank the extended INCITE-DEM project team, who have collaborated to develop the Democracy Labs approach and successfully implemented the workshops in six cities.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.ecolecon.2026.108943>.

Data availability

Data will be made available on request.

References

- Adams, R., Jeanrenaud, S., Bessant, J., Denyer, D., Overy, P., 2016. Sustainability-oriented innovation: a systematic review. *Int. J. Manag. Rev.* 18, 180–205. <https://doi.org/10.1111/ijmr.12068>.
- Agger, A., 2021. Democratic innovations in municipal planning: potentials and challenges of place-based platforms for deliberation between politicians and citizens. *Cities* 117, 103317. <https://doi.org/10.1016/j.cities.2021.103317>.
- Agyeman, J., Evans, T., 2003. Toward just sustainability in urban communities: building equity rights with sustainable solutions. *Ann. Am. Acad. Pol. Soc. Sci.* 590, 35–53. <https://doi.org/10.1177/0002716203256565>.
- Alemanno, A., 2020. Unboxing the conference on the future of Europe and its democratic raison d'être. *Eur. Law J.* 26, 484–508. <https://doi.org/10.1111/eulj.12413>.
- Alexander, S., Gleeson, B., 2022. Collective sufficiency: Degrowth as a political project. In: Alexander, S., Chandrashekeran, S., Gleeson, B. (Eds.), *Post-Capitalist Futures: Paradigms, Politics, and Prospects*. Springer, Singapore, pp. 53–64. https://doi.org/10.1007/978-981-16-6530-1_5.
- Ansell, C., Sørensen, E., Torfing, J., 2024. The democratic quality of co-creation: a theoretical exploration. *Public Policy Adm.* 39, 149–170. <https://doi.org/10.1177/09520767231170715>.
- Arnstein, S.R., 1969. A ladder of citizen participation. *J. Am. Inst. Plann.* 35, 216–224. <https://doi.org/10.1080/01944366908977225>.
- Asimakopoulou, G., Antonopoulou, H., Giotopoulos, K., Halkiopoulos, C., 2025. Impact of information and communication technologies on democratic processes and citizen participation. *Societies* 15, 40. <https://doi.org/10.3390/soc15020040>.
- Barandiaran, X.E., Calleja-López, A., Monterde, A., Romero, C., 2024. Decidim, a Technopolitical Network for Participatory Democracy: Philosophy, Practice and Autonomy of a Collective Platform in the Age of Digital Intelligence, *SpringerBriefs in Political Science*. Springer Nature Switzerland, Cham. <https://doi.org/10.1007/978-3-031-50784-7>.
- Bazzani, G., 2023. Futures in action: expectations, imaginaries and narratives of the future. *Sociology* 57, 382–397. <https://doi.org/10.1177/00380385221138010>.
- Bergmann, Z., Ossewaarde, R., 2020. Youth climate activists meet environmental governance: ageist depictions of the FFF movement and Greta Thunberg in German newspaper coverage. *J. Multicult. Discourses* 15, 267–290. <https://doi.org/10.1080/17447143.2020.1745211>.
- Billi, M., Mascareño, A., Edwards, J., 2021. Governing sustainability or sustainable governance? Semantic constellations on the sustainability-governance intersection in academic literature. *J. Clean. Prod.* 279, 123523. <https://doi.org/10.1016/j.jclepro.2020.123523>.
- Bingham, L.B., Nabatchi, T., O'Leary, R., 2005. The new governance: practices and processes for stakeholder and citizen participation in the work of government. *Public Adm. Rev.* 65, 547–558. <https://doi.org/10.1111/j.1540-6210.2005.00482.x>.
- Blair, E., 2015. A reflexive exploration of two qualitative data coding techniques. *J. Methods Meas. Soc. Sci.* 6. <https://doi.org/10.2458/v6i1.18772>.
- Blühdorn, I., 2013. The governance of unsustainability: ecology and democracy after the post-democratic turn. *Environ. Polit.* 22, 16–36. <https://doi.org/10.1080/09644016.2013.755005>.
- Blühdorn, I., Butzlaff, F., 2020. Democratization beyond the post-democratic turn: towards a research agenda on new conceptions of citizen participation. *Democratization* 27, 369–388. <https://doi.org/10.1080/13510347.2019.1707808>.
