

Civic Infrastructure in the Age of Digital Engagement

Author: Peter Lewis,¹ Alex Fischer,^{2,7} Adele Webb,³ Nicholas Biddle,^{*4} Sally Cripps,² Thea Snow,⁵ Geoff Mulgan⁶

1. Per Capita
2. Human Technology Institute, UTS
3. Centre for Deliberative Democracy, University of Canberra
4. Australian National University
5. Centre for Public Impact
6. University College London
7. Office for Social Cohesion, Department of Home Affairs

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*Contact: Nicholas.Biddle@anu.edu.au



Australian
National
University

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Abstract

We are in a race to rebuild trust and meaningful citizen engagement at a time when economic, social, political, and technological forces pull in the opposite direction. Traditional in-person engagement is declining, and government consultation processes are not meeting expectations. At the same time digital platforms have become central arenas of public life, yet in their current design many of these privately-owned digital environments amplify polarisation, reinforce grievance-driven interactions, and undermine constructive dialogue. Rather than setting up the conditions for navigating disagreement towards consensus, analysis suggests they are deepening divisions.

Across Taiwan, France, Germany, Brazil, and Spain, governments and civic leaders are experimenting with civic participation approaches, both digital and direct ones that prioritise inclusion, accountability, responsive deliberation, and consensus-building. These initiatives show that civic infrastructure and processes, both digital and in-person, when intentionally designed, can facilitate deliberation around responsive feedback loops that connect lived experience to decision-making at any local to national scale. This paper explores what we know about embedding civic participation into democratic decision processes, both abroad and in Australia.

A review of the current monitoring approach to civic participation measures shows a focus on levels and locations of engagement, not the process or outcomes from those engagements. Australian surveys measure the steady decline of volunteering rates and formal organisational membership. They do not track forms of digital engagement beyond news and social media consumption. This leaves a gap in how we measure the digital participation patterns and preferences, and impact or outcomes of engagement such as feeling heard or responsiveness of shared problem solving.

There is emerging global evidence about what we know are the core principles for responsive and trustworthy digital civic spaces, building from case studies and global literature. The examples identify how communities, institutions, and technologists across Australia are experimenting with new hybrid approaches, but lack a shared framework, design approach, followed by digital tools. Emerging examples range from disability policy dialogues, community energy transitions, housing, education policy, and local government where civic experiments are underway.

The opportunity to design purposeful digital participation with responsive dynamic feedback processes is not a technological challenge alone, but also a structural and institutional one. The paper outlines new civic infrastructures that embed democratic and deliberative values, with community control, open-source technology, shared benefits, and iterative feedback loops. This involves reconceiving current static feedback processes to more dynamic ones that move from determinative outcomes to solution-oriented engagement. Rapid technological advances offer powerful tools to connect, listen, and adapt, but without intentional and collaborative institutional design to ensure public benefit, these tools risk reinforcing disconnection and mistrust.

1 Introduction

Australian's engagement in civic spaces is shifting, shaped by three tensions in observable patterns. First is the contradiction of current participation where formal, in-person activities such as joining, volunteering, and attending public meetings are declining, even as informal engagement through online platforms, closed networks and digital activism grows (Cameron 2025). Second is a contradiction of intent where communities consistently express a desire for more voice and leadership in the decisions that affect them, yet participation in public forums does not translate into actions quickly enough or it becomes polarised, amplifying division and weakening consensus around outcomes (Wilson 2024). Third is a contradiction of responsiveness where governments are investing heavily in digital transformation and data to observe the needs of their populations, but that hasn't converted into dynamic feedback loops which produce meaningful engagement between citizen and state (OECD 2025).

These engagement contradictions are reflected in recent data trends. Evidence shows that volunteering rates in Australia are steadily declining. Volunteering Australia's statistics show that formal volunteering through organisations dropped from 36.2% in 2010 to 28.8% in 2019, with the total hours volunteered falling by about 20% from 2014 levels (Biddle and Gray 2023). The multi-year trends in Australia suggest volunteering, a key measured component of civic engagement, remains comparatively high by international standards but still declining (Cameron 2025). The 2023 OECD Trust Survey finds that the most notable trust gap exists between those who feel "people like them" have a say in what the government does and those who do not, with a 52-percentage point differential (OECD 2025). Overall, while Australians remain comparatively active in civic life, both formal engagement and volunteering are on a downward trajectory and there is a growing sense that they are not being meaningfully heard when they do participate.

These trends occur against a broader backdrop of changing engagement patterns in third places, or social surroundings that are separate from our home and work. This includes declining membership in unions, business chambers, churches, RSL clubs, community organisations, sporting clubs, and libraries, institutions that de Tocqueville imaged as "schools of democracy", cultivating the kind of associational practices that sustain democratic life (Putnam 2000).

Through the 20th century these institutions exercised what JK Galbraith (1952) described as 'countervailing power' mediating the vast power differential between government and individuals. Historically, such organisations offered structured channels for feedback into government, often equipped with professional advocacy units, analytical capacity, and the ability to mobilise members. As membership has fallen, so too has these institutions' influence. Research commissioned by Essential after the 2023 Voice referendum found that many members of these organisations did not vote in line with their organisation's declared position, highlighting the weakening influence of civil society (Lewis, 2024). The same survey reported that half of respondents had never participated in any form of feedback with the government. These trends occurred in the context of a Referendum which sought public agreement on how to formally structure feedback loops between First Nations communities and the government. Unpublished qualitative research undertaken by Essential after the vote suggests the public debate raised questions about how all Australians perceive they are being heard, individually and as groups, with concerns that creating dedicated feedback structures for First Nations people represented a form of 'special treatment'.

Australia's knowledge of the comprehensive patterns of digital civic participation is fragmented. A set of targeted research initiative a decade ago assessed how Australians were

using platforms for petitions, contacting government, expressive and collective action, framing this shift as a move toward “engaged citizenship,” while flagging emerging digital-rights concerns (Vromen, 2018; Loader et al. 2014, Goggine et al., 2017)) Since then, researchers have not run a national survey or set of analysis to track digital civic life and digital participation in public matters. Much of this life likely occurs on private social media platforms, where private messaging groups are now more dominant than engagement in public groups and spaces (Christopher, 2024).

What is currently measured on an annual basis does not reflect these wider use patterns of digital spaces. We have a strong trend series on digital news consumption, where the latest report shows one in four Australians now name social media as their main news source (Park et al; 2025). Further, analysis of online use monitors how people use communications and social apps at population scale through ACMA’s annual series (ACMA, 2024). The ACMA report finds Facebook (Meta) was Australia’s most widely used communication or social media website/app while YouTube declined in use. Concurrently, governments report on the performance and future direction of digital service delivery through the myGov User Audit and the Data and Digital Government Strategy with its 2024 implementation plan (Australian Government, 2023). There are also “have your say” approaches for public members to comment on policy and programs across state and national agencies. Private sector studies add useful lenses on access, inclusion and service experience, such as Publicis Sapient’s Digital Citizen Report and auDA’s Digital Lives of Australians (Publicis Sapient, 2024). Regulators have also examined platforms in the context of market impact and consumer harms in the ACCC’s Digital Platforms inquiries (ACCC, 2025); however, the positive and negative impacts of digital platforms in enabling civic participation have not had a similarly rigorous analysis.

In short, researchers in Australia track who reads news, who logs in to services, and which platforms people use. There are targeted studies of specific platforms, their design and uses for engagement pathways. There is some disaggregated analysis by demographic group, including socio-economic and educational characteristics. However, current monitoring systems do not yet systematically track how, when, where and why Australians mobilise, deliberate and organise online as civic actors, or the role of digital public spaces like government or service platforms as compared to those in privately owned and run platforms. This limits collective ability to understand the degree of separation of voices in these platforms, and how specific digital engagement and usage patterns and preferences impact pathways towards polarisation and social fragmentation.

Current public sector feedback systems, such as ‘have your say’, are linear in process and static in feedback. This is reflected in many government processes which are procedural or determinative, they frame an issue, invite formal inputs through various submission processes, and report back the views and decisions. This static nature is also reflected in formal elections, government inquiries and consultations, representative sample research and advocacy campaigns that often emerge in crisis. These are typically one-time processes (see Figure 1) that are driven by compliance or securing consent, rather than shaping policy towards agreed solution spaces in meaningful ways. For example, there are few ways to contribute directly to parliamentary debate, or to shape priorities in infrastructure programs. Government engagement is often only in formal review processes, with evidence suggesting these are dominated by groups resourced to advocate, like large civil society groups and lobbyists (Maddison 2023).

