OPENAIR

Operational Network of
Air quality Impact Resources

Best Practice Guide

BP211 | Develop

Participative design practice

Introduction

The most successful air quality monitoring projects are those that put the needs of citizens front and centre. By creating spaces and opportunities for citizens to come together and help lead the design of a project, you can help to secure project outcomes that genuinely meet community needs while simultaneously educating and empowering people.

> *People are experts in their own lives. They are creative, they are capable, and they may just be your greatest asset.*

Participatory design is an approach to project design that actively involves all stakeholders (e.g. employees, partners, customers, citizens, end users) in the project design process, to help ensure that outcomes meet their needs.

A participative design approach can be taken by local governments to ensure citizens are not just heard but are also empowered through actively contributing to shaping their local air quality monitoring project. Participative design is a broad approach with a rich history across a variety of disciplines, including architecture, sustainability, placemaking, city governance, and more recently, smart cities. It encompasses many distinct ideas, movements and sub-disciplines (e.g. co-design and deliberative democracy), some of which may help you to design and deliver a more innovative and impactful project.

How to use this resource

This chapter explores participative design as a practice that can be applied to local government air quality monitoring projects. It establishes some basic principles of participative design, why citizens might want to participate, and what participative design might look like at different stages of a project. It explores some of the challenges of participative design from a local government perspective and ends with a case study on participative policy development in Bristol, UK.

This chapter is the first in a series of OPENAIR resources that explore community engagement and participation in the context of smart low-cost air quality monitoring projects. The following two Best Practice Guide chapters in the series are *Citizen sensing* and *engaging your community with air quality data*. The information about participative design in this chapter forms a critical foundation for engaging with these two subsequent chapters.

Who is this resource for?

This chapter is written as a tool for local government staff responsible for the design and delivery of air quality monitoring projects, who may wish to adopt participative design approaches as part of their activities. In addition to project staff, this chapter may also be of interest to staff in roles that support this kind of project, including senior management and people working in marketing and communications.