- Boehme-Neßler, V., 2020. Digitising Democracy: On Reinventing Democracy in the Digital Era - a Legal, Political and Psychological Perspective. Springer International Publishing, Cham. <https://doi.org/10.1007/978-3-030-34556-3>.
- Bosetti, V., Colantone, I., De Vries, C.E., Musto, G., 2025. Green backlash and right-wing populism. *Nat. Clim. Chang.* 15, 822–828. <https://doi.org/10.1038/s41558-025-02384-0>.
- Büchs, M., Koch, M., 2019. Challenges for the degrowth transition: the debate about wellbeing. *Futures* 105, 155–165. <https://doi.org/10.1016/j.futures.2018.09.002>.
- Callahan, K., 2007. Citizen participation: models and methods. *Int. J. Public Adm.* 30, 1179–1196. <https://doi.org/10.1080/01900690701225366>.
- Campos, I., Fuchs, D., Repo, P., Jager, W., Klöckner, C., Wang, S., Lamas, D., Cots, F., Barchiesi, E., Löfström, E., Peniche, D., Sion, Y., Buth, V., Limão, J., Oliveira, S., Diaz, C.R., Živčič, L., 2024. What roles can democracy labs play in co-creating democratic innovations for sustainability? *Socio-Ecol. Pract. Res.* <https://doi.org/10.1007/s42532-024-00197-7>.
- Campos, I., Maraschin, S., Schwemmlin, K.M., 2025a. Green, innovative, and unfair: the case of unjust energy transitions and civic resistance and opposition in Portugal. *Energy Res. Soc. Sci.* 124, 104068. <https://doi.org/10.1016/j.erss.2025.104068>.
- Campos, I., Wittmayer, J.M., Hielscher, S., Oliveira, F., Moreira Alves, F., Progscha, S., Wientjes, A., 2025b. Just participation in wind energy: the role of social innovations. *Renew. Sust. Energy Rev.* 209, 115146. <https://doi.org/10.1016/j.rser.2024.115146>.
- Cavallo, A., Olivieri, F.M., 2022. Sustainable local development and Agri-food system in the post Covid crisis: the case of Rome. *Cities* 131, 103994. <https://doi.org/10.1016/j.cities.2022.103994>.
- Chilvers, J., 2013. Reflexive engagement? Actors, learning, and reflexivity in public dialogue on science and technology. *Sci. Commun.* 35, 283–310. <https://doi.org/10.1177/1075547012454598>.
- Chilvers, J., Pallett, H., Hargreaves, T., 2018. Ecologies of participation in socio-technical change: the case of energy system transitions. *Energy Res. Soc. Sci.* 42, 199–210. <https://doi.org/10.1016/j.erss.2018.03.020>.
- Christensen, H.S., Maija, Karjalainen, Lundell, K., 2016. Democratic innovations to the rescue? Political trust and attitudes toward democratic innovations in Southwest Finland. *Int. J. Public Adm.* 39, 404–416. <https://doi.org/10.1080/01900692.2015.1015560>.

- Coleman, S., Cardoso Sampaio, R., 2017. Sustaining a democratic innovation: a study of three e-participatory budgets in Belo Horizonte. *Inf. Commun. Soc.* 20, 754–769. <https://doi.org/10.1080/1369118X.2016.1203971>.
- Dades de gènere i cultura, 2020. Obs. Dades Cult. Barc. URL: <https://barcelonadadescul.tura.bcn.cat/dades-de-genere-i-cultura/> (accessed 3.10.25).
- de Area Leão Pereira, E.J., de Santana Ribeiro, L.C., da Silva Freitas, L.F., de Barros Pereira, H.B., 2020. Brazilian policy and agribusiness damage the Amazon rainforest. *Land Use Policy* 92, 104491. <https://doi.org/10.1016/j.landusepol.2020.104491>.
- Eckersley, R., 2020. Ecological democracy and the rise and decline of liberal democracy: looking back, looking forward. *Environ. Polit.* 29, 214–234. <https://doi.org/10.1080/09644016.2019.1594536>.
- Elstub, S., Escobar, O., 2019. Handbook of democratic innovation and governance. Edward Elgar Publishing. <https://doi.org/10.4337/9781786433862>.