Current feedback process

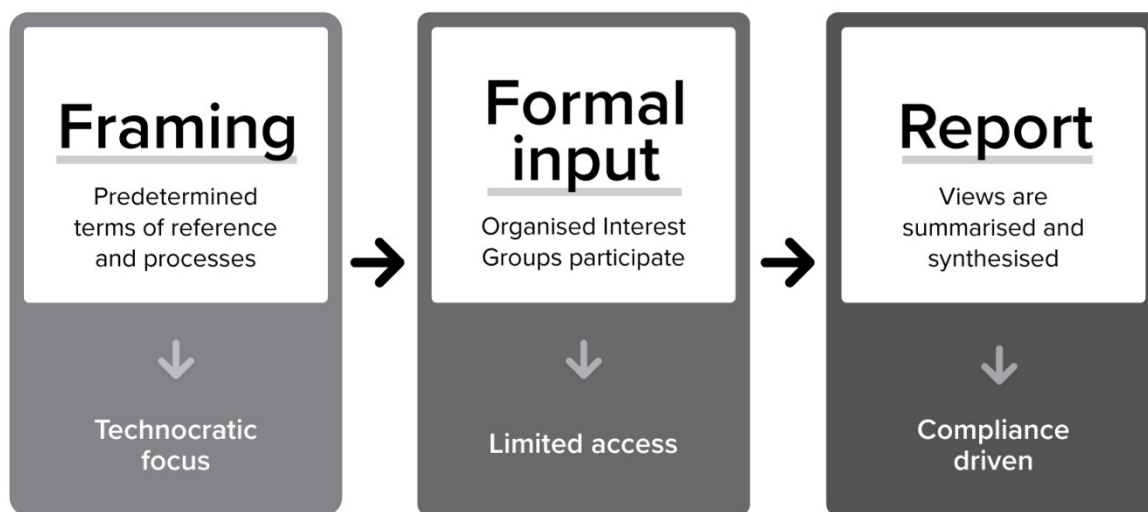


Figure 1: Linear feedback process

Some government and community processes have gone further, trialling platforms and processes that provide citizens with greater influence, ranging from deliberative town hall meetings, citizens' assemblies and juries, participatory budgeting, and surveys designed to capture preferences more systematically (Ercan et al, 2025). As described below, parliamentary discussion boards are being used by thousands of citizens for engagement in Brazil, boosted by the support of large-scale data analysis to interpret preferences and sentiment (Noveck et al, 2025). Notwithstanding these innovations, there are limited legislative mandates for governments to actively engage in consultation processes, highlighting the gap in viable pathways between public input and institutional response (Government of Australia, 2020).

If we are indeed in a societal moment of shifting preferences for when, where and how to engage as the data suggests, then it requires acknowledging both challenges and opportunities.

This paper asks whether comparative overseas experiences of embedding citizen participation into governance decision processes offer frameworks that could be adapted in Australia. The first section examines emerging successful trials of new digital civic spaces from abroad and within Australia. The paper next asks how digital participation can be better measured and understood, to enable better feedback loops of lived experience into service and policies, including the use of Bayesian adaptive learning approaches, explained later in the paper, applied to issues of social policy. The paper concludes with a set of immediate applied research ideas and evidence-backed actions that governments, funders, and civil society could adopt to strengthen democratic resilience in practice.

2 Global Inspiration

In August 2024, Taiwan’s former Digital Minister Audrey Tang visited Australia, meeting with politicians, public officials, funders, and civil society to share Taiwan’s model of tech-enabled civic engagement, credited with lifting trust in government services from under 10 per cent to more than 80 per cent within a decade (Weyl and Tang, 2024). As Taiwan’s first Cabinet-level Minister of Digital Affairs, Tang reimagined digital government through “always-on” deliberation, embedding civic participation into policymaking not just through technology but institutional design. The Taiwanese Government have used the open and community driven Pol.is platform, which is designed to identify and elevate points of connection, to guide contentious policy proposals including introducing Uber to the Taiwanese market.

Another specific example in Taiwan is the context of online alcohol sales. The Pol.is platform enabled thousands of participants to share their views, which the system mapped to reveal clusters of agreement and disagreement. While there were sharp divides over the freedom of online markets, the analysis surfaced broad consensus on key principles: protecting minors, ensuring transparent labelling, and applying the same rules online as in physical retail. These points of agreement were then carried into structured stakeholder meetings where civil society groups, health advocates, industry representatives, and regulators co-developed policy recommendations. The Cabinet adopted regulations requiring strict age verification and consistent standards across online and offline sales, directly reflecting the consensus formed through the process.

This case provokes the question for how digital participation platforms can be designed to turn public debate into structured feedback loops where citizens articulate their concerns, algorithms help identify common ground, and government agencies provide clear demand points to translate that consensus into formal policy. In the context of Taiwan, the process not only broadened participation but also strengthened legitimacy by demonstrating how citizen input is heard, moving from online discussion to Cabinet-level decision-making.

As outlined in Plurality (Weyl and Tang, 2024), Taiwan’s digital democracy innovations, including vTaiwan and Pol.is, link public deliberation platforms directly to Cabinet decision-making. Alongside these platforms, Taiwan has introduced Alignment Assemblies, AI-assisted forums for scalable deliberation, using “bridging” algorithms that elevate unifying ideas, and appointing participation officers within ministries to institutionalise citizen voice as a routine part of governance. Together, these innovations show how intentionally designed digital feedback loops can strengthen legitimacy and consensus without amplifying social or community conflict.

Taiwan is not alone in advancing new digital civic engagement platforms.

- The French Government launched an “always-on” digital platform, Agora, to maintain and enhance a continuous dialogue between citizens and the French government. The app allows people to pose questions to members of government. These are later prioritised through a voting process with the top ones being answered each week and participate in online consultations initiated by different ministries (OECD 2024).
- Brazil’s Brasil Participativo engaged over 1.4 million citizens to help shape the government’s Plurennial Plan, directly linking public input to formal decision-making (Noveck et al, 2025). At the local level, Brazilian councils are experimenting with AI-driven platforms that synthesise resident feedback into formats for decision-makers.
- In Hamburg Germany, the municipal government has turned to open- source artificial intelligence to make sense of citizen feedback on a scale and speed that was once unimaginable. The Digital Participation System (DIPAS) provides an integrated digital

participation platform, “designed to let residents contribute ideas, comments, and feedback on urban development projects online or in workshops by combining mapping, document sharing, and discussion tools so that citizens can engage directly with concrete plans for their neighborhoods.” (Noveck 2025b)

- In Spain, Barcelona’s Decidim platform enables residents to debate and prioritise proposals in a structured, transparent process, surfacing points of agreement for municipal action (Aragon et al, 2017).
- India’s MyGov platform facilitates citizen input on national policies across multiple languages and media formats, while civic tech tools like Peru’s version of Ushahidi have been deployed globally for interactive crowdsourcing of information and engagement as part of crisis mapping and accountability (Misha, 2025; Ushahidi, 2018)

These are part of a growing wave of digital public engagement tools ranging from participatory budgeting to consensus-building platforms that are reshaping how citizens and institutions connect across diverse contexts.

At the core, these examples show both how critical the contextual relationships are between developer communities, citizen participants, and the government. It is also clear that this is not just about civic engagement and participation shifting to digital platforms. Rather, successful projects emerge through more fundamental shifts from static and linear processes of engagement to responsive feedback loops, occurring at faster and more individual scales.

Despite the examples above, significant challenges remain to design environments that enable people to connect and engage in constructive solution-driven dialogue and participation rather than default to echo chambers reinforcing difference and polarisation, social fragmentation, and at worst, hate. Another challenge is that government agencies often rely on private social media infrastructure for citizen communication and engagement channels, rather than funding independent communication infrastructure. A third is how to design engagement approaches in ways which navigate disagreement towards solutions when there are difficult trade-offs involving money and prioritisation.

One promising avenue to address these challenges lies in the design of deliberative forums, engagement processes that foster inclusive, informed and reflective conversations about a particular topic (Ercan et al. 2025). Research shows that everyday people are both willing and able to deliberate on complex and controversial issues (Neblo et al. 2010). When structured according to principles of deliberative democracy, group discussions and communicative encounters between citizens can have depolarising effects across a range of contexts (Caluwaerts et al. 2023; Fishkin et al. 2021). Whether in the form of in-person citizens’ assemblies or online deliberative town halls, such forums typically provide participants with equal opportunities to speak and influence outcomes. They also operate under explicit norms of respect, reciprocity, and attentive listening, often reinforced by skilled facilitation. Emerging civic platforms could incorporate these deliberative features to support healthier engagement and public debate. Instead of amplifying the loudest or most divisive voices, these platforms could sustain the type of respectful engagement that builds social cohesion.