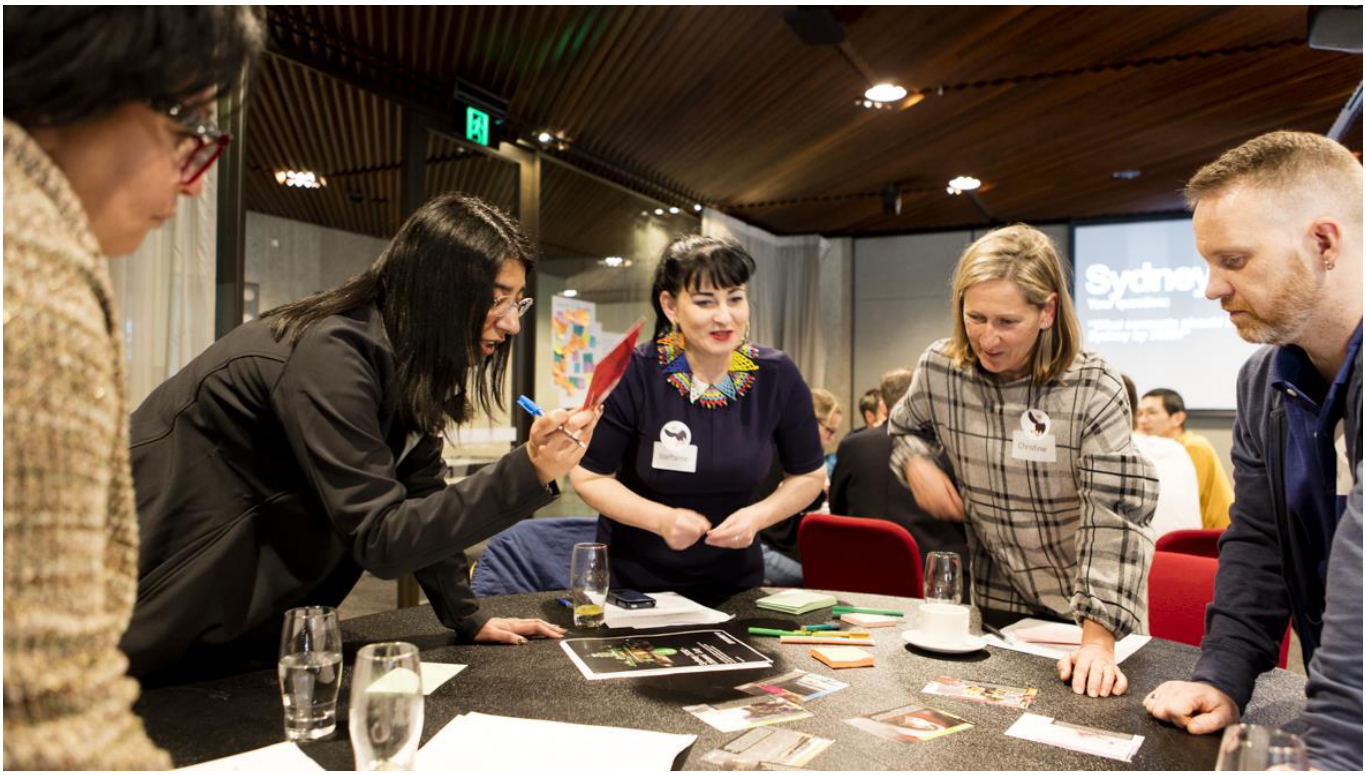
Principles of participatory design

The following principles of participatory design (shown in Table 1) are based upon a combination of co-design principles by the NSW Council of Social Service (NCOSS, 2017), and Beyond Sticky Notes (McKercher, 2021).

Table 1. The principles of participative design

Principle	Description
Participative practice	Create spaces for people to engage in creative activities that support personal expression, self-discover, collaboration and the generation of new shared meanings and ideas.
Shared power and mutual respect	Share power between all stakeholders, which equates to a loss of power for a lead organisation that might be accustomed to more traditional control over a project. Differences in power should be examined and the approach taken to all aspects of project design and delivery should support the more marginal voices in the room. All participants are treated with equal respect, as valued contributors.
Inclusive and accessible	Bring people with lived experience together with experts in the field. Aim for complete representation of stakeholder groups and make an effort to reach and work with people who might be more difficult to engage. Design processes and choose technologies that are as accessible as possible.
Relationship building	Relationship building, social connection and trust between all stakeholders builds a foundation for genuine exploration of uncomfortable truths, out of the box thinking and deep collaboration. Genuine community trust and buy-in is often hard-won over an extended period.
Learning and capacity building	Build the knowledge, understanding and skills of participants as a primary aim of engagement. Create space for peer-to-peer exchange, rather than just top-down dissemination. Recognise that all participants have something to teach and something to learn.
Impact focused	Work with participants to develop a clear shared understanding of the outcomes and impacts that the group wishes to achieve. Use this understanding as a guide that focuses group activities and supports evaluation.
Iterative development	Embrace the continual evolution of ideas and shifting goals, driven by cycles of action and reflection. Through participation people learn and grow, developing new priorities and approaches. Become comfortable with more open-ended experimentation and find value in the journey as much as the destination.

Why might citizens want to engage?



The Sydney 2050 Citizen Jury was a three-month participatory governance initiative run by the City of Sydney in 2019. The process significantly contributed to the development of the Sydney 2050 strategy. Image source: Creative Commons

People tend to want to understand and act on issues that impact them personally. Air quality impacts the health and wellbeing of citizens and their families, making it a direct personal concern. Councils can leverage this concern to design their project specifically around responding to relevant air quality issues.

People often seek ways to help or get involved with their local community. This can be empowering for individuals and helps to form the basis of a strong and cohesive society. Local government can be an active supporter of such opportunities.

It is easy to make incorrect assumptions about what citizens care about, why they care about something, or what they would like to see done about it. Participative design involves working with citizens from day one, so that their priorities, ideas, and creativity are brought to the fore, guiding the shape and evolution of your air quality monitoring project.

Participation at all stages of a project

Citizen participation can be a critical approach at all stages of a smart sensing project. See Figure 1.