- Feola, G., 2020. Capitalism in sustainability transitions research: time for a critical turn? *Environ. Innov. Soc. Transit.* 35, 241–250. <https://doi.org/10.1016/j.eist.2019.02.005>.
- Feola, G., Vincent, O., Moore, D., 2021. (un)making in sustainability transformation beyond capitalism. *Glob. Environ. Chang.* 69, 102290. <https://doi.org/10.1016/j.gloenvcha.2021.102290>.
- Folke, C., 2006. Resilience: the emergence of a perspective for social-ecological systems analyses. *Glob. Environ. Chang.* 16, 253–267. <https://doi.org/10.1016/j.gloenvcha.2006.04.002>.
- Fouché, C., Light, G., 2011. An invitation to dialogue: ‘the world café’ in social work research. *Qual. Soc. Work.* 10, 28–48. <https://doi.org/10.1177/1473325010376016>.
- Frantzeskaki, N., Rok, A., 2018. Co-producing urban sustainability transitions knowledge with community, policy and science. *Environ. Innov. Soc. Transit.* 29, 47–51. <https://doi.org/10.1016/j.eist.2018.08.001>.
- Galvanes Labrador, A., Zografos, C., 2024. Empowerment and disempowerment in climate assemblies: the French citizens’ convention on climate. *Environ. Policy Gov.* 34, 414–426. <https://doi.org/10.1002/eet.2093>.
- Gastil, J., Richards, R., 2013. Making direct democracy deliberative through random assemblies*. *Polit. Soc.* 41, 253–281. <https://doi.org/10.1177/0032329213483109>.
- Geczi, E., 2007. Sustainability and public participation: toward an inclusive model of democracy. *Adm. Theory Prax.* 29, 375–393. <https://doi.org/10.1080/10841806.2007.11029600>.
- Gómez-Baggethun, E., Naredo, J.M., 2015. In search of lost time: the rise and fall of limits to growth in international sustainability policy. *Sustain. Sci.* 10, 385–395. <https://doi.org/10.1007/s11625-015-0308-6>.
- Grunwald, A., 2018. Diverging pathways to overcoming the environmental crisis: a critique of eco-modernism from a technology assessment perspective. *J. Clean. Prod.* 197, 1854–1862. <https://doi.org/10.1016/j.jclepro.2016.07.212>.
- Hagbert, P., Wangel, J., Broms, L., 2020. Exploring the potential for just urban transformations in Light of eco-modernist imaginaries of sustainability. *Urban Plan.* 5, 204–216. <https://doi.org/10.17645/up.v5i4.3302>.
- Hammond, M., 2020. Democratic deliberation for sustainability transformations: between constructiveness and disruption. *Sustain. Sci. Pract. Policy* 16, 220–230. <https://doi.org/10.1080/15487733.2020.1814588>.
- Haupt, W., Kern, K., Irmisch, J.L., 2024. From climate policy pioneers to climate policy leaders? The examples of the eastern German cities of Potsdam and Rostock. *Urban Res. Pract.* 17, 29–50. <https://doi.org/10.1080/17535069.2022.2104655>.
- Hebinck, A., Vervoort, J., Hebinck, P., Rutting, L., Galli, F., 2018. Imagining transformative futures: participatory foresight for food systems change. *Ecol. Soc.* 23. <https://doi.org/10.5751/ES-10054-230216>.
- Hendriks, C.M., 2008. On inclusion and network governance: the democratic disconnect of Dutch energy transitions. *Public Adm.* 86, 1009–1031. <https://doi.org/10.1111/j.1467-9299.2008.00738.x>.
- Hendriks, A., Wesche, J., 2025. Sustainability transitions research: an introduction. <https://doi.org/10.33774/coe-2025-sf9jh>.
- Herrero, A., Moragues-Faus, A., 2025. City profile: a history of changing urban powers to feed the city of Barcelona. *Cities* 163, 106025. <https://doi.org/10.1016/j.cities.2025.106025>.
- Hickel, J., 2019. Is it possible to achieve a good life for all within planetary boundaries? *Third World Q.* 40, 18–35. <https://doi.org/10.1080/01436597.2018.1535895>.