Finally, while digital civic infrastructure can extend the possibilities of civic and political engagement, sensitivity to disparities in access, costs and literacy must remain a factor in design. Research indicates a moderate positive relationship between access to digital media, including social media networks and petition sites, and participation in civic and political life, including voting, protesting and volunteering (Boulianne, 2020). However, there is also evidence that digital uptake does not overcome traditional divides such as socioeconomic status that impact inclusion and representation or the very challenges of the digital connectivity divide (NSW 2025). Accessibility and inclusion are core elements of civic and institutional design.

3 Emergent Digital Civic Innovation in Australia

While enabled civic participation and dynamic feedback loops are emerging in Australia, they remain scattered across the policy landscape. There are movements toward more participatory and innovative approaches, but they have few durable mechanisms for digital engagement and are not consistently evaluated for their design features or monitored for their societal impacts. Where there are advances, they have occurred around organised communities of practice or shared experiences motivated to act together (e.g. disability dialogues); or where contested policy transitions create urgency and demand for new forms of dialogue (e.g. energy transitions). In contrast, local councils, schools and housing systems are mandated to consult and engage through different digital mechanisms yet often struggle to do so in ways which are responsive. The following case studies illustrate where change is underway, what is driving it, and where opportunities remain unrealised.

3.1 Disability: A Fracturing of Stakeholder Consensus

The National Disability Insurance Scheme (NDIS) is considered a world-leading innovation, shifting support for people with disability away from a model of rationed, state-based provision toward a rights-based system in which eligible individuals receive personalised funding to choose their supports. Its creation followed decades of exclusion, where people with disability were often treated as passive recipients of welfare. The breakthrough came from a unique coalition: advocacy groups led by people with disability partnered with service providers for the first time, securing bipartisan support for a national scheme that recognised disability rights as central to citizenship (Epis, 2023).

The NDIS injected significant new funding into the sector and triggered rapid expansion of businesses providing support. Yet the departure of state governments from general disability services left the NDIS as what scheme architect Bruce Bonyhady described as an “oasis in the desert,” attracting more people to seek access while exposing gaps in market stewardship (Burton, 2022). Services became fragmented, opaque, and often disconnected from the lived experiences of participants. The shift also fractured the once united coalition: new market entrants, established not-for-profit providers, and disability-specific advocacy groups increasingly focused on sectional priorities rather than the common cause that had driven the scheme’s creation.

Through the time of change the government embraced the process of ‘co-design’, where publicly-funded stakeholder groups were convened to provide input into the way pre-determined policy changes would be implemented. This can be seen in practical terms with the creation of the National Disability Data Asset (Bates 2025). This determinative process provided limited scope for feedback while undermining faith in the administration of the new Agency. This came to a head with the proposal to introduce ‘Independent Assessments’, which created a flashpoint for sector pushback and organising (Wright, 2022).

As governments work to stabilise the scheme under mounting cost pressures, engagement risks becoming transactional, reinforcing divides rather than building consensus. At the same time, disability communities continue to demonstrate strong traditions of organisation and leadership, with digital platforms increasingly central to advocacy and peer-to-peer support. Emerging initiatives in disability data, digital advocacy networks, and feedback mechanisms show how people with disability and their allies are developing new tools to make their voices heard and to hold service systems accountable. This history of exclusion, coupled with a deep culture of community leadership, explains why the disability sector has been one of the most active areas for testing new forms of digital engagement in Australia.

One of these initiatives is the Disability Dialogue, a three-year multi-stakeholder initiative to create a space for disability-led ideation and decision-making. Funded by Department of Social Services (DSS), the project has a particular focus on elevating the voices of people with intellectual disability and First Nations people (Disability Dialogue, 2025). The Dialogue process is designed as a series of self-reinforcing feedback loops, based on the principles of consolidating knowledge, investigating friction, deliberating options and seeking agreed paths forward (see Figure 2). While still in its infancy, the baked-in accessibility and commitment to inclusion provides a working model for other initiatives to build dynamic feed-back loops.

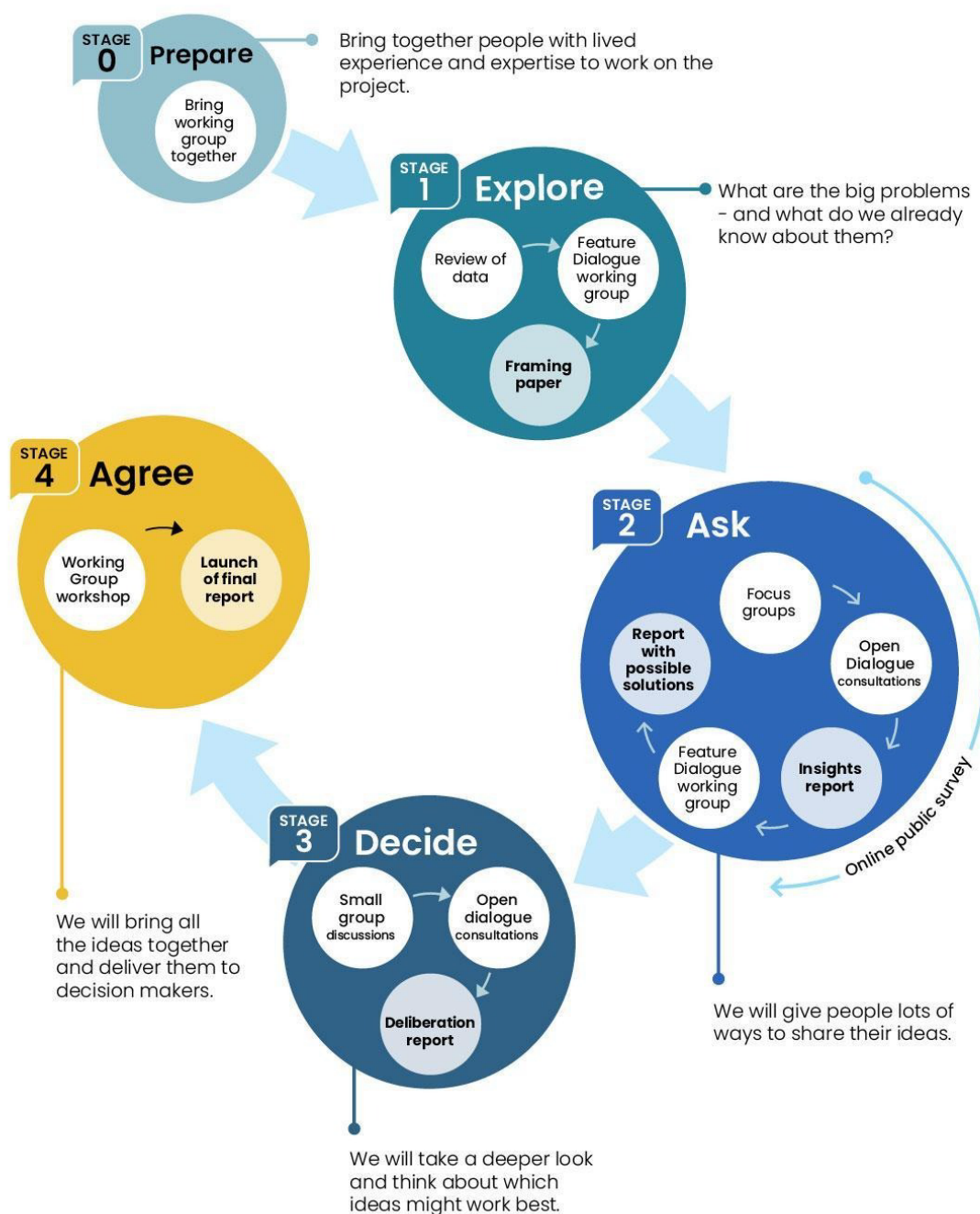


Figure 2: Example of the Disability Dialogue feedback loop approach

3.2 Energy Transition: Communities Leading Through Local Participation

Energy and economic transition questions, emerging from concerns about climate change, continue to be polarising and divisive within communities. As policy moves toward implementation, different deliberative mechanisms are needed. Climate and energy debates have mobilised digital campaigns for both advocacy and scientific communication and been areas of growing mis and disinformation campaigns. Few other policy areas in Australia have seen such sustained and digitally mediated engagement.