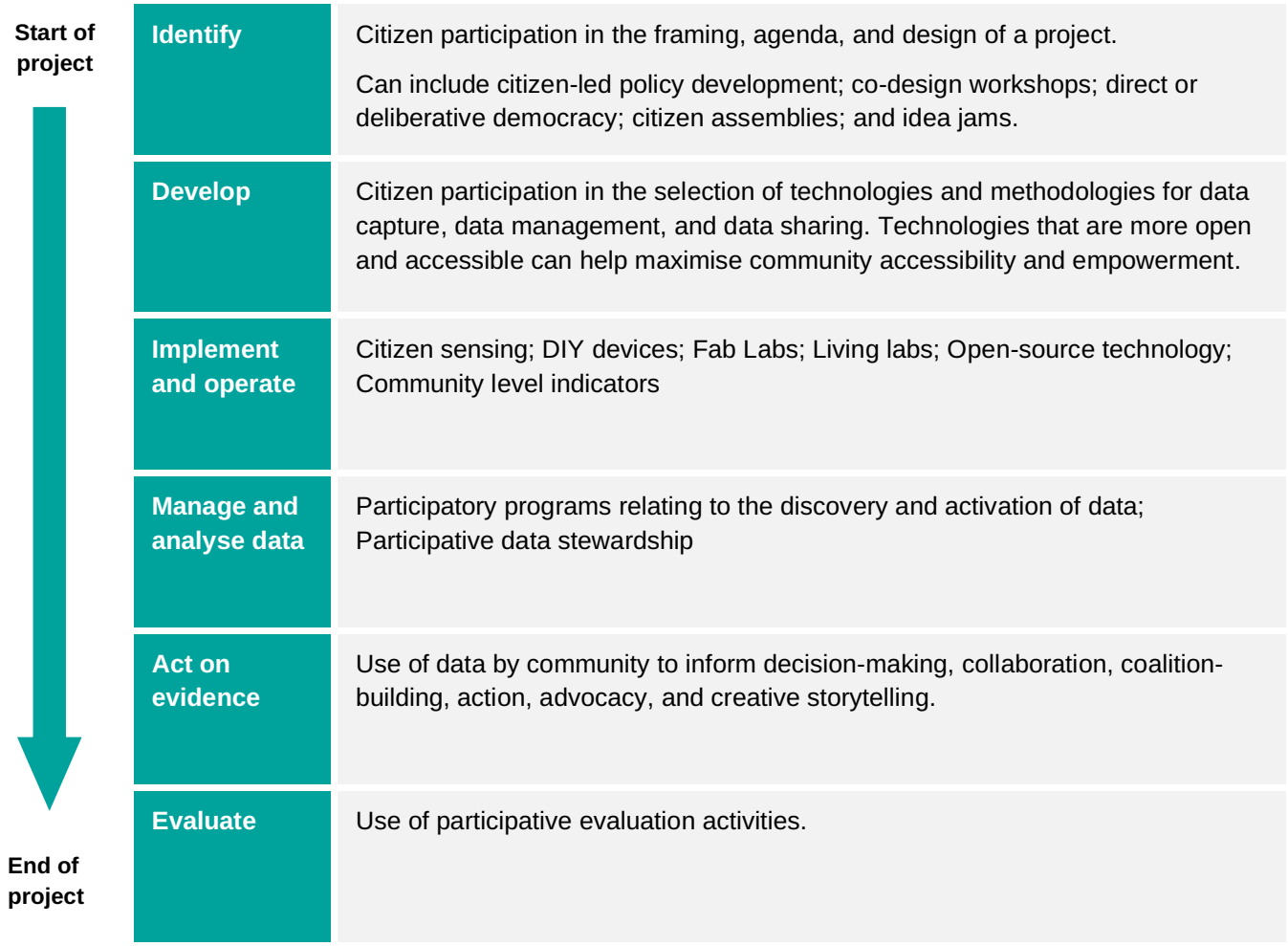


Figure 1. The potential citizen participation at each stage of a smart low-cost air quality monitoring project.

TIP: Make sure that you have the necessary skills and experience to engage with community members in a productive and appropriate manner. You may need to engage experienced external facilitators and participative design leaders to assist.

A framework for participative design

Governments can establish projects with various approaches to participative design. Figure 2[1] outlines levels of increasing autonomy and responsibility of citizens.

- **Citizen-led:** Citizens lead all decisions and the project agenda and are responsible for its delivery. The initiating organisation takes on the role of facilitator and provides the resources, frameworks, information and mentorship needed to support citizens.
- **Co-production:** Citizens are positioned as equals. Democratic processes may be used to support shared project governance.
- **Participation:** Citizens have extensive input during the design phase of the project, including a say on the overall agenda.
- **Involvement:** Citizens have more direct input on certain decisions, but do not set the agenda.
- **Consultation:** Citizens are engaged to understand their concerns, ideas, and opinions. This information helps to inform development of a project, making it responsive to citizen needs.
- **Information**: Citizens are provided with accurate and well-balanced information about an issue or project, often with the aim of establishing a mandate for government activities.