- Hickel, J., Kallis, G., 2020. Is green growth possible? *New Polit. Econ.* 25, 469–486. <https://doi.org/10.1080/13563467.2019.1598964>.
- Holand, A.M., Ellingsen, T., 2024. 6 never time to meet? Time as a constraint in cross-sectoral co-creation (experiences from an explorative study of co-creation). In: Holand, A.M. (Ed.), *Time in our Times: Stretching Contemporary Understandings of Time*. De Gruyter, pp. 127–154.
- Hysing, E., 2013. Representative democracy, empowered experts, and citizen participation: visions of green governing. *Environ. Polit.* 22, 955–974. <https://doi.org/10.1080/09644016.2013.817760>.
- Kallis, G., Hickel, J., O’Neill, D.W., Jackson, T., Victor, P.A., Raworth, K., Schor, J.B., Steinberger, J.K., Ürge-Vorsatz, D., 2025. Post-growth: the science of wellbeing within planetary boundaries. *Lancet Planet. Health* 9, e62–e78. [https://doi.org/10.1016/S2542-5196\(24\)00310-3](https://doi.org/10.1016/S2542-5196(24)00310-3).
- Keating, A., Janmaat, J.G., 2016. Education through citizenship at school: do School activities have a lasting impact on youth political engagement? *Parliam. Aff.* 69, 409–429. <https://doi.org/10.1093/pa/gsv017>.
- Kersting, N., 2021. Participatory democracy and sustainability. Deliberative democratic innovation and its acceptance by citizens and German local councilors. *Sustainability* 13, 7214. <https://doi.org/10.3390/su13137214>.
- Kimmerer, R.W., 2017. *The Covenant of Reciprocity*, in: *The Wiley Blackwell Companion to Religion and Ecology*. John Wiley & Sons, Ltd, pp. 368–381. doi: <https://doi.org/10.1002/9781118465523.ch26>.
- King, M., Wilson, R., 2023. Local government and democratic innovations: reflections on the case of citizen assemblies on climate change. *Public Money Manag.* 43, 73–76. <https://doi.org/10.1080/09540962.2022.2033462>.
- Krish, S., 2011. A practical generative design method. *Comput. Aided Des.* 43, 88–100. <https://doi.org/10.1016/j.cad.2010.09.009>.
- Lund, P., Gustav, Lidén, Nyhlén, S., 2022. Who talks and who listens? A qualitative analysis of citizen dialogues in rural Sweden. *Local Gov. Stud.* 48, 129–149. <https://doi.org/10.1080/03003930.2021.1988936>.
- Machin, A., 2022. Climates of democracy: skeptical, rational, and radical imaginaries. *WIREs Clim. Change* 13, e774. <https://doi.org/10.1002/wcc.774>.
- MacNeil, R., Paterson, M., 2020. Trump, US climate politics, and the evolving pattern of global climate governance. *Glob. Change Peace Secur.* 32, 1–18. <https://doi.org/10.1080/14781158.2020.1675620>.
- McHugh, L.H., Lemos, M.C., Morrison, T.H., 2021. Risk? Crisis? Emergency? Implications of the new climate emergency framing for governance and policy. *WIREs Clim. Change* 12, e736. <https://doi.org/10.1002/wcc.736>.
- Mendes Málaga, D., De Fátima Ramos Silveira, S., 2024. A wounded democracy: analysis of the determinant factors of democratic backsliding in Brazil. *Cosmopolitan Civil Societies: An Interdisciplinary Journal* 16, 13–26. <https://doi.org/10.5130/ccs.v16.i3.9071>.
- Michels, A., 2011. Innovations in democratic governance: how does citizen participation contribute to a better democracy? *Int. Rev. Adm. Sci.* 77, 275–293. <https://doi.org/10.1177/0020852311399851>.
- Miller, T.R., 2020. Imaginaries of sustainability: the techno-politics of smart cities. *Sci. Cult.* 29, 365–387. <https://doi.org/10.1080/09505431.2019.1705273>.
- Moore, M.-L., Milkoreit, M., 2020. Imagination and transformations to sustainable and just futures. *Elem. Sci. Anthr.* 8, 081. <https://doi.org/10.1525/elementa.2020.081>.