After more than a decade of public debate, the Australian Government is currently supporting a transition planning toward a renewable energy base, aiming for a majority share of production by the early 2030s (DCCEEW, 2025). The Australian Commonwealth Government is negotiating new bilateral Renewable Energy Transformation Agreements (RETAs) with state and territory governments under the National Energy Transformation Partnership, which includes mechanisms for public consultation (DCCEEW, 2022; DCCEEW, 2023). This has driven the rollout of wind and solar farms across regional Australia, supported by Renewable Energy Zones (REZs) designed to fast-track approvals. The REZ model assumed strong public backing for climate action, consistently shown in research (Essential Media, 2025), along with the economic benefits promised to regional communities.

Yet current engagement practices left many communities vulnerable to orchestrated misinformation campaigns, amplifying fears about health, land, and marine impacts (Lewis, 2024). Compliance-driven consultation by developers often focused on regulatory requirements rather than relationship-building, fuelling further confusion. Government advertising campaigns reinforced perceptions that the transition was imposed rather than co-created. The result has been delays, polarisation, and fractures in local trust at a time when cohesion is most needed.

Advocacy and mobilisation have been powerful in shaping Australia's energy debates, but they often operate outside structured decision-making, leaving limited channels for feedback to flow into government systems. There is a growing question now for how to design engagement processes to embed community leadership and participation within planning and delivery, and the scope to shape outcomes. There are efforts to consider if and how digital platforms could be used primarily for mobilisation and advocacy, or if there is an opportunity to use them to create sustained feedback loops with government, community and business sectors in ways which generate trust and legitimacy through the process.

3.3 Digital Civic Innovation at the Frontline: Councils Across Australia

Local councils often report feeling like they represent the everyday front door of government, and often hear concerns that extend well beyond their formal responsibilities. Councils are primarily mandated to manage local infrastructure, land-use planning, community services, and regulatory functions such as waste, roads, and local laws. Unlike other parts or services in government, councils are required to engage their communities on planning and service decisions. They often rely on compliance-based processes and public meetings. Future work by the network is underway to map the formal requirements for consultation.

As the Municipal Association of Victoria has observed, councils often lack the digital infrastructure to trial different approaches to participatory processes that capture the complexity of community preferences (MAV 2025). As noted in the Hamburg Germany case above, they are often unable to process the scale of comments, and number and frequency, in ways which generate meaningful responses. Citizens, in turn, are seeking easier, more

meaningful ways to engage beyond formal submissions or Facebook comment threads, but feedback systems remain fragmented and under-utilised. In a context where place-based issues such as infrastructure, zoning, and community services which directly shape daily life, there are few platforms that provide structured, inclusive, or scalable mechanisms for residents to engage with decision-making.

Local governments have an opportunity to play a more active role to consolidate community perspectives in ways which can inform other civic feedback loops or could have their mandate expanded to help collect community insights.

3.4 Emerging approaches to Informing Housing and Education Sectors

A different type of opportunity is emerging in both education and housing where decision-makers attempt to manage significant community concerns, but often without the mechanisms to listen and interpret what individuals and communities are saying at a scale or pace that enables problem solving or responsiveness.

One important form of civic participation occurs in schools, where families and communities engage in shaping children's education. Contemporary school systems collect extensive data on student performance and participation to better capture lived experience in classrooms and integrate these insights into decision-making. Many of these listening channels arise through structured civic engagement such as parent associations, student councils, student groups, and teachers' unions. Yet, persistent challenges in performance and satisfaction have prompted new efforts to strengthen responsiveness to students across diverse educational settings.

Programs such as THRIVE, a partnership between the NSW Department of Education, several school principals, and two research teams, are testing ways to listen to student experiences at scale. One approach is to build digital spaces that can complement traditional processes where students, parents and teachers co-design responses to challenges. A handful of similar initiatives are emerging to build participatory feedback loops and deliberative forums that combine consultative engagement with digital insights, though these remain at a "cottage industry" stage and rarely operate at scale or with real-time responsiveness (Cripps et al., 2025).

The deployment of NSWeduChat, an AI tool designed to support students and assist teachers (Oatway, 2025). Built to guide students' learning and inform curriculum design, it also provides a new mechanism for understanding what works best in students' educational pathways. As social and technological change accelerates, maintaining adaptive communicative channels between students, teachers, and families will be critical to ensuring all voices inform educational decision-making.

Housing, meanwhile, remains fragmented across planning processes, community associations, and building management structures, with limited digital infrastructure to connect residents' experiences to policy or regulatory systems. The recent emergence of AMPLIFY AUS is an example of an organisation trying to play an active role in creating a hybrid civic-space model to re-frame this deficit: through a dedicated online community platform that gathers individual stories, reflections and inputs, alongside a two-day in-person deliberative forum of 100 randomly-selected participants who engage directly with expert input and each other.

This work builds on a number of locally led citizen deliberative forums, with examples ranging from the North Sydney housing-affordability deliberative session convened by the electorate's MP and supported by a non-profit organisation that advances deliberative democracy approaches. This illustrates the range of techniques communities and officials are using to embed deliberation within housing planning, decisions and multi-unit housing management.

Many of the structured consultations processes that feed these decisions remain with Councils responsible for local planning, typically around eliciting consent for specific developments. While demand is growing for greater involvement, there remains an absence of structured feedback, often eroding trust and leaving communities reliant on infrequent or adversarial channels to be heard.

4 The Challenge of Civic Infrastructure

While each of these issues could be treated as a discrete policy challenge, common threads emerge when viewed through the lens of civic infrastructure. Across stakeholder, community, and workplace settings, the central challenge is how institutions encourage participation, manage information flows and generate more responsive feedback loops. The three challenges, reflecting the contradictions outlined at the start of this paper (participation, intent and responsiveness) are places we can start to respond:

Shifting preferences from face-to-face participation to digital spaces.

This requires new forms of civic infrastructure that can manage both the scale and the speed of digital engagement. Recent research shows that while Australians express strong interest in contributing to civic and policy issues, the modes of engagement they prefer are shifting. The Menzies Foundation's State of Civic Participation report further confirms trends identified above highlighting that traditional participation, such as joining associations or attending in-person meetings has declined while interest in more flexible and digitally mediated forms of engagement has grown (Wilson, 2024). Studies of online civic engagement (Park et al 2023) confirm this trend internationally, showing that citizens often prefer "light-touch" digital interactions (such as surveys, petitions, or social media dialogue) but also want pathways to deeper involvement when issues matter to them.

The Australian Electoral Commission's research on social media and elections further shows how digital platforms have become a primary space where younger Australians expect to encounter civic information and opportunities to participate (AEC 2012). Together, this evidence suggests that engagement preferences are not disappearing but diversifying, requiring civic infrastructure that matches modes of participation to different contexts and needs.

The mismatch of participation mechanisms to decision contexts

In the face of polarising and complex changes, people want to participate in ways which not only inform but also empower or devolve decision making to different levels. There is not a one-size fits all approach to participatory democracy, each context and decision point likely needs a different tool, but there are differences in approach and design that also matter. The IAP2 Spectrum of Public Participation provides a widely used framework for thinking about levels of citizen involvement in decision-making. It identifies a continuum from inform (providing information) to consult (seeking feedback), involve (working directly with the public), collaborate (partnering in each aspect of the decision), and empower (placing final decision-making in the hands of the public) (IAPP 2025).

Applied to civic infrastructure, the spectrum illustrates that not all decisions require the same depth of participation, but that processes must be explicit about the level of influence citizens can expect. Too often, engagement defaults to the "consult" stage, creating frustration when participants realise their input carries little weight. Using the spectrum as a design tool encourages institutions to calibrate participation to decision context and to communicate this transparently, thereby strengthening trust and legitimacy in the process.

The challenge of listening and responding at scale and pace

A further challenge is ensuring that the engagement informs and enables effective responses. There are new possibilities for creating more rapid feedback loops as new analytic and learning methods emerge to enable feedback loops, and adaptive implementation building around both in-person and digital spaces. Use of big data analysis approaches to civic information flows is limited, with mistrust remaining understandably high. Governments and institutions collect more information than ever before, yet citizens remain sceptical about how it is used, and what benefit they see. Digital platforms, specifically the rise of chatbots, can support more adaptive and responsive models, but only if they are designed with clear accountability and reciprocity.