Figure 2. Responsibilities of citizens in participatory design.

Moving beyond consultation

An objective of participative design is to move beyond consultation as the only means to gain insights. Local governments are often mandated to consult citizens on new initiatives through surveys or community forums. This traditional approach positions people as passive recipients of an initiative, albeit one where their concerns have been heard and responded to. Participative design moves beyond this into a new and more progressive paradigm that positions citizens as increasingly *active* co-creators of a project.

TIP: Pay close attention to storytelling, both as a tool for citizen engagement, but also as a means of capturing ideas that emerge from participative processes and conveying them to decision-makers.

[1] Adapted from the IAP2 Spectrum of Public Participation (IAP2, n.d.), and Arnstein's Ladder of Citizen Participation (Arnstein, 1969; Lauria & Schively Slotterback, 2020).

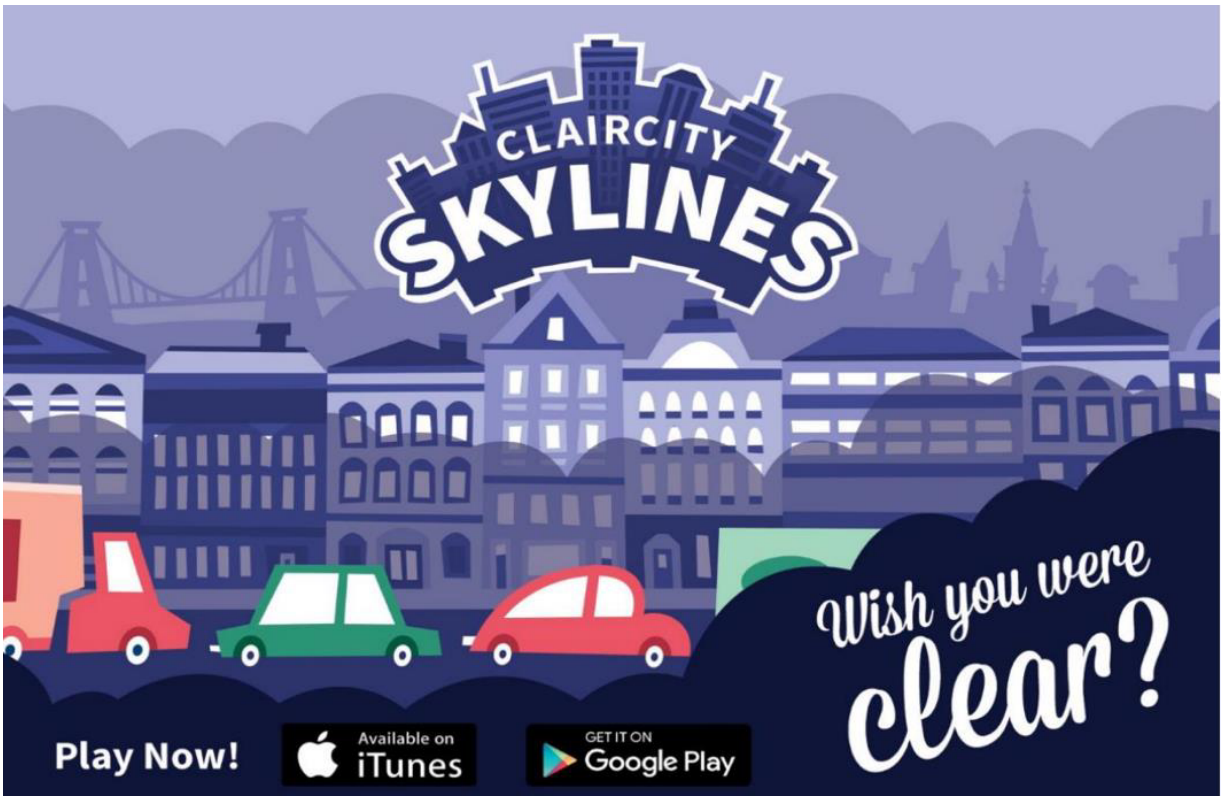
Find a balance between bottom-up and top-down approaches

Smart cities began in the early 2010s with predominantly top-down city or corporate-led agendas imposed upon places and communities. This often ignored or even worked against the needs of citizens. Over the past decade smart city thinking has evolved and global best practice now embraces more bottom-up approaches to project design and execution, which tend to feature participative design approaches. There are great benefits to these approaches, and done well they have the potential to support democracy, inclusion, innovation, and a thriving local economy. However, achieving the best results for all stakeholders is not as simple as embracing a purely bottom-up approach.