- Nicolaidis, K., 2024. The third democratic transformation: from European to planetary politics. *JCMS J. Common Mark. Stud.* 62, 845–867. <https://doi.org/10.1111/jcms.13589>.
- Nyberg, D., Wright, C., 2025. Confronting the climate crisis: fossil fuel hegemony and the need for decarbonization, degrowth, and democracy. *J. Manag. Stud.* n/a. doi: <https://doi.org/10.1111/joms.13198>.
- Ostrom, E., 1990. *Governing the commons: the evolution of institutions for collective action*. Cambridge University Press, Cambridge. <https://doi.org/10.1017/CBO9780511807763>.
- Paunovic, I., Müller, C., Deimel, K., 2023. Citizen participation for sustainability and resilience: a generational cohort perspective on community brand identity perceptions and development priorities in a rural community. *Sustainability* 15, 7307. <https://doi.org/10.3390/su15097307>.
- Pickering, J., Persson, Å., 2020. Democratising planetary boundaries: experts, social values and deliberative risk evaluation in earth system governance. *J. Environ. Policy Plan.* 22, 59–71. <https://doi.org/10.1080/1523908X.2019.1661233>.
- Pickering, J., Bäckstrand, K., Schlosberg, D., 2020. Between environmental and ecological democracy: theory and practice at the democracy-environment nexus. *J. Environ. Policy Plan.* 22, 1–15. <https://doi.org/10.1080/1523908X.2020.1703276>.
- Pickering, J., Hickmann, T., Bäckstrand, K., Kalfagianni, A., Bloomfield, M., Mert, A., Ransan-Cooper, H., Lo, A.Y., 2022. Democratising sustainability transformations: assessing the transformative potential of democratic practices in environmental governance. *Earth Syst. Gov.* 11, 100131. <https://doi.org/10.1016/j.esg.2021.100131>.
- Repo, P., Matschoss, K., 2019. Considering expert takeovers in citizen involvement processes. *J. Responsible Innov.* 6, 119–142. <https://doi.org/10.1080/23299460.2019.1568145>.
- Richardson, K., Steffen, W., Lucht, W., Bendtsen, J., Cornell, S.E., Donges, J.F., Driake, M., Fetzer, I., Bala, G., von Bloh, W., Feulner, G., Fiedler, S., Gerten, D., Gleeson, T., Hofmann, M., Huiskamp, W., Kummu, M., Mohan, C., Nogués-Bravo, D., Petri, S., Porkka, M., Rahmstorf, S., Schaphoff, S., Thonicke, K., Tobian, A., Virkki, V., Wang-Erlandsson, L., Weber, L., Rockström, J., 2023. Earth beyond six of nine planetary boundaries. *Sci. Adv.* 9, eadh2458. <https://doi.org/10.1126/sciadv.adh2458>.
- Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin, F.S., Lambin, E., Lenton, T.M., Scheffer, M., Folke, C., Schellnhuber, H.J., Nykvist, B., de Wit, C.A., Hughes, T., van der Leeuw, S., Rodhe, H., Sörlin, S., Snyder, P.K., Costanza, R., Svedin, U., Falkenmark, M., Karlberg, L., Corell, R.W., Fabry, V.J., Hansen, J., Walker, B., Liverman, D., Richardson, K., Crutzen, P., Foley, J., 2009. Planetary boundaries: exploring the safe operating space for humanity. *Ecol. Soc.* 14.
- Rockström, J., Donges, J.F., Fetzer, I., Martin, M.A., Wang-Erlandsson, L., Richardson, K., 2024. Planetary boundaries guide humanity’s future on earth. *Nat. Rev. Earth Environ.* 5, 773–788. <https://doi.org/10.1038/s43017-024-00597-z>.
- Rodríguez-Pose, A., Bartalucci, F., 2024. The green transition and its potential territorial discontents. *Camb. J. Reg. Econ. Soc.* 17, 339–358. <https://doi.org/10.1093/cjres/rsad039>.
- Rosen, J., Painter, G., 2019. From citizen control to co-production: moving beyond a linear conception of citizen participation. *J. Am. Plan. Assoc.* 85, 335–347. <https://doi.org/10.1080/01944363.2019.1618727>.