There are also new approaches successfully deployed in other sectors that could be adapted for civic discourse. Marketing firms, for instance, have long practised “listening at scale,” employing advanced analytics and always-on digital tools to support customers and monitor consumer preferences and behaviours in real time (Huang, 2021). The challenge for democratic institutions is to develop comparable capacities that uphold public trust, safeguard individual privacy, and operate within rigorous governance frameworks. Without such safeguards, data-driven engagement risks replicating the extractive logics of commercial platforms rather than supporting participatory and equitable civic engagement. Emerging approaches enable listening at scale to support participants and respond to demands for anytime engagement. By designing chatbots and large language models (LLMs) within digital civic spaces, if embedded with transparent, accountable, and privacy-preserving data governance, such technologies hold the potential to synthesise collective insights in ways which could inform iterative decision-making in ethically responsive ways.

Critical to success is the structured development of context-specific responses. Rather than building expensive, all-purpose civic engagement ‘platforms’ the challenge is to have processes which are designed sequentially through robust engagement methodologies, transparent ontologies, and democratic accountability. These processes should be supported by appropriate digital tools that are fit for purpose. Bayesian adaptive approaches offer a compelling use-case, enabling institutions to update their understanding continuously as new data arrives and to respond at the pace of change. Borrowing from developments in marketing and consumer analytics, where Bayesian approaches are increasingly used to model uncertainty, predict behaviour, and adapt strategies in real time (Xavier, 2023; He et al., 2025), civic infrastructure systems can similarly be reimaged as continuously updating models of learner, teacher, and community needs. This approach shifts the focus from extractive consultation to adaptive learning.

This learning mindset builds directly on the work of Cripps et al. (2022), who emphasises that uncertainty is not a failure of knowledge but a feature to be quantified and learned from, and on Cripps et al. (2024), who demonstrate how Bayesian adaptive trial frameworks can guide evidence-based adjustments in social policy interventions. Rather than relying on static surveys or periodic evaluations, Bayesian frameworks allow institutions to integrate multiple information streams, ranging from administrative and assessment data to participatory inputs, digital learning platforms in a principled manner. This updates their understanding dynamically as new data arrive. Such architectures enable responsive feedback loops where policy settings evolve alongside lived experience. When designed with transparent, accountable, and privacy-preserving governance, these civic infrastructure systems offer a principled path from extractive data collection toward adaptive, trust-building learning ecosystems.

5 Designing Civic Infrastructure to Ensure Meaningful Participation and Feedback Loops

Although governments and institutions now collect more information than ever before, this does not automatically translate into action or measure what matters most (Cripps et al., 2023). This gap contributes to a persistent trust deficit where institutions lack the mandate, tools, and methods to use information responsively, while citizens remain unconvinced that data is used in their interests. Australia's information ecosystem is both centralised and fragmented. Massive datasets are gathered and repurposed, often for transactional or commercial ends, while communities struggle to access them or have diverse sets of priorities for what should be measured.

At the same time, deliberative and participation engagement mechanisms are increasingly mitigated through digital technologies to facilitate and integrate new forms of democratic participation. This creates a significant opportunity to rethink civic infrastructure around trust, reciprocity, and inclusiveness. Effective information strategies must go beyond the algorithms of commercial platforms, which are not designed to support civic participation or constructive public behaviour. As Fung (2006) reminds us, systems must be deliberately designed with inclusiveness, deliberation, and empowerment at their core.

The opportunity lies in shifting from a technology-oriented approach to one that is value-oriented (Cordella & Paletti, 2019; Ju et al., 2019; Panagiotopoulos et al., 2019). Mikhaylovskaya and Roumeas (2023) argue that digital democratic innovations should be built to foster “reciprocal political trust” or two-way trust between citizens and decision-makers. This shift would allow digital platforms to become trusted civic infrastructure rather than extractive systems.

Geoff Mulgan's (2025) analogy of civic infrastructure as “plumbing” provides a useful frame for this opportunity. Plumbing, as an industrial-age technology, safeguarded public health by design, delivering clean water while removing waste. In the network age, information flows are no less vital. Properly designed, they can sustain democratic life by informing, connecting, and empowering citizens. Poorly designed, they risk polluting the system by misleading, dividing, and eroding social trust. This perspective also reflects cybernetic systems thinking where civic infrastructure should operate as a dynamic, learning system processing inputs (citizen concerns, data, ideas), adjusting policies, and closing feedback loops through responsive action. This iterative process aligns with Stafford Beer's principles of management cybernetics, where systems must remain open to continuous feedback to sustain legitimacy and resilience (Beer 1959; Davies 2025).

Viewing civic infrastructure as a dynamic system opens the door to new possibilities (Figure 3). Information flows can be structured as adaptive feedback loops that learn and evolve over time by combining citizen signals, data, concerns, and ideas into decisions that are more responsive and legitimate. Systems theory suggests these loops must be cyclical, not linear, with mechanisms to interpret and act upon feedback while returning explanations and accountability to citizens. This resonates with the deliberative systems approach (Mansbridge & Parkinson, 2012), which highlights how deliberative “labour” can be distributed across venues and connected back to empowered decision-making. In this way, civic infrastructure becomes not just data-driven but explicitly democratic, supporting ongoing public reasoning and accountability.

Designing effective civic infrastructure requires more than tools or platforms, the architecture of social media cannot be transplanted over. It requires redesign of the settings to align with

people's civic journeys, connection to shared decision points, and embedding democratic values for engagement. It requires fundamentally different values and objectives guiding the design. This will take time to experiment with how to embed responsive feedback loops, societal consent, and preferred ways of engaging directly, or tools to enable feedback.

Like physical infrastructure, civic infrastructure must be designed for evolving needs. A robust design model demands three interrelated dimensions: methodology, ontology and technology. The methodological dimension concerns how citizens and governments engage through approaches such as deliberative forums, co-design, and participatory budgeting. The ontological dimension focuses on how problems are framed, whose perspectives are recognised, and what futures are imagined. The technological dimension concerns the digital tools, platforms, and interfaces that enable participation and feedback. Together, these dimensions form the basis for civic infrastructure that is not only technically functional but democratically purposeful. Three design insights stand out from existing case studies:

Differentiating engagement across the civic life journey: People engage differently across the course of their lives, and civic platforms must reflect this diversity. Research by Andy Mycock and Brenton Prosser has highlighted how civic engagement follows a “life cycle,” where expectations, capacities, and motivations vary depending on age, work, family responsibilities, and community ties (Mycock and Prosser, 2025). Young people often engage through digital-first, issue-based networks; mid-career adults may prioritise workplace, professional, or family-related civic roles while later in life people often re-engage through volunteering or local associations. Designing civic infrastructure requires recognising these shifts and creating entry points suited to different life circumstances, digital literacy levels, and preferred spaces of participation.

Start with the community and decision point, not the digital tool: Too often participatory efforts begin with the method such as a citizen jury, online poll, or consultation portal without first clarifying the decision point or policy question they are meant to inform. A design principle for effective civic infrastructure is to start with the decision and work backwards to select the approach. The OECD Deliberative Democracy Toolbox shows that different tools suit different contexts: citizens' assemblies for complex value-laden issues, participatory budgeting for resource allocation, or digital petitions for agenda-setting (OECD 2021).

Design public civic spaces that listen and converge solutions, not drive differences: Civic platforms must be designed not only to listen, but also to create convergence around shared concerns and values. As a growing number of new digital civic platforms are highlighting, digital spaces can be structured to elevate common ground rather than amplify polarisation. Examples such as Brazil's Brasil Participativo or Barcelona's Decidim show how platforms can widen participation while making input consequential (Noveck et al. 2025). To achieve this, platforms must be inclusive and accessible, ensuring that engagement reflects diverse communities and lived experiences. They must also enable citizens, experts, and governments to co-create problems and options, negotiate trade-offs, and build legitimacy around contested decisions such as energy transition or housing reform. Algorithms and facilitation methods can then surface consensus points, highlight bridging ideas, and make visible the values that connect people across divides. Moving beyond extractive consultation toward iterative dialogue where institutions demonstrate how input shapes outcomes and feedback responses transparently, strengthening not only trust, but also the responsiveness and effectiveness of public services.

Underlying these design insights is a central tenet of cybernetics: “the purpose of a system is what it does.” (Beer, 1985) Civic infrastructure should be explicitly designed to achieve democratic purposes rather than left to evolve by default.

6 From Diagnosis to Action

There are communities and methods converging in Australia suggesting new ways of building meaningful engagement where the approach aligns with the decision needs and community, specifically how we use digital spaces. This would advance how Australia's civic feedback systems go from being linear and transactional to adaptive and responsive, encouraging more engaged citizens, alignment around shared values and problem solving, and thus trustworthy systems.