One shortcoming of a bottom-up approach is that these projects can often be reactive or ad hoc, appearing as a burst of energy that soon dissipates, sometimes with little lasting impact. To be successful, high-impact and persistent, bottom-up projects require extensive planning, expertise, and a significant allocation of time and resources. These things can only be achieved if they are supported by an underlying strategic commitment to participative design, and a policy commitment to the kinds of impact that can be created. It is therefore increasingly understood that a *balance* between bottom-up and top-down approaches tends to deliver the best long-term impacts. From this perspective, local government is positioned as a *steward* of the smart city process, facilitating citizen-centric engagements against a foundation of institutional strategy and policy.

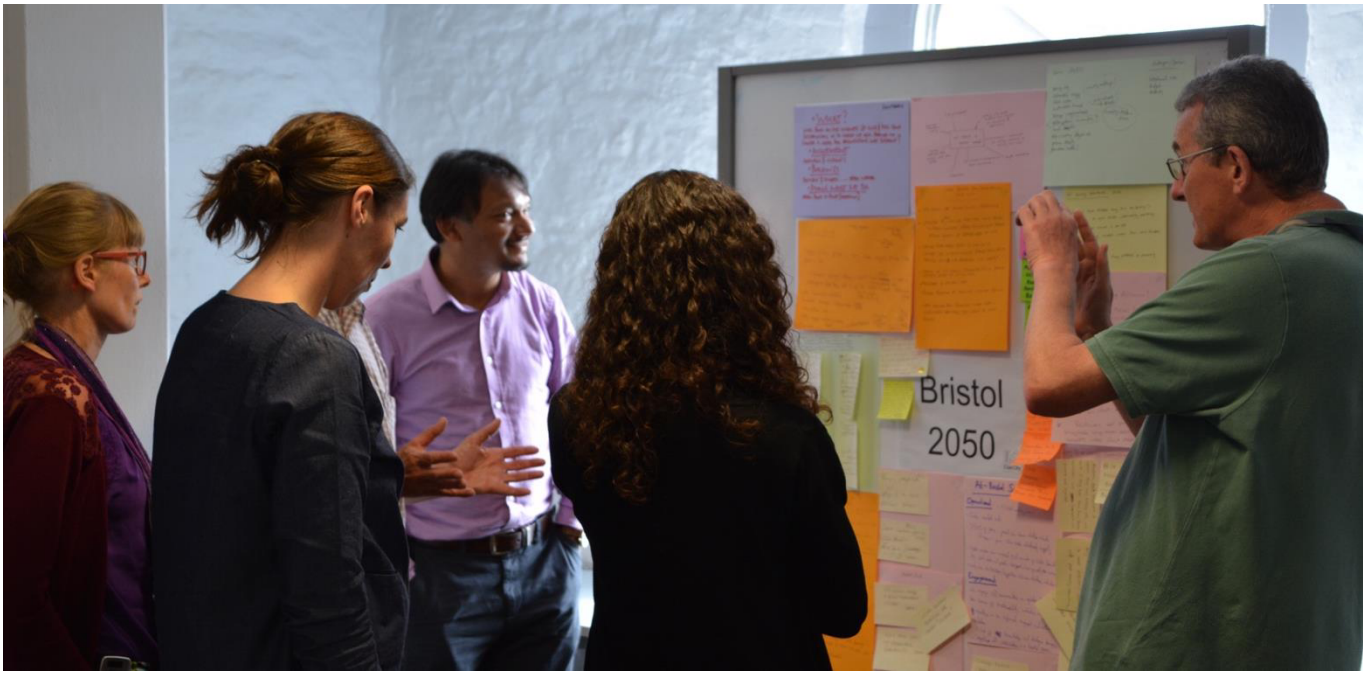
ClairCity Bristol: a case study for citizen-led policy development on air pollution

ClairCity was a significant citizen-led program for air pollution reduction, delivered in six European cities between 2016 and 2020 and supported by the EU Horizon 2020 fund. The ClairCity Bristol project, which was delivered by the University of West England (UWE) in partnership with Bristol City Council, provides a case study for citizen-led policy development, which incorporates many of the participative design practices discussed in this chapter. The project looked at air quality from a human perspective, exploring the day-to-day activities, behaviours and motivations of citizens. It centred around a deeply participatory bottom-up process that used several highly innovative approaches to engage diverse audiences and give primacy to citizen voices.