- Sanders, E., Stappers, P., 2012. *Convivial Toolbox: Generative Research for the Front End of Design*. Bis, Amsterdam.
- Schaltegger, S., Wagner, M., 2010. Sustainable entrepreneurship and sustainability innovation: categories and interactions 17.
- Schlosberg, D., Bäckstrand, K., Pickering, J., 2019. Reconciling ecological and democratic values: recent perspectives on ecological democracy. *Environ. Values* 28, 1–9.

- Schneider, F., Kallis, G., Martinez-Alier, J., 2010. Crisis or opportunity? Economic degrowth for social equity and ecological sustainability. Introduction to this special issue. *J. Clean. Prod.* 18, 511–518. <https://doi.org/10.1016/j.jclepro.2010.01.014>.
- Shi, L., Chu, E., Anguelovski, I., Aylett, A., Debats, J., Goh, K., Schenk, T., Seto, K.C., Dodman, D., Roberts, D., Roberts, J.T., VanDeveer, S.D., 2016. Roadmap towards justice in urban climate adaptation research. *Nat. Clim. Chang.* 6, 131–137. <https://doi.org/10.1038/nclimate2841>.
- Soneryd, L., Lindh, E., 2019. Citizen dialogue for whom? Competing rationalities in urban planning, the case of Gothenburg, Sweden. *Urban Res. Pract.* 12, 230–246. <https://doi.org/10.1080/17535069.2018.1436721>.
- Spada, P., Peixoto, T.C., 2025. The limits of representativeness in citizens' assemblies: a critical analysis of democratic minipublics. *J. Sortition* 1, 137–159. <https://doi.org/10.53765/3050-0672.1.1.137>.
- Stephenson, P., 2023. Exploring the throughput legitimacy of European Union policy evaluation: challenges to transparency and inclusiveness in the European Commission's consultation procedures and the implications for risk regulation. *Eur. J. Risk Regul.* 14, 351–370. <https://doi.org/10.1017/err.2023.33>.
- Stupak, I., Mansoor, M., Smith, C.T., 2021. Conceptual framework for increasing legitimacy and trust of sustainability governance. *Energy Sustain. Soc.* 11, 5. <https://doi.org/10.1186/s13705-021-00280-x>.
- Suitner, J., Haider, W., Krisch, A., Philipp, S., Fetting, C., Neuner, E., Aigner, A., 2025. Break, bridge or bolster? Participatory energy initiatives between frames and futures of local sustainability. *J. Environ. Policy Plan.* 27, 294–308. <https://doi.org/10.1080/1523908X.2025.2476055>.
- van Eck, N.J., Waltman, L., 2007. VOS: A new method for visualizing similarities between objects. In: Decker, R., Lenz, H.-J. (Eds.), *Advances in Data Analysis*. Springer, Berlin, Heidelberg, pp. 299–306. https://doi.org/10.1007/978-3-540-70981-7_34.
- Vogt, M., Weber, C., 2019. Current challenges to the concept of sustainability. *Glob. Sustain.* 2, e4. <https://doi.org/10.1017/sus.2019.1>.
- Voytenko, Y., McCormick, K., Evans, J., Schliwa, G., 2016. Urban living labs for sustainability and low carbon cities in Europe: towards a research agenda. *J. Clean. Prod.* 123, 45–54. <https://doi.org/10.1016/j.jclepro.2015.08.053>.
- Wong-Parodi, G., Feygina, I., 2020. Understanding and countering the motivated roots of climate change denial. *Curr. Opin. Environ. Sustain.* 42, 60–64. <https://doi.org/10.1016/j.cosust.2019.11.008>.
- Yang, K., Callahan, K., 2007. Citizen involvement efforts and bureaucratic responsiveness: participatory values, stakeholder pressures, and administrative practicality. *Public Adm. Rev.* 67, 249–264. <https://doi.org/10.1111/j.1540-6210.2007.00711.x>.
- Zhang, H., Luo, M., Pei, T., Liu, X., Wang, L., Zhang, W., Lin, L., Ge, E., Liu, Z., Liao, W., 2023. Unequal urban heat burdens impede climate justice and equity goals. *Int. J. Hydrog. Energ.* 4. <https://doi.org/10.1016/j.xinn.2023.100488>.