Current processes often lean on extractive consultation and compliance rather than meaningful dialogue, leading to technocratic decisions that often misalign with community needs. The decline in trust and analysis on engagement has been highlighted in recent recommendations from OECD Drivers of Trust Country Study (OECD, 2024). The alternative is to imagine civic engagement as a recursive feedback loop that nurtures trust, beginning with shared framing of issues, inclusive discovery of lived experience, and deliberative processing that surfaces preferences rather than binary choices. This must be followed by accountability where citizens can see how their input shapes decisions and continuous learning, so feedback informs future processes.



Figure 3: Dynamic Feedback Loops

Further, evidence suggests we need common information structures, such as replicable formats for questions, quotes, and feedback ranges, which can make engagements more cumulative and intelligible across contexts. High-quality qualitative data, integrated with administrative and survey data, are increasingly available to help underpin adaptive learning models such as Bayesian approaches. These practices could transform qualitative data from lived experiences into a trusted, dynamic form of evidence, creating what might be called a generative civic intelligence.

Technology is both a constraint and an opportunity. While most civic activity occurs on social media platforms with opaque algorithms, there is a growing appetite for purpose-built digital civic platforms and spaces. If new platforms emerge, principles of community governance, open-source design, data sovereignty, and shared benefits are increasingly recognised as necessary conditions for them to be imagined as resilient civic infrastructure. There are greater challenges with reforming Australian initiatives like the Disability Dialogue and Local Energy Hubs show how these feedback loops are needed and have communities ready to help pilot different approaches.

It is unlikely to see major reforms to large-scale social networks, but there is a compelling case to design or integrate democratic principles and approaches into digital tools used to advance civic spaces and feedback loops. By including these principles, technologies would be more adaptive and responsive to the design decisions of specific communities and help strengthen democratic resilience:

- Inclusive and solution orientated design: Approaches to seek constructive and deliberative methods to facilitate disagreement and encourage alignment around shared values and solution-focused outcomes.
- Accountability: the technology should include mechanisms to be community controlled or governed. There are multiple models beyond private ownership that could be imagined as a public infrastructure, coop, mutual or not-for-profit data trust.
- Transparency: the technology should be open-source or transparent algorithms. Models might shift towards bespoke independent, interoperable networks designed for specific purposes rather than general deliberative platforms.
- Credible Information: users should have defined rights over the data that is collected, how it is used and, critically, where it is not used. There are leading models for building data sovereignty principles and mechanisms including in the Disability Data Trust and First Nations peoples.
- Trustworthy Processes. any value derived from the community should be redistributed back to the community for shared benefit and build legitimacy through ongoing societal consent.

In Summary:

- We are in a race to rebuild trust and citizen engagement at a time when broader social, political, and technological forces are pulling in the opposite direction.
- Communities, institutions, and technologists are actively experimenting with new approaches, but without a shared framework for understanding the public value of civic infrastructure.
- Rapid technological change provides powerful tools to connect, listen, and adapt, but without intentional design, these tools risk reinforcing disconnection and mistrust.
- To move beyond fragmented experimentation, we need to articulate a shared purpose for civic infrastructure that supports democratic resilience.

7 Conclusion: The Invitation to Action

The paper suggests we do not understand the current demand and use behaviours of online civic spaces for engagement, and that we do not know what works when designing these digital spaces in the Australian context. Researchers and policy makers are increasingly outlining the consequences of poorly designed digital spaces for our social cohesion and ability to disagree well or align around shared values to find solutions to challenging public issues. There are a number of efforts, in Australia and abroad, where new digital approaches are being trialled and evaluated with positive societal impact. There are even more examples of demand from communities wanting to organise or reach mutual agreement using technology to enable public digital civic spaces.

The paper identifies an emerging taxonomy of civic infrastructure approaches that align digital tools with different models of public feedback and participation. While this taxonomy requires further refinement, it helps clarify how current practices move from static, one-way communication to dynamic, iterative decision processes.

- **Static one-way engagement process- inform and consult**

Most civic interaction today still occurs through informing and consulting mechanisms. Governments, civil society organisations, and communities rely heavily on one-way or lightly interactive tools, ranging from social-media platforms, online surveys, and government consultation portals. These channels are low-cost and scalable but provide limited opportunities for citizens to shape outcomes or receive feedback on how their input is used. Few publicly designed or hosted digital spaces currently exist to improve the quality or transparency of these exchanges.

- **Static two-way engagement processes - involve and collaborate**

The next stage of engagement introduces two-way communication loops that invite citizens to deliberate and provide structured input, yet decisions remain largely top-down. Platforms such as Pol.is, used for participatory deliberation in Taiwan or Brazil's parliamentary commenting tools use this approach. These tools, often open-source or community-driven, enable dialogue and legitimacy but still feed into relatively linear decision frameworks where decisions are static and often with government.

- **Dynamic two-way engagement loops- collaborate to adaptive decisions**

Dynamic feedback loops enable citizens to lead, co-design, test, and refine policies or services in greater real time loops. Decisions evolve as new evidence or lived experience emerge, creating iterative and adaptive decision systems. These methods draw on analytical tools such as Bayesian learning, rapid-cycle evaluation, and participatory experimentation, transforming engagement from consultation into collective learning. While not yet widely adopted in public policy, digital engagement platforms are gaining traction in social innovation, behavioural insights, and private-sector design processes.

There are several further findings from this review that demand reflection:

The first is that technology is the enabler, not the answer. The most promising models involve a hybrid of online-offline opportunities to connect through diverse entry points. The critical enablers are genuine desire to engage and robust, relevant methodologies (McShane and Middha 2021). Many of the illustrative cases suggest there is an opportunity to use new technology to augment existing civic spaces rather than starting afresh. With intentional design and focussed nurturing, these incumbent community assets could evolve into critical distribution nodes and convening points as we redesign and reinvigorate civic feedback loops.

Future digital engagement platforms could build community cohesion by being designed in relation to these incumbent social assets.

The second is that civic engagement can also be seen in the context of a community's broader culture. If civic engagement is too much 'like homework', barriers to inclusion will be amplified. Where engagement requires technocratic skills or significant preparation and readiness, significant cohorts will be isolated from the project. Rather, deliberative activities should be welcoming, warm, empathetic and fun. While important issues are considered, other ways to engage should be included.

One example might be music and songs could also be sung, or community influencers from artists, performers and podcasters could be identified as engagement leaders, charged with designing, curating and delivering civic feedback loops that engage participants in multiple spaces and ways. Both online and offline civic spaces can be designed to feel like community gatherings in ways which are warm and inviting, and not just policy centric.

Finally, resilient democracies require a repertoire of methods, not a single one so that they can vary how they engage particular interest groups with preferred civic spaces, navigate topics differently based on their complexity and information needs, and work differently for issues with difficult trade-offs or different decision points.

7.1 Provocations for different sectors

Commonwealth Departments and Agencies: What if departments and agencies approached civic engagement not as an add-on but as a core component of ongoing, iterative design and learning for policies and services? Which policy areas or services could benefit from community input, and how does community engagement improve trust in public services? Could new forms of civic engagement, even though they entail an element of risk and more preparation, strengthen social cohesion, trust, and the quality of actionable insight? What are the benefits in richer qualitative insights elicited in dynamic trusting environments?

If the government is willing to make that shift, what are the tools, approaches and principles that would enable digital and deliberative technologies to make community engagement meaningful for participants and limiting the misuse of those spaces to pressure social cohesion?

The main contribution to viability would be a commitment to drive decision-making through the evolving network of communities.

- Funding and connecting to community-led engagement models, like the approach taken by Disability Dialogue, to engage groups of citizens on their terms and in ways that suit them and linked to appropriate points of decision making processes.
- Supporting trusted institutions to build public digital environments which embed civic participation and information feedback loops into government services, particularly where committees are addressing pressing horizon issues.
- Identifying decisions where community participation can contribute in ways which enable more transparent information and consideration.

Private Funders: How might philanthropic funders, NGOs and charities integrate civic-innovation principles into their existing giving models and desired outcomes, or experiment with community-led platforms to listen to what is already being discussed? Across Australia's place-based initiatives, environmental and social programs, embedding active civic feedback loops could generate greater community ownership and policy relevance. Evidence also suggests that a large share of engagement funding currently flows to commercial platforms through paid outreach and micro-targeting; how could future investment instead strengthen independent, participatory infrastructure that builds lasting civic capacity?

Collaborative Partnerships: How can organisations working toward shared public goals build collaborative partnerships that strengthen civic engagement across existing and emerging participation points? Evidence from initiatives such as Amplify’s housing deliberation and locally led consensus-building efforts suggests that both large-scale representative pilots and smaller community-based projects can serve as testbeds for collective learning. What models of collaboration and digital spaces might enable organisations to connect across these engagement points, share insights, and build sustained capacity for deliberation and joint problem-solving? What do communities need to do to be ready to disagree better, and responsibility is shared when they engage?