The Skylines *game was created through the ClairCity project as a highly effective engagement and education tool. Image source: Enda Hayes, University of West England.*

Skylines was a game developed through ClairCity Bristol, that people could play on a smartphone. A player takes on the role of the Mayor of Bristol and is presented with policies (drawn from a database of a few hundred options) that they can choose to either implement or reject. The aim of the game is to maximise air quality and reduce carbon emissions while simultaneously maintaining the popularity of the mayor and managing to pay for everything. Skylines proved to be a powerful education tool, allowing people to explore the balancing act needed to develop and implement successful policy, as well as the complex considerations that surround the management of urban air quality.



A workshop from the ClairCity citizen delphi process, envisioning the future of Bristol's air quality. Image source: Enda Hayes, University of West England.

ClairCity delivered a *citizen delphi* process that engaged citizens through a series of structured workshops and focus groups participating as experts in what they like and dislike about their city and what they want the future to look like. There was also a schools competition, a video that platformed citizens talking about air pollution in their daily lives, and a smartphone app to track your movements and map personal pollution exposure. All these approaches were designed to engage people and build an evidence base about what the citizens think about air quality, how their behaviour relates, and the sorts of solutions they want to see. The aim was to understand how to create air quality policies that are orientated towards people and their behaviour; thus, optimised for success. Towards the end of the project a series of workshops with citizens, researchers, and the city council pulled everything together, culminating in a final report that described clear achievable policy recommendations.

The impact of ClairCity is still emerging. There is a growing interest in behaviour-based characterisation of air pollution. The project also highlighted new insights; for example, that vehicle pollution from shopping and leisure trips is roughly double that associated with commuting, challenging previously held assumptions by Council, with the potential to start influencing policy. Finally, the City has learned that there is a lot of ambition for change coming from the community. People want more action on air quality, and they want it done faster. This realisation allows council to be braver in their decision making.

Challenges, and tips for success

Challenges of participatory design for local government

The nature of participatory design approaches presents several challenges to local government, which may hinder their adoption and implementation. Challenges include:

- **Experimental and iterative approach.** The experimental and iterative nature of participative approaches, and the handing over of power and control to external stakeholders, may sit uncomfortably with the more traditional, centralised and linear delivery processes and funding models of government.
- **Time, funding and expertise.** Well-designed and successful participatory programs require significant time, funding and expertise. When operating on a restricted project budget, the emphasis often goes on nuts-and-bolts deliveries such as infrastructure, with participatory approaches seen as a secondary priority. This can lead to half-baked delivery that fails to result in desired impact.
- **Attendance and retention.** Participatory approaches rely heavily on participants and their varying schedules. Processes may also require repeated or prolonged engagement. Attendance and retention of participants is therefore often a challenge.
- **Inclusion and accessibility.** Inclusion and accessibility for diverse and hard-to-engage groups of people can be a major challenge. Often, the people most negatively impacted by poor air quality are the most disadvantaged and hardest to reach.
- **Effective facilitation.** Effective facilitation of participatory engagements to ensure inclusive spaces where all voices are heard is an expert skill that may not be present amongst existing project staff.

If these challenges can be mitigated or overcome, participative design can generate innovative ideas, foster co-operation, and establish improved trust between government and citizens.

Tips for success

If you are serious about incorporating well-executed and high impact participative design approaches in your new project, the following tips may help you to succeed:

- **Align your approach with existing strategic commitment.** Investigate your organisation's existing strategic commitment to community engagement and participation and determine how far it can be stretched to support a more participative project design. Refer to the framework for participative design above and avoid attempting more deeply participative approaches that are too far beyond what feels comfortable. It is best to attempt something modest and do it well, creating an example for more widespread and progressive approaches in future.
- **Form strategic partnerships.** Recognise that your organisation likely lacks a lot of the critical skills, expertise and facilities needed to support a well-designed and high-impact participative project. By forming partnerships with other organisations, you can ensure that these needs are met. This approach also embeds collaboration at the heart of a project. Furthermore, the presence of non-government organisations (particularly not-for-profit civil society groups) can significantly improve public trust and support.
- **Establish nimble and flexible governance.** Assess your internal project governance and identify barriers or obvious challenges to a citizen-led agenda. Endeavour to make your project governance as nimble and flexible as possible, so that you can rapidly adapt to an evolving citizen-led agenda.
- **Allocate adequate resources.** Allocate a sufficient proportion of total project funding to participative activities and ensure that adequate time is given to their delivery, particularly at the earlier design stages.
- **Develop a targeted and inclusive engagement strategy.** Map out all stakeholders and get creative about reaching out to them. Carefully consider who you have missed. Different stakeholders will need different engagement strategies, so make sure you adopt a multi-pronged approach to engaging with stakeholders. Watch out for the extent to which you are engaging with the 'usual suspects' and missing 'less obvious' of 'difficult to reach' parts of your community. Connect with colleagues within your organisation who specialise in inclusion and incorporate their feedback into your engagement strategy as early as possible.
- **Consider compensating citizens.** Citizens will be investing their time in the process. Consider compensating citizens if you are expecting (and relying upon) more prolonged and in-depth engagement. This can help with recruitment, attendance and retention across longer programs. It also addresses social equality and inclusion, as it may make participation more accessible for people on lower incomes.
- **Support rapid prototyping.** Plan to include rapid prototyping sessions early in your project, so that new ideas can be tested, explored, refined and redesigned as quickly and effectively as possible. This more agile and iterative design approach supports citizen self-determination.

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Lauria, M., & Schively Slotterback, C. (2020). *Learning from Arnstein's Ladder: From Citizen Participation to Public Engagement* (1st edition ed.). Taylor and Francis. https://doi.org/10.4324/9780429290091

McKercher, K. A. (2021). *Beyond Sticky Notes: Doing Co-design for Real: Mindsets, methods and movements*. PublishDrive.

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Additional resources

Making Sense | The Citizen Sensing Toolkit (2018)

A comprehensive toolkit with detailed practical information relating to all aspects of citizen led air quality engagement, presented through a participative design lens.

PaperGiant | Principles of co-design

A tool for mapping your co-design strategy.

Beyond Sticky Notes | But is it co-design? [the co-design quick test], Beyond Sticky Notes

An interactive online tool designed to help you think about co-design. Answer a series of questions about your project and find out if it aligns with co-design approaches.

***Cabinet Office of the UK Government | Open Policy Making Toolkit** (2017).*

An extensive guide to open policy development and co-design in a government context.

British Council | Getting Started with Policy Co-design (n.d.)

For those who are new to policy co-design, this playbook offers relevant introductions and guides to basic tools and techniques. For those already using it, the playbook presents a series of case-studies that provide further learning and guidance.

UX Magazine | Participatory Design in Practice, UX magazine (2017)

This article contains an extensive list of micro-tools for use at workshops, grounded in a number of real-world case studies.

ANZSOG | The promise of co-design for public policy (2020).

Summarises an academic paper that assesses the growing potential for co-design in public policy development in the Australian context.

OECD | Innovative Citizen Participation and New Democratic Institutions: Catching the Deliberative Wave, (2020).

An extensive report on the global state of deliberative and participative democracy, including examples of the key approaches, and summaries of activities, processes and impact creation by governments around the world. This report may be a useful reference for local governments seeking to make a case for their own participative initiatives.

Associated OPENAIR resources

Best practice guides

Know your stakeholders

This best practice guide chapter introduces stakeholder mapping and engagement as a critical early step in designing a high-impact project. It helps you to start thinking about who their stakeholders might be and how they will engage with them.

The Impact Planning Cycle overview

This Best Practice Guide chapter introduces the OPENAIR Impact Planning Cycle, a simple practical framework designed to assist local governments with impact planning for a smart air quality monitoring project. The Impact Planning Cycle is a planning tool that can help to maximise the impact of a project and address the needs of an organisation and community.

Citizen sensing

This best practice guide chapter provides guidance relating to a type of citizen science known as ‘citizen sensing’. This is where citizens play an active role in the collection of air quality data using low-cost sensors. Benefits of the approach, practical considerations and common challenges are all explored.

Engaging your community with air quality data

This Best Practice Guide chapter provides guidance for engagement of community with air quality data. It explores the benefits of community data activation, provides tips on how to get started, and presents an extensive range of community engagement approaches that a local government might choose to adopt. It ends with a look at how to mitigate common risks associated with data release and community engagement with data.

Further information

For more information about this project please contact:

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This Best Practice Guide section is part of a suite of resources designed to support local government action on air quality through the use of smart low-cost sensing technologies. It is the first Australian project of its kind. Visit www.openair.org.au for more information.

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