7.2 Recommendations for where to start

Based on the review above, there are several opportunities to strengthen democratic engagement and learning infrastructure.

1. **Start experimenting:**

There are opportunities for both communities and government to pilot new approaches. To build trust and improve design, evidence from other contexts suggest early experimentation should prioritise:

- a) Community-centred solutions, not technocratic fixes: make engagement hybrid, inclusive and meaningful. Rather than inviting people to ‘deliberate’; invite them to help design feedback tools that work for them, building on strengths in Australia like place-based initiatives and community-led forums.
- b) Connect government efforts to community-led engagement models. Examples such as the Disability Dialogue demonstrate how public institutions can learn from community innovators.
- c) Creating effective feedback loops, not just data extraction. Combine engagement platforms with new listening and learning approaches to ensure responsiveness of participation settings.
- d) Mobilise resources for independent participatory infrastructure. Support platforms with transparent algorithms and open governance as counterpoints to commercial platforms.

2. **Reinforce a living evidence network:**

Partner with existing initiatives as sandboxes to test and evaluate the conditions that enhance dynamic feedback loops between civic and government spaces. This network could include:

- a) Collaboration to improve what we monitor, including adapting existing survey questionnaires to measure changing trends how, when and why people chose to engage, especially online.
- b) Conduct diagnostic analysis to understand how different engagement models affect participation, belonging, and satisfaction.
- c) Identify which design features are effective at enabling solution-focused and constructive disagreement.
- d) Invest in methods to responsibly listen at scale and pace to enable learning loops, including Bayesian approaches to support council consultations, community forums or state-level pilots.

3. **Connect communities of practice:**

Across government, communities and civil society, there are growing pockets of people seeking support to try new approaches. Emerging efforts, such as those stewarded by the Municipal Association of Victoria, the Centre for Deliberative Democracy, the Australian Community Managers Association, and its annual All Things in Moderation conference, are already building shared learning environments that test approaches to moderation, participation and digital facilitation. There is an opportunity to explore additional structures or partnerships that could help these practitioners collectively strengthen the evidence base for designing inclusive, adaptive civic spaces. In this way a civic innovation network in Australia could help build on what is already happening.

References

- Aragón, Pablo, Andreas Kaltenbrunner, Antonio Calleja-López, Andrés Pereira, Arnau Monterde, Xabier E. Barandiaran, and Vicenç Gómez. 2017. “Deliberative Platform Design: The Case Study of the Online Discussions in Decidim Barcelona.” *arXiv*. <https://arxiv.org/abs/1707.06526>.
- Australian Communications and Media Authority (ACMA). 2024. *How We Communicate: Executive Summary and Key Findings (Communications and Media in Australia series)*. Canberra: ACMA. https://www.acma.gov.au/sites/default/files/2025-07/How%20we%20communicate%20-%20Executive%20summary%20and%20key%20findings_0.pdf
- Australian Competition and Consumer Commission (ACCC). 2025. *Digital Platform Services Inquiry: Final Report (March 2025)*. Canberra: ACCC. <https://www.accc.gov.au/system/files/digital-platform-services-inquiry-final-report-march2025.pdf>
- Australian Electoral Commission (AEC). 2012. *Electoral Engagement Using Social Media*. Canberra: Australian Electoral Commission. https://www.aec.gov.au/About_AEC/research/files/social-media.pdf.
- Bates, S., and I. Katz. The National Disability Data Asset (NDDA): A Case Study for ANZSOG’s Project on Co-Governance and Trust in Government. Melbourne: Australia and New Zealand School of Government (ANZSOG), 2025. <https://anzsog.edu.au/app/uploads/2025/09/CASE-STUDY-NDDA-ANZSOG-version.pdf>
- Beer, S. Re-Enacted Cybernetics. *Nature* **223**, 325 (1969). <https://doi.org/10.1038/223325a0>
- Beer, Stafford (1985). *Diagnosing the system for organizations*. Chichester: Wiley. p. 99
- Bell, Genevieve, Maia Gould, Brenda Martin, Amy McLennan, and Ellen O’Brien. 2021. “Do More Data Equal More Truth? Toward a Cybernetic Approach to Data.” *Australian Journal of Social Issues* 56 (2): 213–222. <https://doi.org/10.1002/ajs4.168>.
- Biddle, B. and M. Gray (2023). ‘Ongoing trends in volunteering in Australia’, ANU Centre for Social Research and Methods, Australian National University, Canberra. https://csrm.cass.anu.edu.au/sites/default/files/docs/2023/10/Ongoing_trends_in_volunteering_in_Australia.pdf
- Boulianne, Shelley. 2020. “Twenty Years of Digital Media Effects on Civic and Political Participation.” *Communication Research* 47 (7): 947–966.
- Burton, T. 2022. “‘An Oasis in the Desert’: Why the NDIS Is a Mess.” *Australian Financial Review*, April 27, 2022. <https://www.afr.com/politics/federal/an-oasis-in-the-desert-why-the-ndis-is-a-mess-20220427-p5aggg>
- Caluwaerts, Didier, Kamil Bernaerts, Rebekka Kesberg, Lien Smets, and Bram Spruyt. 2023. “Deliberation and Polarization: A Multi-Disciplinary Review.” *Frontiers in Political Science* 5: 1127372.
- Cameron, S., (2025) ‘Trends in Civic Engagement in Australia’ Australian Resilient Democracy Research and Data Network Discussion Paper 4, Australian National University

- Cordella, Antonio, and Andrea Paletti. 2019. "Government as a Platform, Orchestration, and Public Value Creation: The Italian Case." *Government Information Quarterly* 36 (4): 101409. <https://doi.org/10.1016/j.giq.2019.101409>
- Cripps, S. and H. Durrant-Whyte. 2022. "Uncertainty: Nothing is More Certain." *Environmetrics*. 34 (1). <https://doi.org/10.1002/env.2745>
- Cripps S, Lopatnikova A, Afshar HM, Fischer, A. et al. Bayesian adaptive trials for social policy. *Data & Policy*. 2025;7:e27. doi:10.1017/dap.2024.97
- Davies, D. 2024. *The Unaccountability Machine: Why Big Systems Make Terrible Decisions—and How the World Lost Its Mind*. Chicago: University of Chicago Press.
- Disability Dialogue. 2025. *Disability Dialogue: Australia's Initiative for Inclusive Policy Conversations*. Accessed [1 October 2025]. <https://disabilitydialogue.com.au/>.
- Epis, Michael, and Anita Phillips. 2023. *Every Australian Counts: The Birth of the NDIS*. Melbourne: Melbourne University Publishing.
- Ercan, S. A., McSwiney, J., Parry, L., Curato, N., Asenbaum, H., Webb, A., Savini, E., & McCaul, J. 2025. *Guidebook for Deliberative Engagement: Key Features and Practical Insights*. Canberra: Australian Government.
- Essential Report. 2025. "Addressing Climate Change?" *Essential Report*. Accessed [1 October 2025]. <https://essentialreport.com.au/questions/addressing-climate-change-7>.
- Fishkin, James, Alice Siu, Larry Diamond, and Norman Bradburn. 2021. "Is Deliberation an Antidote to Extreme Partisan Polarization? Reflections on 'America in One Room'." *American Political Science Review* 115 (4): 1464–1481.
- Fung, Archon. 2006. "Varieties of Participation in Complex Governance." *Public Administration Review* 66 (s1): 66–75. <https://doi.org/10.1111/j.1540-6210.2006.00667.x>.
- Galbraith, John Kenneth. 1952. *American Capitalism: The Concept of Countervailing Power*. Boston: Houghton Mifflin.
- Government of Australia. 2019. *APS Framework for Engagement and Participation*. Canberra: Department of Industry, Science and Resources. <https://www.industry.gov.au/sites/default/files/2019-11/aps-framework-for-engagement-and-participation.pdf>
- Government of Australia. 2023. *myGov User Audit: Volume 1, January 2023*. Canberra: Digital Transformation Agency. <https://my.gov.au/content/dam/mygov/documents/audit/mygov-useraudit-jan2023-volume1.pdf>.
- Government of Australia. 2024. *Strengthening Australian Democracy: A Practical Agenda for Democratic Resilience*. Belconnen, ACT: Department of Home Affairs. <https://www.homeaffairs.gov.au/about-us-subsite/files/strengthening-australian-democracy.pdf>
- Huang, MH., Rust, R.T. A strategic framework for artificial intelligence in marketing. *J. of the Acad. Mark. Sci.* 49, 30–50 (2021). <https://doi.org/10.1007/s11747-020-00749-9>
- He, J., Luo, Y. & Wang, T. iDigiChat: intelligent digital marketing service chatbot for providing efficient customer services using artificial intelligence. *Sci Rep* 15, 33074 (2025). <https://doi.org/10.1038/s41598-025-14722-5>

- International Association for Public Participation (IAPP). 2025. “IAP2 Public Participation Spectrum.” Engagement Institute (formerly IAP2 Australasia). Accessed <date you accessed the page>. <https://engagementinstitute.org.au/resources/iap2-public-participation-spectrum/>.
- Ju, Jingrui, Luning Liu, and Yuqiang Feng. 2019. “Public and Private Value in Citizen Participation in E-Governance: Evidence from a Government-Sponsored Green Commuting Platform.” *Government Information Quarterly* 36 (4): 101400. <https://doi.org/10.1016/j.giq.2019.101400>
- Lewis, P. 2024. “Australians Have Lost So Much Faith in Government That Just Being Heard Feels Like Special Treatment.” *The Guardian*, August 13, 2024. <https://www.theguardian.com/australia-news/commentisfree/article/2024/aug/13/australians-have-lost-so-much-faith-in-government-that-just-being-heard-feels-like-special-treatment>.
- Loader, B. D., Vromen, A., & Xenos, M. A. (2014). The networked young citizen: social media, political participation and civic engagement. *Information, Communication & Society*, 17(2), 143–150. <https://doi.org/10.1080/1369118X.2013.871571>
- Maddison, Sarah. 2023. *Voices for Change: Researching Not-for-Profit Advocacy in Australia*. Melbourne: Stronger Charities Alliance / University of Melbourne, in collaboration with Pro Bono Australia. <https://www.strongercharities.org.au/wp-content/uploads/2023/03/Voices-for-Change-WEB-BM.pdf>.
- Mansbridge, Jane, James Bohman, Simone Chambers, Thomas Christiano, Archon Fung, John Parkinson, Dennis F. Thompson, and Mark E. Warren. 2012. “A Systemic Approach to Deliberative Democracy.” in Parkinson, John, and Jane Mansbridge, eds. 2012. *Deliberative Systems: Deliberative Democracy at the Large Scale*. Cambridge: Cambridge University Press.
- McShane, I., & Middha, B. (2021). Expectations and realities of digital public spaces: A case study of digital community engagement in Melbourne, Australia. *Articulo-Journal of Urban Research*, (22)
- Mikhaylovskaya, Anna, and Élise Rouméas. 2024. “Building Trust with Digital Democratic Innovations.” *Ethics and Information Technology* 26: 1. <https://doi.org/10.1007/s10676-023-09736-4>
- Mishra, D., and N. Maheshwari. 2025. “Government’s Big Experiment with MyGov: A Platform for Empowered Participation.” In *Sage Business Cases*. London: SAGE Publications, Ltd. <https://doi.org/10.4135/9781071960608>.
- Mulgan, Geoff. 2025. “In Praise of Plumbing: Why British Politics’ Lack of Interest in How Things Work Explains Why Many Things Don’t.” *Geoff’s Substack*, June 29, 2025. <https://geoffmulgan.substack.com/p/in-praise-of-plumbing>.
- Municipal Association of Victoria. 2025. “MAVlab Overview” Accessed October 2025. <https://www.mav.asn.au/mavlab>
- Mycock, Andrew, and Brenton Prosser. 2025. *Civic Life Journeys: A Practical Approach and National Metanarrative to Foster Democratic Resilience*. Australian Resilient Democracy Research and Data Network, Discussion Paper 3, April 4. [Discussion Paper Six- Mapping the Civic Life Journey](#)

- NSW Government, “NSW Digital Connectivity Index”, accessed <date>, <https://www.nsw.gov.au/departments-and-agencies/nsw-telco-authority/connectivity-leadership/nsw-digital-connectivity-index>.
- Nature Machine Intelligence. 2019. “Return of Cybernetics.” *Nature Machine Intelligence* 1: 385. <https://doi.org/10.1038/s42256-019-0100-x>
- Noveck, Beth Simone, Luis Kimaid, Alisson Bruno Dias de Queiroz, and Dane Gambrell. 2025. “From Citizen to Senator: Artificial Intelligence and the Reinvention of Citizen Lawmaking in Brazil.” *Reboot Democracy Blog*. Accessed [1 October 2025]. <https://rebootdemocracy.ai/blog/ai-lawmaking-brazil-senate/>.
- Noveck, Beth Simone. 2025b. “How Hamburg Is Turning Resident Comments into Actionable Insight.” *Reboot Democracy Blog*, October 22, 2025. <https://rebootdemocracy.ai/blog/how-hamburg-is-turning-resident-comments-into-actionable-insight>.
- Oataway, I. 2024. “Schools Trial AI tool NSWeduChat to help students learn.” ABC News. 05 September 2024. [Schools trial AI tool NSWeduChat to help students learn - ABC News](https://www.abc.net.au/news/2024-09-05/schools-trial-ai-tool-nsw-edu-chat-to-help-students-learn/10345678)
- OECD (2021), “Eight ways to institutionalise deliberative democracy”, OECD Public Governance Policy Papers, No. 12, OECD Publishing, Paris, <https://doi.org/10.1787/4fcf1da5-en>.
- OECD (2025), Drivers of Trust in Public Institutions in Australia, Building Trust in Public Institutions, OECD Publishing, Paris, <https://doi.org/10.1787/28a876c2-en>.
- Panagiotopoulos, Panos, Bram Klievink, and Antonio Cordella. 2019. “Public Value Creation in Digital Government.” *Government Information Quarterly* 36 (4): 101421. <https://doi.org/10.1016/j.giq.2019.101421>
- Park, S., Fisher, C., McGuinness, K., Lee, J., Fujita, M., Haw, A., McCallum, K. & Nardi, G. (2025). *Digital News Report: Australia 2025*. Canberra: News and Media Research Centre, University of Canberra.
- Park, Sora, Jee Young Lee, Tanya Notley, and Michael Dezuanni. 2023. “Exploring the Relationship between Media Literacy, Online Interaction, and Civic Engagement.” *The Information Society* 39 (4): 250–61. <https://doi.org/10.1080/01972243.2023.2211055>.
- Publicis Sapient. 2024. *Digital Citizen Report 2024*. https://www.publicissapient.com/content/dam/ps-rebrand/insights/2024/citizen-insights-hub/Publicis_Sapient_Digital_Citizen_Report-2024.pdf.
- Putnam, R.D. (2000) *Bowling Alone: The Collapse and Revival of American Community*. Simon and Schuster, New York. <http://dx.doi.org/10.1145/358916.361990>
- Quinn, Phoebe, H. Colin Gallagher, Nicole Curato, Kathryn Bowen, and Lisa Gibbs. 2025. “What Should We Do about Staff Air Travel Emissions? Crowdsourcing Consensus and Understanding Division within an Australian University.” *Transportation Research Part D: Transport and Environment* 146: 104878. <https://doi.org/10.1016/j.trd.2025.104878>
- Ushahidi. 2018. *10 Years of Innovation, 10 Years of Global Impact: Impact Report 2018*. https://www-assets.ushahidi.com/downloads/impact_report_2018.pdf.
- Vromen, A. 2018. “Political Engagement in the Australian Digital Context.” *Papers on Parliament* 69: 93–115. <https://doi.org/10.3316/agispt.20181212005088>

- Weyl, E. Glen, Audrey Tang, and the Plurality Community. 2023. *Plurality: The Future of Collaborative Technology and Democracy*. Accessed [date you accessed]. <https://www.plurality.net/>.
- Wilson, S. G., Kowalski, E. V., & Demsar, V (2024). The civic health of Australia: A national portrait in 30 charts. Swinburne University of Technology, Melbourne.
- Wright, Elizabeth. 2022. “Australian Disability Advocates Say the NDIS Needs One of Its Own ‘at the Top’.” *ABC News*, August 1, 2022. <https://www.abc.net.au/news/2022-08-01/ndis-disability-leaders-needed-in-australia/101277664>.
- Xavier, Bibin. 2023. “Bibliometric Analyses in Data-Driven Decision-Making.” In *Enabling Data-Driven Decision Making and Innovation in Organizations*, edited by Prasenjit Chatterjee, Abhijit Saha, Seifedine Kadry, and Gülay Demir, chap. 21. Wiley. <https://doi.org/10.1002/9781394302581.ch21>.